COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Sithe Edgar Development LLC for Approval to Construct a Bulk Generating Facility in in the Town of Weymouth, Massachusetts	)))))	EFSB 98-7

FINAL DECISION

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Hearing Officer
February 11, 2000

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
AALs	Allowable Ambient Limits
ACC	Air-cooled condenser
ACOE	United States Army Corps of Engineers
Algonquin	Algonquin Gas Transmission Company
ANP	American National Power, Inc.
ANP Blackstone Decision	ANP Blackstone Energy Company, EFSB 97-2/98-2 (1999)
AQIP	Air Quality Improvement Plan
Baseline Report	Health Draft Baseline Report
Berkshire Power Decision	Berkshire Power Development, Inc., 4 DOMSB 221 (1996)
BACT	Best available control technology
BECo	Boston Edison Company
Braintree	Town of Braintree
Brownfields Act	c. 206 of Acts of 1998
Cancer Incidence Report	1997 Massachusetts Department of Health Report on cancer incidence in 351 cities and towns
cfs	Cubic feet per second
CO	Carbon monoxide
CO_2	Carbon dioxide
Company	Sithe Edgar Development LLC
Company Initial Brief	Sithe Edgar Development's initial brief
Company Reply Brief	Sithe Edgar Development's reply brief
CSOs	Combined Sewer Flows
CTGs	Combustion Turbine Generators
dBA	Decibel
DEIR	Draft Environmental Impact Report
Dighton Power Decision	Dighton Power Associates, EFSB 96-3 (1997)
DMF	Massachusetts Division of Marine Fisheries
DO	Dissolved Oxygen
DPA	Designated Port Area
Earth Tech	Earth Tech, Inc.
EMF	Electric and magnetic fields
EOEA	Massachusetts Executive Office of Environmental Affairs
EPC	Engineering, procurement, and construction

Epsilon	Epsilon Associates, Inc.
ERC	Emission Reduction Credits
EUA	Eastern Utilities Associates
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
Fore River	Weymouth Fore River
FRP	Facility Response Plan
FRWA	Fore River Watershed Association
FRWA Initial Brief	Fore River Watershed Association Initial Brief
FRWA Reply Brief	Fore River Watershed Association Reply Brief
GEP	Good Engineering Practice
gpd	Gallons per day
gpy	Gallons per year
HAPs	Hazardous Air Pollutants
HAPs Study	"Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units- Final Report to Congress" (1998)
HRSGs	Heat recovery steam generators
IDC Bellingham Decision	IDC Bellingham, LLC, EFSB 97-5 (1999)
I/I	inflow and infiltration
IPS	Intermediate Pump Station
ISO-NE	Independent System Operator-New England
kV	Kilovolt
L_{90}	The level of noise that is exceeded 90 percent of the time
LAER	Lowest Achievable Emission Rate
LCS	Land Containing Shellfish
L_{dn}	EPA's recommendation of a maximum day-night noise level of 55 dBA in residential areas
LOS	Levels of service -- a measure of the efficiency of traffic operations at a given location
LNG	Liquified natural gas
LSCSF	Land Subject to Coastal Storm Flowage
LSP	Licensed site professional
LUO	Land Under the Ocean
MAAQS	Massachusetts ambient air quality standards

MassGIS	Massachusetts Geographic Information Systems
MBTA	Massachusetts Bay Transportation Authority
MCZM	Massachusetts Coastal Zone Management
MCP	Massachusetts Contingency Plan
MDEP	Massachusetts Department of Environmental Protection
mG	Milligauss
mgd	Million gallons per day
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
MHD project	Fore River Bridge Project
Millennium Power Decision	U.S, Generating Company, EFSB 96-4 (1997)
MHI	Mitsubishi Heavy Industries
MW	Megawatt
MWRA	Massachusetts Water Resources Authority
MWRA project	Braintree-Weymouth Sewer Interceptor Project
NAAQS	National ambient air quality standards
NCI	National Cancer Institute
NEPCo	New England Power Company
NEPOOL	New England Power Pool
NHESP	Natural Heritage and Endangered Species Program
1985 MECo/NEPCo Decision	Massachusetts Electric Company et al., 13 DOMSC 119 (1985)
NML	Noise Measurement Location
NOx	Nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NSPS	New source performance standards
NSR	New source review
NTEL	Non-threshold Effects Exposure Limit
O_3	Ground-level ozone
OTC	Once-through cooling
Pb	Lead
PM	Particulates
PM-10	Fine particulates of 10 microns or less
ppm	Parts per million
ppmdv	Parts per million dry volume
Primary Health Study	Health Studies–Supplemental Baseline Report: Primary Health Study

PSD	Prevention of significant deterioration
RAO	Response action outcome
REC	Recognized environmental condition
Request for Comments	Requests for Comments issued by Energy Facilities Siting Board on March 14, 1999 on proposed standards of review
Restructuring Act	c. 164 of the Acts of 1997
RFP	Request for Proposals
ROW	Right-of-way
SCR	Selective Catalytic Reduction
SED	Sithe Edgar Development LLC
sf	Square Feet
SILs	Significant Impact Levels
Sithe Edgar	Sithe Edgar Development LLC
Sithe Energies	Sithe Energies, Inc.
Sithe Mystic	Sithe Mystic Development LLC
Sithe Mystic AQIP	Sithe Mystic Station Air Quality Improvement Plan
Siting Board	Energy Facilities Siting Board
Siting Council	Energy Facilities Siting Council
SO_2	Sulfur dioxide
SOx	Sulfur oxides
SPCC	Spill Prevention and Countermeasure Plan
SPPP	Stormwater Pollution Prevention Plan
STGs	Steam Turbine Generator
Stone & Webster	Stone & Webster Engineering Corporation
SWEC	Salt water evaporative cooler
Table 1	Comparison of proposed facility emissions to regulations
Table 2	Comparison of proposed facility emission concentrations to concentrations of other pollutants.
tanker	Ocean-going tank barge
TEL	Threshold effects exposure limit
TPS	Technology Performance Standards
tpy	Tons per year
TURA	Massachusetts' Toxic Use Reduction Act
USCG	United States Coast Guard
USEPA	The United States Environmental Protection Agency
USGen	U.S. Generating Company

USGS	United States Geological Survey
VOCs	Volatile organic compounds
WCC	Weymouth Conservation Commission
WESRRC	Weymouth Edgar Station Reactivation and Review Commission
Weymouth	Town of Weymouth
WRC	Massachusetts Water Resources Commission

The Energy Facilities Siting Board ("Siting Board") hereby approves the petition of Sithe Edgar Development LLC for approval to construct a net nominal 775 megawatt bulk generating facility at the proposed site in Weymouth, Massachusetts.

I. INTRODUCTION

A. Description of Proposed Project, Site, and Interconnections

Sithe Edgar Development LLC ("Sithe Edgar" or "Company") has proposed to construct a natural gas-fired, combined-cycle, electric generating facility with a net nominal electrical output of 775 megawatts ("MW") in the Town of Weymouth, Massachusetts ("proposed generating facility" or "proposed project ") (Exh. SED-1, at 1-1). The Company has proposed to use natural gas to fuel the proposed project, with a 720 hour (30 day) back-up supply of .05 percent sulfur distillate oil (Exh. EFSB-B-23). The proposed generating facility would be located on a portion of the existing site of Edgar Station, which was retired in 1978 (Exh. SED-1, at 1-1). In May, 1998, Sithe Energies, Inc. ("Sithe Energies") purchased the Edgar Station site from Boston Edison Company ("BECo") following BECo's issuance of a Request for Proposals to divest its fossil-fueled generation facilities in accordance with the Massachusetts Electric Restructuring Act of 1997 (id. at 1-3; G.L. c. 164, §1A).

The proposed site is located on industrially zoned land in North Weymouth on the Weymouth Fore River ("Fore River") (Exhs. SED-1, at 4.9-1; EFSB-L-11-S). The total upland developable acreage[1[1]] is approximately 57 acres. The Route 3A Bridge runs over the site in an east/west direction, dividing the site into two sections: (1) a 16 acre section north of the bridge ("northern portion"); and (2) a 41 acre area to the south of the bridge ("southern portion") (Exhs. SED-1, at 1-2; EFSB-SS-8; SED-3). The site is bounded by the Fore River on the north, south, and west sides (Exhs. EFSB-B-2-S-A; SED-1 (fig. 1-2)). The remainder of the site is bordered to the east by Mills Cove, King's Cove and a residential neighborhood on Monatiquot Street in Weymouth (Exhs. EFSB-B-3; SED-1 (fig. 1-2)). Across the Fore River from the site are other residential neighborhoods of Weymouth, the Town of Braintree ("Braintree"), and the City of Quincy ("Quincy") (Exh. EFSB-B-3).

The site contains both active and inactive structures including: an eleven million gallon tank (operational), access roads, and a retired coal loading dock on the northern portion of the site; a 3.4 million gallon oil tank, a guard gate house, access roads, a BECo 115 kilovolt ("kV") switchyard, two transmission towers, two oil-fired peaking units, circulating water intakes, and discharge canals on the southern portion of the site (Exh. SED-1, at 1-15 (fig. 1-4)).

The Company has proposed to remove the existing turbine building and switch house on the southern portion of the site and construct a new building that would house two Mitsubishi Heavy Industries ("MHI") 501G combustion turbine generators ("CTGs"), two heat recovery steam generators ("HRSGs") and one steam turbine generator ("STG"), a dry low nitrogen oxides ("NO_x") system, a selective catalytic reductions system ("SCR"), a 50 cell air-cooled condenser ("ACC") and a single dual flue 255-foot stack (id. at 1-17 to 1-18; Exh. EFSB-B-23). Additional project components would include three main step-up transformers, two additional bays on the existing 155 kV BECo switchyard, one 385,000 gallon raw water

[1[1]]The total site acreage also includes 20 acres below sea level; therefore the total land size is 77 acres – 57 acres of useable land and 20 acres below sea level (Exh. SED-3).

storage tank, two demineralized water storage tanks (an 85,000 gallon tank and an 850,000 gallon tank), and one 90,000 gallon ammonia storage tank (Exh. EFSB-WG-6-S2 (att. C at 3-7, 3-18)).

Back-up distillate fuel oil would be delivered to the site by barge, and unloaded at a distillate oil barge pier to be constructed by the Company on the southern portion of the site (id. (att. C at 3-7). The Company would store distillate fuel oil on the southern portion of the site of the proposed facility in a new 6.3 million gallon above-ground storage tank (Exh. EFSB-B-23-S (att.)).[2[2]]

Sithe Edgar has proposed to deliver natural gas to the generating facility via an existing Algonquin Gas Transmission Company ("Algonquin") pipeline. In order to serve the proposed facility, Algonquin would upgrade approximately 7.7 miles of its existing pipeline from Randolph, and would install an approximately 2000 foot new 24-inch interconnect running from the Potter Street Meter Station in Braintree, beneath the Fore River, to the proposed facility (Exh. EFSB-WG-6-S2 (att. C at 3-7)). The Company has proposed to interconnect the facility with the existing 115 kV transmission lines that cross from the site over the Fore River west to the Holbrook substation (Exh. EFSB-B-11, at 3-29). The Company has indicated that some of the lines would require upgrading in order to serve the proposed facility (id. at 3-29). Electric power generated by the proposed project would be delivered via interconnection with BECo's existing switchyard at Edgar Station (Exh. SED-1, at 1-44).

Sithe Edgar would refurbish the existing dock on the northern portion of the site for use during construction (Exh. EFSB- B-25). The construction phase of the proposed facility would coincide or overlap with two other construction projects that are being staged in the area proximate to the proposed facility: (1) the construction of the facilities associated with the Massachusetts Water Resources Authority ("MWRA") Braintree-Weymouth Sewer Interceptor project ("MWRA project"); and (2) the construction by the Massachusetts Highway Department ("MHD") of a temporary four-lane drawbridge parallel to the existing bridge, to be followed by the construction of the Fore River Bridge ("MHD project") (Exh. SED-1, at 4.6-1).

Sithe Edgar is a wholly-owned subsidiary of Sithe New England Holdings LLC, which is a wholly-owned subsidiary of Sithe Northeast Generating Company, Inc., which is a subsidiary of Sithe Northeast Holdings, Inc., which is a wholly-owned subsidiary of Sithe Energies (Exh. EFSB-B-4-S) . Sithe Energies owns and operates electric generation and cogeneration facilities world-wide, and is the third largest independent electric power generating company in the United States (Exh. SED-1, at 1- 3).

B. Procedural History

[2[2]]The Company indicated that it would demolish the existing tank, and construct a new oil storage tank of the same size at the same location (Exh. EFSB-B-23-S).

On October 30, 1998, Sithe Edgar filed with the Siting Board[3][3] a petition to construct and operate a net nominal 750 MW natural gas-fired, combined-cycle power generating facility in the Town of Weymouth, Massachusetts.[4][4] The Siting Board docketed the petition as EFSB 98-7.

On December 10, 1998, the Siting Board conducted a public hearing in Weymouth. In accordance with the direction of the Hearing Officer, the Company provided notice of the public hearing and adjudication.

Timely petitions to intervene were filed by the Town of Weymouth ("Weymouth"); BECo; the Fore River Watershed Association ("FRWA"); and J. Gary Peters. Timely petitions to participate as interested persons were filed by U.S. Gen New England, Inc. ("USGen"); American National Power, Inc. ("ANP"); the Braintree Conservation Commission; and New England Power Company and Massachusetts Electric Company ("NEPCo"). Sithe Edgar filed opposition to the petitions of BECo and Mr. Peters.

The Hearing Officer granted the petitions to intervene filed by Weymouth,[5][5] BECo and the FRWA. Sithe Edgar Development LLC, EFSB 98-7, Hearing Officer Procedural Ruling, February 2, 1999, and Hearing Officer Procedural Ruling, February 5, 1999. The Hearing Officer granted the petitions to participate as interested persons of USGen; ANP; Braintree Conservation Commission; and NEPCo. Sithe Edgar Development LLC, EFSB 98-7, Hearing Officer Ruling, February 2, 1999, at 9. The Hearing Officer denied the petition to intervene of Mr. Peters, but granted Mr. Peters status as an interested person in the proceeding. Sithe Edgar Development LLC, EFSB 98-7, Hearing Officer Ruling, February 5, 1999.

The Siting Board conducted fourteen days of evidentiary hearings, commencing on July 21, 1999, and ending on September 2, 1999. The Company presented the testimony of the following witnesses: James P. McGowan, Vice President of Development for Sithe Energies, who testified as to the Company's site selection process and general project matters; George G. Wilson, Fore River Station Project Manager for Sithe Energies, who testified as to general project matters; Samuel G. Mygatt, Principal of Epsilon

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3[3] Prior to September 1, 1992, the Siting Board's functions were effected by the Energy Facilities Siting Council ("Siting Council"). See St. 1992, c. 141. As the Siting Council was the predecessor agency to the Siting Board, the term Siting Board should be read in this Decision, where appropriate, as synonymous with the term Siting Council.

4[4] Sithe Edgar's original petition stated that the proposed facility could have a maximum capacity of 775 MW depending upon whether the Company selected Siemens Westinghouse Power Corporation or MHI as its vendor for the combustion turbines (Exh. SED-1, at 1-17). Sithe later indicated that it had selected MHI as its vendor, and is therefore seeking approval of construction of a 775 MW facility (Exhs. EFSB-B-12-S).

5[5] On September 2, 1999, the Hearing Officer granted the August 5, 1999 motion of the Town of Weymouth to withdraw from the proceeding (Tr. 14, at 1274).

Associates, Inc. ("Epsilon"), who testified as to project description, and visual, traffic, land use, cultural resources, and water resources impacts; Frederick M. Sellers, Vice President of Environmental Sciences and Planning of Earth Tech, Inc., who testified as to site selection and air impacts; Theodore A. Barten, P.E., Managing Principal of Epsilon, who testified as to technology performance standards, water, hazardous substances and safety impacts; Dale T. Raczynski, Principal of Epsilon, who testified as to technology performance standards and air impacts; David Keast, an independent acoustical engineer, who testified as to noise impacts and noise mitigation issues; Susan F. Tierney, Ph.D., a partner at Lexecon Inc., who testified as to the Company's site selection process, market analysis and air impacts; Peter A. Valberg, Ph.D., Senior Scientist at Cambridge Environmental, Inc., who testified as to electrical and magnetic fields ("EMF") and health impacts; James J. Youmans, Project Manager with Stone & Webster Engineering Corp. ("Stone & Webster"), who testified as to project design and engineering; John B. Davenport, Project Engineer at Stone and Webster, who testified as to project design and engineering; Michael E. Guski, CCM, Principal of Epsilon, who testified as to air impacts; Douglas Sheadel, Principal Scientist of Modeling Specialties, who testified as to noise impacts; Gregg McBride, Principal at GZA GeoEnvironmental, Inc., who testified as to hazardous waste impacts; and Michael D. Scherer, Ph.D., President of Marine Research, Inc., who testified as to fisheries impacts.

On October 1, 1999, Sithe Edgar and the FRWA submitted initial briefs. On October 12, 1999, Sithe Edgar and FRWA submitted reply briefs. The record includes approximately 1180 exhibits, consisting primarily of the Company's responses to information requests of the Siting Board, Weymouth, and the FRWA , as well as the Company's responses to record requests of the Siting Board.

II. SITE SELECTION

A. 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 a petitioner'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, § 69 J¼ requires the Siting Board to determine whether "plans for the construction of a proposed facility minimize the environmental impacts consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility". Site selection, together with project design and mitigation, is an integral part of the process of minimizing the environmental impacts of an energy facility. 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.

A. A. Description

Sithe Edgar is an affiliate of Sithe Energies, Inc. (Exh. EFSB-B-4). Sithe Energies is involved in the development, financing, construction, operation and ownership of generating facilities worldwide (Exh. SED-1, at 1-5 to 1-6). Decisions regarding the development of the entire portfolio of the BECo properties, including the Edgar Station site, were made by Sithe Energies (id. at 3-3).

The Company indicated that Sithe Energies initially narrowed the area of Company investment to New England and then to Massachusetts in order to meet its development objectives (id., at 3-6). Specifically, Sithe Energies listed the following positive development considerations associated with Massachusetts: (1) the negotiated restructuring settlements executed by various Massachusetts electric companies, legislative proposals and associated incentives which were more attractive than those in other New England states; (2) the announced plans and subsequent solicitations of three utilities to sell their generating assets; (3) a streamlined permitting process; and (4) favorable environmental policies pertaining to brownfield development and gas-fired projects (id. at 3-6 to 3-7).

The Company stated that between July, 1997 and December, 1997, Sithe Energies submitted bids to purchase the existing generating assets of three companies: New England Power Company, BECo, and Eastern Utilities Associates ("EUA") (id. at 3-7 and 3-8; Exh. EFSB-SS-3). The BECo assets for which Sithe Energies bid included five sites: (1) Edgar Station in Weymouth; (2) Mystic Station in Everett; (3)

New Boston Station in South Boston; (4) Framingham Station in Framingham; and (5) West Medway Station in Medway (Exh. SED-1, at 3-8).[6][6], [7][7] The Company indicated that the BECo assets had characteristics that were compatible with Sithe Energies' development objectives, including available land for development, proximity to load centers, proximity to fuel supply, available transmission infrastructure, ability to share infrastructure and operations personnel with existing units, and consistency with the Commonwealth's policy of encouraging brownfield development (id. at 3-8).

The Company stated that prior to submitting its bid, Sithe Energies conducted a half-day visit to each site, evaluated the properties based on environmental impacts as well as economics, and prepared summaries describing the strengths and weaknesses of each property (Exh. EFSB-SS-7). Based on the listed strengths and weaknesses, Sithe Energies identified base and alternative development configurations and potential development risks for each site (id.).[8][8] Sithe Energies stated that the strengths of the Edgar Station site included: the availability of two potential sites for medium to large projects; its potential for once-through cooling; transmission capacity for at least 300 MW at 115kV; a marine oil terminal on site with storage; the nearly successful prior development of a brownfield project on the site; and its proximity to gas interconnect at Potter Station, Braintree (id.). Sithe Energies noted that the potential development risks for Edgar Station included: permitting and construction of a gas pipeline; the cost of transmission upgrades; environmental liability; and negative community reaction to possible visual, noise and water issues (id.).[9][9]

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[6][6]Two combustion turbine units totaling 24 MW currently are located at Edgar Station (Exh. SED-1, at 3-8). Five generating units currently are located at Mystic Station: three oil-fired units totaling 388 MW, one 592 MW dual-fuel unit and a 10-MW oil-fired combustion turbine (id.). Two dual-fuel steam turbine units totaling 760 MW and an 18 MW combustion turbine currently are located at the New Boston Station (id.). Three combustion turbine units totaling 33 MW currently are located at Framingham Station (id.). Three combustion turbine units totaling 126 MW currently are located at the West Medway Station (id.).

[7][7]In addition to the five generation sites listed above, the purchased BECo assets include an ownership interest in 36 MW of Wyman 4 in Yarmouth, Maine (Exh. SED-1, at 3-8).

[8][8]Sithe Energies stated that although a combined-cycle facility was identified for both base case and alternative configurations for four of the five sites, it was always understood that a simple-cycle configuration could be an option at any of the sites (Tr. 3, at 249). The New Boston Station initial site review identified a simple-cycle facility as an alternative case (Exh. EFSB-SS-7; Tr. 3, at 249).

[9][9]Sithe Energies noted that the potential development risks for the remaining four sites were as follows: Mystic Station - (1) permitting once-through cooling; and (2) renegotiating property taxes; West Medway Station - (1) cost and availability of water and sewer; and (2) negative community reaction to major power plant located in the

Sithe Energies indicated that it based its bid for the BECo assets on a target development figure of 2,800 MW (Exhs. SED-1, at 3-8; EFSB-SS-5). Sithe Energies indicated that this figure represented the combined development potential for all the sites, and that Sithe Energies' internal economic and reliability analyses indicated that the New England market would benefit from at least an additional 2,800 MW of efficient generating capacity (Exh. EFSB-SS-5).[10[10]] The Company stated that the figure reflected a dynamic analysis of how much capacity could be added to the sites, and what revenues could be expected under a range of scenarios (Exh. SED-2, at 454).

On December 10, 1997, BECo announced that it had selected Sithe Energies to purchase its generating assets (Exhs. SED-1, at 3-7; EFSB-SS-3). Sithe Energies stated that it then conducted the second phase of its site review, which built upon the initial pre-bid analyses (Exh. SED-1, at 3-8). The second phase included the evaluation of each site based on three categories of criteria: (1) consistency with Sithe Energies' development objectives; (2) environmental impacts; and (3) community issues (id. at 3-9). Consistency with development objectives encompassed the following sub-criteria: (1) availability of land; (2) proximity to electric load; (3) availability of natural gas; (4) electric transmission;[11[11]] (5) availability of water for cooling purposes; and (6) compatibility with planned and existing uses (id. at 3-10 to 3-11). Environmental impacts encompassed the following sub-criteria: (1) air quality impacts; (2) water consumption;[12[12]] (3) wastewater impacts; (4) wetlands; (5) noise;[13[13]] (6) land use; (7) historical

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community; New Boston Station - (1) negative community reaction; (2) lack of transmission capacity at site or reasonably accessible; (3) major gas line not accessible; and (4) stack height limitations due to proximity to Logan Airport; Framingham Station - (1) cost and availability of raw water and sewer; (2) negative community reaction to major power plant located in the community; and (3) potentially prohibitive cost of electric transmission upgrades (Exh. EFSB-SS-7).

[10[10]]The Company stated that in the beginning of the process of moving into Massachusetts, its goal was to diversify its portfolio through the acquisition of existing units as well as through new development (Exhs. EFSB-SS-5; SED-1, at 3-4). Sithe Energies explained that originally it was looking for base load capacity; however, based on its analysis of the site-specific opportunities and constraints, the Company considered different options (Exh. SED-1, at 3-9).

[11[11]]The Company stated that the Framingham site is the most constrained with regard to transmission interconnection, and therefore would have the greatest costs associated with interconnection (Exh. SED-2, at 457). The Company further indicated that although BECo has not yet completed the system interconnection studies, it would be feasible to interconnect new generation at Mystic Station, Edgar Station, and the West Medway Station in an economical manner (id. at 466).

[12[12]]Sithe Energies indicated that the water consumption criterion primarily referred to the ability to sustain once-through cooling (Exhs. EFSB-SS-15; SED-2, at 468). Sithe Energies stated that it initially identified Mystic, Edgar, and New Boston Stations as

and cultural resources; (8) visual impacts; (9) traffic impacts; (10) solid and hazardous waste; (11) safety; and (12) EMF effects (id. at 3-11; Exh. EFSB-SS-15). Community issues criteria encompassed the following sub-criteria: (1) compatibility with surrounding land uses; (2) zoning; (3) local support or opposition; (4) valuation of surrounding property; (5) taxation; and (6) the impact of ancillary facilities on property owners (Exhs. SED-1, at 3-11; EFSB-SS-16).

The Company explained that it did not use a formal weighted scoring system to rank the five sites based on these identified criteria; rather, it analyzed how important each criterion was on a case-by-case basis (Exh. SED-2, at 479-480). Sithe Energies indicated that it relied heavily on judgment in reviewing the criteria (id. at 476, 480; Tr. 3, at 271 to 272). The Company stated that all of the criteria were important, and explained that the application of any one criterion could have identified a fatal flaw for development at any of the five sites (Exh. SED-2, at 476, 480; Tr. 3, at 271 to 272). The Company defined a fatal flaw as an aspect of the project that could not be mitigated due either to prohibitive cost or technical difficulties, as opposed to a negative feature that lends itself to the required mitigation (Tr. 3, at 273 to 274).[14[14]] Sithe Energies provided information which tracked the general application of its environmental and community issues criteria (Exhs. SED-4; SED-5).

Sithe Energies explained that in addition to evaluating each site based on these three sets of criteria, it determined the capacity to be developed at each site and the configuration of each facility based on an analysis of available infrastructure and the physical space available to locate the generation equipment (Exh. SED-1, at 3-15; Tr. 3, at 281-282). The Company stated that the configurations for the combined-cycle units were driven by the choice of the 501G turbine, which the Company selected based on its high efficiency (Exh. SED-1, at 3-15; Tr. 3, at 282). Sithe Energies indicated that for the 501G, the

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having the potential for once-through cooling (Exh. EFSB-SS-15; Tr. 3, at 243). The Company explained that the opportunity for once-through cooling at both Medway and Framingham did not exist due to their lack of proximity to a large water body (Tr. 3, at 242). Further, the Company noted that the lack of potable water in Medway and Framingham would limit the use of a combined-cycle facility even if it were to be air-cooled (id. at 247).

[13[13]]The Company reported that it classified the Mystic Station site as the site raising the fewest noise concerns with Edgar Station and New Boston Station ranked second, and West Medway and Framingham ranked third (Exh. SED-2, at 470 to 471). The Company explained that it made these classifications based on the industrial nature of the Mystic, Edgar and New Boston sites and on the extent of demolition necessary at each site (id.).

[14[14]]Sithe noted that all three of the sites it proposed for development have a relatively negative feature (Tr. 3, at 274). However, the Company explained that all of the sites are attractive for development since each site has the opportunity for mitigation to counter the relatively negative feature (id.).

most economical configuration is a two-on-one configuration -- two combustion turbines and one steam turbine -- where each block consists of approximately 700 MW (Exh. SED-2, at 529; Tr. 3, at 268). Sithe Energies stated that, in addition to the physical size requirements of the equipment, it also considered the mix of abutters and surrounding land uses in determining the configuration of the units at each site (Exh. SED-2, at 524).

Sithe Energies stated that it deliberately attempted to diversify its generating portfolio to incorporate non-baseload units for peak load and emergency back-up use (Exhs. EFSB-SS-18; SED-2, at 526). The Company asserted that Mystic Station and Edgar Station are excellent sites to construct combined-cycle units, while the West Medway Station has deficiencies in infrastructure and water supply that render combined-cycle development uneconomic (Exhs. EFSB-SS-6; SED-2, at 527). The Company stated that the peaking capacity which it intends to construct at West Medway Station, together with the Company's existing peaking capacity, provide adequate peaking capacity for a diverse generating portfolio (Exh. SED-2, at 527).

The Company argued on brief that its site selection process contributes to the minimization of environmental impacts, as well as the minimization of costs associated with the mitigation, control, and reduction of such environmental impacts (Company Initial Brief at 14). Sithe Energies described its development plans and subsequent site selection as a "brownfield approach", which focused on identifying and evaluating appropriate sites with land uses already committed to power generation and transmission (Exh. SED-1, at 3-3). The Company argued that it achieved the minimization goals, listed above, by (1) adopting the brownfield strategy for development, and (2) evaluating the five sites and selecting the Mystic, Edgar and West Medway Stations for initial development (Company Initial Brief at 14-15). The Company asserted that the environmental benefits of brownfield development arise from the use of existing infrastructure on or near the site for the development, construction and operation of the proposed facility (Exh. EFSB-SS-23). In addition, the Company noted that brownfield development largely avoids disturbing the features at or near a pristine site, and affords opportunities to provide environmental improvements at the existing sites (id.). In particular, Sithe Energies noted the specific opportunities to reduce visual impacts and remediate hazardous waste problems at Edgar Station; to reduce air quality impacts at Mystic Station; and to mitigate the noise impacts of the existing generating units at West Medway Station (Exhs. EFSB-SS-22; EFSB-SS-23; SED-2, at 499-504).

In regard to costs for mitigation and development, the Company discussed the offsetting costs of brownfield and greenfield sites (Tr. 3, at 278). Sithe Energies explained that sites where electric transmission or generation previously has been located, generally have lower costs for interconnection, site clearing, and construction or enhancement of the road system (id.; Exh. EFSB-SS-23). However, the Company indicated that such sites may require additional expenditures for site remediation or demolition, complicating features associated with nearby land uses, and taxes (due to the high expectation of communities that already receive taxes from electric facilities) (Tr. 3, at 279).

A. A. Analysis

Sithe Energies has presented a site selection process which resulted in a decision to develop generating facilities on three separate sites: Edgar Station, Mystic Station, and West Medway Station. The Company described its development process and the objectives which it used to determine the level of development for each site. Sithe Energies provided information on all five of the sites which it acquired from BECo, detailing their infrastructure strengths and weaknesses, and identifying base and alternative configurations and potential development risks. Sithe Energies applied criteria to assess each site's consistency with its development objectives, environmental impacts, and community impacts. The Siting Board notes that the Company provided information that it developed based on site visits, engineering and environmental analyses specific to each site, and economic and reliability analyses. The Siting Board finds that the Company's description of the site selection process used is accurate.

Sithe Energies asserted that its proposal minimizes environmental impacts in part through the use of a "brownfield approach" to development. The Siting Board notes that the redevelopment and reuse of previously disturbed sites and the use of existing infrastructure can limit many of the environmental impacts that may be associated with industrial development. Additionally, where an industrial character and the presence of industrial support infrastructure are already evident, there often is the potential to develop additional facilities such as a generating plant, consistent with considerations of land use compatibility for such development. The Siting Board encourages such "brownfield" development where appropriate. However, the Siting Board notes that the benefits of such an approach are necessarily site and facility-specific. A review of any such site must take into account the scale, nature and physical attributes of any existing or recent use on the site, the existing character of the surrounding area, and the impacts which the specific proposed use would have on the surrounding area.

As noted above, the record indicates that Sithe Energies identified the strengths and weaknesses of each of the five sites and the risks of developing facilities at each site. The Company has identified benefits to brownfield development at the Edgar Station site including existing infrastructure, on-site transmission capacity, on-site oil storage, and barge access for oil and construction deliveries. However, the record also shows that the proposed project is located in close proximity to a densely settled neighborhood to the east of the site, and that development on the site is constrained due to the existence of both permanent and temporary easements and environmental restrictions. Therefore, the noise and visual impacts of the proposed facility will affect a significant number of people, while the Company's ability to minimize the impacts through design may be limited. In addition, while the location of the proposed facility, situated along the Fore River, is advantageous in that it allows for delivery of construction materials and equipment, and oil by barge, it also creates disadvantages with regard to wetland impacts and recreational uses along the river.

The record reflects the advantages and disadvantages of brownfield redevelopment at the Edgar Station site. On, balance, the advantages contribute to the minimization of environmental impacts; however the disadvantages create the potential for environmental impacts which will need to be minimized by the Company through design or mitigation. These issues are discussed in Sections III.D, III.F and III.G, below. Accordingly, the Siting Board finds that the Company'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 the project's proposed emissions and impacts, compliance with existing regulations, offset proposals, and mitigation proposed by the Company.

1. Applicable Regulations

The Company indicated that regulations governing air impacts of the proposed facility include National Ambient Air Quality Standards ("NAAQS") and Massachusetts Ambient Air Quality Standards ("MAAQS");[15[15]] Prevention of Significant Deterioration ("PSD") requirements; New Source Review ("NSR") requirements; MDEP's Air Toxics Policy; New Source Performance Standards ("NSPS") for criteria pollutants; the MDEP Major Comprehensive Plan Approval, Operating Permit; Non-Attainment Area Regulations; MDEP Emission Limits; MDEP Requirements for BACT; and Title IV Acid Rain Sulfur Dioxide Allowances (Exhs. SED-1, at 4.2-4 to 4.2-9; EFSB-A-1-S-2 (att.) at 1-1). The Company stated that the MDEP has been given the authority by the United States Environmental Protection Agency ("USEPA") to administer NSR, NSPS, non-attainment review provisions and PSD requirements (Exhs. SED-1, at 4.4 to 4.5; EFSB-A-1-S-2 (att.) at 3-1).

The Company indicated that, under NAAQS, all geographic areas are classified and designated as attainment, non-attainment or unclassified for the six criteria pollutants: nitrogen oxides ("NO_x"), carbon monoxide ("CO"), particulate matter ("PM-10"), sulfur dioxide ("SO_2"), ground level ozone ("O_3"), and lead ("Pb") (Exh. SED-1, at 4.2-6 to 4.2-7). The Company further indicated that, although the Weymouth area (Norfolk County) is classified as "attainment" or "unclassified" for SO_2, PM-10, NO_2, CO, and Pb, the entire Commonwealth of Massachusetts is in "serious" non-attainment for O_3 (id. at 4-7).[16[16]] The Company stated that, under the PSD review, the proposed facility would be required to incorporate BACT and comply with NAAQS for SO_2, PM-10, NO_x, CO, VOCs, Pb, and sulfuric acid mist (Exh. EFSB-A-1-S-2 (att.) at 3-4).[17[17]] The Company stated that since Massachusetts is in serious non-attainment for O_3, special rules apply to NO_X and VOCs, which are precursors to O_3 (id. at 3-1). The Company explained that non-attainment NSR would apply to both NO_x and VOCs emissions (id. at 3-1 to 3-2). The Company stated that in order to meet the applicable requirements for NO_X and VOCs at the proposed facility, MDEP would require Sithe Edgar to incorporate the Lowest Achievable Emission Rate ("LAER") and obtain emission offsets at a minimum ratio of 1.26 to 1 (id. at 3-2). With respect to NSPS requirements, the Company indicated that emissions of regulated pollutants -- NO_x and SO_2 -- would fall well below NSPS

[15[15]] The Massachusetts Department of Environmental Protection ("MDEP") has adopted the NAAQS limits as MAAQS (Exh. SED-1, at 4.2-6).

[16[16]] Non-attainment conditions may be further classified as to seriousness based on the level and frequency of such conditions (Exh. EFSB- A-1-S-2 (att.) at 3-4 to 3-5).

[17[17]] The Company stated that lead emissions do not meet the PSD regulatory threshold for the application of BACT, but that Massachusetts requires BACT for all criteria pollutants (Exh. EFSB-A-1-S-2 (att.) at Table 3.1-1, 3-9).

threshold levels (id. at 3-7).[18[18]] However, Sithe Edgar noted that the proposed facility would be subject to the Title IV Sulfur Dioxide Allowances and Monitoring regulation, which would require the Company to monitor SO_X, and to purchase annual SO_X allowances to account for the proposed facility's emissions in the previous year (Exhs. EFSB-A-1-S-2 (att.) at 3-8; EFSB-A-36; Tr. 4, at 422-223).

