COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Massachusetts Municipal Wholesale Electric Company For Approval To Construct a Bulk Generating Facility in the Town of Ludlow, Massachusetts	)	EFSB 07-06

FINAL DECISION

Selma Urman
Presiding Officer
December 12, 2008

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ABBREVIATIONS

AALs	Allowable Ambient Limits
ACC	Air-cooled Condenser
AIHA	American Industrial Hygiene Association
ALOHA	Areal Locations of Hazardous Atmospheres
ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best Available Control Technology
BANCT	Best Available Noise Control Technology
Bay State	Bay State Gas Company
Braintree Decision	Braintree Electric Light Department, EFSB 07-1 (2008)
BVWs	Bordering Vegetated Wetlands
CAIR	Clean Air Interstate Rule
CO	Carbon Monoxide
CO_2	Carbon Dioxide
Correctional Center	Hampden County Correctional Center
CPR	Cardiopulmonary resuscitation
dBA	A-weighted decibels
DOMSB	Decisions and Orders of Massachusetts Facilities Siting Board
DPH	Massachusetts Department of Public Health
EFSB	Energy Facilities Siting Board
EIR	Environmental Impact Report
EMF	Electromagnetic Field
EPA	United States Environmental Protection Agency
ERP	Emergency Response Plan
ERPG	Emergency Response Planning Guideline
GEP	Good Engineering Practice
gpd	gallons per day
HRSG	heat recovery steam generator
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDC Decision	IDC Bellingham, 9 DOMSB 225, at 311(1999)

LAER	Lowest Achievable Emissions Rate
LOS	Level of Service
MAAQS	Massachusetts Ambient Air Quality Standards
MassPike	Massachusetts Turnpike
MDEP	Massachusetts Department of Environmental Protection
MEPA	Massachusetts Environmental Policy Act
MHC	Massachusetts Historical Commission
MNHESP	Massachusetts Natural Heritage and Endangered Species Program
MMBtu	Million British Thermal Units
MMWEC	Massachusetts Municipal Wholesale Electric Company
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NH_3	Ammonia
NOI	Notice of Intent
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSR	New Source Review
O_3	Ozone
Pb	Lead
PM	Particulate Matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RGGI	Regional Greenhouse Gas Initiative
SBEC	Stony Brook Energy Center
SCR	Selective Catalytic Reduction
SF6	sulfur hexafluoride
SILs	Significant Impact Levels
Siting Board	Energy Facilities Siting Board
SO_2	Sulfur Dioxide

Sithe Mystic Decision	Sithe Mystic Development, LLC, 9 DOMSB 101(1999)
Southern Energy Kendall Decision	Southern Energy Kendall, 11 DOMSB 255, at 270-271(2000)
Southern Energy Canal II Decision	Southern Energy Canal II, 12 DOMSB 155, at 229 (2001)
SPCC	Spill Prevention, Control and Countermeasure
SWPP	Stormwater Pollution Prevention Plan
SWSC	Springfield Water and Sewer Commission
TELs	Threshold Effects Limits
TPS	Technology Performance Standards
Treatment Facility	Bondi's Island wastewater treatment facility
ULSD	Ultra Low Sulfur Distillate
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
WARB	Westover Air Reserve Base
WMECo	Western Massachusetts Electric Company
WMDC	Westover Metropolitan Development Corporation

Pursuant to G.L. c. 164, § 69J¼, the Energy Facilities Siting Board ("Siting Board") hereby APPROVES, subject to the conditions set forth below, the petition of the Massachusetts Municipal Wholesale Electric Company for approval to construct a 280 megawatt ("MW") combined-cycle, dual fuel (natural gas and ultra-low sulfur distillate ("ULSD") oil) base load electric generating facility at the Stony Brook Energy Center ("SBEC") in Ludlow, Massachusetts.

I. INTRODUCTION

A. Summary of the Proposed Facility

MMWEC is a public corporation and a political subdivision of the Commonwealth, created by the Legislature in 1975 as a joint action agency, in part, to provide power supply services to Massachusetts cities and towns that operate their own electric systems (Exh. MMWEC-1, at 2-1; St. 1975, c. 775). The Massachusetts Municipal Wholesale Electric Company ("MMWEC" or "Company") is proposing to construct a 280 MW combined-cycle, dual fuel (natural gas and ULSD oil) electric generating facility on approximately 10 acres of the approximately 417-acre SBEC site located at the north end of Moody Street in the Town of Ludlow, Massachusetts (id. at 3-1, 3-12). The SBEC site is owned by MMWEC (id. at 2-2). Currently, MMWEC operates two electric generating facilities at the SBEC, a combined-cycle intermediate unit and a peaking unit, with a combined generating capacity of 522 MW (id.).