The Company stated that MDEP also has an Air Toxics Policy, which establishes Threshold Effects Exposure Limits ("TELs") and annual Average Allowable Limits ("AALs"), regulating the maximum 24 hour and the yearly average allowable emissions of over 100 toxic air pollutants (Exh. EFSB-A-1-S-2 (att.) at 3-10).

The Company stated that its proposed facility would meet Technology Performance Standards ("TPS") for Air Emissions from New Electric Generating Facilities promulgated by the Siting Board on July 17, 1998 in 980 CMR 12.00 (Exh. SED-1, at 2-1 to 2-3). Sithe Edgar provided documentation indicating that its proposed facility would meet TPS for both criteria and non-criteria pollutants (id.; Exh. EFSB-A-25-S).[19[19]]

2. Emissions and Impacts

Sithe Edgar argued that the proposed facility would have an insignificant impact on air quality, since the proposed facility's emissions would result in concentrations below Significant Impact Levels ("SILs"), which represent a small percentage of the NAAQS concentrations (see Appendix 1 to Decision, Table 2) (Exh. EFSB-B-11, at 5.1-1; Tr.3, at 352).[20[20]] The Company asserted that the air quality impacts of the proposed facility would be minimized through the use of natural gas as the primary fuel with back-up use of low-sulfur oil for up to 30 days, the use of efficient combustion technology, and use of advanced pollution control equipment (Exh. SED-1, at 4.2-7). Sithe Edgar also asserted that dispatch of the proposed

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[18[18]] Sithe Edgar explained that NSPS regulates the amount of an air contaminant that may be emitted from a given process, which for combustion processes is typically expressed as a fuel quality or exhaust gas concentration (Exh. EFSB-A-1-S-2).

[19[19]] Because the Company provided documentation indicating that its proposed facility would meet TPS for both criteria and non-criteria pollutants, the Company is exempt from the requirements of 980 CMR 12.00 that requires an applicant to provide data comparing its proposed facility to alternative fossil-fuel generating technologies. Provision of such information is intended to enable the Siting Board to determine whether the proposed facility would contribute, on balance, to "a reliable, low-cost, and diverse regional energy supply with minimal environmental impacts." G.L. c. 164, § 69J¼. Exempting projects which meet the TPS streamlines EFSB review of proposed facilities which incorporate "state-of-the art" environmental performance characteristics.

[20[20]] The Company stated that SILs represent an air pollutant concentration that ranges from one to five percent of NAAQS (Exh. EFSB-A-1-S-2 (att.) at 2-5, 3-5).

project in preference to older generating resources in the region would result in displacement of NO_X, SO_2 and CO_2 emissions (id.; Exhs. EFSB-A-20; EFSB-A-20-S).

Sithe Edgar stated that its proposed facility would incorporate BACT for CO, PM-10, SO_2, and Pb, and LAER for NOx and VOCs (see Table 1) (Exh. EFSB-A-1-S-2 (att.) at 3-4, 3-8 to 3-9). To meet LAER for NO_X, Sithe Edgar proposed to use Selective Catalytic Reduction ("SCR")[21[21]] together with an efficient gas-fired combined cycle turbine (id. at 4-1 to 4-3). The Company asserted that LAER for VOCs would be achieved by efficient combustion (id. at 4-12 to 4-13).[22[22]] In addition, the Company proposed to use an oxidation catalyst to reduce CO emissions, to achieve BACT for SO_2 through the use of very low sulfur fuel, and to limit the emissions of PM-10 by using natural gas as the primary fuel (id. at 4-15 to 4-17).[23[23], 24[24]]

With respect to non-criteria pollutants regulated by MDEP, the Company proposed an ammonia slip of two parts per million dry volume ("ppmdv") (id. at 4-17). The Company provided modeling of estimated emissions of toxic chemicals that indicates that the proposed facility's emissions would be well below all of MDEP's established TELs and AALs (Exhs. EFSB-A-1-S-3; EFSB-A-41-S).

Sithe Edgar provided calculations of maximum potential air emissions for the proposed facility assuming emissions controls and full-load operation for 365 days per year, including one hundred starts per year (see Table 1) (Exhs. EFSB-A-1-S-2 (att.); Tr. 3, at 325 to 326). The Company stated that this evaluation of predicted ambient air quality impacts from the proposed facility followed prescribed USEPA and MDEP procedures (Exh. EFSB-A-1-S-2 (att.) at 6-2 to 6-3). The Company indicated that it had used the USEPA-approved SCREEN3, CTSCREEN, and Industrial Source Complex Short-Term

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[21[21]] The Company explained that SCR uses ammonia to convert nitrous oxides into nitrogen and water (Exh. SED-1, at 4.2-1).

[22[22]] Sithe Edgar explained that the controls used in NO_X reduction reduce the flame temperature, which causes an increase in CO and VOC emissions (Exh. EFSB-A-8). According to the Company, by regulating the flame temperature, it can alter the balance among CO, VOC and NO_X emissions (id.).

[23[23]] Sithe Edgar stated that the projected PM-10 emissions for the proposed facility include particulates in the form of ammonium sulfates that can result during combustion from the use of ammonia to control NO_X (Exhs. EFSB-A-1-S-2 (att.) at 4-16 to 4-17; EFSB-A-7).

[24[24]] The Company's proposed emission rates for BACT and LAER regulated pollutants are summarized in Table 1.

("ISCST3")[25][25] atmospheric dispersion models to calculate ground-level concentrations resulting from the proposed facility's emissions (see Table 2) (Exh. EFSB-A-1-S-2 (att.) at 6-1 to 6-13).[26][26]

The Company's modeling indicated that the proposed facility's maximum short-term impacts (3-hour SO_2 and 24 hour SO_2 and PM-10) would be at a location 7,300 meters west southwest of the site at Reservation Hill in the Blue Hills Reservation in Braintree and Milton (Exh. EFSB-RR-21).[27][27] The Company stated that the maximum long-term impacts (annual NO_2, SO_2, and PM-10) would occur 12,000 meters to the southeast of the proposed facility, at Judges Hill in Norwell (Exh. EFSB-RR-21).[28][28] Sithe Edgar stated that its modeling shows that the proposed facility's emissions would not result in maximum ground level concentration above SILs (see Table 2) (Exhs. EFSB-B-11, at 5.1-1; EFSB-A-1-S-2 (att.) at Table 6.5-1).

Sithe Edgar also performed cumulative impact modeling using existing ambient air quality data added to the modeled "worst case" scenario for all permitted facilities located within ten miles of the proposed site which have the potential to emit 50 tons per year ("tpy") or more of NO_X, SO_2, CO, and PM, and then subsequently added to the maximum impacts of the proposed facility under the same conditions (see Table 2) (Exh. EFSB-A-1-S-2 (att.) at 6-14 to 6-18; Tr. 4, at 453). The Company calculated cumulative impacts ranging from 20 to 96 percent of NAAQS, with the proposed facility's contribution not higher than 0.008 percent of the cumulative impact levels (see Table 2) (Exh. EFSB-A-1-S-2 (att.) at 6-15, Table 6.6-2).

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[25][25]Sithe Edgar explained that the SCREEN3 model calculates ground-level concentrations conservatively, providing a first cut, whereas the ISCST3 is a more complex model that can incorporate more site-specific meteorological conditions (Exhs. EFSB-A-13; EFSB-A-14). The Company stated that CTSCREEN is required by the USEPA to model the facility's impact in complex terrain at receptors above stack height (Exhs. EFSB-A-15; EFSB-A-1-S-2 (att.) at 6-9).

[26][26]Sithe Edgar explained that since its SCREEN3 modeling had predicted some maximum concentrations above SILs, it performed refined modeling using ISCST3 to incorporate more accurate and less conservative inputs (Exh. EFSB-A-1-S-2 (att.) at 6-5).

[27][27]The Company explained that the maximum short-term impacts occur during oil firing (Exh. EFSB-A-1-S-2 (att.) at 6-9).

[28][28]Sithe Edgar stated that under the two stack design, the point of maximum annual air impact would be closer to the proposed facility (10,000 meters away in Hingham) and all maximum impact concentrations would be higher, but still under SILs (Exh. EFSB-RR-21). The record indicates that the short-term and long-term concentrations would be approximately 1.5 to 2 times higher using the two stack design, assuming both turbines running (id.).

Sithe Edgar also calculated the contribution of all other sources at the location and under the conditions for which the impact of the proposed facility would be the greatest (Exh. EFSB-RR-35). In this analysis, the calculated cumulative impact ranged from 31 to 45 percent of NAAQS, while the percent contribution of the Fore River Station rose to 0.1 to 3 percent of the cumulative impact (Exhs. EFSB-RR-35; EFSB-A-1-S-2 (att.) at Table 6.6-2).

The Company currently proposes a single stack, with two flues, 255 feet tall and 50 feet in diameter, for the proposed facility (Exh. EFSB-A-1-S-2 (att.) at 5-24; Tr. 3, at 334). Sithe Edgar stated that 255 feet is the good engineering practice ("GEP") stack height for the proposed facility and speculated that, in order to remain below SILs, the stack height could not be lower than 250 feet (Exhs. EFSB-A-1-S-2 (att.) at 5-24; W-A-3-S2; EFSB-A-10; W-A-11).[29[29]] The Company noted that it originally had proposed two stacks, each 255 feet tall and 20 feet in diameter (Exhs. EFSB-WG-6 (att.) at 5.3-1); SED-1, at 4.4-2). The Company stated that the single stack design would increase the buoyancy of the facility plume, thus reducing emissions concentrations in the vicinity of the facility and moving the maximum impact location further from the proposed facility (Exh. EFSB-RR-21; Tr. 3, at 327-330). However, Sithe Edgar noted that the single stack design is more expensive and has a greater noise impact than a traditional two-stack design (Exhs. W-A-2; W-A-3). The Company initially stated that the single stack would have a greater visual impact; however, Sithe Edgar later indicated that it would have some visual advantage, based on its belief that some community members have expressed a preference for a single stack design (Exhs. W-A-2; W-A-11; Tr. 3, at 333).

Sithe Edgar also provided vegetation sensitivity screening data for background and predicted SO_2 concentrations from the proposed facility (Exh. EFSB-A-1-S-2 (att.) at 6-22 to 6-23). The Company's data indicate that, for both the one-hour and three-hour averaging times, background plus maximum SO_2 concentrations from the proposed facility would be substantially below the screening threshold (id. at 6-22 to 6-23). In addition, Sithe Edgar conducted a visibility analysis of the proposed project's impact on federal Class I areas (national parks and wilderness areas) under the Clean Air Act and concluded that neither its emissions of particulates nor its emissions of NO_2 would have a significant effect on the visibility of the closest area, which is in Vermont (Exh. EFSB-A-1-S-2 (att.) at 6-19 to 6-22).

Sithe Edgar asserted that operation of the proposed facility would cause economic displacement of older, higher emitting units and, therefore, would be expected to result in regional air quality benefits (Exhs. SED-1, at 4.2-1; EFSB-A-20). In support of this assertion, Sithe Edgar presented a dispatch analysis conducted by Independent System Operator New England ("ISO-NE") for the year 1997 (Exhs. EFSB-A-20; EFSB-A-20-S). The Company suggested that the "1997 Marginal Emission Rate Analysis" (September

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[29[29]] The Company did not conduct an analysis of the air quality impacts of reducing the height of the stack; it merely speculated as to the level to which it believed the stack height could be reduced (see Exhs. EFSB-A-10; W-A-3-S2).

1998) could be used as the starting point for estimating the relationship between increasing/decreasing electric output capability at the proposed facility, and decreasing/increasing emissions at other electric generators in the region (Exhs. EFSB-A-20; EFSB-A-20-S).

In accordance with the above approach, Sithe Edgar presented a table which compared emissions expected from the generation of 775 MW in New England over a year (1) without the proposed facility and therefore with additional generation coming from existing marginal generating units, and (2) with the proposed facility operating fully and displacing other generation (Exh. EFSB-A-20; EFSB-A-20-S). The Company's analysis indicated that operation of the proposed facility would reduce New England emissions of NO_x, SO_2 and CO_2 by approximately 8090 tpy, 29,693 tpy and 1,940,600 tpy, respectively (Exhs. EFSB-A-20; EFSB-A-20-S).[30[30]] The Company stated that even if New England's marginal rates of emission per unit energy output for NO_x and SO_2 were assumed to decline over five years to half their 1997 rates, the introduction of combined-cycle generation would continue to displace significant quantities of these two pollutants, and that new combined-cycle generation would continue to provide CO_2 displacement benefits even if New England's marginal emission rate for CO_2 declined by 20 percent over the next five years (Exh. EFSB-A-20; Tr. 3, at 402-404). Sithe Edgar asserted that its plant would be dispatched continuously, because its heat rate is well below heat rates of peaking and swing units (Tr. 3, at 317). The Company indicated that the displacement analysis does not address changes in power supply or demand, but argued that these changes would not negate the benefit of the proposed facility's displacement (Exh. EFSB-A-33; Tr. 3, at 400-402).

The Company stated that it intends to seek a permit allowing it to use oil for up to 720 hours annually during periods of gas curtailments (Exh. EFSB-A-1-S-2 (att.) at 4-2; Tr. 3, at 342-343).[31[31]] The Company also provided estimates of its annual emissions if it were to use only natural gas as a fuel (Exh. EFSB-A-5; Tr. 3, at 379).[32[32]] Sithe Edgar indicated that it could not predict the exact number of days it would use oil in an average year, but stated that it expects to use oil for 10 to 20 days in an average year, based upon the average number of days below 25 degrees Fahrenheit (Exhs. EFSB-A-22; EFSB-RR-29). Sithe Edgar's Air Plan application includes a proposed condition that the facility would not use oil during the ozone season (May through October) (Exh. EFSB-A-1-S-2 (att.) at 8-11; Tr. 3, at 349). In addition,

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[30[30]] By comparison, the emissions produced by the proposed facility, as used in this analysis, would be 230 tpy of NO_x, 167 tpy of SO_2, and 2.832 million tpy of CO_2 (Exh. EFSB-A-20-S).

[31[31]] The Company defined gas curtailment as a time when gas supply was constrained or demand for natural gas was very high (Exh. W-A-4; Tr. 342-343).

[32[32]] The record contains the following decrease in pollutants if the facility were to burn natural gas only: 15.6 percent for NO_X, 8.4 percent for CO, 19.5 percent for VOCs, 28 percent for PM, 59 percent for SO_2, and 3.6 percent for CO_2 (Exh. EFSB-A-5).

Sithe Edgar noted that the likelihood of using oil would be greatest in the colder months when gas supplies are more likely to be constrained (Exh. FRWA-A-5). The Company argued that the proposed facility would still have minimal impacts when burning oil, because calculations for maximum impacts are based on periods of oil use (Tr. 3, at 346-347, 359-360). Sithe Edgar also asserted that even during oil firing, the proposed facility would produce less pollution than marginal units, and Sithe Edgar provided a displacement analysis comparing the proposed facility's emissions while firing oil to those of marginal units (Exh. EFSB-RR-27).

The Company testified that it based its decision to seek a permit allowing the use of oil as a backup fuel upon a number of factors including: (1) its inability to obtain a 365-day firm gas supply from Algonquin;[33[33]] (2) its ability to minimize the air quality impacts of oil; (3) the need for fuel diversity; and (4) the location of the facility in a port area (Tr. 3, at 357-360). Sithe Edgar also indicated that the ISO-NE had expressed concern about development of new facilities lacking dual-fuel capability, and had commissioned a study on the reliability of New England's gas supply (Exhs. EFSB-A-5; EFSB-A-28 (atts. a, b, c); EFSB-RR-26; Tr. 3, at 353-355). The Company did not calculate the economic impact of shutting down the facility for up to 30 days, as opposed to burning oil, but indicated that the ISO-NE might impose economic consequences if the proposed facility did not have 365 day fuel supply (Tr. 3, at 370-372).

The FRWA asserted that the Company's proposed use of oil as a back-up fuel would increase both the emissions and the cost of the proposed facility (FRWA Initial Brief at 6). FRWA questioned the need for oil at the proposed facility (id.).

Sithe Edgar asserted that there would be a slight decrease in air emissions if it operated its proposed facility with once-through-cooling ("OTC") as opposed to air-cooled condensers ("ACC") (Exhs. EFSB-A-41; EFSB-B-11 (app. H at H-8)).[34[34]] In addition, Sithe Edgar indicated that the use of ACC

[33[33]]The Company estimated that it would cost approximately $200 million to construct the a 60-70 mile pipeline from Rhode Island that would be needed to ensure a 365-day gas supply (Tr. 3, at 358). The Company provided a copy of its agreement with Algonquin which provides that gas supplies are guaranteed for only 335 days (Exh. EFSB-RR-23 (redacted)).

[34[34]]The Company also evaluated the feasibility of salt water evaporative coolers ("SWEC") for cooling steam (Exh. B-11(app. H at H-20-H-26)). The Company argued that, although it is technically feasible to use this type of cooling technology on the site, the air impacts would be increased as a result of salt drift (id.; Exh. EFSB-CT-18). The Company explained that as the water evaporates, salt is precipitated out and accumulates on nearby structures which it calculated would increase the natural salt deposition rate in the area by up to 20 times (Exh. B-11 (app. H at H-28)). The Company expressed concern regarding the impact of the salt on the switchyard (in the predominate path of the drift) and on the Monatiquot Street neighborhood (id. (app. H at H-28 to H-29); EFSB-CT-28). The Company also discussed the potential problem of fogging and icing on

would decrease facility power output,[35][35] particularly at higher ambient air temperatures, and that the reduction in facility output would require additional operation of a marginal unit (Exhs. EFSB-A-41; EFSB-CT-6). The Company stated that, because the marginal unit would emit criteria pollutants at a greater rate than would the proposed facility, use of ACC would have a negative effect on regional air quality (Exhs. EFSB-A-20; EFSB-A-20-S). The Company asserted that the ACC structure would not have an impact on the dispersion of the plume from the proposed facility or of the peaking units (Exhs. EFSB-A-43; W-A-7; W-A-15).

3. Offset Proposals

Sithe Edgar stated that to comply with NSR requirements for NO_x and VOCs, it would need to acquire 275 tpy of NO_X offsets and 88 tpy of VOC offsets (Exhs. EFSB-A-1-S-2 (att.) at 8-7; EFSB-RR-31). The Company proposed to offset NO_x at a 1.26 to 1 ratio using reductions at Mystic Station and provided information indicating that NO_X offsets were available to offset or "net out" the emissions of the proposed power plants at Fore River Station, Medway Station, and the Mystic Station (Exh. EFSB-RR-31). The Company indicated that it had identified a company in Massachusetts with sufficient, available certified VOC offsets for sale to provide the necessary amount of VOC offsets (EFSB-A-1-S-2 (att.) at 3-2).

Route 3A from SWEC, and calculated that the facility would cause up to 14 more hours of fogging or 3.8 hours of icing annually (Exh. EFSB-H-23).

[35][35]The Company estimated an annual average loss of efficiency of 2.1 percent, with the greatest loss, 5.4 percent, during warmer weather (Exh. EFSB-B-11 (app. H at H-5)). The Company estimated that the loss of efficiency would result in a operational cost of 2.2 million dollars per year (Exh. EFSB-CT-13).

Sithe Edgar indicated that the proposed facility would emit a maximum of 2,832,351 tpy of CO_2 (Exh. EFSB-RR-33). The Company stated that, to meet the Siting Board's CO_2 offset requirement, it proposes to use reductions in CO_2 emissions from Sithe's planned implementation of an Air Quality Improvement Plan at Mystic Station in Everett, based on curtailment of generation at Mystic Station Units 4, 5 and 6 ("Mystic Station AQIP") (Exh. EFSB-WG-6-C (att.) at 5.1-14); Company Brief at 32). Sithe argued that its proposed use of curtailment offsets for CO_2 emissions conforms to the Siting Board's requirement, set forth in the Berkshire Power Decision, that an applicant's CO_2 mitigation approach produce proven, incremental CO_2 reductions which would not otherwise occur (Company Initial Brief at 32-33). See Berkshire Power Development Inc., 4DOMSB at 221 (1996) ("Berkshire Power Decision").

To support its position that the proposed CO_2 offsets would be incremental, the Company stated that the portion of the planned curtailment of operations at Mystic Station Units 4, 5 and 6 that is proposed for use in offsetting CO_2 emissions at the proposed facility is separate from the portion of such curtailed operations that is proposed for use in offsetting emissions of NO_x at new facilities, including the proposed facility (Exh. EFSB-RR-33).[36[36]] The Company also agreed that the portion of Mystic Station AQIP reductions used as offsets for CO_2 emissions from the proposed facility will not be used in the future for any collateral purpose (id.; Tr. 4, at 373-374).

[36[36]] The Company indicated that the expected curtailment of operations at Mystic Station Units 4, 5 and 6 under the Mystic Station AQIP is equivalent to 2157 tpy of NO_x emissions reductions (Exh. EFSB-RR-31). Of that amount, Sithe would use 395 tpy to "net out" the added NO_x emissions from the new Units 8 and 9 at Mystic Station (id.). Sithe also would use 567-945 tpy to provide NO_x offsets for the proposed generating facility and one other project that it is developing in Massachusetts – the proposed Sithe West Medway project (id.). The Company identified no specific plans regarding: (1) future use of the remainder of the NO_x emissions reductions from the Mystic Station AQIP, over 800 tpy or 37 percent; or (2) use of reductions in emissions of other criteria pollutants from the Mystic Station AQIP.

> Regarding CO_2 offsets, the Company indicated that the planned curtailment of operations at Mystic Station Units 4, 5, and 6 is equivalent to 973,000 tpy, and that of that amount, consistent with the Siting Board's CO_2 mitigation requirement: (1) Sithe plans to use 54,000 tpy, or 5.5 percent, to provide an offset for 1 percent of the emissions from the new Mystic Station Units 8 and 9, approved by the Siting Board in the Sithe Mystic Development LLC, EFSB 98-8 (1999) ("Sithe Mystic Decision"); and (2) Sithe proposes to use 28,342 tpy, or an additional 2.9 percent, to provide an offset for 1 percent of the emissions from the proposed Fore River project (Exh. EFSB-RR-33).

1. 1. Analysis

The record indicates that the proposed facility would consist of two highly efficient combustion turbines, two HRSGs with duct firing, and a steam turbine, all incorporating advanced pollution control equipment. The record shows that the proposed facility would achieve BACT for CO, PM-10, SO_2, and Pb, and LAER for NO_X and VOCs.[37[37]] The Company also has shown that its facility would not emit toxics or other non–criteria pollutants at levels that exceed state or federal standards. The Company provided information regarding total facility emissions which demonstrates that the proposed facility would meet TPS for both criteria and non-criteria pollutants. Consequently, the Siting Board finds that no alternative technologies assessment is required for the proposed facility.

Sithe Edgar has used MDEP-approved air modeling techniques to model, for certain pollutants, both the air quality impacts of the proposed facility and the cumulative air quality impacts of the proposed facility and other existing and proposed facilities. This modeling indicates that the concentrations of pollutants from the proposed facility would be below SILs, which are a small percentage of NAAQS, for all criteria pollutants, and that concentrations of hazardous or toxic pollutants from the facility would be within the TELs and AALs. In addition, the interactive analysis shows that the proposed facility, when considered together with other facilities, would make little to no contribution (less than 0.008 percent) to total air pollution at locations of maximum cumulative impact. At locations of the proposed facility's maximum impact, the proposed facility's contribution would be higher -- up to 3 percent of the total ambient air pollution -- but the cumulative ambient levels at those locations would be substantially less than the worst case cumulative impacts identified in the interactive analysis.

The record indicates that the proposed facility may benefit regional air quality through the offsets required for NO_X and VOCs and through the displacement of older generating facilities. In addition, the Company's purchase of SO_2 allowances could decrease SO_2 nationally.

[37[37]] With regard to the use of SCR or a zero ammonia technology to achieve BACT, the Siting Board is of the opinion that, due to its primacy of jurisdiction and to its greater expertise in emissions control technologies, MDEP is the agency best suited to determine whether and when to introduce new emissions control technologies into the Commonwealth. See IDC Bellingham, LLC, EFSB 97-5, at 35 (1999) ("IDC Bellingham Decision"). As a result, the Siting Board will not require use of such technology (id.). The Siting Board also notes that MDEP in a recent gas facility permit effectively has allowed the use of SCR rather than a zero ammonia technology at this time, with a review of the cost-effectiveness of retrofitting a zero ammonia technology to be conducted within five years. ANP Bellingham Decision on Compliance, EFSB 97-1, at 6 (1999). The Siting Board therefore concludes that by incorporating the control technology that MDEP determines to be LAER for NO_x, the Company will have minimized its NO_X emissions and ammonia slip consistent with minimizing the cost of mitigating and controlling such technologies.

Sithe Edgar also provided information on the effect of three design choices -- cooling technology, stack design, and choice of back-up fuel -- on its expected emissions. The record shows that the use of ACC rather than OTC increases facility emissions slightly and reduces regional air quality improvements due to displacement.

Sithe Edgar has proposed a single 255 foot dual-flue stack in order to minimize air quality impacts. The Company did not conduct modeling analyses to determine whether the stack height could be further reduced without significantly affecting air quality; however, it speculated that it could not lower the stack by much more than five feet while maintaining the proposed facility's emissions under SILs. In Section III.F. below, the Siting Board has reviewed the visual impacts of the proposed stack, and has concluded that reducing the stack height by a larger amount, such as 15 to 20 feet, would not result in a significant reduction in the visual impacts of the proposed facility. Consequently, the Siting Board finds that the proposed 255 foot stack height minimizes air quality impacts consistent with the minimization of the visual impacts of the proposed facility.

Sithe Edgar proposes to seek a permit to burn oil as a backup fuel during periods of gas curtailment for a maximum of 30 days annually, with a restriction limiting its use of oil to periods outside of the summer ozone season. The record shows that the Company's proposed air emissions are higher than they would be if the proposed facility used only natural gas; however, modeled impacts remain below SILs and in most years the Company expects between 10 and 20 days of oil-fired operation rather than 30 days. The record also shows that the Company is unable, at this time, to obtain a firm 365-day gas supply without the construction of a second pipeline interconnect to serve the Edgar Station site. Such a pipeline would have significant costs and could have significant environmental impacts. The record also shows that the proposed facility, when burning oil, would have emissions below those of existing marginal units, and that it therefore has the potential to contribute to regional air quality through displacement even when burning oil. Further, because the site is located in a port area, the traffic impacts normally associated with the delivery of oil can be minimized through barge deliveries. On balance, the Siting Board concludes that the air quality and limited traffic benefits that would be associated with eliminating oil firing would be outweighed by the costs and potential environmental impacts either of obtaining a 365-day supply of natural gas, or of shutting down the proposed facility when gas is unavailable. Consequently, the Siting Board finds that Sithe Edgar's proposal to seek a permit to burn oil as a backup fuel during periods of gas curtailment for a maximum of 30 days annually minimizes environmental consistent with minimizing the cost of mitigation, control and reduction of such impacts.[38[38]]

[38[38]] In making this finding, the Siting Board notes that the Company also has raised fuel diversity issues, and has indicated that ISO-NE has concerns about the trend toward eliminating dual-fuel capability in power plants being proposed in New England. The Siting Board notes that, while there is considerable fuel diversity in the New England generation stock, much of that diversity is represented by older, less efficient plants, and

The Company proposes to use emissions reductions from the Mystic Station AQIP to meet the Siting Board's CO_2 mitigation requirement. The Siting Board has set forth an approach to the mitigation of CO_2 emissions that requires generating facility applicants to make a monetary contribution, within the early years of facility operation, to one or more cost-effective CO_2 offset programs, with such program(s) to be selected in consultation with the Siting Board staff. Dighton Power Associates, EFSB 96-3, at 42-43 (1997) ("Dighton Power Decision").[39[39]] In the Dighton Power Decision, the Siting Board expressed an expectation that the contributions of future project developers would reflect that set forth in that decision, which was based on an offset of one percent of annual facility CO_2 emissions, at $1.50 per ton, to be donated in the early years of facility operation. Id. at 43.

In two previous generating facility reviews, the Siting Board has addressed proposals to provide CO_2 mitigation based on the shutdown or curtailment of an existing source of CO_2 emissions, using either direct transfer of CO_2 offsets or transfer collateral to transfer of NO_x emission reduction credits ("ERCs"). Berkshire Power Decision, 4 DOMSB 221, at 370-374; Sithe Mystic Decision, EFSB 98-8, at 26-30. In the Berkshire Power Decision, the Siting Board set forth a standard for approval of a CO_2 mitigation program based on shutdown or curtailment of existing sources which stated that an applicant should demonstrate either: (1) that it would acquire CO_2 offsets or ERCs via a market that is operative or planned within an identifiable timeframe, and that is linked to meeting criteria for CO_2 emission limitations or reductions in the United States or other applicable region; or (2) that it would purchase CO_2 offsets that would lead to a source shutdown or curtailment which would not occur without such purchase.[40[40]] Berkshire Power

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that there may be regional environmental and economic advantages to having a number of more efficient plants that can be dispatched on oil when natural gas is unavailable or uneconomic. However, as part of the Siting Board review, any applicant proposing to use oil as a backup fuel must demonstrate, based on the specific circumstances, that such use of oil minimizes environmental impacts consistent with minimizing the cost of mitigation, control and reduction of such impacts.

[39[39]]Prior to the Dighton Power Decision, the Siting Board required generating facility applicants to commit to a specific program of CO_2 mitigation, such as a tree planting or forestation program, designed to offset a percentage of facility CO_2 emissions within the early years of facility operation. See Berkshire Power Decision, 4 DOMSB 221, at 373-374.

[40[40]]The Siting Board noted that offsets from shutdown or curtailment of existing CO_2 sources could provide a significantly greater level of offsets at a cost similar to that of tree planting arrangements previously accepted by the Siting Board. Berkshire Power Decision, 4 DOMSB 221, at 371. Because offsets based on shutdown or curtailment of existing sources would potentially allow larger offset levels and be more cost-effective, the Siting Board encouraged future applicants to pursue such offset approaches. Id. at 373.

Decision, 4 DOMSB at 373-374. In the Sithe Mystic Decision, the Siting Board accepted for the first time a CO_2 mitigation program based on voluntary curtailment of operations at an existing source, subject to conditions precluding collateral use of the curtailed operations for offsetting other pollutant emissions. Sithe Mystic Decision, EFSB 98-8, at 26-30.

Here, Sithe proposes to provide CO_2 mitigation based on using a portion of CO_2 emission reductions from the Mystic Station AQIP to provide offsets for emissions from the proposed facility. Sithe argues that an offset level of 28,342 tpy, representing 2.9 percent of the emissions reduction available from the Mystic Station AQIP and 1 percent of the added emissions from the proposed facility, meets the requirements of the Siting Board for CO_2 mitigation as set forth in both the Berkshire Power Decision and the Dighton Power Decision.

The record indicates that, rather than purchasing CO_2 offsets from another source or entity as envisioned in the Berkshire Power Decision, Sithe would designate, for use as offsets, CO_2 emissions reductions from a facility that it now owns. The Siting Board finds that the transfer of offsets proposed by Sithe, although distinct in transactional terms, falls within the general scope of the offset transfer framework addressed in the Berkshire Power Decision.

As recognized by Sithe, there currently is insufficient development of a CO_2 offset market linked to meeting criteria for CO_2 emissions limitations or reductions in the United States or other applicable region to serve as a basis for establishing the consistency of Sithe's CO_2 offset proposal with the first prong of the standard set forth in Berkshire Power Decision. Thus, the Siting Board turns to the second prong of its standard for accepting CO_2 offsets from the shutdown or curtailment of existing sources – that the shutdown or curtailment would not occur without the acquisition of the CO_2 offset as proposed.

The record shows Sithe has identified a number of netting or offset arrangements for criteria pollutants that it has developed, to date, based on the Mystic Station AQIP, including use of 395 tpy of NO_x emissions reductions for netting out NO_x emissions from the new Mystic Station units and use of up to 945 tpy of NO_x emissions reductions for offsetting NO_x emissions at the Sithe Fore River and Sithe West Medway projects. The record further shows that of the 973,000 tpy of CO_2 emissions reductions from the Mystic Station AQIP, Sithe has planned to use 54,000 tpy, or 5.5 percent, to meet the Siting Board's CO_2 offset requirement for the new Mystic Station Units 8 and 9. Considering Sithe's identified netting/offset arrangements to date for both NO_x and CO_2, the record demonstrates that the proposed use of 28,342 tpy, or 2.9 percent, of the CO_2 emissions reductions from the Mystic Station AQIP to meet the Siting Board's CO_2 mitigation requirement would not be collateral to any of the other identified netting/offset arrangements, i.e., the identified arrangements in aggregate would not consume more than 97.1 percent of the reductions available from the Mystic Station AQIP.

However, Sithe may seek certification by MDEP of unused NO_x reductions from the Mystic Station AQIP as Massachusetts Emission Reduction Credits. See Sithe Mystic Decision, EFSB 98-8, at 24.

Beyond criteria pollutants, Sithe also may consider using CO_2 reductions from the Mystic Station AQIP to meet CO_2 offset requirements for other projects, for example the Sithe West Medway Project.

To ensure the consistency of Sithe's proposed CO_2 offset approach with the purpose of the second prong of the Siting Board's standard for accepting CO_2 offsets from the shutdown or curtailment of existing sources, the Siting Board must ensure that, going forward, Sithe would not develop netting or offset arrangements that would be collateral to the CO_2 reductions designated as offsets for the proposed CO_2 emissions from the proposed facility. Were the Company to make collateral use of the portion of the Mystic Station AQIP curtailment on which its CO_2 offsets are based, in order to provide emissions offsets relating to other pollutants and/or other sources, there would be little basis for the Siting Board to conclude that the affected portion of the Mystic Station AQIP curtailment would not have occurred without the CO_2 emission offset arrangement that constitutes the CO_2 mitigation for the proposed facility. In effect, with such collateral use of the Mystic Station AQIP curtailment, there would be little basis for the Siting Board to conclude that the proposed CO_2 emission offset arrangement would have any beneficial effect in reducing CO_2 emissions, in the absence of a CO_2 offset or ERC market linked to emissions limitations or reductions criteria. See Sithe Mystic Decision, EFSB 98-8, at 28-29.

Accordingly, as a condition of accepting Sithe's proposed CO_2 mitigation, the Siting Board requires that Sithe provide, as part of a CO_2 mitigation plan to be submitted to the Siting Board prior to or within the first year of operation, evidence of agreements or arrangements relating to the planned Mystic Station AQIP emissions reductions that establish that the Company will make no collateral use, for purposes of providing emissions offsets for other pollutants and/or other sources, of the portion of the Mystic Station AQIP curtailment on which the CO_2 offsets for the proposed facility are based.

Sithe has argued that its proposal to provide offsets for 1 percent of facility emissions also would generally conform to the Siting Board's requirements set forth in the Dighton Power Decision, which provided for a monetary contribution for CO_2 mitigation, based on an offset level of 1 percent of facility emissions and an assumed mitigation cost of $1.50 per ton. We note that, as was the case in the Siting Board's recent review of proposed CO_2 mitigation for the Sithe Mystic project, no monetary transaction is required as part of Sithe's proposed CO_2 mitigation in this review. In the Sithe Mystic Decision, the Siting Board held that based on evidence of recent transaction prices, the assumed value of $1.50 per ton is reasonably consistent with the current cost range for acquiring CO_2 offsets.[41[41],42[42]] Sithe Mystic Decision, EFSB 98-8, at 29.

41[41]The Siting Board recognizes that, in future reviews, evidence may be developed that supports use of a different assumed monetary value for the cost of providing CO_2 offsets, or use of a range of monetary values, or a greater or sole use of a non-monetary basis, in determining the appropriate level of CO_2 mitigation. Future applicants are put on notice that the Siting Board may seek to develop evidence relating to the appropriateness of the review standards set forth in the Dighton Power Decision or other reviews, and separately

The Siting Board finds that, subject to the above condition that Sithe provide a CO_2 mitigation plan to establish that the Company will make no collateral use of the portion of the Mystic Station AQIP curtailment on which the CO_2 offsets for the proposed facility is based, Sithe's proposed approach of providing offsets for 1 percent of the proposed facility's CO_2 emissions, 28,342 tpy, from a portion of the CO_2 emissions reductions from the Mystic Station AQIP would conform to the Siting Board's requirement for CO_2 mitigation.

Alternatively, consistent with the CO_2 mitigation standard in the Dighton Power Decision, the Company may elect to provide a monetary contribution in the early years of facility operation to a cost-effective program or programs to be selected upon consultation with the staff of the Siting Board, based on the maximum CO_2 emissions from the operation over 20 years of the proposed facility. If the Company elects to provide a monetary contribution, the Siting Board requires the Company to provide CO_2 offsets as described above through a total contribution of $902,842,[43][43] to be paid in five annual installments during the first five years of facility operation.[44][44]

Accordingly, the Siting Board finds that, with the implementation of the above condition concerning CO_2, the environmental impacts of the proposed facility would be minimized with respect to air quality.

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that the Siting Board may adjust its existing monetary standard to account for inflation or other similar minor changes based on the passage of time.

[42][42]We also note that the selection by applicants of a CO_2 mitigation program or programs in consultation with the staff of the Siting Board -- a conditional requirement in recent generating facility reviews consistent with the CO_2 mitigation standard set forth in the Dighton Power Decision -- must include consideration of the relative cost-effectiveness of various reasonably available programs. Dighton Power Decision, EFSB 96-3, at 42-43. See, e.g., ANP Blackstone Energy Company, EFSB 97-2/98-2, at 113-114 (1999) ("ANP Blackstone Decision")..

[43][43]The contribution is based on offsetting 1 percent of facility CO_2 emissions over 20 years, at $1.50 per ton. The 20-year amount is first distributed as a series of payments to be made over the first five years of project operation, then adjusted to include an annual cost increase of 3 percent. See IDC Bellingham Decision, EFSB 97-5, at 38; Sithe Mystic Decision, EFSB 98-8 at 30; U.S. Generating Company, EFSB 96-4, at 117-118 ("Millenium Power Decision").

[44][44]If the Company chooses, the CO_2 offset requirement also would be satisfied by a single first-year contribution for CO_2 offsets as described above, based on the net present value of the five annual payments totaling $902,842, discounted at 10 percent per year. See IDC Bellingham Decision, EFSB 97-5, at 38; Sithe Mystic Decision, EFSB 98-8 at 30; Millenium Power Decision, EFSB 96-4, at 117-118 (1997). The single up-front payment of $734,868 would be due by the end of the first year of operation.

C. Water Resources

In this section, the Siting Board addresses the water-related impacts of the proposed facility, including: the water supply requirements of the facility and related impacts on affected water supply systems and on wetlands and other water resources, the water-related discharges from the facility, including wastewater discharges and discharges from on-site stormwater management facilities, and related impacts of wastewater systems on wetlands and other water resources.

1. Water Supply

Sithe Edgar stated that the annual average water use for the proposed facility would be 131,268 gallons per day ("gpd"), for sanitary and process use, including steam/power generation, emissions control, cleaning and cooling (Exh. EFSB-WG-6-C (att.) at 6-3). The Company indicated that its water use would be approximately 46,214 gpd under normal operating conditions, approximately 129,690 gpd during warmer months when additional water would be needed for evaporative cooling in order to increase the power output, and approximately 895,961 gpd during oil firing (id. at 6-3 to 6-4; Exh. EFSB-B-11 (figs. 3-8 to 3-10)). The Company stated that it would minimize its water consumption through use of dry low NOx combustion instead of water injection during gas firing, and by recycling the HRSG blowdown, flash steam blowdown, GT evaporative cooler blowdown, and demineralizer backwash (Exhs. EFSB-WG-6-C (att.) at 6-5; EFSB-WU-8). The Company testified that the only other option it could use to reduce water supply requirements would be to recycle miscellaneous water lost during the steam cycle, but that it rejected this option because the recycled water could potentially contaminate the plant equipment (Tr. 11, at 1023-1024). The Company proposed to construct on the proposed site one 385,000 gallon raw water tank (for fire, landscaping, and other non-process needs), and two demineralized water tanks with capacities of 850,000 gallons and 85,000 gallons, respectively (Exh. EFSB-WG-6-C (att.) at 3-7(fig. 2-2)).

Sithe Edgar presented two water supply alternatives: (1) its preferred alternative, to obtain water from the MWRA system through an existing utility pipe that runs from Quincy across the Fore River to the northern portion of the site; and (2) its backup alternative, to barge in demineralized water from Sithe's Mystic and New Boston plants (id. at 4-12 to 4-13; Exh. SED-1, at 1-33, 4.3-4 to 4.3-6). [45[45]]

[45[45]] Sithe Edgar initially considered a third alternative — purchasing water from the Weymouth municipal system (Exhs. EFSB-B-11, at 3-20; EFSB-WU-11). However, during the course of the proceeding, the Company raised questions about the ability of the Weymouth system to provide a reliable supply of water to the proposed facility, and indicated that Weymouth is under an Administrative Consent Order with MDEP as a result of withdrawals beyond its permitted rate (Exhs. EFSB-WU-6; EFSB-B-11, at 4-33 to 4-34; EFSB-WU-25). The Company subsequently testified that it no longer considers the Weymouth municipal system to be a viable water supply option for the proposed facility (Tr. 11, at 1025-1026).

Sithe Edgar stated that since a portion of the proposed site crosses the boundary between Quincy and Weymouth, the Company is eligible to interconnect with Quincy's water supply system under the MWRA's "Straddle Policy"[46[46]] (Exhs. SED-1, at 4.3-4 to 4.3-5; EFSB-WU-2). The Company indicated that it had received approvals from the MWRA, Quincy, and Weymouth to connect into the Quincy system (Exhs. EFSB-WU-2-B (att.); EFSB-WU-2-C (att.); EFSB-WU-2-S5). The Company indicated that the MWRA approval was based upon an evaluation of the availability of water from the local (Weymouth) water supply, the impact of water use on MWRA's and on the host community's (Quincy) system, and the applicant's demonstration of water conservation and water supply improvements or protection measures (Exhs. EFSB-B-11 (app. K); EFSB-WU-2-B (att.)). Sithe Edgar stated that the MWRA approval was conditioned on: (1) assurance by the Company that no additional connections or resale of water would occur without MWRA review; (2) agreement by the Company to be subject to and participate in all water conservation and demand management programs implemented by Quincy or the MWRA; and, (3) payment of an entrance fee into the MWRA system (Exhs. EFSB-B-11 (app. K); EFSB-WU-2-S3). Sithe Edgar received approval from Quincy on the condition that the Company clean and line 700 feet of water main on Washington Street in Quincy and that it construct a new 12-inch water main from Wharf Street in Quincy to the Weymouth Town Line (Exhs. EFSB-WU-2-S (att. a); EFSB-B-11 (app. N)).

Sithe Edgar stated that the MWRA has a long-term system capacity of 300 million gallons per day ("mgd"), which it obtains from its Quabbin, Ware, and Wachusett reservoirs (Exh. EFSB-WU-4). The Company indicated that the MWRA's water use has been approximately 250 mgd since 1989, and that in 1996 the MWRA projected that water demand could decline within its system (id.). The Company stated that Quincy's hydraulic modeling and flow testing indicated that the system currently could reliably provide 1,000 gallons per minute (1.44 mgd) of water to Sithe Edgar (Exhs. EFSB-WU-2-S (att. a); EFSB-B-11 (app. N)). The Company stated that the MWRA, on average, supplies 9.7 mgd of water to Quincy, with a peak of 13.4 mgd, and that Quincy's maximum capacity is 20 mgd (Exhs. SED-1, at 4.3-4 to 4.3-5; EFSB-B-11, at 3-20). Sithe Edgar asserted that Quincy's water supply capacity would increase to 32 mgd once local reservoir improvements are completed in 2002, because of an increase in hydraulic pressure (Exhs. SED-1, at 4.3-4; EFSB-WU-2-S). The Company asserted that it is unlikely to need a back-up water supply if it obtains its water from Quincy (Exh. EFSB-WU-5). The Company stated that it had received a Determination of Applicability or Insignificance under the Interbasin Transfer Act from the Massachusetts Water Resources Commission ("WRC") for its proposed water transfer (Exhs. EFSB-WU-2-D; EFSB-B-20-S).[47[47]]

[46[46]] MWRA Policy # OP.09, Water Connections Serving Property Partially Located in a Non-MWRA Community (Exh. EFSB-WU-2-B).

[47[47]] The Interbasin Transfer Act can apply to transfers of under 1 million gallons of water from one basin into a different basin (Exh. EFSB-B-20-S). In this proceeding, the

Sithe Edgar's backup water supply alternative would involve barging demineralized process water from Sithe's facilities in Everett (Mystic Station) and Boston (New Boston Station), through Boston Harbor to the proposed site (Exhs. EFSB-B-11, at 3-20, 4-31 to 4-32; EFSB-WU-16; EFSB-WU-17).[48[48]] Under the barging alternative, the Company stated that it would acquire a 440,000 to 792,000 gallon barge for the sole purpose of hauling demineralized water (Exh. EFSB-B-11, at 4-32). The Company stated that it also would need to construct a larger demineralized water tank if it pursued the barging alternative (Exh. EFSB-WU-12). Sithe Edgar estimated that a maximum of 105 barge trips per year would be necessary in order to meet its water supply needs, with a maximum of two barges required a day in order to provide enough water to run the facility on oil (Exh. EFSB-B-11, at 4-32). The Company estimated that it would take 11 to 14 hours round-trip to transport water to and from the site, and that it would use additional barges if the single barge could not meet the water supply needed during oil firing (Exh. EFSB-WU-20). The Company asserted that the barge trips would not have any noise, air, fisheries or water impacts, and probably would not require the opening of the Fore River Bridge (Exhs. EFSB-WU-15; EFSB-WU-18; EFSB-WU-19; EFSB-WU-22). Sithe Edgar argued that neither the Quincy alternative nor the barging alternative would have any noticeable environmental impact, and therefore the two alternatives are comparable from an environmental standpoint (Exh. EFSB-WU-40).

Sithe Edgar presented information demonstrating that no public water supplies -- ground or surface, private wells, MDEP Zone II recharge areas, or high or medium yield aquifers -- are located within one mile of the proposed facility (Exh. EFSB-SS-17 (att.)). The Company asserted that since no ground or surface water resources are located near the proposed facility, it would have no impact on water supplies in the area (Exh. SED-1, at 4.3-2).

In its application filed with the Federal Energy Regulatory Commission ("FERC"), Algonquin indicated that the natural gas pipeline, which would be upgraded to serve the proposed facility, would cross over 2,000 feet of high or medium yield aquifers, three miles of an Outstanding Resource Water, and six Class A (suitable for public water supply) waterbodies (Exh. EFSB-B-18 (att. A at 2-1 (tabs. 2.1-1, 2.2-1))). Algonquin indicated in its application that most construction impacts to these resources would be temporary (id. (att. A at 2-1 to 2-11)).

Company is transferring up to .89 million gallons of water only during oil firing, from the Chicopee River and Nashua River basins in Central Massachusetts to Boston Harbor or the atmosphere (id.; EFSB-WU-2-D)

[48[48]]The Company indicated that it expects its water needs at Sithe Mystic Station to decrease as a result of restrictions on the operation of certain units, and that neither Everett, the MWRA nor the City of Boston imposes any water use limits on Sithe Mystic (Exhs. EFSB-B-11, at 4-31; EFSB-WU-13).

2. Wastewater and Stormwater

Sithe Edgar stated that the proposed facility's wastewater flows would be minimized by meeting applicable regulations that require the installation of low- flow fixtures for sanitary wastewater and through the recycling, reductions and reuse of process water (Exh. EFSB-WG-6-C (att.) at 6-10). The Company estimated that the proposed facility would generate a wastewater stream of between 39,983 and 42,858 gpd (id. at 6-6 to 6-8). The Company indicated that this wastewater would be discharged to either the Weymouth or the Quincy sewer system, both of which discharge into MWRA's system (id. at 6-6 to 6-10; Exh. EFSB-RR-71).

Sithe Edgar indicated that its preferred option would be to connect into the Weymouth sewer system using an existing ten-inch sewer pipe that runs along King's Cove Beach (Exh. EFSB-WG-6-C (att.) at 6-8 (fig. 6-1)). The Company performed a capacity analysis which indicated that the sewer system had adequate capacity for the projected wastewater flows, and noted that Weymouth had indicated there were no problems affecting this part of its sewer system (id. at 6-8 to 6-9 (Tab. 6.3-1); Tr. 11, at 1092). However, the Company stated that the Weymouth sewer system generally has experienced severe overflow problems, and noted that Weymouth is subject to an Administrative Consent Order with MDEP that establishes a sewer bank and requires that new sewer customers provide improvements to remove inflow and infiltration ("I/I") at a ten to one ratio (Exhs. EFSB-WG-6-C (att.) at 6-6 to 6-10; EFSB-B-11, at 3-31; EFSB-B-7; EFSB-B-7-S; EFSB-WQ-3-B). Further, in comments in response to the Final Environmental Impact Report ("FEIR"), MDEP, MWRA, and the Office of Coastal Zone Management ("CZM") all expressed concerns regarding the ability of the local sewer systems to handle the proposed facility's wastewater (Exh. EFSB-RR-73). The Company indicated that MWRA's proposed sewer project is designed to remediate the sewer overflow problems (Exhs. EFSB-B-7; EFSB-B-7-S). In addition, the Company stated that it would meet MWRA's standards for pretreatment of wastewater (Exhs. EFSB-RR-73; EFSB-WG-6-C (att.) at 4-16).

The Company indicated that if it were unable to meet the I/I removal requirement, it would instead connect with and discharge to an existing ten-inch sewer line in Quincy (Exhs. EFSB-WG-6-C (att.) at 6-10; EFSB-RR-71). The Company indicated that it had initiated discussions with Quincy concerning this alternative (Exhs. EFSB-WG-6-C (att.) at 6-10; EFSB-RR-71).

With respect to stormwater discharge, Sithe Edgar estimated that the proposed site currently has 5.8 acres of impervious surface, which would increase to 6.8 acres following construction of the proposed facility (Exh. EFSB-WW-7). The Company stated that the existing stormwater management system on the proposed site does not appear to be in good working order, to have any pollution removal capabilities, or to collect all the runoff from impervious surfaces (Exhs. EFSB-RR-69; EFSB-B-11(app. B at B-2); Tr. 11, at 1064-1071). Sithe Edgar therefore proposes to redevelop the stormwater system by collecting all drainage from impervious surfaces on the southern portion of the proposed site into deep sump catch basins for oil

separation, funneling the stormwater into two detention ponds, and eventually discharging the stormwater to the Weymouth Fore River (Exh. EFSB-WG-6-C (att.) at 5.4-11; Tr.11, at 1087-1088).

The Company stated that it would meet all applicable MDEP stormwater standards administered under the Wetlands Protection Act ("WPA") (Exhs. EFSB-WG-6-C (att.) at 5.4-11; EFSB-B-11 (app. B)).[49[49]] The Company expects to remove at least 80 percent of total suspended solids from the stormwater (Exh. EFSB-WG-6-C (att.) at 5.4-15). Regarding Standard 6, which relates to shellfishing areas, the Company asserted that stormwater would not be discharged directly to the designated shellfishing areas located in the King's Cove and Mill Cove areas that abut the site (id. at 5.4-17, (fig. 5.4-5); Tr. 11, at 1051-1052). However, the Company testified that, in any case, calculations of on-site stormwater volumes are based upon one inch of rainfall, which meets Standard 6 (Tr. 11, at 1095-1097).[50[50]]

The Company testified that it owns and will use the access roads on the northern portion of the site during the construction and operation of the proposed facility (id. at 1072-1073). The Company did not propose to redevelop the stormwater systems on the northern portion of the site, arguing that a chemical or oil spill on the access road which lies on that portion of the site would be highly unlikely, and that responsibility for the cleanup of any such spill would lie with the trucking company (Tr. 10, at 1001-1003; Tr. 11, at 1072, 1078-1079). However, the Company acknowledged that Standard 5 applies to areas of higher pollutant loads, which for the proposed facility would include all access roads on the proposed site used for the operation of the facility (Exh. EFSB-RR-70).

In order to construct and operate the proposed facility, Sithe Edgar stated that it would be required to obtain the following permits related to the proposed facility's wastewater and stormwater discharge: a sewer connection permit from the Weymouth Department of Public Works; a Minor Sewer Connection/Extension permit from MDEP; a sewer use permit from MWRA; a cross connection permit from MDEP; an Order of Conditions from the Weymouth Conservation Commission; a 401 Water Quality Certification from MDEP; a Section 404 permit from the US Army Corps of Engineers ("ACOE"), and a

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[49[49]] The Company stated that Standard 2, which does not allow post-development discharge rates to exceed pre-development peak discharge rates, does not apply to discharges to tidal waters (Exhs. EFSB-WG-6-C (att.) at 5.4-16; EFSB-WW-18). The Company noted that Standard 3 states "Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extend practicable" (Exh. EFSB-WG-6-C (att.) at 5.4-16). The Company noted that Standard 5, which pertains to higher potential pollutant loads such as that from the proposed facility, does not allow infiltration of stormwater (id. at 5.14-15 to 5.14-16).

[50[50]] The stormwater regulations submitted by the Company state that only one-half inch of stormwater runoff needs to be treated when it is not near a sensitive resource area (Exh. EFSB-B-11 (app. B at B-12)).

National Pollutant Discharge Elimination System ("NPDES") stormwater discharge permit for industrial facilities (Exhs. EFSB-B-20-S; EFSB-B-11, at 2-20; EFSB-WG-6-C (att.) at 5.4-11).

Sithe Edgar stated that it would file a Stormwater Pollution Prevention Plan ("SPPP") under USEPA's Stormwater General Construction program and a NPDES General Stormwater Permit under USEPA (Exhs. EFSB-WG-6-C (att.) at 5.12-8; EFSB-B-20). During construction, the Company has proposed to maintain silt fences and/or hay bales along downslope sides of the construction area adjacent to the Fore River and around unstabilized fill or pile areas and catch basins, to stockpile fill or materials at least 100 feet from the river, to intercept and trap runoff water and sediment, and to permanently stabilize the site after construction (Exh. EFSB-WG-6-C (att.) at 5.12-8 to 5.12-9). The Company indicated that it would meet state construction stormwater guidelines under the WPA and comply with any construction conditions imposed by the Weymouth Conservation Commission (id.).

3. Water Supply Impacts with Once Through Cooling

In its initial petition, Sithe Edgar proposed the use of once-through cooling ("OTC") (Exhs. SED-1, at 1-20 to 1-24; EFSB-B-11, at 3-10 to 3-13). The Company subsequently altered its proposal, and now proposes an ACC system (EFSB-WG-6-C (att). at 2-7). In order to determine whether environmental impacts have been properly balanced with the ACC proposal, we here summarize the water quality impacts of the Company's original OTC proposal.

Sithe Edgar stated that OTC would require 310,000 gpm (446,400,000 gpd) of non-contact cooling water to cool the steam exiting the steam turbine, and would raise the temperature of the cooling water by up to 12 degrees Fahrenheit during full facility load (Exh. EFSB-B-11, at 3-10).[51[51]] The cooling water would be withdrawn from the mid to upper portions of the Fore River through a new 112 foot intake structure located on the southwestern edge of the site, and would be discharged through a new floating weir discharge structure downstream of the intake structure (Exh. EFSB-B-11, at 3-11 (figs. 3-4 and 3-5)). The Company indicated that the intake structure would contain traveling screens and fish return systems designed to protect marine life (id. (fig. 3-5)). The Company stated that, if it were using OTC, it would discharge treated process water to the Fore River in combination with the OTC discharge, rather than to the Weymouth or Quincy sewer system, as currently proposed (id. at 5.4-63 to 5.4-65). The Company stated that it would need a NPDES permit from the USEPA and MDEP to construct and operate the proposed facility with OTC, and indicated that the OTC discharge would be reviewed under other permits the project would require, such as CZM consistency review, MDEP's 401 water quality certification, the WPA permit, and ACOE Section 404 permit (Exhs. EFSB-B-11 (tab. 2.1); EFSB-B-20).

[51[51]] Sithe Edgar also considered a variation of the OTC alternative that would decrease the volume of intake water to 256,000 gpm, but increase the potential temperature increase to 14.5 degrees Fahrenheit (Exh. EFSB-B-11, at 3-10).

Sithe Edgar submitted documents indicating that the Fore River is classified as a Class SB (saltwater swimmable/fishable) waterbody, but does not consistently meet water quality standards for this classification, due primarily to sewer overflows, but also to industrial discharges and urban runoff (Exhs. EFSB-WQ-3 (atts.); EFSB-WG-2 (att.); EFSB-B-11, at 5.4-6 to 5.4-7; EFSB-WG-5; FRWA-10). The Company provided water quality studies showing that the Fore River periodically violates criteria for dissolved oxygen ("DO"), total fecal coliform, gross alpha, nickel, and zinc (Exhs. EFSB-B-11, at 5.4-5 to 5.4-7; EFSB-WG-2). The Company stated that the majority of the flow from the Fore River is tidal, with relatively little freshwater input, and that the daily circulating water volume of the OTC would be less than five percent of the low tide volume of the Fore River above the Fore River Bridge (Exh. EFSB-WQ-24).

Sithe Edgar modeled the expected impact of the OTC discharge of heated water into the Fore River during high, low, ebb, and flood tides and calculated the predicted temperature changes at different levels within the water column during the spring and summer (Exh. EFSB-B-11, at 5.4-7 to 5.4-53 (figs. 5.4-2 to 5.4-27)). The Company indicated that the proposed discharge would increase the temperature of the Fore River by more than 1.5 degrees outside the mixing zone[52[52]] in the summer, requiring a waiver under the Clean Water Act (id. at 5.4-2 to 5.4-6; Exh. EFSB-WF-7). The Company asserted that the discharge would not raise the temperature of the Fore River above 85 degrees Fahrenheit, the upper temperature limit for waterbodies to meet the SB classification (id. at 5.4-3). The Company also asserted that water temperature increases associated with OTC discharges would not affect other water quality indicators, such as DO, dissolved nitrogen, and total suspended solids, or shellfish, but later testified that temperature does in general affect all those water quality parameters (Exhs. EFSB-WQ-16; EFSB-WQ-24; EFSB-WF-2; Tr. 14, at 1311-1313).

Sithe Edgar stated that the use of OTC would result in some unavoidable entrainment (ichthylplackton that get sucked through fish screens) and impingement (fish caught in the screens) impacts to the fisheries of the Fore River (Exh. EFSB-B-11, at 5.5-32 to 5.5-34). The Company also stated that it would use a biofouling agent in the intakes that could affect fisheries if improperly used (id. at 5.4-66; Exh. EFSB-WF-8; Tr. 11, at 1097-1098). The Company indicated that fish species using the Fore River include: alewife, blueback herring, Atlantic menhaden, Atlantic silverside, Atlantic tomcod, cunner, rainbow smelt, silver hake, windowpane, winter flounder, American lobster, and soft shelled clam (Exhs. EFSB-B-11, at 5.5-4 to 5.5-7; EFSB-WF-1-R). The Company did not formally estimate the number of fish that might be impinged or entrained; however, it discussed the likely relative impacts to species based upon their life histories, use of the Fore River, and abundance in the area (Exhs. EFSB-WF-9; SED-1, at 4.3-30 to 4.3-32).

52[52]The Company explained that the mixing zone is defined by MDEP as "an area of volume of a waterbody in the immediate vicinity of a discharge where the initial dilution of the discharge occurs..., excursion from certain water quality criteria may be tolerable" (Exh. EFSB-WF-7b (att.)).

Specifically, the Company noted that Atlantic silversides, cunner, and windowpane are numerically dominant in the Fore River, and thus might represent the highest number of impinged fish (Exh. EFSB-WF-9). However, the Company suggested that impacts on winter flounder and rainbow smelt might be more significant because winter flounder is an important species economically and the Fore River is an important habitat for rainbow smelt (Exh. EFSB-WF-9). The Company indicated that it would reduce impacts on the fish by using a low approach velocity intake structure that incorporates traveling screens and an escape passage (Exh. SED-1, at 4.3-33 to 4.3-35).[53[53]] In addition, Sithe offered to provide $250,000 a year during the life of operation for watershed restoration in the Fore River, including fish habitat restoration and storm water remediation (Exh. EFSB-B-11, at 5.5-34 to 5.5-35; EFSB-WF-10).

Comments on the Draft Environmental Impact Report ("DEIR") from the USEPA, MDEP and several other agencies, suggest that the Company's analyses of the environmental impacts and cost impacts of different cooling technologies and the thermal and fisheries information provided by the Company were incomplete (Exh. EFSB-WG-6-S). The agencies also: (1) expressed concerns about the proposed facility's impact on the fisheries, citing large fish kills at other power plants; (2) noted the significant efforts that have been directed towards the clean-up of Boston Harbor; and (3) expressed concern over the decline of certain fisheries in this region (id.; Exh. EFSB-RR-74; Tr. 11, at 1101-1103). In response to these comments, the Company testified that its analyses of temperature impacts were accurately modeled, but indicated that not enough information was available at the time it prepared the DEIR to accurately assess the fisheries impacts associated with OTC (Tr. 11, at 1032-1037, 1116-1120).

Sithe Edgar testified that USEPA clearly discouraged the use of OTC for the proposed project (Tr. 11, at 1125). The Company submitted a letter from the USEPA stating that Sithe Edgar would be required to undergo a section 316 (b) review to ensure use of Best Technology Available and to prepare an Environmental Impact Statement ("EIS") if it proposed to use OTC, and that the permitting process could take 18 months to three years (Exh. EFSB-RR-74). In its letter, USEPA stated that "Any of the environmental analyses,..., could have resulted in the preclusion of the once-through cooling alternative proposed by Sithe" (id.). The Company testified that it therefore considered the OTC option a regulatory risk, and indicated that the delay and regulatory risk would have an economic impact on its proposal; however, the Company did not attempt to quantify that economic impact (Tr. 11, at 1037-1039; Tr. 14, at 1312-1219).

The Company estimated that its current proposal to use ACC rather than OTC would increase the construction cost of the proposed facility by $20.6 million (including increased equipment and noise mitigation costs), and would increase operating costs by $2,136,000 per year (including the decrease in the

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[53[53]] The Company also proposed to reduce entrainment rates by up to 20 percent by decreasing the volume withdrawn which would result in a higher thermal change, 14.5 degree Fahrenheit, in the cooling water (Exh. SED-1, at 4.3-35 to 4.3-36).

amount of electricity the Company could produce) (Exh. EFSB-CT-13). Sithe asserted that the use of ACC rather than OTC would result in an increase in the on-site impervious surface of less than 20 percent, and otherwise would not significantly change stormwater impacts (Exhs. EFSB-WW-7; EFSB-WW-23; EFSB-RR-64). Sithe stated that the only direct impacts to fisheries of the proposed project with ACC are the impacts to shellfish as a result of dredging associated with the construction of the dock (Exh. EFSB-WF-13).[54[54]]

4. Analysis

The record indicates that the proposed facility would have an annual average water use of 131,268 gpd, with 45,589 gpd used during normal operation, 129,690 gpd used during evaporative cooling, and 895,336 gpd used during oil firing. The Company has demonstrated that it would employ all feasible means to reduce water use during normal operation, and that it has significantly reduced the estimated water use for the facility from that set forth in the initial Petition. In addition, the record indicates that the highest level of water use, during oil firing, would occur only in the winter, when water supply systems are less likely to be under stress. The Company's average annual water demand would be approximately 61,823 gpy per MW, which is the third lowest reviewed by the Siting Board to date, and the lowest for a facility using oil back-up.[55[55]]

The Company has evaluated multiple water supply alternatives, including the options of water obtained from MWRA through Quincy, water obtained from Weymouth, and water delivered via barges from Sithe's other sites. The record demonstrates that the Company eliminated the Weymouth water supply option from consideration because it was not certain that Weymouth could meet the proposed facility's demands with its permitted water supply or current infrastructure.

[54[54]] See Section III. D, below, concerning shellfish mitigation proposed by the Company.

[55[55]] The Siting Board estimates annual water demand per MW by taking the highest proposed average annual water use in gpd, multiplying it by 365 days (assuming the worst case scenario), and dividing that number by the MW of the proposed power plant. This method accounts for different water uses found during the year and accounts for different plant sizes. The comparable usage rates in recent reviews were: up to 19,249 gpy per MW for the 700 MW air-cooled IDC Bellingham project; 31,790 gpy per MW for the air cooled 1550 MW Sithe Mystic station; 99,450 gpy per MW for the 580 MW air-cooled ANP Blackstone project; 93,448 gpy per MW for the 580 MW air-cooled ANP Bellingham facility; and 224,000 gpy per MW for the 170 MW air-cooled Dighton Power Project. IDC Bellingham Decision, EFSB-97-5, at 41; Sithe Mystic Decision, EFSB 98-8, at 35; ANP Blackstone Decision, EFSB 97-2/98-2, at 132; ANP Bellingham Decision EFSB 97-1, at 118; Dighton Power Decision, EFSB 96-3, at 219, 240.

The Company has received the necessary approvals under the Straddle Policy to receive water from MWRA and has obtained support from Quincy. The record indicates that the MWRA has 300 mgd of supply and currently uses on average 250 mgd of water. In addition, the record indicates that the demand for MWRA water supply services may decrease in the future. The record demonstrates that the Company intends to comply with applicable laws and regulations concerning water supply.

The Company also submitted information on the barging alternative; however, it discussed the environmental impacts of barging only briefly, and did not quantify the impacts of the barging alternative on water or traffic, address the impacts of constructing a new demineralized water tank, or demonstrate the support of Boston, Everett, or MWRA for this alternative. In addition, the Company did not fully discuss how it would manage barging water and oil during oil firing, but stated that it would secure a back-up barge if necessary. Consequently, the Siting Board finds that insufficient information has been provided to approve the facility using the barging alternative for water supply under normal operating conditions, although the record does support approval of plans to use the barging alternative on an emergency basis.

Of the three water supply alternatives, the record demonstrates that the Quincy alternative is the most feasible, would result in minimal environmental impacts, and has the approval of other regulatory agencies. Consequently, the Siting Board finds that the Company has demonstrated that it has chosen the water supply alternative that would minimize environmental impacts.

The Company testified that the proposed project (excluding the interconnections) would not have an impact on any groundwater or surface water sources, because of its proximity to a tidal area. The proposed project is not located near or on any high or medium yield aquifer, MDEP Zone I or II recharge area, or any ground or surface water supply. The Siting Board notes that Algonquin's upgrade of its pipeline system to serve the proposed project could affect a significant amount of surface and ground water public water supplies, but also recognizes that impacts to these resources can be minimized through FERC and Conservation Commission reviews. Consequently, the Siting Board finds that the proposed project's impacts to ground and surface freshwater or public water supplies would be minimized.

The record indicates that the Company proposes to discharge a maximum of 42,858 gpd of wastewater into the sewer system, and that the Company has reduced its expected wastewater stream through proposed steps to minimize water supply requirements and install low flow fixtures at the proposed facility. In addition, in order to address concerns regarding sewer overflows in Weymouth's sewer system, the Company, as part of its connection permit requirements, would provide for sewer inflow and infiltration reductions at a ratio of ten to one. The record indicates that there are uncertainties as to the ability of Sithe to use its proposed approach of discharging to Weymouth's sewer system, given concerns of MDEP and MWRA about existing overflow problems. However, it appears Weymouth believes this is a feasible option, and that the MDEP and MWRA would be able to address any concerns as part of their review of the proposed discharge.

The Company indicated that if the Weymouth option were not feasible, it would discharge process wastewater to Quincy. The Siting Board notes that there is not enough information to determine if the Quincy option is feasible and would minimize environmental impacts; therefore, if the Company cannot discharge project sewage into the Weymouth system the Company is required to notify the Siting Board of such change, so that the Siting Board may decide whether to inquire further into this issue.

The Siting Board concludes that the Company has shown it would minimize its expected use and production of wastewater, and would offset its contribution of wastewater to Weymouth by providing I/I reductions, while also choosing a wastewater discharge alternative that minimizes impacts. Accordingly, the Siting Board finds that the impacts of the proposed facility on wastewater would be minimized.

Sithe Edgar demonstrated that it intends to comply with state and federal regulations concerning the discharge of stormwater during construction and operation. The record demonstrates that the existing site, which currently has extensive areas of impervious surface, has minimal, if any, stormwater remediation prior to discharging to the Fore River. On the southern portion of the site, the record indicates that the Company would significantly improve the stormwater discharges by removing 80 percent of the suspended solids in the stormwater, by treating up to one inch of rain to protect shellfishing areas, and by providing means to prevent oil and hazardous waste from entering stormwater discharges. The record also indicates that the Company would also create a SPPP and a SPCC program plan and employ measures to reduce stormwater runoff and contamination and the risk of hazardous spills during operation (see Section III.H).

The record indicates that the Company intends to comply with USEPA, ACOE, and Weymouth Conservation Commission's regulations concerning stormwater during construction. However, the Company's plans for site utilization during construction and for permanent access road improvements raise two concerns with respect to stormwater impacts.

First, the record shows that during construction there would be no on-site buffer between the construction area and the Fore River, and that there would be limited space for the Company to accommodate significant requirements for parking and lay down areas while also providing adequate stormwater protection at the site. The Siting Board notes that, by taking steps to reduce the space required for construction parking, the Company could provide more space to protect the Fore River during construction. As discussed in Section III. I , below, the applicant expects to employ measures such as encouraging workers to carpool and to use mass transit, and possible subsidizing of the cost of MBTA passes for workers. The Siting Board encourages the applicant to use any additional space created by a decrease in parking needs to create a construction buffer along the Fore River.

Second, the Siting Board notes that the Company did not propose to renovate the stormwater system for the access roads on the northern portion of the site. The Company argues that this area is not part of the proposed facility, since the Company is not constructing on this portion of the site. However, the record demonstrates that the access roads on the northern, as well as the southern, portions of the site

would carry increases of traffic, including increases in the amounts of hazardous materials delivered as a result of the proposed facility. In addition, the record shows that there are critical areas and important environmental resources in the Weymouth Fore River, such as shellfishing beds and significant fisheries near the proposed facility.[56[56]]

The Siting Board is concerned that there would be untreated stormwater discharging from the proposed facility site into a tidal river resource which is a highly productive fishery. Consequently, to minimize the impact of the proposed facility's stormwater discharges on water quality and fisheries, the Siting Board requires the applicant to provide stormwater management on all access roads owned by Sithe at the Fore River Station site as necessary to meet identified stormwater quality and flow standards, consistent with the stormwater management approach and standards used for proposed access road improvements on the southern portion of the proposed facility site. The Siting Board finds that, with the provision of stormwater management on all access roads at the Edgar Station site, the environmental impact of stormwater from the proposed facility would be minimized.

With the implementation of the above condition, the Siting Board finds that the environmental impacts of the proposed facility on water quality, public water supplies, wastewater systems, stormwater, and groundwater would be minimized. Accordingly, based upon the review of all evidence presented, and upon compliance with the conditions noted above concerning stormwater, the Siting Board finds that the environmental impacts of the proposed facility would be minimized with respect to water resources.

The record indicates that as part of project development, the Company has analyzed both OTC and ACC for purposes of facility cooling, and selected ACC based on its evaluation to date, with input from USEPA and other regulatory agencies. The record indicates that the Company initially proposed use of OTC, that the Company had initially concluded use of OTC would provide substantial cost advantages, and that as mitigation for OTC impacts on fisheries the Company was prepared to contribute $250,000 per year to a watershed restoration projects in the Fore River area. In addition, the record shows that use of OTC would have provided important advantages with respect to reducing the noise impacts and the visual impacts of the proposed facility, as discussed in Sections III. F and III. G, below. Thus, the record provides support for the position that, considering overall environmental impacts and cost together with possible mitigation for fisheries impacts of OTC, it may well be possible that use of OTC would have minimized the environmental impacts of the proposed facility, consistent with minimizing cost.