Primary access to the SBEC is from the south by way of Moody Street, which traverses areas of mixed commercial and residential development (Exh. MMWEC-1, at 3-16). To the south, the SBEC is bordered by several commercial businesses and light industrial manufacturing companies, and to the southwest by an 86-acre wooded parcel owned by MMWEC (id. at 3-3). Westover Air Reserve Base/Westover Metropolitan Airport ("WARB") is to the west/southwest of the SBEC (id.). To the north, the SBEC is bounded by the Hampden County Correctional Center ("Correctional Center"), and on the east, by a large wooded area owned by the Westover Metropolitan Development Corporation ("WMDC") (id.).

MMWEC stated that the proposed facility would be located in an addition to the existing power generation building (Exh. MMWEC-1, at 3-8). The proposed facility would consist of a combustion turbine-generator and a steam-turbine (Exh. EFSB-G-27(S)(1), at 1). The proposed facility also would include an air-cooled condenser (approximately 220 feet by 130 feet), a 10.6 million gallon oil storage tank

(approximately 48 feet high and 200 feet in diameter), a 450,000-gallon demineralized water storage tank, two 20,000-gallon ammonia storage tanks[1], and two gas compressors to be installed in the existing gas compressor building. (Exh. MMWEC-1, at 3-9, 3-11, 3-12). A small evaporative cooling tower for an inlet air chiller system and a small building to house the chillers for the system would be installed to the north of the proposed facility addition to the existing power generation building (id. at 3-9, 3-11).

MMWEC stated that it would obtain natural gas for the proposed facility via its existing 5.6-mile high pressure natural gas pipeline that connects to a 16-inch gas pipeline owned by Bay State Gas Company ("Bay State") at East Street in Ludlow (Exh. MMWEC-1, at 3-16). MMWEC would obtain ULSD oil, to be used as a secondary fuel, through the existing one-mile 12-inch oil pipeline serving the SBEC, which runs from a fuel terminal owned and operated by Buckeye Pipe Line Company (id. at 3-21). MMWEC indicated that its existing 345 kV transmission line would be used to transmit electricity generated by its proposed facility to the regional power grid at a substation owned by Western Massachusetts Electric Company ("WMECo"), located on Center Street in Ludlow (id. at 3-22).

According to MMWEC's proposal, water supply for its proposed facility would be provided by the Springfield Water and Sewer Commission ("SWSC") through existing infrastructure (id. at 3-23). Wastewater generated by MMWEC's proposed facility would be discharged to the SWSC system through an existing sewer line (id. at 3-26 to 3-27).

B. Procedural History

On June 29, 2007, MMWEC filed a petition pursuant to G.L. c. 164, § 69J¼ with the Siting Board to construct a 280 MW combined-cycle electric generating facility and associated ancillary facilities in the Town of Ludlow. On August 16, 2007, the Presiding Officer conducted a public comment hearing at the Ludlow High School. The Presiding Officer granted: (1) the petition to intervene filed by WMECo; and (2) the petition to participate as a limited participant filed by Bay State.

MMWEC presented the testimony of seven witnesses: (1) Glenn O. Steiger, the General Manager of MMWEC; (2) Michael DiMauro, Principal Environmental Engineer at MMWEC; (3) Edward Kaczenski, Engineering Manager of MMWEC; (4) George Lipka, Senior Program Director at EnviroBusiness, Inc.; (5) John Vieira, Jr., Senior

[1] While Exh. EFSB-S-7 refers to two 15,000-gallon ammonia storage tanks, MMWEC reiterated its actual proposal for two 20,000-gallon tanks (See EFSB-RR-13; Tr. 3, at 9-30).