However, as discussed above, Sithe Edgar's decision to switch to ACC significantly reduces the expected environmental impacts of the proposed facility with respect to water resources, since the record

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[56[56]] The Company acknowledges that at least one of MDEP's stormwater regulations under the Wetlands Protection Act, Standard 5, likely is applicable to the site access roads. The record shows that the Company has not made the required WPA filing with the Weymouth Conservation Commission (see Section III. D, below).

indicates that use of OTC would have resulted in thermal impacts and impingement/entrainment that could not have been fully avoided, and also would have resulted in additional wetlands impacts. Further, the Company did not fully explore the impacts of the OTC discharge on the ecology of the Fore River, and several agencies expressed significant concern about the use of OTC and the availability of information concerning its impacts. Thus, although the Company initially concluded it could minimize the impact of the proposed facility with OTC on the Fore River, uncertainties remain as to the full extent of the impacts of OTC and the benefits of the Company's proposed mitigation.

The record indicates that the Company's decision to switch to ACC was based in large part on the time frame and uncertain outcome of the USEPA's permitting review for use of OTC. Although the economic impacts of the delay associated with OTC are not quantified, based upon letters submitted by state and federal agencies, the record shows that it is uncertain whether the Company would have received the necessary permits to operate with OTC.

The record demonstrates that impacts to water quality and fisheries would be substantially fewer with use of ACC than with use of OTC. The record indicates that the impacts of the proposed facility on stormwater discharges and sewer systems would be slightly greater with use of ACC than with use of OTC. Consequently, the Siting Board finds that the proposed project with ACC, rather than with OTC, would minimize water resource impacts.

As noted above, use of ACC results in significant disadvantages with respect to noise and visual impacts. However, use of OTC entails a permitting time frame that threatens the viability of the project. In addition, based on the proposed and required mitigation for noise and visual impacts, use of ACC would not result in environmental disadvantages that outweigh its environmental advantages. Accordingly, the Siting Board finds that use of ACC is consistent with the minimization of environmental impacts.

D. Wetlands

This Section describes the wetland impacts of the proposed facility and its interconnections and the mitigation proposed by the Company.

1. Description

The Company delineated and described the wetlands, as defined by the ACOE and the MDEP, that exist on or are adjacent to the proposed site (Exhs. EFSB-B-11(fig. 5.6-1); EFSB-WG-6-C (att.) at 5.4-2 to 5.4-10).[57[57]] On the proposed site, the Company described two areas of Coastal Beach, one in the proposed

[57[57]] The Company noted that there is one freshwater resource on or adjacent to the proposed site (Exh. SED-1, at 4.3-1 to 4.3-2). The Company stated that it is defined as an isolated wetland under federal jurisdiction and that MWRA will replicate it as part of its proposed project (id.).

location of Lovell's Grove adjacent to Route 3A and one upstream of the existing powerhouse (id.; EFSB-WG-6-C (att.) at 5.4-7). In addition, the Company noted that the entire site is bordered by Coastal Bank that separates the land and the water[58[58]], and that large portions of the proposed site contain Land Subject to Coastal Storm Flowage ("LSCSF") (id.; EFSB-WG-6-C (att.) at 5.4-7 to 5.4-9).[59[59]]

The Company indicated that the WPA 100-foot buffer zone runs along the coastal bank associated with the river and coves (Exhs. EFSB-B-11(fig. 5.6-1)). The Company stated that the MDEP also protects riverfront areas that lie within 200 feet of a river, but noted that the DEP regulations exclude any portions of land that are on filled tidelands (id.; Exh. EFSB-WG-6-C (att.) at 5.4-5 to 5.4-6). Consequently, the Company explained that it delineated three separate fingers of riverfront area that are surrounded by filled tidelands on the proposed site (Exhs. EFSB-B-11 (fig. 5.6-1); EFSB-WG-6-C (att.) at 5.4-5 to 5.4-6). Sithe stated that it would meet the performance standards for each isolated section of Riverfront Area on the site, including less than 5000 square feet ("sf") of disturbance in areas not previously developed and an improvement of the conditions of previously developed riverfront areas (Exh. EFSB-WW-22-S). The Company stated that its property extends into the water and that all the area under water is Land Under the Ocean ("LUO"), that Land Under an Anadromous Fish Run ("anadromous fish run") borders the west of the site, and that Land Containing Shellfish ("LCS") exists in Mill Cove and King's Cove (Exhs. EFSB-B-11(fig. 5.6-1); EFSB-WG-6-C (att.) at 5.4-4 to 5.4-5, 5.4-9 to 5.4-10).

The Company has proposed to construct a fuel oil unloading dock on the southern portion of the site and to refurbish the existing dock on the northern portion of the site, requiring alteration of 2.9 acres of LUO, including the removal of 30,650 cubic yards of sediment (Exh. EFSB-WG-6-C (att.) at 5.4-5). Sithe indicated that the ACOE, under a Section 10 permit and Section 103 of the Marine Protection, Research, and Sanctuaries Act, and the MDEP, under a Section 401 Water Quality Certification permit, regulate dredging and disposal activities in waterways (id. at 5.5-1 to 5.5-5; Exh. EFSB-B-20-S). The Company stated that the dredging would result in a temporary and localized increase in turbidity of the water column (Exh. EFSB-WG-6-C (att.) at 5.5-10). The Company stated that it would use silt curtains to confine the suspended sediments (id.). The Company also indicated that it had sampled the sediments in the area of proposed dredging, using a plan approved by the ACOE, and stated that preliminary results show that the dredged material is of suitable quality for open water disposal (id. at 5.5-6 to 5.5-11). The Company noted that it had reduced dredging impacts by switching from OTC to ACC and relocating the fuel oil barge to less productive shellfishing areas (id. at 5.5-10). In its comments on the FEIR, the ACOE noted its concern

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[58[58]] Based upon 310 CMR 10.30(2) and MDEP Wetlands Protection Program Policy 92-1, the Company defined an area of Coastal Bank extending into the upland portions of the proposed site near the location of the proposed ACC (Exh. EFSB-RR-67).

[59[59]] The Company explained that LSCSF is defined by the area below the elevation of water during a 100 year storm surge (Exh. EFSB-WG-6-C (att.) at 5.4-7 to 5.4-9).

about the filling of LUO and tidal areas on the site (Exh. EFSB-RR-73-A). The Company originally proposed to reconstruct the existing dock on the northern portion of the site for oil deliveries, which it indicated may have reduced the impact to LUO; subsequently, Sithe decided to build the oil unloading dock on the south side in order to coordinate more effectively with MWRA's construction activities and to increase the safety of oil delivery (Exhs. EFSB-B-8; EFSB-S-1; EFSB-S-11).

The Company stated that the construction of the oil barge unloading facility would also have an impact on two small areas of LCS (Exh. EFSB-WG-6-C (att.) at 5.4-9). Sithe stated that its tests show that these areas are not very productive shellfish beds; however, the Company indicated that it would work with DMF and the Weymouth Shellfish Warden to implement a shellfish seeding program as mitigation for any impact (id. at 5.4-9 to 5.4-10; Exh. EFSB-WW-22-S).[60[60]] The Company stated that its proposed project would not have an impact on anadromous fish runs since the project would not affect water quality and circulation, which are the identified interests under the WPA for this resource area (Exh. EFSB-WG-6-C (att.) at 5.4-10).

Sithe Edgar indicated that it in order to raise the proposed facilities above the 100 year storm surge, the Company would fill over six acres of the LSCSF located on the site, and build upon much of this area (id. at 5.4-7; Exh. EFSB-WW-12 (att.)). Sithe asserted that the filling of LSCSF would not increase flooding, and stated that MDEP does not have any standards that apply to LSCSF (Exhs. EFSB-WG-6-C (att.) at 5.4-7; EFSB-WW-12 (att.); EFSB-WW-3, at 1-2). The Company stated that there would not be any impacts to Coastal Beach at the proposed site (Exhs. EFSB-WG-6-C (att.) at 5.4-7; EFSB-B-2-S2-B).[61[61]]

The Company indicated that because the site is in a DPA, fewer WPA standards are applicable to the site (Exhs. EFSB-WG-6-C (att.) at 5.4-2 to 5.4-3; EFSB-B-5). The Company stated that LUO is the only type of wetland in a DPA presumed to be significant to the interests of the WPA, and it is presumed to be significant only for storm damage protection, marine fisheries, and flood control (Exh. EFSB-WG-6-C (att.) at 5.4-1 to 5.4-4). In addition, the Company noted that the WPA regulations specifically provide for electric generation facilities and allows for the construction of certain structures and interconnections

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[60[60]] In its comments in response to the FEIR, the Massachusetts Division of Marine Fisheries ("DMF") stated that it is unsure how effective such a program would be and suggests that the Company consider alternative mitigation measures or conducting a trial program (Exh. EFSB-RR-73 (atts.)).

[61[61]] In a supplemental response to an information request, however, the Company indicated that it would fill the "coastal beach area" of the southwest bulkhead (Exh. EFSB-WW-22-S). The Siting Board assumes that this inconsistency is a result of the inadvertent use of the word "beach" instead of "bank" in the Company's supplemental response.

associated with electrical generation even when a project area is determined to be significant to one or more interests of the WPA (id. at 5.4-2).

The Company stated that it would alter a portion of natural bank, at least 800 sf, landward of an existing riprap structure and south of the existing powerhouse in order to build the ACC (id. at 5.4-9; Exhs. EFSB-RR-67; EFSB-WW-12). The Company testified that it could not feasiblely move the proposed location of the ACC (Tr. 1, at 75-76).

The Company provided information concerning the impacts of Algonquin's proposed natural gas pipeline interconnect on wetlands (Exhs. EFSB-WG-6-C (att.) at 6-12 to 6-20; EFSB-18-A (att.)). In its application to FERC, Algonquin stated that its project would have a permanent impact on 17.6 acres of wetlands, and would have a temporary impact on 8.1 acres of wetlands. In this proceeding, the Company asserted that Algonquin would cross the Fore River using directional drilling, which would not require dredging (Exhs. EFSB-B-18; EFSB-WG-6-C (att.) at 6-10; EFSB-B-11, at 6-17). However, Algonquin's November, 1999 FERC application indicates that the proposed means to cross the river is still being studied, and that both open-cut and directional drilling are under consideration (Exh. EFSB-B-18-A).

Sithe Edgar testified that it would not conduct wetland restoration as part of its landscaping plans, other than to revegetate disturbed areas and replant the areas with native coastal species (Tr. 10, at 985-994). The Company stated that CZM's habitat policy #2 provides that project proponents should "Restore degraded or former wetland resources in coastal areas and ensure that activities in coastal areas do not further wetland degradation but instead take advantage of opportunities to engage in wetland restoration" (Exh. EFSB-WG-6-C (att.) at 5.6-3). The Company indicated that it would comply with this policy because the site has been previously filled for industrial activities, and it would contribute to the shellfish seeding program (id.).

The Company also stated that the proposed project is subject to MDEP's Chapter 91 regulations, because it is located on filled and flowed tidelands, and provided a copy of its Chapter 91 application (id. at 5.5-19 (figs. 5.4-6, 5.4-7); EFSB-WW-5-S (att.)). The Company stated that Chapter 91 regulates the activities which can take place in filled or flowed tidelands, sets the performance standards for dredging, construction, public access rights, and requires consistency with other regulatory performance standards (Exh. EFSB-WG-6-C (att.) at 5.4-27). Sithe indicated that different standards apply to water dependent and non-water dependent facilities that alter areas subject to Chapter 91 (id. at 5.4-27 to 5.4-28). In addition, the Company noted that different standards apply to facilities built in a DPA (id. at 5.4-28; Exh. EFSB-B-11).

The Company asserted in its Chapter 91 application that it is a water dependent facility, and cited that Chapter 91 regulations providing that the "Department shall presume to be water dependent... any energy facility for which the proposed location has been approved by the Energy Facilities Siting Council; this presumption may be overcome only upon a clear showing the proposed ... facility can reasonably be located or operated away from tidal or inland waters." (Exh. EFSB-WW-5-S (att.) at B-6 to B-7). The

Company also asserted that its dependence on barging for construction and oil delivery and its dependence on existing industrial structures located in a DPA demonstrates its water dependent use status (id. at B-7 to B-8)).

The Company also provided information on the wetland impacts of the proposed facility if it were built with OTC rather than ACC (Exh. EFSB-WW-12 (att.)). The Company estimated that under the OTC scenario, 67,500 sf of Coastal Beach and 800 feet of Coastal Bank south of the existing powerhouse would have been permanently altered by the construction of the intake structure and the construction dock, 5.04 acres of LSCSF would have been lost south of Route 3A, and that 191,660 sf of LUO, 29,600 sf of riverfront area, and 53,300 sf of LCS would have been temporarily altered in order to construct the proposed facility (Exh. EFSB-WW-12 (att.)). Sithe noted that there might have also been indirect impacts to resource areas such as an Anadromous Fish Run caused by the thermal impacts of the proposed facility using OTC (id.).

The Company stated that it needs to obtain the following wetlands-related permits to construct the facility as proposed: a section 404 permit from the ACOE; a Section 10 permit from the ACOE (for work within a navigational waterway); a Section 103 permit from the ACOE (for disposal of dredge material); an Order of Conditions from the Weymouth Conservation Commission; a CZM federal consistency permit; and a Weymouth Board of Zoning Appeals Special Permit for construction in a flood zone (Exhs. EFSB-WG-6-C (att.) at 5.4-1 to 5.4-2; EFSB-B-20-S (att.)). The Company received approval of its wetland boundaries from the Weymouth Conservation Commission through an Order of Conditions for demolition, but has not submitted its Notice of Intent to construct the proposed facility or the other necessary wetland permits (Exhs. EFSB-WG-6-C (att.) at App. H); EFSB-RR-66 (att.); EFSB-L-7; EFSB-B-20-S (att.)).

2. Analysis

The record indicates that the construction of the proposed facility and ancillary facilities including the ACC, oil delivery dock, and construction dock, would result in the permanent filling of six acres of LSCSF, temporary and permanent impacts to 2.9 acres of LUO, permanent impacts to 800 linear feet of bank, less than 5000 sf of permanent impacts to the riverfront area, and potential impacts to anadromous fish runs and LCS. In addition, the record indicates that Algonquin's Fore River project upgrades would result in permanent and temporary impacts to 25 acres of wetlands.

The Siting Board notes that the extent of wetlands resource areas affected by the proposed facility is significantly higher than for other recent facilities. However, the record indicates that opportunities to move structures outside of the wetland resource areas are limited and could increase other environmental impacts. In response to comments from MDEP, the Company already has modified its proposal to lessen its impacts to the riverfront area and coastal beach. The record demonstrates that the proposed filling of

LSCSF is necessary in order to decrease the likelihood of the flooding of the proposed facility.[62[62]] Although safety considerations associated with oil delivery by barge require construction of the oil dock in the southern location with consequent impacts to LOU, LCS, and potentially anadromous fish runs, the traffic impacts of delivering oil by truck are reduced by use of barging. Similarly, the record demonstrates that if the ACC were moved away from the river, the noise impacts of the proposed facility on residential neighborhoods would be greater (see Sections III.G and III.K). Finally, the record indicates that the impacts of the proposed facility using ACC would be fewer than the impacts of the proposed project using OTC. The Siting Board therefore concludes that the Company has minimized the direct impacts of the proposed facility on wetlands to the extent possible given the constraints of the site, the need to minimize other impacts, and the use of oil.

The Siting Board recognizes that under state regulations applicable to DPAs, only LUO is presumed to be significant to the protection of the interests of the WPA. In addition, we recognize that the Commonwealth has adopted policies that encourage the redevelopment of brownfield sites (see Section IV, below) and that, although the proposed facility will result in the alteration of significant areas of wetlands, these areas are, for the most part, already disturbed. Therefore, our concern about the extent of the anticipated wetland impacts is considerably less than it would be if similar alterations were proposed at a different site. In addition, we note the upcoming reviews of wetland impacts of the proposed facility and the natural gas interconnect by conservation commissions, ACOE, CZM, and MDEP help ensure that the wetlands impacts would be minimized.[63[63]]

Nonetheless, the Siting Board notes that existing wetlands on or adjacent to the proposed site, although disturbed and located within a DPA, still provide some environmental value, as evidenced by significant fisheries that exist in the Fore River, and that it is appropriate for the Company to take cost-effective steps to mitigate impacts to fisheries. Sithe Edgar has offered to participate in a shellfish seeding

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[62[62]] The Siting Board notes that the MDEP does not have standards for the alteration of LSCSF which might have otherwise limited the extent of the Company's filling of LSCSF.

[63[63]] The Siting Board notes that although many areas are not presumed to be significant under the WPA in a DPA, this presumption can be overcome, and the results of the Weymouth Conservation Commission's, ACOE's, or MDEP's review of this application have yet to be determined. In addition, the record does not indicate whether the proposed facility complies with federal wetland regulations. The Siting Board recognizes the impacts of the proposed facility on wetlands may change during permitting reviews by other agencies, and will require the Company to notify the Siting Board of project changes resulting from these reviews only if impacts to wetland resource areas increase significantly or if the changes result in significant increases in another environmental impact.

program to mitigate its impacts to shellfish areas. However, it is possible that limited wetland restoration or improvement of the previous natural conditions of the site may also be feasible. Therefore, the Siting Board encourages the Company to pursue opportunities for wetlands restoration on the site in conjunction with its landscaping plans (see Section III. F, below), with input from state, local, and federal agencies, and consistent with objectives for minimizing visual impacts. Opportunities for wetland restoration many include, but are not limited to: the restoration of bank areas to a more natural condition; and the relocation of fill on edges of the site to inland portions of the site to encourage certain edges to revert back to flowed wetland resource areas, such as salt marsh or tidal flats.

The Siting Board also notes that Sithe Edgar has indicated that the natural gas pipeline serving the proposed facility would be directionally drilled under the Fore River. However, Algonquin's Fore River Project application filed with FERC indicates that both open cut and directionally drilling are being considered and that open cut would result in greater impacts to fisheries and wetlands. Therefore, the Siting Board requests the Company to work with Algonquin to encourage the use of directional drilling to cross the Fore River.

Based on the above, with the implementation of the mitigation proposed by the Company, the Siting Board finds that the wetland impacts of the proposed facility would be minimized.

E. Solid Waste

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

1. Solid Waste

The Company stated that it would reuse brick and concrete from the existing buildings that will be demolished as fill for the proposed facility (Exh. EFSB-SW-6). The Company also proposed to separate and recycle other trash created during construction and to reuse construction materials such as wood (id.).

The Company indicated that the proposed facility would generate the following waste during operation: (1) approximately 50 to 60 tons per year of general trash including non-recyclable scrap metal, wood, plastic, cardboard, glass and other trash; (2) 10 tons per year of cardboard and paper; and (3) 1 to 2 tons per year of hazardous waste including batteries, light bulbs, chemical/oily rags, and other cleaning agents (Exhs. EFSB-SW-1; EFSB-SW-2; EFSB-RR-38). The Company indicated that during maintenance outages, there would be an increase in the production of solid waste, especially cleaning agents (Tr. 5, at 545-555). Sithe indicated that it would recycle paper, scrap metal, corrugated cardboard, glass, metal, plastic, and landscaping material (Exh. EFSB-RR-39). In order to reduce, reuse or recycle waste, the Company stated that it would properly segregate and label all non-hazardous and hazardous solid waste at

the source and employ a chemistry/environmental technician responsible for coordinating waste management and training personnel in waste handling (Exh. EFSB-SW-6; Tr. 5, at 555-556).[64[64]]

The Company noted that Weymouth does not provide recycling services to businesses or industries; Sithe therefore proposed either to take recyclable materials to an appropriate facility itself, or to retain a contractor to transport the materials to a recycling facility (Exhs. EFSB-RR-38; EFSB-RR-28; EFSB-RR-37).

The Company indicated that, in order to comply with Massachusetts' Toxics Use Reduction Act ("TURA"), it would engage in a planning process intended to evaluate the feasibility of reducing the use of certain chemicals, and it might be required to report on an annual basis the quantity of chemicals used and produced by the facility (Exh. EFSB-RR-39). In response to staff questioning regarding potential toxic use reduction strategies,[65[65]] the Company argued that these practices are used to reduce the use of toxic materials in older facilities, but that newer facilities are already minimizing their use of chemicals (Exh. EFSB-RR-39; Tr. 5, at 552-553). The Company discussed various means to dispose of spent NO_x and CO catalyst, through off-site disposal handled by an appropriately licensed contractor or supplier (Exhs. EFSB-A-3; EFSB-A-4).

2. Analysis

The record indicates that the proposed facility would produce 50 to 60 tpy of solid waste, including 1 to 2 tons of hazardous waste. The Company has stated that it would reduce, reuse and recycle solid waste to the maximum extent possible during construction and operation, and indicated it would encourage recycling by the separation of solid waste and the designation of a person responsible for solid and hazardous waste plans and management. The record shows that all remaining waste would be removed by licensed waste contractors and disposed of at appropriate disposal sites for hazardous and non-hazardous waste. In addition, the record indicates that the Company would be required to comply with TURA, which could lead to the reduction of the use and production of toxic chemicals.

The Siting Board notes that the proposed facility is a gas-fired plant, and that the Company's choice of fuel contributes considerably to the minimization of solid waste impacts, when compared to a

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[64[64]] The Company indicated that it is not aware of any averages or standards for solid waste production from gas-fired combustion plants (Tr. 5, at 547-549).

[65[65]] The Office of Technical Assistance under the Executive Office of Environmental Affairs ("EOEA") has standard toxic use reduction strategies that companies can employ to minimize the use and production of toxic chemicals, including: input substitution, production reformulation, process redesign or modification, process modernization, improved operation and maintenance of equipment and methods, and the recycling, reuse or extended use of toxic materials (Exh. EFSB-SW-9).

coal fired plant. See Silver City Energy, 3 DOMSB, at 173-174 (proposed coal-fired plant would generate 77,000 tpy of solid waste as compared to 500 tpy for gas-fired alternatives). The Company's plans to reuse materials from the existing Edgar structures as fill for the new facility, and its commitment to recycle both construction and operational waste, where possible, contributes to minimizing the solid waste impacts of the proposed facility. Accordingly, for the purposes of this review, the Siting Board finds that the environmental impacts of the proposed facility would be minimized with respect to solid waste.

In making this finding we note that although natural gas-fired generating facilities produce significantly less solid waste than facilities which are fueled by coal, the levels of solid waste produced from natural gas-fired facilities are not necessarily insubstantial or minimal. Consequently, the Siting Board concludes that further review of measures to minimize solid waste impacts of gas or oil fired facilities is warranted. The Siting Board, therefore, will require future applicants of proposed generating facilities, regardless of fuel type or size, to demonstrate that they have minimized solid waste impacts by characterizing the estimated waste stream from the proposed facility, describing the solid waste minimization and recycling strategies proposed for the facility, and as applicable, providing comparisons with statewide policy initiatives and/or governmental or industry guidelines or averages.

F. Visual Impacts

This Section describes the visual impacts of the proposed facility on Weymouth, Quincy, Braintree and surrounding communities.

1. Description

The Company stated that the proposed project site is located in a DPA near several existing industrial facilities (Exh. SED-1, at 4.4-1). The Company described the site as exposed in all directions and visible from several other communities (id.). Sithe provided maps which show that a number of areas have direct views across the water toward the site, including:
(1) heavily industrialized DPAs in Quincy and East Braintree west and southwest of the site; (2) residential areas in Quincy northwest and north of the site; and (3) residential areas of East Braintree and Weymouth to the south and southeast of the site (Exhs. WG-6-C (att. fig. 5.3-1); EFSB-RR-2-A; EFSB-A-17-C (att.)). The record contains evidence that there are three waterbody approaches to the site that provide viewsheds, including: (1) the upstream Fore River to the southwest in Weymouth; (2) the Town River to the northwest in Quincy; and (3) the downstream Fore River to the northeast towards Boston Harbor ((Exhs. WG-6-C (att. fig. 5.3-1)). The record contains evidence that approximately 15 recreational areas and approximately 22 marinas, yacht clubs, or boat launching facilities exist within two miles of the proposed site (Exhs. FRWA-S-5; EFSB-LU-1 (att.); FRWA-S-18 (att.)). In addition, the record reflects that the City of Quincy is close to obtaining the official designation of the Weymouth/Fore River as a Gateway to the Boston Harbor Islands National Park, and that there is a Harbor Express/Boston Harbor Islands Gateway Ferry Terminal that could serve up to 1,200 passengers daily (Exh. FRWA-6-A).

Sithe Edgar listed the existing structures on the site, which it proposes to demolish, as a 520 by 230 by up to 155 foot high powerhouse,[66][66] a 146 by 110 by 89 foot high switch house, and other ancillary facilities (Exh. EFSB-V-5-C).[67][67], [68][68] The Company estimated that the existing structures have a mass of 20,049,100 cubic feet and can be seen from communities one half to three quarters of a mile away (Exhs. EFSB-V-5-C; SED-1, at 5.5-1). The Company proposes to build a 350 by 255 by 102 foot high turbine building and a 200 by 425 by 102 foot high ACC (Exh. EFSB-V-5). Sithe Edgar estimated that the proposed facility would increase the total mass of structures by approximately eight percent (Exh. EFSB-V-5-C).[69][69]

Sithe Edgar stated that the proposed facility's stack would be 255 feet tall, 50 feet in diameter, and painted white (Exh. EFSB-V-5-S). The Company indicated that the 255 foot stack represented the GEP stack height and, as discussed in the Section II.B. above, theorized that it could reduce the stack to 250 feet and still maintain air impacts below SILs (Exh. EFSB-W-A-3-S2). Sithe Edgar provided a list of nine stacks, ranging from 60 to 255 feet in height and 1 to 17 feet in diameter, and one Goliath crane, 350 feet in height, located in the area surrounding the site and indicated that one of the stacks and the Goliath crane have Federal Aviation Administration ("FAA") lighting (Exh. EFSB-RR-80). Given the location of the site in a heavily industrial area with existing stacks, transmission towers, and other tall structures and with many open views of the site, the Company asserted that a lower stack height would not have a significant visual advantage (Exh. EFSB-A-10). The Company provided the FAA approval of its proposed facility and stated that the FAA would require one level of medium intensity white obstruction lights on top of the proposed stack (Exh. EFSB-V-2-S2; EFSB-V-15; EFSB-V-27).

The Company stated that it identified all the areas from which the stack might be visible based upon an interpretation of USGS maps and subsequently visited these areas to evaluate the view of the

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[66][66]The Massachusetts Historical Commission determined that the demolition of the proposed powerhouse would have "an adverse effect of the historical, architectural, and cultural characteristics of the ... property and will diminish the integrity of the property's design, setting , materials, workmanship, and feeling ..." (Exh. EFSB-B-11, at 8-23 (att.)).

[67][67]The Company noted that the powerhouse height varies from 97.5 feet to 155.5 feet (Exh. EFSB-V-5-S). The Company also included three fuel oil tanks and coal unloading/conveying buildings in its list of existing structures (Exh. EFSB-V-5-S).

[68][68]The Company submitted evidence that it had received a demolition permit in April 1999 (Exh. EFSB-RR-8).

[69][69]The Company noted that the proposed turbine building has a lower portion that is 350 by 75 by 43 feet tall (Exh. EFSB-V-5-S). The Company included many ancillary facilities in its total mass, including two fuel oil tanks, two water tanks, an ammonia tank, a gas compressor building, and other associated facilities (Exh. EFSB-V-5-S).

facility (Exhs. SED-1, at 4.4-2 to 3; EFSB-V-4; EFSB-V-29). Sithe Edgar explained that it screened out certain areas and chose representative viewsheds based on compass points where the view would be most prominent from residential areas (Exhs. SED-1, at 4.4-3; EFSB-V-4; EFSB-V-29). Sithe Edgar stated that it conducted a thorough drive-through analysis to make sure that no potential visual receptor was overlooked (Exhs. EFSB-V-17; EFSB-V-29; Tr. 13, at 1229-1231). The Company asserted that although one might be able to see the proposed facility from locations outside of the area its viewshed analysis, the proposed facility would not be very discernable, especially at distant locations (Tr. 13, at 1229-1233).

Sithe Edgar provided existing and proposed views of the site from eleven receptor locations (Exhs. EFSB-WG-6-C (att.) figs. 5.3-2 to 5.3-16)); EFSB-V-26 (atts.); EFSB-V-28 (att.); EFSB-V-6-S).[70[70]] The Company calculated the angular elevation from the viewpoint to the proposed facility and used these calculations to estimate the size and angles of the proposed facility from each viewshed (Exh. SED-1, at 4.4-5 and fig. 4.4-2). Using a computer, the Company digitized a representative view of the proposed facility with the existing structures removed, for each of the eleven viewsheds described above (Exh. SED-1, at 4.4-7).

The photographs from Monatiquot Street and Bluff Road (#1 and #2) show close-up and significant views of portions of the existing and proposed facility in which existing vegetation provides some amount of screening (Exh. EFSB-WG-6-C (att.) fig. 5.3-2 to 5.3-3). Photographs from across King's Cove located to the northeast of the site (#3 and #4) show views of the facility in which the existing facility appears larger than the new facility, but the new facility stack is highly visible; in addition existing trees provide some screening of the southern oil tank and small portions of the existing and proposed buildings (Exh. EFSB-WG-6-C (att.) figs. 5.3-5 to 5.3-7). The record indicates that the photographs from the southeast, south and southwest in Weymouth and Braintree (#6, #7, and #8) show views of the existing and proposed facility across Mill Cove and the Fore River, in which the new facility, except the stack, appears

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[70[70]]The Company stated that Viewshed (#1) was taken from the east side of Monatiquot Street near Bluff Road in Weymouth (defoliate), (#2) on Bluff Road off Monatiquot Street in Weymouth (foliate and defoliate conditions), (#3) along the west-facing coast of Kings Cove in Weymouth (defoliate), (#4) from the roadway on Babcock Avenue overlooking Kings Cove in Weymouth (defoliate and foliate), (#5) looking west from Route 3A near its intersection with Bayview Street (foliate), (#6) at a community park in the northeastern extreme of the Idlewell neighborhood of Weymouth (foliate), (#7) at a community park at the northwestern portion of Idlewell (defoliate), (#8) overlooking the Fore River in Braintree at the end of a residential neighborhood (defoliate and foliate), (#9) at a parking lot of the Quincy Mental Health Center which is near a high density residential neighborhood (defoliate), (#10) from the Fore River Bridge (Route 3A) (defoliate), and (#11) from the southern extreme of Germantown Point in Quincy (defoliate) (Exh. SED-1, at 4.4-4 to 4.4-5). There are two Viewshed #1's, one taken on the facility side of Monatiquot Street (defoliate) and one taken on the residential side of the street (foliate) (Exhs. EFSB-WG-6-C (att. fig. 5.3-2)); EFSB-V-28).

shorter than the existing structures, but as a result of the ACC, the facility appears larger; in addition, existing and proposed vegetation appears to provide minimal screening (Exh. EFSB-WG-6-C (att.) figs. 3-11 to 3-15 and 5.3-9 to 5.3-12). Photographs from sections of Quincy west of the proposed site show the existing and proposed facility screened by other industrial facilities, and photographs from Quincy to the northwest and north of the site show a more prominent view of the proposed facility than the existing facility as a result of the stack, while larger trees appear to screen the existing 6.3 million gallon oil tank (EFSB-WG-6-C (att.) fig. 5.13-13 to 5.3-15).

The Company also provided cross sections of the proposed facility from a transect that runs from the Fore River east to Monatiquot Street, including a comparison of the outline of a thirty-foot sailboat, a typical house, and the USS Salem (Exh. FRWA-V-1 (att.)).[71][71] In addition, Sithe Edgar provided an aerial simulation of the proposed facility layout and a three dimensional illustration of the proposed facility (Exhs. SED-6; EFSB-V-24-S2).

The Company asserted that the proposed facility is consistent with the existing industrial character of the area and that construction of the proposed facility would improve the view for all the receptors because of the substantially reduced building heights, the removal of a deteriorating facility, and the addition of attractive landscaping (Exhs. SED-1, at 4.4-1; EFSB-V-11-C-S; WG-6-C (att.) at 5.3-4)). Sithe Edgar also acknowledged that the removal of existing structures would make certain industrial structures, such as the Goliath Crane and the transmission towers, more visible from certain residential viewpoints; however, the Company noted that these background features are further away from affected receptors than the proposed facility (Exh. EFSB-V-22).

The Company stated that BECo's existing 277 and 349.5 foot transmission towers would remain on the site (Exhs. EFSB-V-32; FRWA-P-3; FRWA-P-2 (att.)). The Company indicated that in the draft system impact study the option of relocating the lines underground was considered and dropped for economic reasons (Exh. FRWA-P-3).[72][72] FRWA submitted digitized views of the Fore River area with the existing transmission towers, and the same views with the lines relocated underground and the towers removed (Exh. FRWA-7 (att. E)).

Sithe Edgar stated that it employed the FOG model to predict the number of days on which the proposed facility would emit a visible plume (Exh. EFSB-V-1-S).[73][73] The Company stated that the model

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[71][71]The USS Salem is a naval museum located across the Fore River in Quincy with up to 500 visitors per day in the summer (Exh. FRWA-S-7).

[72][72]The Siting Board notes that only an outline of the System Impact Study has been submitted into the record (Exh. EFSB-E-4-S2).

[73][73]The Company explained that a plume occurs when the water vapor in the exhaust hits colder temperatures, and the water vapor consequently condenses and forms droplets (Tr. 13, at 1215). The Company noted that it excluded 1,839 hours from the model for

indicates that a plume would be visible during approximately 20 to 25 percent of daylight hours (Exh. EFSB-V-1-S; Tr. 13, at 1216-1217). The Company testified that the plume would be approximately two to three hundred feet in length (Tr. 13, at 1218). The Company stated that in general, oil firing would not dramatically affect the number of hours of visible plume, but that the plume would be more visible in winter (id. at 1212-1213).

The Company indicated that the facility would have some night lighting, including lights every thirty feet along the roads, lights at the transformers, and lights, which would normally be turned off, surrounding and on top of the ACC (Exhs. EFSB-B-11, at 5.3-22; EFSB-V-3; EFSB-V-3-S; W-L-1 (att.)). The Company indicated that the exterior night lights would have cutoff features to reduce glare (Exhs. B-11, at 5.3-22; EFSB-V-3). The Company stated that the existing powerhouse has lighting, and that with the proposed landscaping much of this lighting would be screened from the Monatiquot Street neighborhood (Exhs. EFSB-V-3; EFSB-V-16). Sithe Edgar asserted that other nearby residential areas would not be affected by the exterior night lights because the lights would be barely perceptible from those distances (Exh. EFSB-V-16). Sithe Edgar stated that any exterior night lighting not mandated for safety or security reasons would be avoided (Exh. EFSB-V-3).

The record indicates that the proposed site has little dense vegetation, but that mature trees are found on the site partially screening the view of the existing facility (Exhs. EFSB-V-8; WG-6-C (att.) figs. 5.3-2 to 5.3-16). Sithe Edgar stated that significant lay down and parking space would be required on the entire site for construction of the proposed facility, as well as for the MHD and MWRA (Exh. EFSB-V-8; EFSB-B-11 (fig. 5.15-2)). The Company stated that it would make every effort to retain existing trees, especially those around Route 3A and along Monatiquot Street (Exh. EFSB-V-8; EFSB-WG-6-C (att.) 3-30, figs. 3-11 through 3-15). Based upon its construction plans, the Company testified that the trees on the eastern portion of the site would be easier to retain than those on the western portion of the site (Tr. 13, at 1243). The Company stated that it was not likely to be able to retain the trees near the proposed plant, but that it likely could retain the trees along Monatiquot Street and along the oil tank berm (id. at 1244 to 1246).[74[74]]

Sithe Edgar has proposed to landscape the facility in four main areas of the site: (1) along Monatiquot Street; (2) along the southwestern edge; (3) along the King's Cove edge on the northern portion of the site; and (4) along the Lovell's Grove area next to the river and Route 3A on the southern portion of the site (Exhs. EFSB-V-7-S-2; EFSB-WG-6-C (att.) sec. 3.0). The Company indicated that the Weymouth

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rain of .01 inches or more per hour, because the Company theorized that the plume would not be visible during these periods (Exh. V-1-S; Tr. 13, at 1214).

[74[74]]The Company noted, however, that the MWRA and MHD might not be able to retain the existing trees in some areas (Tr. 13, at 1244).

Board of Selectmen, the Weymouth Historical Commission, and the Massachusetts Historical Commission would have formal design review, under legal agreements, of the proposed facility (Exhs. EFSB-B-27; EFSB-WG-6-C (att.) app. D; EFSB-B-11 (app. F)). The Company also stated its commitment to involving the Weymouth Edgar Station Reactivation and Review Commission ("WESRRC")[75[75]] and Weymouth in the development of landscaping plans (Exhs. EFSB-V-7; EFSB-V-9).

The Company proposed to plant deciduous and coniferous trees and other vegetation along the eastern portion of the site, including an area up to 300 feet wide alongside the oil tank and for a length of 120-150 feet further south alongside Monatiquot Street (Exhs. EFSB-V-7-S; EFSB-V -7-S-2; WG-6-C (att.) (figs. 3-13 to 3-14)). Sithe Edgar stated that this area is very important for creating a buffer between the proposed facility and the neighborhood (Tr. 13, 1250 to 1251).

The Company noted that the area along Monatiquot Street to the south of the water tank is currently under a long-term lease with BECo, and is not included in the Company's landscaping plans (Exh. WG-6-C (att.) fig. 3-13); Tr. 1252-1253). In response to the Company's inquiry, BECo stated that providing landscaping would be acceptable conceptually, but BECo wanted the right of approval with respect to any vegetation placed along the eastern portion of the site (Exh. EFSB-RR-81).

The Company proposed to plant a thirty-foot wide area of trees and vegetation along the southwestern edge of the property (Exh. EFSB-WG-6-C (att.) fig. 3-15). The Company proposed to plant only grass along the edge of the ACC facing the Fore River (id.). The Company asserted that it could not hide the facility from persons traveling on the Fore River, but that the plantings would frame the ACC (id. at 3-30; Exh. FRWA-V-9).

The Company proposed to landscape two public access areas, known as Lovell's Grove and King's Cove (Exh. EFSB-WG-6-C (att.) figs. 3-11 to 3-12).[76[76]] At Lovell's Grove, along the western edge of the site, south of and adjacent to Route 3A, the Company proposed to provide a parking lot, a lawn, some trees/vegetation, and pathways along the edge of the Fore River for passive recreation (id. at 3-26,

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[75[75]]The Company described WESRRC as a group that was convened by Weymouth's selectmen to coordinate its and the community's review of the project so that Sithe would have one entity with which to discuss issues (Tr. 1, at 42-43). The Company stated that WESRRC was composed of members from the Town of Weymouth government and from the neighborhood, but did allow informal participation from unappointed members (Exhs. EFSB-B-11 (app. O); EFSB-L-8-S; Tr. 1, at 43-44). The Company indicated that WESRRC does not replace formal town review (id.).

[76[76]]For further discussion of the public access areas, see Section III. K. below.

fig. 3-12). Sithe Edgar asserted that this area would be an attractive public access area, but it would provide little visual buffer for the views from across the river (Tr. 13, at 1247 to 1248).[77[77]]

[77[77]]In addition, Sithe Edgar proposed to plant scattered trees to the east of Lovell's Grove surrounding the facility and the proposed oil tank (Exh. EFSB-WG-6-C (att.) at 3-30, fig. 3-14).

The Company would also provide public access in the King's Cove area along the eastern edge of the northern potion of the site from Route 3A to the site of the proposed MWRA IPS station (Exh. EFSB-WG-6-C (att.) at 3-28, fig. 3-12). The Company proposed trees, a pathway, a lookout, and informal gathering spots along this area that overlooks King's Cove and the Fore River (id.). The Company asserted that this proposed public access area does not provide significant visual screening opportunities (Tr. 13, at 1249-1250).

The Company stated that the proposed facility would be white with a blue stripe around the perimeter and asserted that the white would blend in with the horizon (Exh. EFSB-WG-6-C (att.) at 5.3-1). The Company depicted the ACC as suspended in the air with small support columns, but a photograph of a similar ACC displays a facility supported by an extensive bracing network (id. fig. 5.3-2; Exhs. EFSB-CT-7; SED-6). The Company testified that the ACC could either have smaller columns with bracing, or larger columns (Tr. 13, 1238-1239). The Company also indicated that it has entered into an agreement with Weymouth to repaint the oil tank on the northern portion of the site (Exh. EFSB-B-27).

The Company stated that the nearest scenic landscape listed in the Massachusetts Landscape Inventory is the Boston Harbor Islands (Exh. EFSB-V-10). The Company asserted that the proposed facility would not have an impact on this view, as the view is already a mixture of rural and industrial landscapes, and the proposed facility blends in with the existing view (id.).

Sithe Edgar stated that it would be willing to plant up to fifteen trees in the Monatiquot Street and Bluff Road neighborhoods at locations selected in consultation with the neighborhood (Exh. EFSB-V-31). Sithe Edgar asserted that planting trees at other receptors to screen the view of the proposed facility would also result in a reduced view of the Fore River (Exhs. id.; EFSB-V-9). The Company also noted that it was able to change the facility design so that it steps back the turbine building from the river (Exhs. EFSB-V-10; EFSB-V-26). The Company dismissed a number of other visual mitigation options including: screening the ACC, mitigating the appearance of existing structures, such as the peaking units and the oil tank,[78[78]] moving structures on the site, and using murals or different colors of paint (Exhs. EFSB-V-12; EFSB-V-13; EFSB-V-14; EFSB-V-18; FRWA-V-9; FRWA-V-10; FRWA-ACC-4; FRWA-ACC-5; FRWA-ACC-6; FRWA-ACC-7; FRWA-ACC-8; W-V-1). Finally, the Company argued that surrounding the proposed transformers that are directly along the Fore River with walls would result in less efficient cooling and that engineering issues prevented relocating of the transformers (Exh. FRWA-V-10; Tr. 14, at 1284-1287).

[78[78]] The Company has committed to refurbish the historic gatehouse as part of the MHC Memorandum of Understanding and to paint the northern oil tank as part of the settlement agreement with Weymouth (Exhs. EFSB-V-12; EFSB-B-23).

Sithe Edgar also produced viewsheds at the 11 receptors of the proposed facility with OTC (Exh. SED-1 (figs. 4.4-3 to 4.4-15); EFSB-V-6-S (att.)).[79[79]] The Company estimated that the proposed facility using OTC would have 40 percent less mass than the existing facility due primarily to the replacement of the ACC with a 55 by 50 by 30 foot high circulating water pumphouse (Exh. EFSB-V-5-S).[80[80]] The Company asserted that, overall, the proposed facility using OTC would have more favorable visual impacts than the proposed facility using ACC, and expressed concern about the size of the ACC near a residential neighborhood (Exhs. EFSB-B-11 (app. H, at H-13); SED-1, at 1-28). Specifically, the Company asserted that the views from receptors 1, 3, 4-8, and 11 would be improved with the elimination of the ACC structure, while views from receptors 2, 9, and 10 would not be affected (Exh. EFSB-V-11-C).

2. Positions of Parties

The FRWA argued that the entire northern portion of the site, except the area being used permanently by MWRA, should be protected for public access in order to protect and enhance public views and the visual quality of the natural and built environment of the shoreline (FRWA Initial Brief at 2-3). FRWA asserted that the preservation of the northern shoreline would benefit neighboring residential areas, because the site juts into the Fore River and is easily visible from many areas (id. at 2; FRWA Reply Brief at 3). The FRWA also requested that the oil tank on the northern portion of the site be removed (FRWA Initial Brief at 2-3). FRWA argued that the Siting Board should condition approval on landscape construction documents that are sufficiently detailed and have large and substantial plantings between the facility and the river (FRWA Reply Brief at 3).

In addition, the FRWA argued that the Company should place underground all power line facilities, or at minimum the powerlines supported by the two smallest towers near Smith Beach in Braintree (FRWA Initial Brief at 4-5; FRWA Reply Brief at 3). The FRWA asserted that the power lines are part of the proposed project's infrastructure and contended that the power lines have visual impacts on both the neighborhoods surrounding the Fore River and recreational users of the river (id.).

In response, Sithe Edgar argued that the disposition of the northern oil tank is outside the Siting Board's jurisdiction, because the oil tank is an existing structure entirely independent of the proposed facility (Company Reply Brief at 4). The Company asserted that the Siting Board has previously

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[79[79]] The Siting Board notes that at the time these photos were created, the proposed facility had a two-stack design, and the facility was represented as beige instead of white and blue.

[80[80]] The Siting Board notes that the dimensions given for the other structures that are part of the proposed facility using OTC are different from those same structures which are part of the proposed facility using ACC because the proposed facility has changed over the course of the review.

acknowledged that it has no jurisdiction over existing structures on parcels of land adjacent to the site of a proposed project (id., citing Hearing Officer Procedural Ruling, EFSB 98-8, at 5 (February 23, 1999)). The Company stated that it has agreed to work cooperatively with the Town of Weymouth for a mutually agreeable plan for the reuse of the northern portion of the site after all construction activities are finished (id. at 12). The Company also asserted that the Siting Board does not have jurisdiction over the existing transmission lines since they are existing structures not owned by the Company (id. at 7-8). Furthermore, the Company noted that, pursuant to Sections 22D through 22N of Chapter 164 the Legislature has required municipalities, rather than utilities, to bear the cost of burying transmission lines (id. at n. 3).

3. Analysis

The record demonstrates that the Company analyzed the potential impacts of the proposed facility at eleven receptor locations in the surrounding area that were selected based upon land use, proximity, and unobstructed views. For each such receptor, the Company submitted a viewshed showing the current view from that location, and a second viewshed showing future views with the proposed facility.

The record shows that current views from the Monatiquot Street neighborhood are mostly of the existing facility. The record indicates that some views from Monatiquot Street and the King's Cove neighborhood, which is northeast of the proposed facility, would improve as a result of the lower building heights and landscaping of the proposed facility. However, the record also indicates that, while it appears that existing trees screen the facility and the 6.3 million gallon oil tank from the northeast and east,[81[81]] the stack would be clearly visible to the residential communities to the northeast and east, including residents on Bluff Road in the Monatiquot Street neighborhood. To minimize impacts of the proposed facility at the closest residences, which are in the Monatiquot Street neighborhood, the Company stated that it would (1) provide 15 tree plantings, (2) create a mixed evergreen and deciduous buffer area between the proposed facility and the Monatiquot Street neighborhood, and (3) place most structures as far as possible from this neighborhood. The Company also has proposed to minimize the visual impacts of the proposed facility in the King's Cove neighborhood to the east/northeast of the site by (1) providing landscaping and public access along King's Cove which could soften and partially screen the facility, and (2) painting the northern oil tank pursuant to the Company's agreement with Weymouth.

The Company has expressed a willingness to implement certain visual mitigation measures as outlined above. However, the Siting Board notes that to the east in the Monatiquot Street neighborhood, the facility's mass and the stack would be clearly visible to nearby residents. Further, the screening of other facility structures is highly dependant on existing and proposed vegetation. Although the Company has offered to plant 15 trees in this neighborhood, it is not clear from the record that this number would

[81[81]] The record indicates that the Company may be able to retain some of the existing trees in this direction.

minimize visual impacts. In recent reviews, the Siting Board has required proponents of generating facilities to provide selective tree plantings and other reasonable mitigation in residential areas up to one mile from the proposed stack location to mitigate the visibility of the facility and the associated stack. IDC Bellingham Decision, EFSB 97-5, at 64-65; Sithe Mystic Decision, EFSB 98-8, at 49-50. This requirement is appropriate here to further minimize visual impacts in the close-lying Monatiquot Street neighborhood. Therefore, the Siting Board directs the Company to provide 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 at roadways and other locations in the residential area to the east of the proposed site, extending to and including the residential properties on Bluff Road, as requested by individual property owners or appropriate municipal officials.[82[82]]

In implementing the above directives for off-site mitigation of visual impacts, the Company: (1) shall provide shrub and tree plantings, window awnings or other reasonable mitigation on private property, only with the permission of the property owner, and along public ways, only with the permission of the appropriate municipal officials; (2) shall provide written notice of this requirement to appropriate officials in Weymouth, and to all potentially affected property owners in the residential areas east of the site, prior to the commencement of construction; (3) may limit requests for mitigation measures from local property owners and municipal officials to a specified period ending no less than six months afer initial operation of the plant; (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 of plantings, as necessary, to ensure that healthy plantings become established.

Further, we note that the Company has stated that it would provide on-site tree plantings to help minimize visual impacts to the east. With respect to all on-site plantings done by the Company, and especially the landscaped area located to the east of the facility footprint, useful screening is dependent upon mature trees that can effectively screen the facility, because smaller trees (under 10 feet) would only provide minimal screening until they are mature. Consequently, the Siting Board requires that the Company's tree plantings around the proposed site, especially plantings to the east, include a sufficient number of 20 foot trees to create some immediate screening of the facility after it is constructed.

82[82]The Siting Board notes that the record indicates that plantings at any neighborhood across the River would not necessarily provide substantial mitigation of the view of the proposed facility, and might interfere with the views of the river itself. In addition, the Siting Board notes that, to require the facility to provide mitigation within one-mile of the proposed facility, would not necessarily result in a reduced visual impact consistent with minimizing cost, because the record indicates that a one mile radius encompasses thousands of homes.

The record demonstrates that although the site does not contain extensive existing vegetation, the existing on-site vegetation would contribute to screening the proposed facility from residential neighborhoods to the east. Further, the Company has indicated that it would attempt to save existing trees, but that during construction trees on the eastern portion of the property would be more easily saved than those trees on the western portion. Therefore, to help ensure that screening benefits from the existing on-site vegetation are not lost, the Siting Board requires the Company to replant any existing trees in the area bounded approximately by Route 3A, the western edge of the existing 3.4 million gallon oil tank, Monatiquot Street, and the Town of Weymouth Water Tank, that are 16 feet or higher and removed for construction of the proposed facility, with trees that are between 16 to 20 feet high. Based on the record, this is the area closest to residences on the east and the area where the Company is most likely to be able to save trees.[83[83]]

The record demonstrates that the proposed facility would be sited adjacent to the Fore River on the western side of the site, with no existing or proposed visual buffer from the river and the largely industrial areas on the opposite shore. To provide some mitigation of visual impacts of the proposed facility on river users and areas to the west, the Company would step back the proposed facility so that some smaller structures are closer to the river, and would frame the view of the proposed facility by placing areas of landscaping on either side of the facility.

The record demonstrates that north and northwest of the proposed site there would be visual impacts to the residential areas in Quincy because the proposed 255 foot stack would be more visually intrusive than the existing facility. Further, the record indicates that because of the stack height, there could be significant visual impacts to river uses to the north and northwest of the proposed facility. The Siting Board therefore requires the Company to provide landscaping that will provide vegetative screening and shoreline restoration and improvements[84[84]] along the northwestern shoreline of the northern portion of the proposed site which would serve as a continuation of the proposed King's Cove area.[85[85]] This landscaping along the northwestern shoreline shall be designed to minimize the visual impacts of the proposed facility on residential areas to the northwest and north and recreationists on the Fore River and Town River Bay consistent with maintaining the potential for future use of the northern portion of the site.

[83[83]]The Siting Board recognizes that the MWRA and MHD will be using the proposed site for construction, and therefore requests the applicant to work with MWRA and MHD to adhere to the goal of retaining or replanting as many 20 foot or higher trees as feasible.

[84[84]]As stated in Section III. D, above, the Siting Board encourages the Company to pursue wetland restoration on the site.

[85[85]]The Siting Board notes that the Company is required under a NPDES Stormwater Permit for Construction to stabilize and replant all areas after construction is complete.

As discussed in Section, III.K, below, the Company has entered into an agreement with the Town of Weymouth to work cooperatively toward a mutually agreeable plan for the future development or use of the northern portion of the site. The Siting Board recognizes that the use of the northern portion has not yet been determined, and consequently requires the minimization of visual impacts as described above to be maintained, in the form established or an equivalent, on the northern portion of the site for the life of the operation of the proposed facility, regardless of future use or ownership of the northern portion of the site.

The record demonstrates that to the south of the proposed facility, river users and certain residential neighborhoods would have a view of the ACC and the existing BECo transmission towers and associated transmission lines. The record shows that the Company has initiated discussions with BECo concerning the landscaping of the southeastern and southern portions of the site. Further, the Company stated that to screen the facility slightly from the river and from the residential areas, the Company would provide limited landscaping along the southwestern side of the site.

The FRWA has raised concerns related to the visual impact of BECo's existing transmission lines, which extend from the site over the Fore River, and about safety issues related to recreational boating on the river. To resolve such visual and safety issues, FRWA argues that the transmission lines should be relocated underground in conjunction with the interconnection of the proposed project. The record indicates that at least some of the transmission lines crossing the Fore River would carry power from the proposed project, and would be subject to changes in power flow with operation of the project to accommodate the project output. However, under the most likely interconnection scenario, only one line would likely be reconductored and no line would be rebuilt (see Section III. H, below).

We note that the BECo transmission lines are not ancillary facilities within the scope of the Company's petition to the Siting Board for approval of its generating facility. Further, to the extent that some determination could be made in the future that BECo's transmission lines pose a safety concern, whether under applicable law or industry or company criteria, it presumably would be BECo's responsibility to address such concern. Similarly, any request that the transmission lines be relocated underground for aesthetic reasons is properly directed to BECo, rather than to the Siting Board.[86[86]] Nonetheless, because the transmission lines extend from Sithe's Fore River Station property, we encourage the Company to participate in any discussions between BECo and FRWA, Weymouth or others concerned about the visual and safety impacts of these lines.

[86[86]] We note that the cost of placing the existing transmission lines under the Fore River likely would be high, and it is unclear that relocation of the transmission lines underground would meet the Siting Board's mandate to minimize environmental impacts consistent with minimizing costs, even if the lines were ancillary and therefore jurisdictional.

Concerning stack height, Sithe Edgar has proposed a single 255 foot dual flue stack. The Company did not conduct modeling analyses to determine whether the stack height could be reduced without significantly affecting air quality; however, it speculated that it could reduce the stack height by no more than five feet. An analysis of the viewsheds presented in this case suggests that because almost the full length of the stack above the plant would be visible from almost all viewpoints, reducing the stack height would be of limited benefit even for a reduction of up to 15 to 20 feet. Moreover, the record indicates that views of other stacks and the Goliath crane already exist in many viewsheds. Thus, the Siting Board finds that even a substantial reduction in stack height would not significantly reduce the visual impacts of the facility.

Accordingly, the Siting Board finds that, with the implementation of the foregoing conditions, the environmental impacts of the proposed facility would be minimized with respect to visual impacts. In implementing the above conditions, the Siting Board requires the Company prior to commercial operation to submit to the Siting Board an updated landscaping plan for the entire site, addressing all the directives and conditions noted above as well as opportunities for wetland restorations as encouraged in Section III. D, above. facility is surrounded on three sides The Siting Board requires the Company to consult with the Town of Weymouth, parties in this case, and any appropriate state agencies in developing its landscaping plans.

G. Noise

This Section describes the proposed project's noise impacts, compliance with existing regulations, and mitigation proposed by the Company.

1. Description

The Company asserted that it had presented a comprehensive analysis of the noise impacts of the proposed facility consistent with Siting Board requirements (Company Initial Brief at 77, citing Exhs. SED-1, at 4.5-1 to 4.5-24; EFSB-WG-6-C (att.) at 5.2-1 to 5.2-17; EFSB A-1-S-2 (att.) at 7-1 to 7-33)). The Company further asserted that the proposed facility would meet applicable state and local noise regulations, and that its noise impacts would be minimized consistent with minimization of cost (Company Initial Brief at 77, 78, 85-86, citing Exhs. SED-1, at 4.5-4; EFSB-WG-6-C (att.) at 5.2-2, 5.2-9, 5.2-11; EFSB-RR-79 (att.)).

The Company stated that the calculated increases in off-site noise from operation of the proposed facility would be well below MDEP's limit of 10 decibels ("dBA") (MDEP Policy 90-001) at nearest residences, and would be at or below MDEP's 10 dBA limit at the project property lines (Exh. EFSB-WG-6-C (att.) at 5.2-11; EFSB-RR-79 (att.)).[87[87]] The Company also indicated that the off-site noise impacts

[87[87]]The designation "dBA" indicates sound measured in decibels using the "A weighting" network, which, within the range of sounds heard by the human ear,

from operation of the proposed facility (1) would be well below the ambient levels set forth in the Weymouth Health Code and (2) would be well within Braintree's limit of 60 dBA for noise in residential zones (Exhs. SED-1, at 4.5-4; EFSB-WG-6-C (att.) at 5.2-2, 5.2-4, 5.2-9, 5.2-11)).

To determine the noise impacts of the proposed facility, the Company provided analyses of existing noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from construction and operation of the proposed facility (Exhs. EFSB-WG-6-C (att.) at 5.2-2 to 5.2-17; EFSB- A-1-S-2 (att.) at 7-1 to 7-33; EFSB-RR-54 (att.)).[88[88]] To establish existing background levels, the Company conducted surveys at eight noise measurement locations ("NML"), including seven NMLs selected to represent the nearest residences in various directions from the site, and one NML selected to represent the Lovell's Grove portion of the site adjacent to the river south of the Fore River Bridge (Exh. EFSB-WG-6-C (att.) at 5.2-2 to 5.2-11). For each off-site NML, the Company provided a set of noise measurements from 20-minute sampling periods, including daytime and nighttime periods on both weekdays and weekends (Exh. EFSB-B-11, at 5.2-5). The Company indicated that existing L_{90} levels at residences ranged from 40 to 48 dBA during the day and from 35 to 42 dBA at night (id. at 5.2-8 to 5.2-17).[89[89]] At the closest residence on Monatiquot Street, near the eastern site boundary, the quietest existing L_{90} noise level was 48 dBA during the day and 41 dBA at night (id. at 5.2-11). For the on-site NML at Lovell's Grove, the Company provided noise measurements for 20-minute daytime periods, on a weekday and a weekend, and indicated that the quietest daytime L_{90} noise level was 55 dBA (id. at 5.2-18). The Company indicated that the principal sources of noise on and around the site included traffic on Route 3A and other local roads, industrial activities around the Fore River harbor, boat engines and horns, and the BECo transformer located on the southern portion of the site (id. at 5.2-8; Tr. 7, at 693-702).

To analyze the noise impacts of facility operation, the Company estimated daytime and nighttime facility noise and combined background and facility noise for six residential receptors and three on-site or property line receptors (Exh. EFSB-WG-6-C (att.) at 5.2-1 to 5.2-17). The Company indicated that its noise impact analysis reflected predicted attenuation of facility noise with distance from the source, due to geometric spreading and atmospheric absorption (Exh. EFSB-B-11(app. J at J-8 to J-9)). The Company

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emphasizes middle frequency sounds and de-emphasizes lower and higher frequency sounds (Exh. EFSB-A-1-S-2 (att.) at 7-1).

[88[88]]The Company indicated that, generally, an increase of 3 dB is considered the minimum increase that is noticeable in a typical residential community environment (Exh. EFSB-B-11, app. J at J-3).

[89[89]]The Company indicated that there are various measures of noise, and that L_{90} noise is the sound level that is exceeded 90 percent of the time during the measurement period (Exh. EFSB-A-1-S-2 (att.) at 7-3). The Company explained that L_{90} noise is a measure of residual noise that is observed in the absence of louder, transient noises (id.).

added that its analysis did not reflect other transient factors that may be present and serve to attenuate noise impacts at receptor locations, such as ground absorption, wind and temperature gradient effects, and that therefore actual facility noise impacts may be less than estimated (id.).

Based on its noise impact analysis, the Company indicated that with operation of the proposed facility, L_{90} noise at the nearest residential receptor on Monatiquot Street would increase by 2 dBA to a level of 50 dBA during the day, and by 6 dBA to a level of 47 dBA at night (Exh. EFSB-A-1-S-2 (att). at 7-23 (app. A)). In response to concerns of neighbors about the wider noise impact of the proposed facility in the built-up residential area extending east from Monatiquot Street, the Company provided additional analyses indicating that nighttime L_{90} noise increases would be between 3 dBA and 6 dBA for residential areas east of the site within a radius of approximately 1400 feet of the ACC (Exh. EFSB-RR-76 (att.)).[90[90]] For all of the other residential receptors in other neighborhoods, the Company indicated that with operation of the proposed facility, L_{90} noise levels would increase by from zero to 1 dBA during the day and by 1 dBA at night (Exh. EFSB-A-1-S-2 (att.) at 7-23 (app. A)).

For the on-site and property line receptors, the Company indicated that with operation of the proposed facility: (1) L_{90} noise on the eastern site boundary, fronting on Monatiquot Street, would increase by 3 dBA to a level of 51 dBA during the day and by 7 dBA to a level of 48 dBA at night; (2) L_{90} noise in the Fore River southwest of the proposed oil unloading dock, 200 feet from the ACC, would increase by 9 dBA to a level of 57 dBA during the day and by 16 dBA to a level of 57 dBA at night; and (3) daytime L_{90} noise at the on-site receptor at Lovell's Grove would increase by 1 dBA to a level of 56 dBA (id.; Exhs. EFSB-N-41; EFSB-RR-52; Tr. 12, at 1195-1203). With respect to the estimated noise increases of up to 16 dBA in the Fore River near the oil unloading dock, the Company stated that its western property boundary extends to the extreme low water line shown in the Land Court plan attached to its deed, located near the middle of the river (Exh. EFSB-RR-78). The Company estimated that at the middle of the Fore River, approximately 500 feet from the ACC, the maximum increase in nighttime L_{90} noise would be 10 dBA (Exh. EFSB-RR-79). [91[91]]

[90[90]] The limit of the identified impact zone would extend in an arc from the bank of the Fore River approximately 600 feet east of Monatiquot Street to the north side of Route 3A just east of the site boundary on King's Cove, encompassing an area of approximately 45 to 50 residences (Exh. EFSB RR-76 (att.)).

[91[91]] Regarding MDEP's 10 dBA limit, the Company asserted that even if the estimated project noise impact exceeded the limit at the identified project boundary in the Fore River, it expected that MDEP would consider the Fore River to be a right of way which is not noise-sensitive, and that therefore MDEP would not apply the limit at the in-river boundary but would instead apply the limit at the nearest inhabited building on the far bank (Company Initial Brief at 84, citing Tr. 12, at 1201).

The Company also provided estimated day-night sound levels ("L_{dn}"),[92[92]] with and without the proposed facility, for residential receptors and NMLs (Exh. EFSB-N-19-S). The Company indicated that the existing L_{dn} level is 56 dBA, exceeding the USEPA guideline of 55 dBA, at one NML, near King's Cove, and ranges from 51 dBA to 55 dBA at the other residential NMLs (id.). The Company indicated that with operation of the proposed facility, L_{dn} noise at the nearest residence, on Monatiquot Street, would increase from 53 dBA to 56 dBA, but L_{dn} noise at all other residential receptors would be unchanged (id.).

To achieve its noise control targets, Sithe Edgar indicated that it would implement a combination of the following noise mitigation measures or an equivalent: (1) integration of the closed water cooling system into the ACC with quieter fans; (2) maximum silencing of the ACC and closed water cooling system, through reduction of fan speed, addition of more blades of quieter aerodynamic design, and expansion of the ACC's size; (3) enclosure of the combustion turbines and HRSGs in acoustically designed buildings with silencers for the air intakes and exhaust stacks; (4) use of built-in sound barriers in main power transformers;

(5) enclosure of most noise producing equipment inside acoustically designed buildings with acoustical insulation of turbine walls and roof; (6) use of acoustical ventilation louvers and duct silencing; and (7) use of acoustical lagging over the breeching to one stack (Exhs. EFSB-A-1-S-2 (att.) at 7-27 to 7-28; EFSB-N-40).[93[93]] In addition, to help minimize noise at the nearest residences on Monatiquot Street, the Company

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In support of its expectation, the Company stated that when a project property line fronts on a road right of way, MDEP applies the 10 dBA limit on the opposite side of the road (id.). The Company also argued that, to the extent there may be boating uses in areas that could be affected by project noise impacts, such impacts would be temporary and insignificant, and not a relevant issue for review by MDEP or the Siting Board (id. at 83-85, citing Tr. 12, at 1187-1193, 1200).

[92[92]] 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 for both activity interference and hearing loss (Exh. EFSB-N-1, at 28). L_{dn} is defined as the 24-hour equivalent sound level, with a 10 dBA penalty added to sounds occurring between the hours of 10:00 p.m. and 7:00 a.m. (id. at 13).

[93[93]] The agreement between Sithe and Weymouth provides that Sithe: (1) will meet all noise limits under applicable operating permits and governmental regulations; (2) will incorporate the noise mitigation accepted by MDEP as best available noise control technology; (3) will operate the facility so as to not cause a L_{90} noise increase of greater than 6 dBA at any residence after commencement of commercial operation; and (4) will comply with the applicable MDEP noise monitoring protocol and forward the results of such monitoring to Weymouth (Exh. EFSB-B-27).

stated the proposed location of the facility footprint is at the western side of the site, and the proposed layout includes placement of noisy equipment on the western side of facility buildings (Tr. 1, at 75-77; Tr. 7, at 703-704).[94[94]]

As part of its PSD/NSR Air Plans Application, Sithe Edgar provided two alternatives for additional noise mitigation: (1) installation of a 110 foot high, 500-foot long barrier along the eastern side of the ACC, reducing the maximum expected increase in L_{90} noise at the nearest residences from 6 dBA to 3 dBA at an additional cost of $4,703,000 ("Alternative 1"); and
(2) installation of the barrier in Alternative 1 plus a 75-foot high, 1000-foot long barrier along the eastern property line, reducing the maximum expected increase in L_{90} noise at the nearest residences from 6 dBA to 1 dBA at an additional cost of $6,980,000 ("Alternative 2") (Exh. EFSB A-1-S-2 (att.) at 7-26, 7-29 to 7-33). The Company asserted that both alternatives for additional noise mitigation would be infeasible, and that it was unable to identify other alternatives that would provide the identified levels of noise reduction and be feasible (id. at 7-29 to 7-32). The Company explained that a barrier along the ACC would be excessively costly, produce off-site visual impacts and restrict air circulation under the ACC units, while a barrier along the eastern property line would be excessively costly and unsightly and conflict with expected on-site activities of BECo and MWRA (id.).

With respect to construction noise, Sithe Edgar estimated varying noise impacts at the nearest residence, on Monatiquot Street, for different construction activity stages, including:
(1) equivalent sound ("L_{eq}") levels of from 58 dBA to 65 dBA during the ground clearing, foundation and erection stages; (2) an L_{eq} level of 69 dBA during the excavation and finishing stages; and (3) a peak sound level of 82 dBA during pile driving (id. at 7-23 to 7-26). In addition, the Company stated that it expects noise impacts from periodic steam or air blows during the final stages of construction, but noted that such impacts would not exceed the applicable local limits of 20 dBA above ambient levels in Weymouth and 50 to 60 dBA in portions of Braintree (id. at 7-26; Exh. EFSB-N-20).

To mitigate construction noise impacts, the Company stated that the noisiest construction activities, particularly pile driving and steam blows, would be limited to daytime hours (Exh. EFSB-N-20; Tr. 7, at 769). In addition, the Company as feasible: (1) would locate noisy equipment at the maximum distance from sensitive areas; (2) would use the quietest types of equipment, for example electric-powered equipment rather than diesel- or air-powered equipment; (3) would use and maintain appropriate muffling on all equipment; (4) would turn off idling equipment; and (5) would use muffling for steam blows (Exhs.

[94[94]] Under the proposed layout, the new facility footprint would come to within approximately 500 feet of the nearest residence, while the loudest source of noise – the ACC – would be at a distance of 800 feet from the nearest residence (Exh. EFSB-A-1-S-2 (att.) app. A at figure 2.1-3).

EFSB-N-2; EFSB-N-20). Finally, Sithe Edgar agreed to develop, with Weymouth, a comprehensive construction protocol (Exh. EFSB-WG-6-C (att.) at 8-32).

The Company also submitted information concerning the projected noise impacts of the proposed facility with OTC rather than ACC (Exh. EFSB-B-11, at 5.2-1 to 5.2-28). The Company asserted that its proposed use of ACC considerably increases the projected noise impacts of the proposed facility (id. at 4-28 to 4-29). Based on its noise impact analysis, the Company stated that without ACC, the operation of the proposed facility would increase L_{90} noise at the nearest residential receptor on Monatiquot Street by only 1 dBA to a level of 49 dBA during the day, and by 3 dBA to a level of 44 DBA at night (id. at 5.2-28). The Company provided a map depicting the approximate radius of a 3dBA increase, an area which includes one to two residences (Exh. EFSB-RR-76 (att.)). For all of the other residential receptors in other neighborhoods, the Company indicated that operation of the proposed facility with OTC would increase L_{90} noise levels by from 0 to 1 dBA during the day and from 1 to 3 dBA during the night (Exh. EFSB-B-11, at 5.2-28). Sithe estimated that at the nearest residential receptor, the L_{dn} noise would increase from 52 to 53 dBA (Exh. EFSB-N-19). However, Sithe testified that construction noise impacts with OTC would be slightly greater than those with ACC, as a result of a greater amount of pile driving activity (Tr. 7, at 758-761).

2. Analysis

In prior decisions, the Siting Board has reviewed the noise impacts of proposed facilities for general consistency with applicable governmental regulations, including the MDEP's 10 dBA standard. IDC Bellingham Decision, EFSB 97-5, at 76; Mystic Decision, EFSB 98-8, at 54; Altresco Pittsfield, Inc., 17 DOMSC 351, at 401 (1988). In addition, the Siting Board has considered the significance of expected noise increases which, although lower than 10 dBA, may adversely affect existing residences or other sensitive receptors. IDC Bellingham Decision, EFSB 97-5, at 76; Mystic Decision, EFSB 98-8, at 54; Northeast Energy Associates, 16 DOMSC 335, at 402-403 (1987) ("NEA Decision").

The record demonstrates that the existing L_{90} nighttime noise levels at the residential NMLs range from 35 to 42 dBA, and that the existing day-night noise levels at the residential NMLs approach, and in one case slightly exceed, the 55 dBA guideline identified by USEPA as the level requisite to protect public health and welfare with an adequate margin of safety. Although located in a DPA opposite a heavily industrialized riverfront area, the proposed site presents ambient noise conditions, including L_{90} and L_{dn} noise levels in surrounding residential areas, that are generally similar to or slightly louder than those identified in several earlier Siting Board reviews of generating facilities proposed for sites in mixed land-use areas, but at inland locations. See IDC Bellingham Decision, EFSB 97-5, at 65-79; ANP Bellingham Decision, EFSB 97-1, at 130-144; Berkshire Power Decision, 4 DOMSC at 396-406; NEA Decision, 16 DOMSC at 401-403.

The record further shows that the Company has committed to limiting the noise impacts of the proposed facility to no more than 6 dBA at residential receptors in the vicinity of the proposed facility. The proposed maximum residential L_{90} noise increase of 6 dBA is comparable to or slightly less than proposed maximum residential increases accepted in past Siting Board reviews with similar existing noise environments, increases ranging from 7 to 8 dBA. See ANP Bellingham Decision, EFSB 97-1, at 130-144; Berkshire Power Decision, 4 DOMSC at 396-406; NEA Decision, 16 DOMSC at 401-403.

Although expected to experience a maximum noise impact that compares favorably with earlier Siting Board reviews involving similar noise environments, the nearest residential neighborhood to the proposed site includes numerous residences in an approximately 600-foot band for which noise impacts would be noticeable, i.e., increases of between 3 and 6 dBA. The record indicates that, in order to hold noise increases at the nearest residences to the target level of 6 dBA, the Company will need to incorporate all practical noise mitigation for its loudest source, the ACC. The only identified method of further reducing noise impacts from the ACC, sound barriers, would be impractical based on the requisite dimensions of such barriers and the associated cost and visual impact.

Although the record indicates that Sithe Edgar will be required by MDEP to conduct compliance noise monitoring after the facility begins operation, such monitoring typically involves only the first year of operation. We note that the settlement between Weymouth and the Company is premised on the Company holding noise impacts to the levels set forth in the record. Given the proximity and extent of the residential neighborhood to the east of the proposed facility, and the extent of noise mitigation necessary to attain the Company's noise target, additional verification of the facility's compliance with identified noise targets over time is appropriate.

Therefore, to help ensure that the noise impacts of the proposed facility are as estimated, the Siting Board directs the Company, in consultation with Weymouth and MDEP, to develop a noise monitoring protocol and baseline noise measurements, taken on a schedule chosen in consultation with MDEP and Weymouth, that allow for the implementation of an ongoing periodic noise monitoring program to begin within six months of the commencement of commercial operation, and a reporting procedure that provides for dissemination of monitoring results to Weymouth and/or the community areas that are affected by L_{90} noise increases from the facility of 3 dBA or more. The Company shall submit a copy of the noise compliance monitoring protocol to the Siting Board prior to commercial operation. In the process of developing this protocol the Company should provide to other intervenors in this proceeding an opportunity to comment on their proposed protocol.

With respect to construction noise impacts, the Siting Board agrees that adherence to the construction site practices proposed by the Company or set forth in its agreement with Weymouth, including provisions regarding use of machinery and mitigation of steam release events, would help minimize construction-related noise impacts. The Siting Board notes that such practices are consistent with approaches to construction noise mitigation that we have reviewed in recent generating facility cases.

We also note that the nearest residence is located within approximately 500 feet of the new facility footprint and within 700 to 800 feet of principal facility buildings including the ACC and the turbine buildings. Additionally, 45 to 50 residences are located within approximately 1100 feet of the new facility footprint. Given the proximity of a sizable residential area, the estimated residential area noise impacts of up to 69 dBA during excavation and finishing and a peak of 82 dBA during pile driving, and possible additional noise from the MWRA and MHD projects, neighborhood concerns relating to construction noise impacts could arise.

We recognize that the Company would limit construction, particularly noisiest construction, to daytime hours, and also would work with Weymouth to develop a construction protocol. While the protocol should provide a means to clarify the Company's commitments and help ensure that communication is maintained with the community as construction proceeds, the Siting Board is concerned that measures beyond those identified in the record may be warranted to adequately minimize construction impacts, such as avoiding certain types of construction during early evening and weekend periods as well as at night, using temporary noise barriers or other methods to further reduce construction noise impacts, and providing advance notice of noisy construction activities.

The Siting Board therefore requires that the Company develop and provide to the Siting Board a plan for noise mitigation during construction, consistent with the noise protocol developed with Weymouth, that includes provisions to limit noisier construction during evening and weekend hours consistent with safe construction practices, and to use on an as-needed basis measures to further mitigate impacts of noisy activities on the community, such as temporary noise barriers and advance community notification procedures.

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

H. Safety

This section describes the safety impacts of the proposed facility with regard to materials handling and storage, barge deliveries of oil, fogging and icing, emergency response, and existing hazardous conditions.

The Company indicated that it would enclose the portions of the site used for the proposed facility with a security fence, employ 24 hour security personnel, and restrict visitor access to the facility (Exhs. EFSB-S-10; EFSB-S-19). The Company also stated that it would separate public access areas from the proposed facility with fencing and would not allow any public access to the entire site until all construction projects, including the MWRA and MHD projects, are complete (Exhs. EFSB-S-19; WG-6-C (att.) at 3-33)).

The Company stated that the Algonquin pipeline serving the facility would be constructed, operated, and maintained in accordance with federal pipeline safety codes (Exh. FRWA-M-2).[95[95]]

1. Materials Handling and Storage

The Company indicated that it would store # 2 distillate oil in a nominal 6.3 (5.65 operating) million gallon tank located on the southern portion of the site (Exh. WG-6-C (att.) at 5.10-1). Sithe Edgar stated that the oil tank is surrounded by an earthen berm that is partially impervious to oil, which could hold 110 percent of the volume of the tank (id. (att.) at 5.10-1); Exh. EFSB-RR-40; Tr. 6, at 568). The Company stated that it would need a permit from the state Fire Marshall and a Flammable Storage Permit from Weymouth in order to store fuel above ground (Exh. EFSB-B-20-S).

The Company stated that it would take the following measures in order to ensure that a spill would not occur during oil delivery: (1) the transfer process would be fully staffed and monitored; (2) all unloading systems would be equipped with fast-action shut-off valves and drip collection mechanisms; (3) an oil absorbing boom would be installed around the entire barge upon docking; (4) advance notice would be given to a spill control contractor; and (5) a complete listing of all applicable equipment, procedures, and responsible parties would be available (Exhs. EFSB-B-11, at 5.13-2; EFSB-S-2 (att. a); Tr. 6, at 585). The Company also explained that the existing truck delivery area is equipped with a containment area to control spills and that oil delivery trucks would follow the community-established truck route from Rt. 3 (see Traffic Section III.I, above) (Exh. EFSB-S-16; Tr. 6, at 625).

Sithe Edgar stated that the facility would include a 90,000 gallon double-walled aqueous ammonia storage tank located directly east of the turbine building (Exh. EFSB-WG-6-C (att.) at 5-10-3 (fig. 2-2)). The Company stated that the tank would be equipped with leak detection, a level gauge, an alarm system, and an ammonia vapor treatment system, and would be surrounded by concrete berms or fencing to prevent accidents (Exh. EFSB-A-1-S (att.) at 6-26). The Company stated that 19 percent ammonia would be delivered by 5,500 to 6,700 gallon tanker trucks (Exhs. EFSB-WG-6-C (att.) at 5.10-3); EFSB-B-11, at 5.13-4). The Company estimated that it generally would use four to eight ammonia truck deliveries per week (Exhs. EFSB-WG-6-C (att.) at 5.10-3)). Sithe Edgar indicated that it would provide a bermed truck unloading area for the ammonia truck, heavy duty hoses, and automatic shut-off valves (id. (att.) at 5.10-4); Exh. EFSB-B-11, at 5.13-5; Tr. 6, at 652-653).

Sithe Edgar performed modeling of a worst case release (100 percent of volume) of ammonia using USEPA guidance techniques (Exh. EFSB-B-11, at 5.13-5 to 5.13-7).[96[96]] The Company stated that

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[95[95]] U.S. Department of Transportation, 49 CFR Part 192.

[96[96]] The Company stated that it modeled the "worst case" assuming a full leak of the inner wall of the tank and a failure of the tank's ventilation system, which would result in a release of ammonia from a four inch ventilation hole (Exh. EFSB-A-1-S (att.) at 6-26).

the model produced ammonia concentrations of 31 parts per million ("ppm") at the closest fenceline and 29.5 ppm at the closest property line, well below the toxic endpoint of 200 ppm (id. at 5.13-8; Exh. EFSB-A-1-S (att.) at 6-26-27)).[97[97]]

Sithe Edgar provided a list of ten other chemicals that would be stored on site, which it indicated would be used primarily for treating process water (Exhs. EFSB-WG-6-C (att.) (tab. 5.10-1); EFSB-S-6). The Company indicated that these chemicals would be stored in tanks surrounded by spill containment structures sized to hold 110 percent of tank volume, and would be enclosed within the building where they would be used (Exhs. EFSB-S-6; EFSB-S-5; Tr. 6, at 628-631). The Company stated that the proposed facility with ACC would use a slightly smaller amount of chemicals than the proposed facility using OTC (Exhs. EFSB-S-21; EFSB-S-23). The Company indicated that the frequency of deliveries for various chemicals would range from once a week to once every six months (Exhs. EFSB-S-6; EFSB-S-15). Sithe Edgar stated that it would ensure that a reputable supplier that meets federal safety and training requirements would be chosen for deliveries (Exh. EFSB-S-16). The Company stated that the chemical unloading areas would be designed to provide containment of spills (Exh. EFSB- B-11, at 5.13-10).

Sithe Edgar stated that all plant staff would receive annual hazardous material communication and hazardous material handling training, and that the Company would employ a Chemistry/ Environmental Technician to coordinate the handling and transport of materials (Exh. FRWA-SY-2). Furthermore, Sithe Edgar explained that it is required, under the WPA's Stormwater Guidelines, to provide a stormwater management system designed for industrial facilities, which includes the lining of detention ponds, containment areas with oil dispensation areas, and over flow/spill containment tanks to prevent hazardous materials from entering the stormwater system (Exh. EFSB-WG-6-C (att.) at 5.4-15); Tr. 6, at 665-666).

2. Barge Deliveries of Oil

The Company stated that the primary means of distillate fuel oil delivery would be by ocean-going tank barges ("tankers") (Exhs. EFSB-B-11, at 5.13-1). The record indicates that the site is located in a DPA with existing barge traffic and a well-dredged navigational route (Exh. EFSB–WG-6-C (att.) at 2-29, 3-4)). The Company indicated that each tanker would hold a maximum of four million gallons of oil and that two barge deliveries per week would be required in order to run the facility on oil at full load operation (Exhs. EFSB-WG-6-C (att.) at 5.10-1); FRWA-S-20). Sithe Edgar stated that it would be required to produce a

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[97[97]]The toxic endpoint value, as established by the American Industrial Hygiene Association based on USEPA's Emergency Response Planning Guidance 2, is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without sustaining serious or irreversible health impacts symptoms that could impair the individual's ability to take protective action (Exh. EFSB-S-18).

Facility Response Plan in accordance with USCG regulations prior to the handling, transport, or storage of any oil (33 CFR Section 154.1010) (Exhs. SED-1, at 4.7-2; EFSB-S-2). The Company indicated that each oil delivery barge must also have a USCG approved Vessel Response Plan and that the barge must be manned by USCG certified personnel (Exh. SED-1, at 4.7-2). The Company also stated that it would schedule all barge deliveries in advance and would not deliver oil during unsafe conditions (high waves or strong winds) (id.; Exh. EFSB-S-3).

The Company stated that it evaluated two potential locations for a docking facility, one south and one north of the Fore River Bridge, and decided to locate the docking facility in the southern portion, directly west of the main turbine building (Exhs. EFSB-B-1-S-2; EFSB-B-1-S; EFSB-B-10 (att. A); EFSB-S-12; EFSB-S-11). The Company stated that it chose to site the facility at this location because: (1) the use of a docking facility on the northern portion would interfere with MWRA construction activities; (2) the southern location is a shorter distance to the oil tank; and (3) the southern location is more proximate to security and other personnel (Exhs. EFSB-S-1; EFSB-S-11; Tr. 6, at 592-593). In its comments on the DEIR, the ACOE indicated that it would review, under a Section 10 permit, the safety of the barge delivery location with respect to navigational issues (Exhs. EFSB-B-20; EFSB-RR-73 (att. a)).

3. Fogging and Icing

The Company testified that the proposed facility using ACC would not have fogging or icing problems (see Section III. E., above) (Tr. 14, at 1357-1358).

4. Emergency Response

Sithe Edgar stated that, within six months after operation of the proposed facility commences, it would be required by USEPA to submit a Spill Prevention Control and Countermeasure Plan ("SPCC Plan") , which would address the storage and handling of oil and other hazardous chemicals (Exhs. EFSB-S-2; SED-1, at 4.7-2; Tr. 6, at 598). The Company stated that this plan would include a detailed description of all facilities, routine operations, and measures taken during an emergency, as well as applicable emergency supplies and contact lists (Tr. 6, at 599-600). Sithe Edgar stated that it has two other waterfront plants with updated and approved SPCC plans, which it will use to create Fore River Station's SPCC Plan (id. at 600, 612). Comments on the FEIR indicated that Weymouth has concerns about the adequacy of Sithe Edgar's emergency and spill response plans during construction (Exhs. EFSB-RR-73). The Company indicated that it would work with the Town to resolve the problems (Exh. EFSB-WG-6-C (att.. at 8-34 to 8-35)).

The Company indicated that the site would have an extensive fire prevention and suppression system including a 300,000 gallon water storage tank, fire pumps, hydrants around the proposed facility footprint, fire detectors, a central alarm system, a sprinkler system, a CO_2 fire suppression system for the turbines, and a foam suppression system for the oil tank (Tr. 6, at 662-667, 679). The Company stated that

there is a standard cooperative agreement for mutual aid among the Braintree, Weymouth, and Quincy Fire and Police Departments, but that none of the towns has an evacuation plan specific to the Fore River area (Exhs. EFSB-RR-43; EFSB-RR-46). The Company noted that Weymouth would be responsible for the first response to an emergency at the proposed site (Exh. EFSB-RR-46; Tr. 6, at 665-666). The Company stated that Weymouth had indicated that it has adequate fire fighting capability for emergencies that could occur at the proposed Fore River station (Exh. EFSB-RR-46; Tr. 6, at 665-666). The record also indicates that Sithe Edgar will be providing $150,000 to the Town of Weymouth Fire Department to contribute to the costs of safety training and equipment (Exh. EFSB-B-27).

5. Existing Hazardous Conditions

Sithe Edgar indicated that the Fore River Station site historically has been used for coal- and oil-fired electric generation, and that this long-term use has resulted in the presence of hazardous substances on portions of the property (Exh SED-1, at 4.8-1). Specifically, Sithe indicated that four separate studies conducted between 1991 and 1997 identified a total of ten Recognized Environmental Conditions ("RECs")[98[98]] at the Fore River Station site (id.; Exh. EFSB-B-11, at 5.12-1 to 5.12-7).

Sithe Edgar indicated that at least three of the ten RECs had been investigated and found to pose no significant risk (Exh. EFSB B-11, at 5.12-1 to 5.12-7).[99[99]] Two additional RECs have been remediated[100[100]] by the Company or another responsible party, and two further RECs are being addressed by BECo, as the responsible party (Exhs. EFSB-HS-1; EFSB-HS-1-S; EFSB-HS-2-S).[101[101]]

[98[98]] The Company stated that the RECs "reflect past and current activities at the site, prior investigations, and ongoing actions under the Massachusetts Contingency Plan to address reported areas of contamination" (Exh. SED-1, at 4.8-2).

[99[99]] The Company stated that REC No. 1 (closed underground storage tanks), REC No. 5a (the area of the proposed powerblock), and REC No. 6 (the water in the turbine pits), had all been investigated, and no remediation was required to achieve a situation posing no significant risk (Exhs. EFSB-B-11, at 5.12-1 to 5.12-7; EFSB-HS-3; EFSB-HS-1-S).

[100[100]] The Company explained that a Class A Response Action Outcome ("RAO") indicates that a permanent solution of no significant risk was achieved through remediation; a Class B RAO means that a permanent solution of no significant risk was achieved without the need for remediation; and a class C RAO is a temporary solution that poses no significant threat, is stabilized, and is monitored and reevaluated (Exh. EFSB-HS-1-S; Tr. 5, at 494-495, 499-500).

[101[101]] The Company explained that REC No. 5a, the area of the existing and proposed power house, had achieved a Class B RAO. The Company indicated that it removed five cubic yards of oil-stained soil from REC No. 3 near the oil tanks on the southern portion of the site, and achieved a Class A RAO site closure in December 1998 (Exhs. EFSB-B-11, at 5.12-3; EFSB-HS-4). The Company stated that Spraque Oil Company, the former

The Company stated that the King's Cove area, which had formerly been filled with coal ash and is one site of the Company's proposed public access, had already achieved site closure with a Class B Response Action Outcome ("RAO") in July of 1997; however, as a result of public concern, Sithe conducted its own risk assessment of the proposed public access area (Exhs. EFSB-HS-3-S; EFSB-WG-6-C; EFSB-HS-1-S). The Company stated that the study confirmed that the area posed no significant risk to the public or employees and that no activity use limitation was needed (Exhs. EFSB-HS-3-S; EFSB-WG-6-C; EFSB-HS-1-S).

The Company explained that a release of petroleum near the Route 3A overpass, REC No. 5c, was remediated and given a Class C RAO, because the bridge structures prevented full remediation (Exhs. EFSB-B-11, at 5.12-5; EFSB-HS-4; Tr. 5, at 501-502). The Company indicated that it would conduct a risk assessment study of REC No. 5c, which is near its proposed Lovell's Grove public access area, in order to determine if the area is safe for public access and whether a better solution could be achieved (Exhs. EFSB-B-1-R; EFSB-WG-6-C, at 5.9-2; Tr. 5, at 506). The Company indicated that one other contaminated area, REC No. 5d, was only able to achieve a Class C RAO during July 1999, due to the existing substation on the site which would need to be removed in order to complete remediation (Exh. EFSB-HS-2; Tr. 494-494).

The Company indicated that it must demolish the old Edgar Station in order to construct the proposed facility, and thus it had started abating the asbestos in the Edgar building, REC No. 4, which it must complete prior to demolition (Exhs. EFSB-B-11, at 5.12-4; SED-1, at 4.8-3). The record indicates that since all the RECs have or will achieve a solution requiring no activity use limitation, the presence of hazardous substances would not affect the design or placement of structures (Exhs. EFSB-B-1-R; EFSB-HS-10; Tr. 5, at 519-520). The Company stated that its redevelopment of the site would improve the condition of the site with respect to hazardous substances, since it would be responsible under G. L. c. 21E to remediate releases of oil and hazardous materials (Exh. EFSB-HS-6). The Company explained that in the areas where BECo, MWRA, and MHD lease or have access rights to the property, Sithe has included provisions in each agreement requiring the lessee to notify the Company in the event of an environmental

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lessee of the oil tank on the northern portion of the site, released 2000 gallons of oil, which was designated REC No. 5e, promptly cleaned, and a Class A RAO was achieved (Exhs. EFSB-B-11, at 5.12-6; EFSB-HS-2; EFSB-HS-1-S). In addition, the Company indicated that a significant amount of oil was found beneath the transformers, REC No. 2, and that in January 1999, BECo, the responsible party, removed 700 cubic yards of contaminated soil (Exhs. EFSB-B-11, at 5.12-2; EFSB-HS-2). The Company indicated that BECo expects to achieve a Class A RAO by March 2000 at REC No. 2 and that Sithe will evaluate BECo's risk assessment to confirm that the area does not pose a significant risk to the Company's contractor (Exhs. EFSB-HS-1; EFSB-HS-2-S).

condition and to remediate any hazardous conditions that it creates as a result of its activities on the property (Tr. 5, at 529-532).

6. Transmission Lines Over the Fore River

The FRWA raised concerns regarding the safety of recreational boats passing under existing electric transmission lines which cross the Fore River at a number of locations, and submitted documents indicating that the mast height of some recreational boats may be higher than the clearance of some of the existing transmission lines (Exh. FRWA-5(atts.); FRWA Initial Brief at 4; FRWA Reply Brief at 3). The FRWA requests that all power lines along the Fore River shore line, or at a minimum, the lowest lines which cross the river adjacent to Braintree's Smith Beach, should be put underground for safety reasons (FRWA Initial Brief at 4; FRWA Reply Brief at 3).

In response to FRWA's request, Sithe Edgar contends that the Siting Board has no jurisdiction over the transmission lines, since they are not part of the proposed facility (Company Reply Brief at 2, 7). The Company asserted that the transmission line upgrades proposed to serve the proposed facility are limited to the reconductoring of lines at the same voltage within an existing ROW, and argued that the Siting Board's statute does not authorize it to review the reconductoring of transmission lines (Company Reply Brief at 7, citing G.L. c. 164 § 69G).

In addition, the Company argued that the transmission lines involved in a recent boating accident entailing a mast "represent a separate transmission interconnection between Braintree Electric Light Department's Potter Station and BECo's transmission line #478", and are unrelated to the Fore River Station project (Tr. 14, at 1335-1339, 1369; Company Reply Brief at 7-8).

7. Analysis

Sithe Edgar has demonstrated that it would properly store and handle aqueous ammonia and other non-fuel chemicals in accordance with applicable public safety standards and that it would have in place secondary or tertiary systems to contain chemical spills. The record shows that, in the event of a failure of the inner ammonia tank and ventilation system, the ammonia concentration at the closest property line and fenceline would be 29.5 ppm and 31 ppm respectively, which is well below the 200 ppm guideline set by USEPA. The record also demonstrates that Sithe Edgar has arranged for the proper storage, use, and secondary containment of hazardous materials associated with the construction and operation of the proposed facility and that emergency supplies and training will be provided concerning the safe handling of those chemicals. The record demonstrates that the Company would employ measures to help ensure the safe transport and delivery of oil, including filing with the USEPA and the USCG all plans and procedures in the event of a spill. The Company intends to take measures to prevent spills and accidents, or in the event of a spill or accident, to respond and remediate quickly. The record further indicates that the Company has chosen a site for barge delivery that maximizes safety.

The record indicates that the municipalities of Braintree, Quincy, and Weymouth do not have emergency response plans for the Fore River area; however, the record also shows that the Town of Weymouth would be able to handle an emergency at the site, that Braintree and Quincy would be available for assistance, and that Sithe would provide funding to the Weymouth Fire Department to increase its ability to handle emergencies. The Siting Board also notes that the Company intends to develop emergency procedures and response plans similar to those found acceptable in previous Siting Board decisions. However, the Company has not yet developed such plans. The Siting Board directs the Company to complete the construction section of its emergency response plan and file it with Weymouth, Braintree and Quincy before construction begins in order to cover possible contingencies related to construction accidents.

With respect to fogging and icing, the record contains no evidence that ground level fogging or icing would result from the operation of the proposed facility.

With respect to site clean-up and the existing presence of hazardous substances, the record shows that the existing site has been thoroughly assessed for the presence of hazardous materials. The Company has also demonstrated that all but four RECs have achieved a permanent solution under state regulations and that these RECs do not pose a significant threat to the public or to the environment. The Company further has demonstrated that all but two RECs for which Sithe Edgar is responsible have achieved a permanent solution under state regulations, and one other REC will achieve a permanent solution in the near future. The Company has shown that it has begun the abatement and demolition of the powerhouse, and that it intends to comply with all applicable regulations relating to asbestos removal. The Company also has taken precautions to ensure that the development and use of the proposed public access areas would not pose a threat to the public. Furthermore, the record indicates that the Company, or another responsible party, has achieved the highest level of clean-up feasible at these Class C sites. Finally, the Company has shown that it is capable of and responsible for addressing hazardous waste spills and clean-up, and that it will hold other parties leasing or using the site responsible for remediating hazardous conditions that they have caused. Based on a review of the evidence presented, and assuming mitigation of any remaining oil and hazardous waste releases at the proposed site to meet the risk-based standard established by MCP regulations, the Siting Board finds that the Company has minimized the safety impacts of the existing hazardous conditions on the site.

The FRWA has raised safety concerns related to interference of BECo's existing transmission lines, which extend from the site over the Fore River, with recreational boating on the river. To remove such safety concerns, FRWA argues that the transmission lines should be relocated underground in conjunction with the interconnection of the proposed project. The record indicates that at least some of the transmission lines crossing the Fore River would carry power from the proposed project, and would be subject to changes in power flow with operation of the project to accommodate project output. However, under the most likely scenario, only one line would likely be reconductored and no line would be rebuilt.

As discussed in Section III.F, above, we note that the BECo transmission lines are not ancillary facilities within the scope of the Company's petition to the Siting Board for approval of its generating facility. Further, to the extent that some determination potentially could be made in the future that BECo's transmission lines pose a safety concern, whether under applicable law or an industry or company criteria, it presumably would be BECo's responsibility to address such concern. However, as stated above, because the transmission lines extend from Sithe's Fore River Station property, we encourage the Company to participate in any discussions between BECo and FRWA, Weymouth or others concerned about the visual and safety impacts of these lines.

Accordingly, the Siting Board finds that with the implementation of the proposed mitigation and the above condition, the environmental impacts of the proposed facility would be minimized with respect to safety.

I. Traffic

This Section describes the impacts to local traffic conditions of both construction and operation of the proposed facility.

1. Description

The Company asserted that the proposed facility would be sited, designed and mitigated such that traffic impacts would be minimized (Company Initial Brief at 90). In support of its assertion, the Company provided traffic volume data for existing traffic conditions, modeled future traffic conditions during construction of the proposed facility, and examined traffic conditions during operation of the proposed facility (Exh. EFSB–WG-6-C (att.) at 5.8-3).[102[102]] The Company stated that the traffic counts used in its analysis were made in 1998 and that the capacity limitations of the roadway would prevent peak volumes from growing in the near future (Exh. EFSB-B-11, at 5.11-13).[103[103]] The Company indicated that existing peak commuter traffic periods in the vicinity of the proposed site are between 7:45 a.m. and 8:45 a.m., and between 5:00 p.m. and 6:00 p.m. (id. at 5.11-24). Sithe Edgar stated that all workers would be on site at 7:00 a.m., and the afternoon peak for site traffic would be between 3:30 p.m. and 4:30 p.m. (Exh. EFSB-WG-6-C (att.) at 5.8-6).[104[104]] Sithe Edgar stated that 75 percent of all construction traffic would come from the north and 25 percent from the south (Exh. EFSB-B-11, at 5.11-25 and 5.11-27). The Company estimated that of the 75 percent of traffic from the north, 47 percent would come from Route 128 via South Street and the remaining 53 percent would come from the Southern Artery (id.).[105[105]] The

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102[102] The Company stated that since traffic impacts would be temporary and related to construction only, it did not need to evaluate a no build scenario (Exh. EFSB-B-11, at 5.11-32).

103[103] The Company noted that increases in regional traffic volumes are likely to be reflected in longer peak periods rather than in an increase in volumes at the height of the peak (Exh. EFSB-B-11, at 5.11-32).

104[104] The Company originally stated that construction workers would arrive at the site between 7:00 a.m. and 7:30 a.m., but has revised its schedule in order to avoid the morning peak traffic hour (Exhs. EFSB-B-11, at 5.11-24; EFSB-WG-6-C (att.) at 5.8-6).

105[105] Staff calculated percentages from data provided by the Company (Exh. EFSB-B-11, at 5.11-26 to 5.11-27).

Company stated that the 25 percent of traffic from the south would come via Route 3A (id.). The Company provided a model timetable for construction of the proposed facility, and indicated that construction would take place over a 24 month period, with peak construction traffic occurring in the last quarter of 2000 (Exh. EFSB-WG-6-C (att.) at 5.8-2). The Company stated that up to 685 construction workers could be employed on the site at any one time during the peak months of construction (id. at 5.8-1).

The Company identified three key roadway intersections near the site that would be affected by construction-related traffic, and presented a comparison of expected levels of service ("LOS")[106[106]] at those intersections with and without the proposed facility (id. at 5.8-8 to 5.8-9). These three intersections are: (1) Washington Street at Southern Artery in Quincy; (2) Washington Street at Baker/South Streets in Quincy; and (3) Bridge Street at Neck/Green Streets in Weymouth (id.).

To address traffic impacts for the construction period, the Company presented an analysis incorporating background traffic conditions for the proposed hours of arrival and departure of construction workers at the site, assuming that 90 percent of the workers would arrive and 10 percent would leave the site at the designated hours of 6:15 a.m. to 7:15 a.m. (morning arrival time), and 90 percent of the workers would leave the site and 10 percent arrive at the site between 3:00 p.m. to 4:00 p.m. ("afternoon departure time") (id. at 5.8-6). The Company assumed that the peak day workforce required for the Sithe Edgar project would be 685 employees and that the MWRA and MHD projects would require an additional 130 and 100 employees, respectively (Exhs. EFSB-WG-6-C (att.) at 5.8-1; EFSB-B-11, at 5.11-25).[107[107]]

106[106] The Company stated that in an LOS analysis, traffic conditions on roadways and at intersections are represented by the letters A to F, where A represents a free flow condition with minimal delays, B represents a stable flow with short delays, C represents a stable flow where speed and maneuverability begin to be restricted with average delays, D represents a high-density traffic condition approaching unstable flow with long delays, E represents conditions at or near capacity with very long delays, and F represents forced flow or breakdown conditions with highly unstable operating conditions (Exh. EFSB-B-11, at 5.11-34).

107[107] The Company calculated project related traffic volumes and parking requirements assuming: (1) 90 percent of employees arrive by car and 10 percent by public transportation; (2) car pooling will result in an average of 1.4 employees per car; and (3) only 90 percent of the employees will be on site during the daytime work shift (Exhs. EFSB-WG-6-C (att.) at 5.8-1 and 5.15-6; EFSB-B-11, at 5.11-26).

Based on this analysis, the Company indicated that: (1) the Washington Street/Southern Artery intersection currently operates at LOS D during the early morning peak hour and LOS C during the afternoon peak hour; (2) that the Washington Street at Baker/South Street intersection currently operates at LOS B in both the early morning peak and afternoon peak hours; and (3) that the Bridge Street at Neck/Green Street intersection currently operates at LOS B in both the early morning peak and afternoon peak hours (Exh. EFSB-WG-6-C (att.) at 5.8-8 to 5.8-9).[108[108]] The Company noted that construction traffic associated with the project would not decrease the LOS ratings of these intersections but that overall wait times would increase at all three intersections with a maximum individual wait time increase of 10.1 seconds in the east bound direction of Washington Street at Southern Artery (id.).[109[109]] The Company noted that it based its LOS calculations on the assumption that improvements would be made to the Washington Street at Baker/South Street intersection prior to the Company's proposed construction schedule (id.. at 5.8-5). The Company provided data that showed that if these improvements are not made prior to construction of the Sithe Edgar project, construction traffic for the Sithe Edgar project would change the Washington Street at Baker/South Street LOS from an LOS C to an LOS F (Exh. EFSB-RR-16).

With respect to site access, the Company stated that construction traffic can enter and leave the project location without conflicting movements because of a cross-over under the bridge that connects the north and south sides of the project area (Exh. EFSB-B-11, at 5.11-8). The Company explained that the underpass creates a half-clover-leaf which allows site traffic to leave and enter Route 3A with right turns only (id.). Furthermore, the Company explained that the right turnouts, which would be controlled by stop signs, are in the direction of the lightest flows along Route 3A during peak hours, so that they will have little effect on roadway capacity (id.).[110[110]] For example, the Company explained that during the morning peak hour, only 41 vehicles per hour would enter Route 3A in the direction of the heavy Boston bound flow, and in the evening when site outbound flow is higher, most vehicles would be entering Route 3A in the direction of the lighter flow (id.).

[108[108]] The Company stated that it refers to the 6:15 to 7:15 a.m. hour as the early morning peak hour as opposed to the morning peak hour and the 3:00 p.m. to 4:00 p.m. hour as the afternoon peak hour to distinguish if from the evening peak hour.

[109[109]] The Company provided an additional analysis which assumed: (1) 95 percent of employees arrive by car and 5 percent by public transportation; and (2) car pooling would result in an average of 1.2 employees per car (Exh. EFSB-RR-16). The Company stated that there would be small changes in LOS or average delay when compared to the previous calculations and assumptions (id.).

[110[110]] The Company stated that it did not perform capacity calculations on the site entrance because of the very minor effect this would have on traffic capacity (Exh. EFSB-B-11, at 5.11-8).

With respect to parking, Sithe Edgar asserted that the Fore River Station site has the capacity to accommodate all the necessary construction parking, and that Sithe Edgar would reserve land on both sides of Route 3A for a total of 535 vehicle parking spaces (Exhs. SED-1, at 4.6-3; EFSB-B-11, at 3-34, 5.11-25 and 5.11-37; EFSB-WG-6-C (att.) at 3-25). To achieve the Company's parking projections, the Company stated that it would encourage construction workers to carpool and use mass transit (Exh. EFSB-B-11, at 5.11-40 to 5.11-41). Specifically, the Company stated that it may provide shuttle bus service between the project site and the MBTA (id.). The Company stated that a shuttle bus could serve the construction workers for all three projects at the site (Sithe Edgar, MWRA, and MHD) and that construction workers therefore would be more likely to use the service (id.). The Company indicated that it considers the Quincy Adams MBTA Station the most likely choice for shuttle service, as it would allow use of a relatively congestion-free route to the project site (id.). The Company noted that it may also provide shuttle service between the site and the Quincy Center and Braintree MBTA stations (id.).[111[111]] The Company stated that in order to encourage travel via the MBTA, it may subsidize the cost of MBTA passes for workers on the project (id.).

[111[111]] Although asked to describe the costs and benefits of operating a shuttle bus, the Company did not provide the requested information regarding the cost of such a service (Exh. EFSB-T-24).

With respect to truck traffic, the Company stated that during the peak construction period for trucks, it expects an average of 55 daily movements (one trip in - one trip out) (Exh. EFSB-B-11, at 5.11-38). The Company stated that of these, 17 would be for pieces of construction equipment, three for materials, and the remainder for cement trucks (id.). The Company added that the cement trucks would average about 20 loads per day, but that this could rise to 50 per day during heavy pours (id.). The Company stated that most of these trips would occur during the middle part of the day and not during peak commuter hours (id.). The Company noted that to minimize impacts from truck traffic, major equipment components such as the combustion turbines, steam turbine, HRSGs and transformers would be delivered via water transportation, and barges may also bring construction equipment for the MWRA and MHD projects (id. at 5.11-37; Exh. W-T-6).

The Company stated that while it intends to deliver oil to the site primarily by barge, it may at times elect to deliver oil via truck to top off the oil storage tank (Exh. EFSB-B-11, at 5.11-37; Tr. 6, at 621 to 622). The Company stated that the amount of oil it would transport by truck to top off the tank would be less than a full barge load and that barges typically hold between 3 million and 4 million gallons (Tr. 6, at 618, 622). The Company stated that oil trucks hold 10,000 gallons which would convert to a worst case delivery requirement of 300 to 400 truck trips per barge load (id.).[112[112]]

The Company stated that it has considered traffic issues related to the MHD's Fore River Bridge Reconstruction project and the MWRA's Braintree-Weymouth Sewer Relief Facilities project (Exh. EFSB-B-11, at 5.11-2). The Company stated that the Fore River Bridge Reconstruction project would use a temporary draw bridge so as not to affect car or boat traffic (id. at 5.11-2 to 5.11-3). The Company stated that its construction traffic estimates take into account the additional traffic volumes from both the MHD and MWRA projects and that the traffic for the MWRA project would not peak until well after the Sithe Edgar project is completed (id.).[113[113]] The Company stated that the project entities that transport materials using marine traffic would not require the Fore River Bridge to open during peak traffic hours (Exh. EFSB-WG-6-C (att.) at 5.8-11 to 5.8-12). The Company stated that a bridge opening stops traffic for ten minutes and such marine traffic would traverse the bridge before 7:00 a.m., during the middle part of the day, or after 6:00 p.m (id.). The Company noted that in 1997, there were about as many openings during the single hour between 6:00 a.m. and 7:00 a.m. as there were between 7:00 a.m. and 9:00 a. m., indicating an effort by bridge operators to minimize openings during peak traffic (id.).

[112[112]] The Company noted that it would take 100 truck trips per day to meet the fuel needs of the facility when operating on oil (Tr. 6, at 619). However, the Company added that the facility would avoid this large number of trips in a single day by first using its oil stored on site (id.).

[113[113]] According to the Company's traffic estimates, the MWRA and MHD projects would result in 84 and 65 vehicle round trips during peak hours, respectively (Exh. EFSB-B-11, at 5.11-13).

The Company stated that once the facility is fully operational, up to 25 employees would be on site in two shifts over a typical 24-hour period and asserted that this level of staffing would not have any affect on traffic (id. at 5.11-23). The Company stated that it would maintain communication with local officials and police departments to address any traffic impacts arising from the construction and subsequent operation of the proposed facility and, in particular, to ensure safe passage of safety and emergency vehicles at all times (id. at 5.11-42).

2. Analysis

Sithe Edgar has provided an analysis of the impacts of construction traffic for the proposed facility on intersections in the vicinity of the Fore River Station site. The record demonstrates that: (1) the Washington Street/Southern Artery intersection currently operates at LOS D during the early morning peak hour and LOS C during the afternoon peak hour; (2) the Washington Street at Baker/South Street intersection currently operates at LOS B in both the early morning peak and afternoon peak hours; and (3) the Bridge Street at Neck/Green Street intersection currently operates at LOS B in both the early morning peak and afternoon peak hours. The record shows that project construction would not change the traffic LOS ratings of these intersections but that overall wait times would increase at all three intersections with a maximum individual wait time increase of 10.1 seconds in the east bound direction of the Washington Street at Southern Artery.

To further mitigate traffic impacts, the record shows that Sithe Edgar proposes to use an underpass that connects the north and south sides of the project area so that vehicles must enter and leave the site taking right turns only. The Company has shown that the right turn only requirement would mean that most workers would enter and exit Bridge Street in the direction of light traffic flow during peak hours, without affecting traffic in the direction of heavy flow.

The record shows that Sithe Edgar would minimize traffic impacts associated with deliveries of large equipment and oil by having most of these deliveries made by barge. However, the record shows that the Company may use trucks to top off its fuel tank and that the Company may require truck delivery of less than a barge load of oil (300 to 400 trucks). In order to minimize traffic impacts associated with any potential oil deliveries made by truck, the Siting Board directs Sithe Edgar to avoid peak traffic hours when making such deliveries.

In addition, the record shows that the Company would maintain communication with local officials and police departments to address any traffic impacts arising from construction and subsequent operation of the proposed facility and, in particular, to ensure safe passage of safety and emergency vehicles at all times.

The record shows that the project entities that transport materials using marine traffic would not require the Fore River Bridge to open during peak traffic hours. The record shows that a bridge opening stops traffic for ten minutes and such marine traffic would traverse the bridge before 7:00 a.m., during the

middle part of the day, or after 6:00 p.m. The Company noted that in 1997, there were about as many openings during the single hour between 6:00 a.m. and 7:00 a.m. as there were between 7:00 a.m. and 9:00 a.m., indicating an effort by bridge operators to minimize openings during peak traffic. The Siting Board notes that the heavy marine traffic (non project related) during the 6:00 a.m. to 7:00 a.m. period appears to coincide with the commuting time of Sithe Edgar employees who must arrive on the site by 7:00 a.m.

In addition, the record shows that the Company based its LOS calculations on the assumption that improvements would be made to the Washington Street at Baker/South Street intersection prior to the Company's proposed construction schedule. The record shows that if these improvements are not made prior to construction of the Sithe Edgar project, project construction traffic would change the Washington Street at Baker/South Street LOS from an LOS C to an LOS F.

The Siting Board notes that while the Company appears to have minimized its impact on traffic, we remain concerned about the project's effect on traffic if the road construction at the Washington Street and Baker/South Street intersection is not completed prior to the beginning of construction for the Sithe Edgar project. In addition, the record is not clear as to whether the proposed commuting hours for Sithe workers are reasonable given the Fore River Bridge opening schedule, and whether Sithe construction traffic could have a disproportionate impact on levels of service when combined with the disruptions caused by bridge openings. We also recognize that it is possible that the currently proposed commuting times may change again, to more closely coincide with peak traffic hours and that overtime workers may leave at a time closer to the evening peak. Accordingly, the Siting Board directs the Company, at the time of commencement of construction, to file with the Siting Board an updated traffic analysis showing the status of the road improvements at the Washington Street and Baker/South Street intersection and the details of the final shift schedule. The traffic analysis should provide information on the schedule and volume of project-related and non-project-related marine traffic, the need to open the bridge between the hours of 6:00 a.m. and 7:00 a.m., and the extent that this will cause traffic problems. If the Washington Street and Baker/South Street intersection improvements are not complete at that time, or if marine traffic impacts or some other issue creates traffic impacts that are greater than the Company has previously stated, the Company shall submit a traffic plan that shows how it intends to mitigate traffic issues. Such plan should include: (1) a detailed analysis of the costs and benefits of providing shuttle bus service between an appropriate MBTA Station and the site during the peak construction quarter; (2) a discussion of the costs and benefits of subsidizing the MBTA fares of the Company's workers; and (3) comments from the City of Quincy and Town of Weymouth about how to mitigate traffic at this intersection. After receiving this compliance filing, the Siting Board will expeditiously make a determination as to whether additional traffic mitigation is needed during the quarter of peak construction traffic.

Accordingly, the Siting Board finds that, with implementation of the foregoing condition requiring an updated traffic analysis, the environmental impacts of the proposed facility would be minimized with respect to traffic.

J. Electric and Magnetic Fields [114][114]

This Section describes the electric and magnetic field impacts of the proposed facility and potential mitigation.

1. Description

The Company indicated that operation of the proposed facility would produce magnetic fields associated with increased power flows on certain existing transmission lines (Exh. SED-1, at 4.11-1).[115][115] The Company indicated that the proposed facility would interconnect with the BECo 115 kV 478 line, which occupies BECo's right-of-way ("ROW") and terminates at a substation in Holbrook, Massachusetts, approximately 5.9 miles away (id.).

The Company stated that the transmission line ROW for the 478 line is 150 feet wide and contains two sets of towers and a total of three circuits (id.). The Company stated that the 478 line is split over two sets of conductors (478-502X and 478-502Y) which are on towers located about 45 feet from the south side of the ROW and that the second set of towers, which carry the remaining circuits, is located 105 feet from the south side of the ROW (id.).

The Company stated that future electric field strength should remain unchanged because BECo does not intend to alter voltage on these transmission lines (Exh. SED-1, at 4.11-25). The Company noted that the existing maximum electric field strength at three feet above grade at the edge of the ROW ranges from 0.5 to 1.0 kV/m, below the 1.8 kV/m value previously accepted by the Siting Board (id.).

The Company indicated that the principal human exposure to project-related magnetic fields would occur at residences located adjacent to the 478 line (id.). The Company performed field measurements that indicated that present day magnetic field levels at the edge of the 478 line range from 10.0 to 11.5 milligauss ("mG") (Exh. SED-1, at 4.11-24). In addition, the Company provided calculations that showed that the 1992 average and peak magnetic field strengths at the edge of the ROW were 19 mG

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[114][114] Electric and magnetic fields are produced by the flow of electricity, with electric fields being proportional to voltage and magnetic fields being proportional to current. Both fields are collectively known as EMF.

[115][115] The Siting Board notes that BECo's and other utilities' existing transmission lines are not ancillary facilities as defined in G.L. c. 164, § 69G. However, in order to allow comprehensive analysis of environmental impacts associated with the construction and operation of the proposed generating facility, the Siting Board may identify and evaluate any potentially significant effects of the facility on magnetic field levels along existing transmission lines. See IDC Bellingham Decision, EFSB 97-5, at 91 to 93; Sithe Mystic Decision, EFSB 98-8, at 68; 1993 BECo Decision, 1 DOMSB at 148, 192.

and 48 mG, respectively (id.). The Company stated that with the proposed facility on line, the maximum EMF levels at the ROW edge likely would increase to 63 mG (id.).[116][116]

The Company stated that the electric and magnetic field strength at the facility property lines would originate from three different sources (Exh. EFSB-E-1). The first source would be the transmission lines which extend from the facility site over the Weymouth Fore River (id.). The maximum electric and magnetic fields at the property line from these transmission lines would be 0.03 kV/m and 3.3 mG, respectively (id.). The second source of EMFs would be the 775 MW generating equipment and step up transformers, which would generate maximum electric and magnetic fields at the property line of 0.001 to 0.050 kV/m and 1 to 2 mG respectively (id.). The third source of EMFs would be BECO's relocated switchyard, which would cause maximum electric and magnetic fields of 0.02 kV/m and 2.4 mG at the closest residence, which is located opposite the eastern site boundary along the southern end of Monatiquot Street (id.).[117][117]

The Company stated that BECo currently is conducting a system impact study to determine the extent of transmission system reinforcements needed to accommodate the Company's proposed project (Exh. SED-1, at 1-44). On the basis of preliminary results, BECo expects that no new transmission facilities would be required and an upgrade in voltage would not be necessary (id.). The Company stated that BECo expects that reconductoring one of the three existing 115 kV lines would be the most cost-effective transmission arrangement for the project (id.).[118][118] The Company noted that it may be possible, during final design, to rearrange the phases on each transmission line to reduce magnetic fields (Exh. EFSB-E-7).

2. Analysis

In a previous review of proposed 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

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[116][116]The Company did not provide the number of residences adjacent to the 5.9 mile BECo ROW; however, t noted that such residences would be exposed to a maximum of 63 mG at the edge of the ROW, and that the field strength would drop off to 36 mG, 25 mG and 16 mG at distances from the edge of the ROW of 25 feet, 45 feet and 75 feet, respectively (Exh. EFSB-E-5, at 2).

[117][117]EMF levels from the switchyard were measured at the closest residence rather than at the property line (Exh. EFSB-E-1). The closest residence is on Monatiquot Street, approximately 420 feet from the switchyard (id.).

[118][118]The Company explained that reconductoring means that the current wires are replaced with somewhat heavier gauge wires, enabling the line to carry more current over the same towers (id.).

Company et al.,13 DOMSC at 228-242 (1985) ("1985 MECO/NEPCO Decision"). Here, off-site electric and magnetic fields would remain below the levels found acceptable in the 1985 MECo/NEPCo Decision. Although consistent with edge-of-ROW levels previously accepted by the Siting Board, the estimated worst case maximum magnetic fields along the 478 lines would be 63 mG, a 31 percent increase over the 1992 peak load of 48 mG.

The Siting Board notes that as the 478 line may be reconductored for the project, there may be an opportunity to reduce magnetic fields through changes in the transmission line design. In previous cases, the Siting Board has asked facility proponents to work with transmission line companies to accomplish reductions in magnetic field levels where cost effective. IDC Bellingham Decision, EFSB 97-5, at 98; Sithe Mystic Decision, EFSB 98-8, at 71; Silver City Decision, 3 DOMSB at 353-354. Accordingly, the Siting Board encourages the Company to work with BECo to try to accomplish magnetic field reductions along the 478 line in conjunction with any necessary work on this line.

In addition, in order to allow the Siting Board to remain informed as to the progress and outcome of transmission upgrade designs related to interconnecting the proposed project, the Siting Board directs Sithe Edgar to provide it with an update on the extent and design of required transmission upgrades, and the measures incorporated into the transmission upgrade designs to minimize magnetic field impacts, at such time as Sithe Edgar reaches final agreement with all transmission providers regarding transmission upgrades.

Accordingly, the Siting Board finds that with the Company's pursuit of cost-effective designs for decreasing magnetic fields along the affected transmission lines that require upgrades, the environmental impacts of the proposed facility would be minimized with respect to EMF impacts.

K. Land Use

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

1. Description

Sithe Edgar proposed to construct its facility on a 57 acre site which it describes as an industrial brownfield with a mixture of upland and filled tidelands (Exhs. SED-1, at 4.9-1; EFSB-B-1-R).[119[119]] The Company noted that the site has been used for industrial purposes since the 1920's, when BECo built its Edgar Station on the site (Exhs. SED-1, at 4.9-1). The Company indicated that some portions of the site currently are used for electrical transmission, peaking generation, and energy storage while other portions house structures in disuse, such as the former Edgar Station powerhouse and some oil storage tanks (Exhs.

[119[119]] The proposed site is located primarily in Weymouth; however the northern corner of the site is located in Quincy (Exhs. EFSB-B-1-R; EFSB-WG-6-C (att.) at 2-1).

SED-1, at 4.9-1; EFSB-B-1-R).[120[120]] Sithe Edgar stated that it would demolish the powerhouse, switchhouse, two southern oil tanks, and the buildings associated with the northern dock (Exh. EFSB-WG-6-C (att.) at 3-6 to 3-7, 5.11-1)). In addition, as discussed in Section III.H.5. above, the Company has remediated or will remediate a number of REC's on the existing site (Exh. EFSB-WG-6-C (att.) at 5.9-1). The Company indicated that the proposed site consists of limited vegetation, including some small stands of mature trees and scrub, and that most of this vegetation would need to be removed in order to construct the proposed facility and other proposed facilities at the site (Exhs. B-1-R; EFSB-V-8; SED-1 (fig. 4.3-17)).[121[121]] The Company asserted that the proposed use is consistent with the existing land uses on the site, because its proposed facility is also an electric generating station with similar associated equipment (Exh. SED-1, at 4.9-4).

The Company stated that the proposed site is located within an I-2 district under the Town of Weymouth's Zoning Bylaw ("Weymouth Zoning Bylaw") and demonstrated that electrical generation is allowed as of right in an I-2 district which includes other heavy manufacturing uses (id. at 4.9-1; Exh. EFSB-L-10 (att. a); EFSB-L-2b (att. a); EFSB-L-11 (att. b, c)). The Company indicated that it had applied for and received a height variance[122[122]] and a special permit to operate a water freight terminal facility and to construct the proposed facility in a special flood hazard district from the Weymouth Zoning Board of Appeals (Exhs. EFSB-11-S (att. a); EFSB-L-1-S2 (att.)). The Company testified that while it did not need to obtain site plan approval from the Weymouth Planning Board, it would allow the Board of Selectmen to review Sithe's final design plans (Exh. EFSB-RR-82 (att.); Tr. 14, at 1276-1278).

The proposed facility site is surrounded by the Fore River on three sides, and a portion of the fourth side, with about half of the eastern property line abutting a residential neighborhood in Weymouth (Exhs. SED-1, at 4.9-2; EFSB-B-3 (att.); EFSB-RR-2 (att. B)). Sithe Edgar submitted land use maps of the area surrounding the site, and based upon those maps calculated that the land uses within one-half mile of the proposed site are 48.7 percent water, 24.4 percent industrial, 20.5 percent residential, 2.5 percent commercial, and 2.6 percent open space and recreational uses.[123[123]] The Company calculated that land

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[120[120]] Other existing structures include a switchyard, transmissions towers and an oil storage tank (see Section I.A, and Section III.F, above.

[121[121]] See Section III. F, above, for a complete discussion of impacts to existing vegetation.

[122[122]] Sithe requested a variance from Section 120-57 of the Weymouth Zoning Bylaws, which limits the height of structures abutting certain residential districts (Exh. EFSB-L-11-S (att. A); EFSB-L-10 (att. a)).

[123[123]] Open space and recreational uses include: forest, spectator recreation, participation recreation, water-based recreation, marinas, open land, wetlands, and urban open/public spaces (Exh. EFSB-RR-2 (att. B)).

uses within one mile of the proposed site are 32.5 percent water, 12.9 percent industrial, 36.5 percent residential, 4.5 percent commercial, and 6.2 percent open space and recreational uses (EFSB-L-2 (att. A); EFSB-RR-2 (atts. a, b)). The Company indicated that, with the exception of the existing Edgar Station, the heavy industrial land uses are located across the river and include a sludge pelletizing facility, an oil storage facility, another electric power plant, a hazardous water management facility, a manufacturing plant, and a shipyard (Exh. SED-1, at 4.9-2(fig. 1-2)).

The Company indicated that land use in the area surrounding the site has not changed significantly over the past twenty years, and that little change is expected in the future because of the built-out nature of the area (Exhs. EFSB-L-5; EFSB-B-11, at 5.14-13 to 5.14-14).[124][124] The Company noted that some of industrial areas near the proposed site have been redeveloped into commercial or new industrial uses over the past few years, and that small retail and residential growth might be expected in the area in the future (Exhs. EFSB-B-11, at 5.14; EFSB-L-5). [125][125], [126][126]

The Company indicated that 35 sensitive receptors, including playgrounds, schools, hospitals, elderly facilities, and parks, are located within approximately one mile of the proposed facility site (Exh. EFSB-L-1; EFSB-L-14). The Company also noted that a naval museum and commuter facilities are located across the river from the proposed site (Exhs. FRWA-S-5; FRWA-S-6; FRWA-S-7). The Company estimated that a total of 22 marinas, yacht clubs, and boat launching facilities are located within two miles of the proposed facility site and calculated that 405 sail boats passed through the Fore River Drawbridge in 1998 (Exhs. FRWA-S-18 (att.); FRWA-S-4; FRWA-S-5 (att.) FRWA-V-12). The FRWA submitted a document stating

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[124][124]The Company stated that population in the area surrounding the proposed site has remained relatively unchanged over the past twenty years (Exhs. EFSB-L-5; EFSB-L-6; EFSB-B-11, at 5.14-6). Using data from the US Census and the Metropolitan Area Planning Council, the Company provided population counts in 1990 and population projections for the year 2000 and the year 2010; in 1990 Braintree had 33,836 people, Quincy 84,985, and Weymouth 54,063. The Company stated that population is projected to increase by under one percent in Quincy and Weymouth by the year 2000, to decrease slightly in Braintree, and to increase slightly in portions of all three towns near the proposed site (Exhs. B-11, at 5.14-6; EFSB-L-6; EFSB-RR-7).

[125][125]The Company stated that the Quincy does not have an updated master plan, and that Braintree had updated its master plan in 1988 (Exhs. EFSB-B-11, at 5.14; EFSB-L-5). Sithe Edgar asserted that the Braintree master plan does not plan much change, but rather discusses means to accommodate growth, which is expected primarily in the portions of Braintree away from the proposed site. (Exh. EFSB-L-5).

[126][126]The Company stated that the Quincy shipyard is currently under renovation, and will be open as a ship building facility in the near future (Exhs. EFSB-B-11, at 5.14-5; EFSB-L-5).

that in 1990 over 1800 recreational boats were docked in the Fore River area (Exh. FRWA-10 (att. A), at 16).

The Company submitted information about zoning in the areas within approximately one mile of the site in Weymouth, Quincy, and Braintree (Exhs. EFSB-L-2 (atts. a, b, c); EFSB-L-18 (att. a); EFSB-RR-6). The Company indicated that the area surrounding the site in Weymouth is predominately zoned low density residential, with smaller amounts of business (which includes commercial uses) and neighborhood center district (mixed use) (Exhs. EFSB-L-18 (att. B); EFSB-RR-5) . Sithe stated that the area in Braintree near the site is zoned single family residential, mixed family residential, and business (Exhs. EFSB-L-18-S (att. B); EFSB-RR-5).[127[127]] The Company stated that the area in Quincy near the site is zoned single and multi-family residential, business, open space, and industrial (Exhs. EFSB-L-18a (att. A); EFSB-RR-5).

The Company stated that the proposed site is in a DPA, as designated by the Massachusetts CZM program (Exh. EFSB-B-5). The Company indicated that the DPA designation affects WPA and Chapter 91 filings, in particular restricting the development of non-water dependant industrial facilities (id.).[128[128]] The Company stated the DPA designation was designed to protect and enhance water dependent industrial uses in the coastal zone (id.). The Company stated that construction of the proposed facility must be

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[127[127]] The Company noted that the industrial area of Braintree near the site was rezoned to prohibit any additional industrial uses (Exh. EFSB-RR-5).

[128[128]] 310 CMR 9.32 (1) provides:

> "The Department has determined that in certain situations fill or structures categorically do not meet the statutory tests for approval under M.G.L c. 91 or are otherwise not in keeping with the purposes of 310 CMR 9.00. Accordingly, a project shall be eligible for a license only if it is restricted to fill or structures which accommodate the uses specified below, within the geographic areas specified below. Tidelands Within Designated Port Areas (DPAs) 1. fill or structures for any water-dependant-industrial use, and accessory uses thereto, on previously filled tidelands: 2. fill or structures for water-dependent-industrial use on flowed tidelands, provided that, in the case of the proposed fill, neither pile-supported nor floating structures are a reasonable alternative; 3. structures to accommodate public pedestrian access, provided that such structures are located above the high water mark or within the footprint of existing pile-supported structures or pile fields, wherever feasible".

approved under Chapter 91, the waterways regulations program administered by MDEP (Exhs. SED-1, at 4.9-1, fig. 4.3-17; EFSB-B-11 (app. E)).[129[129]]

The Company proposed to provide two public access areas on the proposed site: the Lovell's Grove area, which is adjacent to Route 3A and the Fore River, and the King's Cove area, which stretches from Route 3A north along King's Cove (Exh. EFSB-WG-6 (att. c at 3-26 to 3-28, figs. 3-11, 3-12)). In the Lovell's Grove area, Sithe Edgar proposed a lawn, a low seating wall overlooking the rocky beach, picnic tables, historical elements and plantings (id. (fig. 3-11)). In the King's Cove area, the Company proposed a passive recreational pathway that would start adjacent to Route 3A and would run along King's Cove and around the proposed MWRA IPS station (id., (fig. 3-12)). The Company also proposed to make improvement to the rip-rapped shore and add landscaping and lookout/gathering areas (id.). The Company stated that both public access areas would be handicapped accessible and would have convenient and safe access from the surrounding neighborhoods (Exh. EFSB-LC-5; EFSB-L-8-S; EFSB-L-8-S-2).

Sithe Edgar stated that it solicited comments from the public concerning the public access areas, and that in particular it obtained input from the North Weymouth Civic Association and WESRRC (Exh. EFSB-WG- 6 (att. c, at 3-26)). The Company asserted that the proposed public access would make the project more compatible with existing open space, water-based uses, and residential uses in the area (Exh. EFSB-L-17). The Company argued that both public access areas would be of benefit to historic/cultural, visual, and fishery interests (Exhs. EFSB-LC-3; EFSB-LC-4).

The Company submitted Weymouth's Waterfront Plan, completed in 1988, which discusses means to improve public access along Weymouth's waterfront (Exhs. EFSB-L-5; EFSB-L-16 (att. at 15-16)). The plan states that recreational boating is the fastest growing use of waters in Weymouth and that portions of the Edgar Station site are good for public access and recommends that Weymouth require local public access and boat access as part of energy improvements (Exh. EFSB-L-16 (att. at 9, 16, 36-37). The Company stated that it considers the Fore River adjacent to the proposed facility site to be a passage for waterborne vessels/transport suited only for industrial purposes, and that it does not believe the Fore River near the site will be a recreational resource suitable for swimming (Tr. 1, at 78-81). The Company asserted that the proposed facility would not conflict with any current or future uses of the river because barge deliveries of oil would be minimal and would occur primarily during the winter when a fuel shortage

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[129[129]] The Company explained that Chapter 91 regulates the alteration and filling of the Commonwealth's and private waterways and tidelands, both filled and flowed, in order to protect the public interest in these lands (Exh. EFSB-WW-5-S (att.) at B-11). The Company submitted evidence that a significant portion of the site is filled tidelands, which have been repeatedly filled to accommodate growth ((Exhs. SED-1, at 4.9-1, fig. 4.3-17; EFSB-B-11 (app. E)).

is likely to occur (Exh. EFSB-L-21). In addition, the Company noted that recreational uses in the area would be enhanced as a result of the proposed public access at the proposed site (Exh. EFSB-L-21).

With respect to historic resources, the Company stated that the Massachusetts Historical Commission ("MHC") has determined that the original Edgar Station was eligible for listing in the National Register of Historic Places and that the American Society of Mechanical Engineers has named the Edgar Station a National Historic Mechanical Engineering Landmark (Exhs. SED-4.10-2; EFSB-B-11 (app. F)). The Company stated that the MHC has determined that the demolition of the existing Edgar Energy Station would have an "adverse effect" on a structure eligible for listing ((Exhs. SED-4.10-2; EFSB-B-11 (App. F)).[130[130]]

The Company asserted that it was not feasible to develop the proposed site without demolishing on-site historic resources because: the existing buildings could not easily accommodate new turbines; there is no other place on the site to locate new turbine buildings; G.L. c. 164, § 1A(b)(2) requires the removal and decommissioning of unused structures at this station; and the higher turbine building would necessitate a higher stack. Under its Section 106 review,[131[131]] the MHC has accepted the demolition as prudent and feasible and has required that numerous actions to be taken to mitigate the historic impacts of demolition (Exhs. EFSB-WG-6 (att. c (app. E), 5.7-2)).[132[132]] In addition, Weymouth and the Company entered into a Memorandum of Agreement to allow demolition to proceed, with additional conditions for mitigation of historic impacts (Exh. EFSB-WG-6 (att. c (app. D))).[133[133]]

[130[130]]The Company further indicated that the turbine building is on Weymouth Historical Commission's list of "Historic and Architecturally Significant Buildings" (Exh. EFSB-WG-6(att. c (App. D))).

[131[131]]National Historic Preservation Act of 1966 (36 CRR 800) and G.L., Chapter 9, Sec. 26-27c (950 CMR 71.00) (Exh. SED-1, at 4.10-5).

[132[132]]The Company stated that it is required to: (1) provide a historic engineering record documentation to be filed with the Massachusetts Archives and the Weymouth Historical Commission; (2) preserve and reuse the existing gatehouse as a publically accessible facility for display of exhibits and information on the history of the Edgar Station and the site; (3) create a public picnic area in the Lovell's Grove area; and (4) allow continuing review of the project design by the state historic preservation officer (Exhs. EFSB-WG-6-C (att.) App. E at 5.7-2)).

[133[133]]Sithe Edgar agreed to: (1) produce of an illustrated brochure on the history of the site, Lovell's Grove and other historic sites in the area; (2) assist in the production of an illustrated booklet which summarizes the Edgar Power Station's building record; and (3) consult with the Weymouth Historical Commission and the Board of Selectmen on final building design (Exh. EFSB-WG-6 (att. c (app. D))).

The Company stated that the project would have no impact on any rare plants or animals because the Massachusetts Natural Heritage and Endangered Species Program and the U.S. Fish and Wildlife Service have indicated that there are not any federally or state listed species or habitats that would be adversely affected by construction at the Fore River Station site (Exhs. EFSB-B-11-S (att. at 5.6-9); EFSB-WW-11 (att.); EFSB-RR-65-S (att.)). The FERC application submitted by the Company for the gas pipeline interconnect indicates that 25.56 acres of land would be permanently affected by the proposed project, and 54.94 acres during construction, most of which is along or in the existing ROW (Exhs. B-18-S (att. at 1-7 to 1-8); EFSB-L-13).

The Company asserted that land use impacts of the project with OTC would be similar to those with ACC (Tr. 1, at 103-104).

2. Northern Portion

The Company indicated that it did not currently have any plans for the northern portion of the site, except potentially to refurbish and reuse the existing 11 million gallon oil tank (Exhs. FRWA-S-12; Tr. 1, at 98-99). The Company noted that it has agreed to repaint the northern oil tank, provide public access along King's Cove, and achieve a mutually agreeable plan for the development or use of the land on the north portion of the site (Company Reply Brief at 6). FRWA argued that the entire northern portion of the site, less the proposed MWRA IPS station, should be preserved as open space for public access (FRWA Brief at 2). The FRWA asserted that the northern portion is not needed for the operation of the proposed facility and contended that the facility is not water dependant, and thus should be subject to higher public access standards than water dependant uses under CZM and WPA regulations (FRWA Brief at 2-3). The FRWA argued that protection of and public access to the northern portion, which is 88 percent filled tidelands, would provide: (1) assurance that all feasible measures have been taken to avoid or minimize detriments to water- related interests, maritime recreation and associated public access; (2) protection and enhancement of public views of the shoreline; (3) access to historic sites; (4) an increase in wildlife habitat; (5) an increase in groundwater recharge; (6) increased protection against non-point pollution to the river; and (7) increased public appreciation and protection of the river (FRWA Brief at 2-4). In addition, the FRWA asserted that opening the northern portion to public access would support many objectives established by the CZM program and Chapter 91 (FRWA Brief at 3, 7).

The Company argued that discussions of public access on the northern portion of the site should occur after future use of that portion was determined and suggested that devoting the entire portion of the site to public access might be "antithetical" to DPA standards (Tr.1, at 91-92). The Company noted that the former Edgar Station has been in full view of recreational boaters for 70 years and that it has limited ability to provide screening of the Station from the river (Company Brief at 65). The Company also argued that the northern oil tank already exists and is not related to the proposed project in any manner, and

consequently the Siting Board has no jurisdiction over that existing structure (Company Reply Brief at 4-6).

3. 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 land use requirements, policies, or plans, and assesses the proposed facility's impacts on land use and terrestrial resources.

Here, the record shows that the proposed site is zoned for industrial use and that the proposed facility is allowed under the Weymouth Zoning Bylaw. The Company has received the necessary height variances and special permits to construct the proposed facility. A densely settled residential neighborhood lies immediately to the east of the site, while the land within one mile of the site is zoned for a combination of residential, industrial, commercial, and mixed uses. The record suggests that land uses in the vicinity of the proposed site are likely to remain mixed, although industrial uses may decrease somewhat due to rezoning in Braintree, while recreational use of the Fore River may increase as a result of waterfront plans, Chapter 91 requirements, and improvements in water quality.

The record shows that construction of the proposed facility is consistent both with the past and current use of the site for electric transmission and generation, and with the mixed land use of the area. In addition, the Company's proposal to provide public access to the waterfront at two locations is consistent with the goals of Weymouth's Waterfront Plan, which calls for public and boat access as part of energy improvements at Edgar Station. The Company has provided information concerning impacts to historical and cultural resources, and has entered into formal agreements with the MHC and Weymouth to provide mitigation for the demolition of the historic pumphouse.

The FRWA has argued that, in order to mitigate the proposed facility's impacts on the watershed, the Siting Board should require the Company to convert that portion of its site lying to the north of Route 3A into a public recreation area. In response, the Company notes that it has already agreed with the Town of Weymouth to achieve a mutually agreeable plan for the use of this portion of the site, and argues that any plans for further public access should be considered in conjunction with such development plans.

The record shows that in the vicinity of the proposed site, the Fore River, like the land around it, supports a mixture of industrial, commercial, and recreational activity, with recreational activity increasing in recent years. A number of heavy industrial uses are located on the opposite shore of the Fore River, and the site is located in a DPA, or area designated for water dependent industrial uses. Thus, with or without construction of the proposed facility, future recreational activity on this portion of the Fore River will take place against an industrial backdrop, and in the company of industrial shipping.

The primary impact of the proposed facility on public use of the Fore River would be a change in the views seen by boaters as they move past the site, and an increase in noise on the river in the vicinity of the proposed facility. In Section III.F, above, the Siting Board has required landscaping and shoreline

improvements on the northern portion of the site in order to minimize views of the proposed facility. The Siting Board notes that converting the northern portion of the site to a public recreation area would not serve either to further screen the proposed facility from the river or to reduce noise levels in the vicinity of the proposed facility. Consequently, the Siting Board concludes that FRWA's proposal to dedicate the northern portion of the site to public use would not serve to minimize the land use, noise, or visual impacts of the proposed facility.[134[134]]

The Siting Board notes, however, that additional public access to or use of the northern portion of the site may be desirable, not to minimize the impacts of the proposed facility, but in order to promote the use and enjoyment of the Fore River watershed. Planning for such access also may affect implementation of required measures for providing visual mitigation on the northern portion of the site, as conditioned in Section III.F.2, above.

The Company has entered into an agreement with the Town of Weymouth to work cooperatively toward a mutually agreeable plan for the future development or use of the northern portion of the site. In addition, such plans are of interest to FRWA and are likely to affect other state agencies. The Siting Board believes that more detailed planning for additional public use of or access to the northern portion of the site would be best undertaken in the context of Sithe's agreement to work with Weymouth, and to the extent possible in cooperation with FRWA and affected state agencies. The Siting Board therefore requires Sithe to work with Weymouth, FRWA and appropriate state agencies to develop and coordinate plans for providing additional public access, if and where appropriate, in the area of the northern portion of the site

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[134[134]]The Siting Board notes that, even if there were a clearer nexus between public use on the 16-acre northern portion of the proposed site and the impacts of the proposed facility, the Siting Board is required to review FRWA's proposal in accordance with its statutory mandate, to minimize the environmental impacts of proposed generation facilities consistent with the minimization of the costs associated with the mitigation, control and reduction of those impacts. G.L. c. 164, §69 J¼. The record lacks details as to FRWA's proposal, both as to the proposed uses of the area and related benefits, and the willingness of any entity to oversee the maintenance of facilities for public use. Dedicating the northern portion of Sithe's property entirely or substantially to public use, as proposed by FRWA, would involve a significant opportunity cost to Sithe. In addition, although public access is considered an appropriate use in a DPA, such use may preclude or substantially reduce the ability to use the area for other industrial or marine-dependent uses that may be considered appropriate and also consistent with the location in a DPA. Thus, the Siting Board cannot assess with any certainty the likely benefits and costs of the FRWA proposal, including whether it would best serve the public interest. Therefore, based on this record, the Siting Board could not conclude that FRWA's proposal would minimize the environmental impacts of the proposed facility consistent with the minimization of the costs associated with the mitigation, control and reduction of those impacts.

that Sithe will improve as conditioned in Section III. F. 2. above, and in other parts of the site as may be agreed.

The record indicates that construction of the proposed facility would have no impact on protected wildlife species and habitats. Although the proposed natural gas interconnection is expected to require temporary easements for construction, with associated clearing of vegetation that will be allowed to regrow, the interconnection is proposed primarily within an existing ROW. In addition, the electric interconnection will take place on site. The Siting Board therefore finds that the land use impacts of the interconnections would be minimized.

As discussed in the visual, noise, and traffic sections, the Company has proposed or been required to provide mitigation that minimizes impacts on the abutting residential uses to the east, as well as on neighborhoods across the Fore River and recreational users of the river. Minimization of these impacts helps establish the proposed facility will be compatible with existing land uses. Accordingly, the Siting Board finds that, with the implementation of the above condition, the land use impacts of the proposed facility at the proposed site would be minimized.

L. 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, in sections above, of specific environmental impacts which could have an effect on human health and any necessary mitigation measures. This section 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; describes any existing health-based regulatory programs governing these impacts; and considers the impacts of the proposed project in light of such programs.

1. Baseline Health Conditions

The Company provided summaries of six reports produced within the last ten years documenting health conditions in the Weymouth/Braintree/Quincy area (Exh. EFSB-H-2). The most recent of these reports was published by the Massachusetts Department of Public Health in 1997 and is titled Cancer Incidence in Massachusetts 1987-1994 ("Cancer Incidence Report") (id.). The Cancer Incidence Report compares the incidence rate of 22 types of cancer for each of the 351 Massachusetts cities and towns with the state-wide average for males, females, and the total population, and notes statistically significant deviations (id.). In Weymouth, the Cancer Incidence Report finds elevated levels of leukemia (significant at $p <= 0.01$), colon and rectal cancer, larynx, bronchus and lung cancer, and prostate cancer (significant at $p <= 0.05$)[135[135]] (id.). In the neighboring towns of Quincy and Braintree, the Cancer Incidence Report

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[135[135]] The term "statistically significant at p" ≤ 0.01 means that there is at most one chance in 100 that the excess of observed cancer cases is due to chance alone (Exh. EFSB-H-2, at 5). Similarly, the term "statistically significant at $p \leq 0.05$" means that there is at most one chance in 20 that the excess of observed cancer cases is due to chance alone (id.).

found elevated levels of colon/rectum cancer in Braintree and oral cavity cancer in Quincy (both significant at p <= 0.01), and elevated levels of larynx, bronchus and lung cancer in Quincy and prostate cancer in both towns (all significant at p <= 0.05) (id.). The Company noted, however, that the Cancer Incidence Report cautioned that statistical significance does not necessarily imply biological or public health significance (id.).

The other five reports summarized by the Company date from 1989 or 1990 and focus on the Weymouth/Braintree/Quincy area (Exh. EFSB-H-2.). Two of these studies, titled Health Studies -- Supplemental Baseline Report: Primary Health Study ("Primary Health Study") and Health Draft Baseline Report ("Baseline Report"), compare Weymouth, Braintree and Quincy to a number of comparison communities with respect to the incidence of a broad range of health problems (id.). The Company indicated that the Primary Health Study found that the incidence rates of thirteen specific health problems were significantly elevated in the three municipalities as compared to other communities, while incidence of thirteen other health problems were significantly depressed (Exh. EFSB-H-7). The Company also stated that, of sixteen respiratory disease comparisons found in the Primary Health study, nine showed the Town of Weymouth with lower levels of disease than in comparison communities (Exh. W-H-2). The Company noted that the Baseline Report concluded that the "average respiratory disease rank for Weymouth was 11.8", better than the average of 14, and that Weymouth generally shows a lower incidence of respiratory diseases as compared to state averages, but a higher mortality rate (id.)

2. Criteria Pollutants

As discussed in Section III. B. 1, above, the MDEP regulates the emissions of six criteria pollutants under NAAQS: SO_2, PM-10,[136[136]] NO_2, CO, O_3, and Pb. The Company's witness, Dr. Valberg, stated that NO_2, SO_2, and O_3 are respiratory irritants which, if inhaled at high levels, could cause wheezing, coughing, and bronchitis-like conditions, and could increase sensitivity to asthma (Tr. 8, at 845-849). Dr. Valberg further stated that CO binds hemoglobin and could lead to heart malfunction; that Pb is a neurotoxin that could impair the functioning of the nervous system; and that particulate matter is a respiratory irritant which, at very high levels, could compromise respiratory function (id. at 846-847). Dr. Valberg stated that criteria pollutants are not generally associated with lung cancer, although he noted that some particulates, such as those created by cigarette smoking, are carcinogenic (id. at 847).

The Company provided an overview of how the USEPA determines NAAQS for each criteria pollutant (Exh. EFSB-H-10). The Company indicated that the USEPA assembles separate documents on the health effects of all the criteria pollutants and that during the process of setting standards, public health agencies, university review groups, environmental groups, and medical groups all provide comments (id.). The Company stated that the resulting standards are designed to protect the health of the population, including sensitive subgroups (id.).[137[137]] The Company provided data from MDEP monitoring stations in Boston, Chelsea, Lynn, Waltham, Quincy, and Scituate, indicating that (1) maximum concentrations of CO

[136[136]] The Siting Board notes that the EPA has promulgated regulations that also would set standards for emissions of PM-2.5 and that would revise the current standard for emissions of PM-10; however, these regulations are not currently in effect (Exh. EFSB-H-18).

[137[137]] The Company's witness, Dr. Valberg, noted that no public health standard could protect the most sensitive individual (Tr. 8, at 945).

are 52 percent of the 8-hour NAAQS standard and 19 percent of the 1-hour standard; and (2) maximum concentrations of NO_2, Pb, SO_2 and PM-10 are below 50 percent of the NAAQS standard for all averaging periods (Exh. EFSB-A-1-S-2 (att.) at 4-22 to 5-23).

The Company indicated that new sources of criteria pollutants, such as the proposed project, may not cause or contribute to a violation of the health-based NAAQS (id. at 3-1). The Company stated that, in order to identify new sources with the potential to significantly affect ambient air quality, the USEPA and MDEP have adopted SILs for each criteria pollutant; new sources with emissions above SILs are required to conduct interactive source modeling of their emissions (id. at 3-6). The Company showed that the proposed facility's emissions would be below applicable SILs for all criteria pollutants (id. at 6-6, 6-8, 6-10).

To assess air impacts of the proposed facility and other existing sources of emissions, the Company conducted cumulative air modeling of the criteria pollutants.[138[138]] The results show that, at locations where cumulative concentrations are highest, the maximum cumulative concentrations of SO_2, PM-10 and CO are between 20 and 68 percent of the NAAQS, while maximum cumulative concentrations of NO_2 are 96 percent of NAAQS (Exh. EFSB-WG-6-C (att.) at 5.1-12). The proposed facility's contributions at these locations are less than .01 percent of the cumulative pollutant concentrations (id.). The Company also calculated cumulative concentrations at the point of maximum impact for the proposed facility (Exh. EFSB-RR-35). In this analysis, the cumulative concentrations ranged from 31 to 45 percent of NAAQS, with the proposed facility's contribution at 1 percent or less of NAAQS in all cases (Exhs. EFSB-RR-35; EFSB-A-1-S-2 (att.) at Table 6.6-2). In addition, the Company conducted a backout analysis and asserted that the operation of the facility would result in net reductions of NO_x, SO_2 and CO_2 in Massachusetts of approximately 8090 tpy, 29,693 tpy and 1,940,600 tpy, respectively (Exhs. EFSB-A-20; EFSB-A-20-S).

The record indicates that the USEPA has set in place ambient air quality standards, called NAAQS, for six criteria pollutants – SO_2, PM-10, NO_2, CO, O_3, and Pb. These standards are set based on an extensive review of the medical literature regarding the health effects of each pollutant, and are designed to be protective of human health, including the health of sensitive subgroups such as the elderly, children, and asthmatics, with an adequate margin for safety. The Siting Board gives great weight to these standards as indicators of whether incremental emissions of criteria pollutants will have a discernable impact on public health.

The record also shows that MDEP has set in place standards for reviewing the compliance of proposed new sources of criteria pollutants, such as the proposed project, with NAAQS. Specifically, new

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[138[138]] The Company conducted cumulative air modeling to address comments on the Environmental Notification Form for the proposed project, even though its projected emissions are below SILs (Exh. EFSB-A-1-S-2 (att.) at 6-14).

sources may not cause or contribute significantly to a violation of NAAQS. In addition, as discussed in Section III. B above, MDEP requires major new sources to meet BACT (when the area is in attainment or is unclassifiable for a particular pollutant) or LAER (when the area is in non-compliance for a particular pollutant), and to obtain offsets greater than 100 percent of emissions when the area is in non-compliance for a particular pollutant. The Siting Board notes that MDEP's new source program balances environmental impacts and costs when an area is in compliance with NAAQS, but requires stronger measures, including emissions offsets, when an area is in non-attainment. The Siting Board finds 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 compliance with MDEP air quality programs as an indicator of whether the Company has minimized the health impacts of a proposed facility.

In this case, the record shows that the Weymouth area in Norfolk County presently is (1) unclassified or in attainment for NO_2, SO_2, PM-10, CO and Pb, with regional background levels of less than 52 percent of the ambient standard for all pollutants and averaging periods; and (2) in serious non-attainment for ozone.[139[139]] Thus, the Weymouth area levels of all criteria pollutants except O_3 are within the standards set to protect human health. In addition, the Company has shown that the proposed project's emissions of all criteria pollutants would be below the SILs. The Siting Board concludes that there is no evidence suggesting that the proposed project's emissions of SO_2, PM-10, NO_x, CO, and Pb would have a discernable impact on public health.

With respect to concerns raised about the health impacts of multiple sources of pollution in the Weymouth area, the Company's cumulative air modeling shows that the cumulative concentrations for NO_2, SO_2, PM-10, and CO were below NAAQS and that the proposed facility's contribution to the cumulative impact at the location of the greatest pollutant concentration was less than one percent of NAAQS. The Company has committed to meeting BACT or LAER, as applicable, and to obtaining offsets for its NO_x emissions as required. Consequently, based on its compliance with MDEP air quality standards, the Siting Board finds that the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized.

3. Air Toxics

[139[139]] The Siting Board notes that the USEPA has promulgated regulations replacing the current 1-hour standard for O_3 with an 8-hour standard; however, these regulations are not currently in effect. (Exh. EFSB-H-18). The new standard is intended to provide increased protection against O_3-induced health impacts (id.). As the new standard is intended to be more stringent than the old standard, the Siting Board assumes that Massachusetts would continue to be in serious non-attainment for O_3 under the new standard.

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, beryllium, lead, mercury, nickel, and formaldehyde (Exh. EFSB-A-1-S-2(att.) at Table 6.5-3).

The Company indicated that MDEP has developed ambient air quality standards for these pollutants designed to protect public health (Exh. EFSB-H-3). The program sets AALs for a broad range of chemicals through a three-stage process (Exh. EFSB-H-15, at viii-ix). First, a Threshold Effects Exposure Limit ("TEL") which is protective of public health from threshold effects is established (id. at viii). Next, a Non-threshold Effects Exposure Limit ("NTEL") is derived (id.). Finally, the lower of the TEL and the NTEL is selected as the AAL (id.). Where carcinogenicity is the most sensitive effect, and adequate data is available to derive a cancer unit risk, the AAL is set to correspond to an incremental lifetime risk of developing cancer of one in one million (id. at ix). The Company asserted that AALs and TELs were designed to ensure that contributions from a single source would have an insignificant impact on public health (Exh. EFSB-H-3).

Sithe Edgar provided an abstract of a 1998 study by the USEPA entitled "Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress" ("HAPs Study") (Exh. EFSB-H-1-S). The HAPs Study assessed the hazards and risks due to inhalation exposure to 67 hazardous air pollutants ("HAPs") from 684 fossil fuel plants nation-wide (id.). The HAPs study also included multipathway assessments for the four highest-priority HAPs – arsenic, mercury, dioxins, and radio nuclides (id.). The HAPs study eliminated gas-fired power plants from its analysis at the screening stage, noting that "[t]he cancer risks for all gas-fired plants were well below one chance in one million ... and no noncancer hazards were identified" (id.). Based on the USEPA's findings, the Siting Board concludes that, in the absence of project-specific evidence to the contrary, the air toxics emissions from a gas-fired generating facility should be considered to have no discernable public health impacts.

Although Sithe Edgar proposes to use natural gas as the primary fuel for its Fore River facility, it does intend to seek permits to use oil as a back-up fuel for up to thirty days per year. However, as noted in section III.B, above, the proposed project's emissions of all regulated air toxics would be below MDEP TELs and AALs, which are designed to be protective of public health, even assuming thirty days of oil burning. In addition, there is no evidence in the record suggesting that the proposed project would emit any specific air toxic at levels which would affect public health. Consequently, the Siting Board finds that the air toxics emissions from the proposed project would have no discernable public health impact.

4. Discharges to Ground and Surface Waters

The Company identified two water-linked pathways by which substances hazardous to human health could theoretically reach the local population: through stormwater discharges and construction dewatering that infiltrate groundwater used to supply potable water, and through wastewater discharges to surface water bodies (Exhs. EFSB-H-3; EFSB-H-4; EFSB-H-5).

With respect to impacts on potable groundwater, the Company presented information demonstrating that no groundwater sources, surface water supply sources, wells, MDEP Zone II recharge areas, or high or medium yield aquifers are located within one mile of the proposed facility (Exh. EFSB-SS-17(att.)). The Company stated that the potential for pollutant releases through stormwater runoff is regulated by MDEP under its Stormwater Management Policy, and indicated that, pursuant to SMP requirements, surface runoff would be collected, treated, and discharged off-site (Exhs. EFSB-H-3, at 2; SED-1, at 4.3-2). The Company indicated that during construction, stormwater management would take place in accordance with an NPDES SPPP (Exh. EFSB-H-4).

As discussed in Section III.C.2, above, the proposed facility would generate a wastewater stream of between 39,983 and 42,858 gpd, which would be discharged to either the Weymouth or Quincy sewer system (Exh. EFSB-WG-6-C (att.) at 6-6 to 6-10). The Company stated that wastewater entering the sewer system would meet all standards for effluent discharges (id. at 6-10).

In Section III.C, above, the Siting Board determined that the Fore River Station is not proximate to any ground or surface sources of potable water, and that the proposed facility therefore would have no impact on local potable water supplies. The Siting Board noted the potential for impacts to public water supplies based on the upgrade of the Algonquin natural gas pipeline to serve the facility, but recognized that the impacts to these supplies could be minimized through FERC and Conservation Commission review. In addition, the Siting Board has found that the wastewater impacts of the project would be minimized if water is discharged to the Weymouth sewer system, and has required a compliance filing if water is to be discharged to the Quincy sewer system. Consequently, the Siting Board finds that the project as proposed poses no health risks related to the contamination of potable groundwater or the disposal of wastewater.

5. Handling and Disposal of Hazardous Materials

As discussed in Section III.H above, the proposed project would use 19 percent aqueous ammonia for NO_x control, and limited amounts of lubricating oils and certain other industrial chemicals for project operation and for treatment of makeup water, boiler feedwater, and cooling water (Exh. EFSB-WG-6-C (att.) at 5.10-3 to 5.10-6). In addition, the Company would store fuel in a 6.3 million gallon tank, with deliveries to be made primarily by barge (id. at 5.10-1). In Section III.H, above, the Siting Board reviewed the Company's plans for storage and handling of hazardous materials, including aqueous ammonia, and its plans for minimizing and responding to accidental releases of oil or other hazardous materials. The Siting Board determined that aqueous ammonia and other non-fuel chemicals would be properly managed and stored; that in the event of an ammonia tank failure, ammonia concentrations would be well below the toxic endpoint at the property boundaries; and that the Company is prepared to respond effectively to an accidental release of hazardous materials. The Siting Board also determined that the

Company 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.

The Company has demonstrated that it has in place procedures for the proper handling, storage, and disposal of hazardous materials during construction and operation of the proposed project. In addition, the Company has demonstrated that ammonia concentrations from a accidental spill would be below levels hazardous to public health at the property boundaries, and that accidental spills of other hazardous materials could be contained at the source and therefore would not affect public health. Consequently, the Siting Board finds that the health risks of the proposed project related to the handling and disposal of hazardous materials would be minimized.

6. EMF

As discussed in Section III. J above, Sithe estimated worst-case magnetic field levels resulting from the operation of the proposed facility at 63 mG along the edge of the 478 line ROW (Exh. SED-1, at 4.11-24). In addition, the record shows that the Company anticipates reconductoring one of the three existing 115 kV lines on that ROW as part of the transmission arrangement for the project, and has agreed to consult with BECo prior to the reconductoring to encourage a new line configuration that would further reduce EMFs.

The possible health effects of exposure to EMF have been a subject of considerable debate. In a 1985 case involving the construction of the 345 kV overhead HydroQuebec line, the Siting Board heard expert testimony, reviewed the existing literature, and concluded that there was no affirmative evidence that the proposed facilities, which had edge-of-ROW levels of 85 mG, would produce harmful health effects. Massachusetts Electric Company et al, 13 DOMSC 119, 240 (1985). In this case, the Company has provided a summary of existing state and non-regulatory guidance regarding exposure to EMF, noting that the federal government has set no standards for such exposure (Exh. SED-1, at 4.11-5 to 4.11-6). The Company stated that the International Radiation Protection Association recommends that occupational exposure be limited to magnetic fields below 5000 mG; that routine exposure for the general public be limited to 1000 mG; and that general public exposure to fields between 1000 and 10,000 mG be limited to a few hours per day (id. at 4.11-5). The Company also stated that the American Conference of Governmental Industrial Hygienists had established a Threshold Limit Value (TLV) level to which nearly all workers may be exposed repeatedly without adverse health effects of 10,000 mG (id.). The Company indicated that eight states have adopted EMF guidelines which are generally based on levels in existing transmission corridors; the maximum permissible levels for magnetic fields under those guidelines range from 150 mG (for a 230 kV line in Florida) to 250 mG (for a 500 kV, double circuit line in Florida) (id. at 4.11-6).

The Company asserted that available laboratory and human data have not demonstrated what, if any, magnitudes of power line electric and magnetic fields cause human health effects (id. at 4.11-5). In support of this assertion, the Company provided a 1997 report by the National Research Council, which

provides a comprehensive review of research up to that date on the biologic effects of exposure to power-frequency electric and magnetic fields, including cellular and molecular studies, studies on whole animals, and epidemiological studies (Exh. EFSB-E-2 (att.)). The report concludes that the current body of evidence does not show that exposure to such fields presents a human health hazard. (id. at 2). With respect to epidemiological studies, the report indicates that the aggregate evidence does not support an association between magnetic field exposure and adult cancer, pregnancy outcome, neurobehavioral disorders, and childhood cancers other than leukemia (id. at 3). With respect to in vitro studies, the report finds that exposure to 50-60 Hz fields induces changes in cultured cells only at field strengths 1000 to 100,000 times the levels typically found in residences (id. at 6). With respect to animal studies, the study finds no convincing evidence that exposure to power-frequency fields causes cancer or has any adverse effects on reproduction or development in animals (id. at 7). The report finds evidence of behavioral response to fields "considerably larger than those encountered in a residential environment"; however, there was no demonstration of adverse neurobehavioral impacts (id.).

The Company's witness, Dr. Valberg, also discussed a more recent Canadian study, where field exposure was assessed through monitors in children's backpacks (Tr. 8, at 875-881). Dr. Valberg indicated that this study did not support a relationship between field exposure and leukemia (id. at 877).

Overall, although there are some epidemiological studies which suggest a correlation between exposure to magnetic fields and childhood leukemia, and some evidence of biological response to exposure to magnetic fields in animal studies, there is no evidence of a cause-and-effect association between magnetic field exposure and human health. Thus, the record in this case does not support a conclusion that the EMF levels anticipated as a result of the proposed project would pose a public health concern. Nonetheless, consistent with its policy of encouraging transmission providers to take cost-effective steps to minimize magnetic fields, the Siting Board has required the Company to pursue an interconnection plan that minimizes magnetic fields at nearby residences. Accordingly, the Siting Board finds that the health effects, if any, of magnetic fields associated with the proposed project would be minimized.

7. Noise

As discussed in Section III. G above, the proposed facility would produce noise that would be noticeable in some surrounding community areas, both during the facility construction period and during operation of the facility. The Company has assessed the noise impacts of the proposed facility in relation to applicable federal and local criteria for acceptable ambient noise, as well as the MDEP standard which limits allowable noise increases from new sources.

With respect to health effects of noise, the Company asserted that the only documented health effect of exposure to excessive noise is damage to ears (Exh. EFSB-H-12). The Company stated that OSHA and USEPA both have established guidelines to prevent hearing loss due to long-term exposure to noise; the OSHA guidelines prohibit average workday exposures exceeding 90 dBA for a 40-hour work

week, while the USEPA guidelines recommend that noise exposure not exceed an average of 75 dBA over 8 hours, or 70 dBA over 24 hours (id.). In addition, the Company provided a USEPA document which suggests that an outdoor L_{dn} of 55 dBA likely would result in indoor nighttime noise levels of approximately 32 dBA, which should, in most cases, protect against sleep interference (Exh. EFSB-N-1, at 28).

The record shows that, with the proposed facility in operation, L_{dn} noise levels at the nearest residence on Monatiquot Street would increase by 3 dBA to 56 dBA, with L_{dn} noise at all other residential receptors remaining unchanged. The resulting noise levels are well below thresholds where hearing loss from long-term noise exposure could occur. The Siting Board has required the Company develop a plan to mitigate construction noise by limiting the noisiest construction practices to daytime hours, and by use as needed of temporary noise barriers and advance community notification procedures. The Siting Board has found that, with the implementation of the above condition, the noise impacts of the proposed facility would be minimized. Consequently, the Siting Board finds that the health effects, if any, of noise from the proposed project would be minimized.

8. Conclusions

In the sections above, the Siting Board has reviewed the proposed project'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 air toxics emissions from the proposed project would have no discernable public health impact; (3) the proposed project poses no health risks related to the contamination of potable groundwater or the disposal of wastewater; (4) the health risks of the proposed project 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 project would be minimized; and (6) the health effects, if any, of noise from the proposed project would be minimized.

The Siting Board notes that the only indication of potential pre-existing public health problems in the communities surrounding the proposed project is the existence of statistically elevated levels of a variety of 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. Moreover, the record shows that the proposed project 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 project would exacerbate existing public health problems in the communities surrounding the proposed project.

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

M. Conclusions

Based on the information in Sections III. B. through III. L. above, the Siting Board finds that the Company's description of the proposed generating facility and its environmental impacts is substantially accurate and complete.

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

In Section III.C, the Siting Board has found that, with the implementation of stormwater management on all access roads on the Fore River Station site, the environmental impacts of the proposed facility would be minimized with respect to water resources.

In Section III. D, the Siting Board has found that the environmental impacts of the proposed facility would be minimized with respect to wetlands.

In Section III.E, the Siting Board has found that the environmental impacts at the proposed facility would be minimized with respect to solid waste.

In Section III.F., the Siting Board has found that, with the implementation of the conditions concerning onsite and offsite mitigation of visual impacts, the environmental impacts of the proposed facility would be minimized with respect to visual impacts.

In Section III.G, the Siting Board has found that with the implementation of the conditions regarding noise monitoring and construction noise, the environmental impacts of the proposed facility would be minimized with respect to noise.

In Section III. H, the Siting Board has found that, with the implementation of the condition concerning a construction safety plan, the environmental impacts of the proposed facility would be minimized with respect to safety.

In Section III. I., the Siting Board has found that, with the implementation of a condition concerning an updated traffic analysis, the environmental impacts of the proposed facility would be minimized with respect to traffic.

In Section III. J, the Siting Board has found that the environmental impacts of the proposed facility would be minimized with respect to EMF.

In Section III. K, the Siting Board has found that with the implementation of the condition concerning plans for providing additional public access, the environmental impacts of the proposed facility would be minimized with respect to land use.

In Section III. L, the Siting Board has found that the environmental impacts of the proposed facility would be minimized with respect to cumulative health impacts.

In Section III. C, the Siting Board reviewed the comparable impacts of the use of OTC and ACC and found that the use of ACC with conditions is consistent with the minimization of environmental impacts.

Accordingly, the Siting Board finds that, with the implementation of the above-listed conditions relative to air quality, water, visual, noise, safety, traffic, and land use, the Company's plans for the construction of the proposed generating facility with ACC 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. CONSISTENCY WITH THE POLICIES OF THE COMMONWEALTH

A. Standard of Review

G.L. c. 164, §69 J¼ 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 river front 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 project and discusses the extent to which the proposed project complies with these policies.[140[140]]

B. Analysis

In Sections II and III, above, the Siting Board has reviewed the process by which Sithe sited and designed the proposed project, and the environmental and health impacts of the proposed project as sited and designed. As part of this review, the Siting Board has identified a number of Commonwealth policies

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[140[140]] 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 project's compliance with 980 CMR 12.00 is discussed in Section I.C, 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, §69 J¼ was enacted.

applicable to the design, construction, and operation of the proposed project. These are briefly summarized below.

As discussed in Section III.B, above, the MDEP extensively regulates emissions of criteria and non-criteria pollutants from new sources such as the proposed project. Sithe Edgar has demonstrated that it intends to comply with all MDEP standards.

As discussed in Section III.C, above, Sithe Edgar has demonstrated that it will comply with the Massachusetts Stormwater Management Policy, MWRA pretreatment standards for wastewater, Massachusetts's 401 Water Quality Certification, Chapter 91 regulations concerning the alteration of filled or flowed tidelands, and the all of MWRA's guidelines under its Straddle Policy. The Company also has demonstrated that its proposed facility is consistent with the state's Watershed Initiative for the Boston Harbor.

As discussed in Section III.D, above, Sithe Edgar has demonstrated that the wetlands impacts of the proposed project would be minimized. In addition, the Company has indicated that it would comply with any conditions imposed by the Weymouth Conservation Commission, as required by the Massachusetts Wetlands Protection Act (Exh. EFSB-W-16).

As discussed in Section III. E. above, Sithe Edgar has demonstrated that it complies with the State's policies concerning toxic use, as administered under the OTA.

As discussed in Section III. G above, Sithe Edgar has demonstrated that it will comply with MDEP Policy 90-001, which limits noise increases at property lines and nearest residences to 10 dBA above ambient levels.

As discussed in Sections III. H. above, Sithe Edgar has demonstrated that it has complied with Chapter 21E and other state regulations concerning the safe clean-up of hazardous materials. In addition, the Company has demonstrated that it will comply with all state regulations concerning the safe storage and handling of hazardous materials.

As discussed in Section III. K above, Sithe Edgar has demonstrated that it has complied with state programs protecting historical, landscape, or archeological resource areas and rare or endangered species. In addition, Sithe has demonstrated that it intends to comply the state's laws concerning public rights in waterways (Chapter 91).

In addition to the policies discussed above, because the Edgar Station is located within filled tidelands, it must comply with G.L. c. 91 and 310 CMR Chapter 9.00, which regulate areas within affected waterways (Exh. EFSB-W-16-S-2, at C-1). The Fore River Station site is located within a DPA as defined by the CZM (id.). Water-dependent industrial uses, including public access, are permitted within filled tidelands in a DPA (id.).

Sithe has submitted a Chapter 91 License Application to MDEP's Bureau of Resource Protection – Waterways Program. The application states that the proposed project is a water dependent use because it is a facility which is dependent on marine transportation of oil and uses existing infrastructure in the coastal

zone. MDEP has indicated that, pursuant to its regulations, it will presume the proposed project to be a water-dependent industrial use unless the presumption is overcome (Exh. EFSB-WW-5-S (att. at B-6 to B-7). As discussed in Section III.K, above, the Company has identified options for providing appropriate public access consistent with public safety.

The proposed project also is subject to federal coastal zone consistency review implemented by CZM (Exh. SED-1, at 3-16 to 3-17). Sithe Edgar has provided an analysis of the proposed project's consistency with various policies and principles for development in the coastal zone, including Energy Policy #1 (dependance on existing infrastructure)[141[141]]; Water Quality Policies #1 (point source discharges), #2 (nonpoint pollution controls), and #3 (subsurface waste discharges and protection of wetlands); Habitat Policy #2 (restoration of degraded wetland resources); Protected Areas Policies #1 (Areas of Critical Environmental Concern) and #3 (historic districts and sites); Coastal Hazards Policies #1 (preservation of natural coastal landforms) and #2 (interference with water circulation and sediment transport); Ports Policy #3 (DPAs); Ports Management Principle #1 (expansion of water dependent uses in DPAs); Public Access Policy #1 (effects on public recreation sites); and Public Access Management Principle #4 (expansion and development of coastal recreational facilities) (id. at 4-50 to 4-55).

The Siting Board finds that, with the conditions set forth in Sections III. C, D. F and K, above, the proposed project appears consistent with the policies of the Commonwealth regarding development in filled tidelands and coastal zone areas.

Finally, Sithe asserts that its proposed project is consistent with environmental policies set forth in Executive Order 385 (Company Initial Brief at 159-161).[142[142]] Executive Order 385 states in pertinent parts that:

> The Commonwealth shall actively promote sustainable economic development in the form of: a) economic activity and growth which is supported by adequate infrastructure and which does not result in, or contribute to, avoidable loss of environmental quality and resources, and b)

[141[141]]The Company submitted the Secretary of EOEA's Certificate on the Environmental Notification Form, which states that since the proposed facility is on a site previously used for electrical generation, Sithe is not required to conduct analysis of an inland site, as long as it meets criteria established by CZM (Exh. EFSB-WG-6-S). The Company has submitted documentation that it meets these criteria (Exh. EFSB-WG-6-C (att.) at 5.6-1 to 5.6-21).

[142[142]]Sithe also asserts that its proposed project is consistent with environmental policies embodied in the Restructuring Act and Chapter 206 of the Acts of 1998 ("Brownfields Act") (Company Initial Brief at 159-161). The Siting Board accepts Sithe's argument that the Restructuring Act was intended, in part, to promote cleaner air by encouraging the development of new, clean power plants to displace and reduce the emissions of older plants, and that Sithe's plans are consistent with that purpose (id. at 160). It is not immediately clear to the Siting Board which provisions of the Brownfields Act, if any, are applicable to the proposed project.

> infrastructure development designed to minimize the adverse environmental impact of economic activity (Section 1).
>
> All agencies shall promote, assist, and pursue the rehabilitation and revitalization of infrastructure, structures, sites, and areas previously developed and still suitable for economic (re)use. Such rehabilitation and revitalization, where practicable, shall be deemed preferable over construction of new facilities or development of areas with significant value in terms of environmental quality and resources, unless otherwise provided and supported by local or regional growth management plans (Section 5).

The Siting Board finds that Sithe Edgar's plans to expand operations at its Fore River Station site, a previously-developed area that is currently used for electrical transmission, energy storage, and peaking generation, is consistent with the goals of Executive Order 385. As discussed in Section II, above, the previous, or even current, use of a site for electric generation does not automatically demonstrate the suitability of that site for generation. A project proponent must still demonstrate that the environmental impacts of the proposed project can be, and have been, minimized consistent with minimizing mitigation costs. Similarly, previously undeveloped sites can be appropriate for new generation if the project proponent demonstrates that environmental impacts have been minimized consistent with minimizing mitigation costs. However, consistent with Executive Order 385, the Siting Board encourages the reuse of previously developed industrial sites for electric generation, particularly where, as here, significant necessary infrastructure is already in place.

Consequently, based on its review above, the Siting Board finds that plans for 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.

V. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164 §§ 69H-69Q to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. Section 69 J¼ 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 facility, and the consistency of the plans for construction and operation of the proposed facility with the environmental policies of the Commonwealth.

In Section II, above, the Siting Board has found that the Company's description of the site selection process it used is accurate, and resulted in the selection of a site that contributes to the minimization of 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 implementation of listed conditions relative to air, water, visual, noise, safety, traffic and land use, the Company's plans for the construction of the proposed generating facility would minimize the environmental impacts of the proposed facility consistent with the minimization of costs associated with the mitigation, control and reduction of the environmental impacts of the proposed facility.

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

Accordingly, the Siting Board finds that, upon compliance with the conditions set forth in Sections III. B., III. C., III. F., III. G., III. H., III. I., III. K., above, and listed below, the construction and operation of the proposed facility 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 Sithe Edgar Development LLC to construct a 775 MW bulk generating facility in Weymouth, Massachusetts. The Company shall comply with the following conditions during construction and operation of the proposed generating facility:

Prior to the commencement of construction:

A. To minimize noise impacts, the Siting Board requires that the Company develop and provide to the Siting Board a plan for noise mitigation during construction, consistent with the noise protocol developed with Weymouth, that includes provisions to limit noisier construction during evening and weekend hours consistent with safe construction practices, and to use on an as-needed basis measures to further mitigate impacts of noisy activities on the community, such as temporary noise barriers and advance community notification procedures.

B. To minimize safety impacts, the Siting Board directs the Company to complete the construction section of its emergency response plan and file it with Weymouth, Braintree and Quincy before construction begins in order to cover possible contingencies related to construction accidents.

During construction and operation of the proposed facility:

C. In order to minimize CO_2 emissions, the Siting Board requires that Sithe provide, as part of a CO_2 mitigation plan to be submitted to the Siting Board prior to or within the first year of operation, evidence of agreements or arrangements relating to the planned Mystic Station AQIP emissions reductions that establishes that the Company will make no collateral use, for purposes of providing emissions offsets for other pollutants and/or other sources, of the portion of the Mystic Station AQIP curtailment on which the CO_2 offsets for the proposed facility are based; or in the alternative the Company may elect to provide a monetary contribution to a cost-effective program or programs to be selected upon consultation with the staff of the Siting Board in the amount of $902,842 to be paid in five annual installments during the first

five years of facility operation, or a single up-front payment of $734,868 due by the end of the first year of operation.

D. In order to minimize water impacts, the Siting Board requires the applicant to provide stormwater management on all access roads owned by Sithe at the Fore River Station site as necessary to meet identified stormwater quality and flow standards, consistent with the stormwater management approach and standards used for proposed access road improvements on the southern portion of the proposed facility site.

E. In order to minimize visual impacts, the Siting Board directs the Company to provide 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 at roadways and other locations in the residential area to the east of the proposed site, extending to and including the residential properties on Bluff Road, as requested by individual property owners or appropriate municipal officials.

F. In order to minimize visual impacts, the Siting Board requires the Company to provide landscaping that will provide vegetative screening and shoreline improvements along the northwestern shoreline of the northern portion of the proposed site which would serve as a continuation of the proposed King's Cove area.

G. In order to minimize visual impacts, the Siting Board requires the Company to replant any existing trees in the area bounded approximately by Route 3A, the western edge of the existing 3.4 million gallon oil tank, Monatiquot Street, and the Town of Weymouth Water Tank, that are 16 feet or higher and removed for construction of the proposed facility, with trees that are between 16 and 20 feet high.

H. In order to minimize visual impacts, the Siting Board requires that the Company's tree plantings around the proposed site, especially plantings to the east, include a sufficient number of 20 foot trees to create some immediate screening of the facility after it is constructed.

I. In implementing the conditions regarding visual impacts, the Siting Board requires the Company to submit to the Siting Board prior to commercial operation an updated landscaping plan for the entire site, addressing all the directives and conditions noted above as well as opportunities for wetland restorations as encouraged in Section III. D.

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

K. In order to minimize traffic impacts, the Siting Board directs the Company, at the time of commencement of construction, to file with the Siting Board an updated traffic analysis showing the status of the road improvements at the Washington Street and Baker/South Street intersection and the details of the final shift schedule. The traffic analysis should provide information on the schedule and volume of project-related and non-project-related marine traffic, the need to open the bridge between the hours of 6:00 a.m. and 7:00 a.m., and the extent that this will cause traffic problems. If the Washington Street and Baker/South Street intersection improvements are not complete at that time, or if marine traffic impacts or some other issue creates traffic impacts that are greater than the Company has previously stated, the Company shall submit a traffic plan that shows how it intends to mitigate traffic issues. Such plan should include: (1) a detailed analysis of the costs and benefits of providing shuttle bus service between an appropriate MBTA Station and the site during the peak construction quarter; (2) a discussion of the costs and benefits of subsidizing the MBTA fares of the Company's workers; and (3) comments from the City of Quincy and Town of Weymouth about how to mitigate traffic at this intersection.

L. In order to minimize land use impacts, the Siting Board requires Sithe to work with Weymouth, FRWA and appropriate state agencies to develop and coordinate plans for providing additional public access, if and where appropriate, in the area of the northern portion of the site that Sithe will improve as conditioned in Section III. F. 2., and in other parts of the site as may be agreed.

M. The Siting Board directs the Company to provide the Siting Board an update on the extent and design of required transmission upgrade designs to minimize magnetic field impacts, at such time as Sithe Edgar reaches final agreement with all transmission providers regarding transmission upgrades.

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

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

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Selma Urman
Hearing Officer

Dated this 11th day of February, 2000

Table 1: Comparison of Fore River Station's Maximum Facility Emissions to Regulations

Pollutant	PSD Threshold Criteria (tpy)	PSD Significant Emission Rate (tpy)	Maximum Potential Emission Rate of Proposed Facility (tpy)	Non-Attainment NSR Threshold Criteria (tpy)	Emissions for BACT and LAER review
NO_2	100	40	218	25	2 ppmdv gas firing, 6 oil firing
SO_2	100	40	168	N/A	.0029lb SO2/MMBtu gas firing, .052 lb So2/MMBtu
PM-10	100	15	352	N/A	.011 lb/MMBtu gas firing, .05 lb/MMBtu oil firing
CO	100	100	296	N/A	2 ppmdv gas firing, 7 oil firing
Pb	100	.6	.25	N/A	.000016 lb/MMBtu gas firing, .00006 lbMMBtu oil firing
Ammonia	N/A	N/A	35.52	N/A	2 ppmdv average
Sulfur Acid Mist	100	7	99	N/A	.0016 lb/MMBtu gas firing, .032 lb/MMBtu oil firing

VOC	N/A	40	70	50	1 ppmdv gas firing, 1.7 duct firing,** 7 oil firing

* Source: (Exh. EFSB-A-1-S-2 (att.) tables 3.1-1, 3.3-1, 5.1-2, 6.2-1, 6.3-2, 6.6-2)

**The Company explained that duct firing occurs when the facility uses a burner associated with the HRSG to improve plant efficiency (Tr. 4, at 440-441).

Table 2: Comparison of Modeled Facility Emission Concentrations to NAAQS, Ambient, and Cumulative Concentrations

Pollutant	Averaging Period	NAAQS Standard (most stringent of primary or secondary)	Significant Impact Level	Projected Maximum Concentration of Proposed Facility	Total Modeled Contribution of Other Major Sources	Fore River Contribution at Maximum Impact of Other Sources	Monitored Background	Cumulative Impact
NO_2	Annual	100 ug/m3	1	.31 ug	65.9 ug	.0005 ug	30.1 ug	96.0
SO_2	Annual	80	1	.2	10.02	0	558.1	33.8
	24 Hour	365	5	3.31	121	0	128.4	249.4
	3 Hour	1300	25	11.90	327	0	23.6	885.1
PM-10	Annual	50	1	.5	4.73	.002	22	26.7
	24 Hour	150	5	3.21	28.1	0	42	70.1
CO	1 Hour	40000	2000	4.31	406	0	7656	8062
	8 Hour	10000	500	3.02	162	0	5452	5614
O_3	1 Hour	235 (.12 ppm)	N/A	N/A	N/A	N/A	.125 ppm	N/A
Pb	3 month	1.5	N/A	N/A	N/A	N/A	.01	N/A

* Source: (Exh. EFSB-A-1-S-2 (att.) at 4-1 to 4-1, 4-12 to 4-19, tables 3.1-1, 3.3-1, 5.1-2, 6.2-1, 6.3-2, 6.6-2)

** All Projected Maximum Concentrations are from SCREEN3 (Intermediate/Complex Terrain) results for comparison sake.

However, the Siting Board notes that the Company conducted different models with different assumptions and inputs.

APPROVED by the Energy Facilities Siting Board at its meeting of February 10, 2000, by the members and designees present and voting: W. Robert Keating (Commissioner, DTE); James Connelly (Commissioner, DTE); Paul Vasington (Commissioner, DTE); Joseph Donovan (for Carolyn Boviard, Director of Economic Development); and David O'Connor (Acting Chair, EFSB/Commissioner, Division of Energy Resources)

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David L. O'Connor, Acting Chair
Energy Facilities Siting Board

Vote taken on the 10th day of February, 2000.