Scientist/Facility Manager at BSC Group; (6) Peter A. Valberg, Principal and Senior Health Scientist at Gradient Corporation; and (7) Douglas H. Bell, Principal Consultant with Cavanaugh Tocci Associates, Inc. The Siting Board held evidentiary hearings on January 16, 2008, January 18, 2008, and January 25, 2008. Approximately two hundred exhibits were entered into the evidentiary record. MMWEC filed a brief on February 19, 2008. No other party filed a brief.

After issuance of a Bench Memorandum by the Siting Board staff, the Siting Board held two meetings on July 24, 2008 and August 12, 2008. At the conclusion of the July 24, 2008 meeting, the Siting Board directed staff to issue supplemental record requests, to which MMWEC filed responses on August 7, 2008. Those responses were entered as exhibits. At the August 12, 2008 meeting, the Siting Board unanimously adopted a motion directing staff to draft a Tentative Decision approving the proposed facility, subject to certain conditions (Tr. of August 12, 2008 Board Meeting at 76).

C. Jurisdiction and Scope of Review

MMWEC filed its petition to construct the proposed generating facility in accordance with G.L. c. 164, § 69J¼, which is made applicable to MMWEC pursuant to St. 1975, c. 775 §19(c), MMWEC's enabling legislation. Pursuant to G.L. c. 164, § 69J¼, no applicant shall commence construction of a "generating facility" unless a petition for approval of construction of that generating facility has been approved by the Siting Board. Pursuant to G.L. c. 164, § 69G, a jurisdictional "generating facility" is defined as "any generating unit designed for or capable of operating at a gross capacity of 100 megawatts or more, including associated buildings, ancillary structures, transmission and pipeline interconnections that are not otherwise facilities, and fuel storage facilities." Because the proposed facility is capable of operating at a gross capacity of 100 MW or more, it is a "generating facility," the construction of which requires Siting Board approval under G.L. c. 164, § 69J¼.

In accordance with G.L. c. 164, § 69J¼, before approving a petition to construct a generating facility, the Siting Board must determine that the applicant has met five requirements. First, the Siting Board must determine that the applicant's description of the site selection process used is accurate (see Section II, below). Second, the Siting Board must determine that the applicant's description of the proposed generating facility and its environmental impacts are substantially accurate and complete (see Section III, below). Third, the Siting Board must determine that the proposed generating facility will minimize environmental impacts consistent with the minimization of costs associated with

mitigation, control, and reduction of the environmental impacts (see Sections III.B through III.L, below). Fourth, if the projected emissions from the proposed facility do not meet the applicable Technology Performance Standards, the Siting Board must determine, based on a comparison with other fossil fuel generating technologies, that the proposed generating facility, on balance, contributes to a reliable, low-cost, diverse regional energy supply with minimal environmental impacts. Braintree Electric Light Department, EFSB 07-1 (2008) ("Braintree Decision"). See Southern Energy Kendall, 11 DOMSB 255, at 270-271 (2000)("Southern Energy Kendall Decision") . Finally, the Siting Board must determine that plans for construction of the proposed generating facility are consistent with current health and environmental protection policies of the Commonwealth and with such energy policies as are adopted by the Commonwealth for the specific purpose of guiding the decisions of the Siting Board (see Section IV, below).

II. SITE SELECTION

A. Standard of Review

G.L. c. 164, § 69J¼ requires the Siting Board to determine whether an applicant's description of the site selection process the applicant used is accurate. An accurate description of an applicant's site selection process must include a complete description of the environmental, reliability, regulatory, and other considerations that led to the applicant's decision to pursue the facility 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, § 64H. To accomplish this, G.L. c. 164, § 69J¼ requires the Siting Board to determine whether "plans for the construction of a proposed facility minimize the environmental impacts consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility." Site selection, together with project design and mitigation, is an integral part of the process of minimizing the environmental impacts of an energy facility. Therefore, the Siting Board will review the applicant's site selection process in order to determine whether that process contributes to the minimization of environmental impacts of the proposed project and the costs of mitigating, controlling, and reducing such impacts. In making this determination, the Siting Board also will consider,

consistent with its broad mandate under G.L. c. 164, § 69H, the reliability, regulatory, and other non-environmental advantages of the proposed site.

B. Description

MMWEC indicated that it initially identified six alternative sites for construction of its proposed generating facility, all of which previously had been approved by the Siting Board, but ultimately not used, for the construction of electric generating facilities. The sites were: (1) Medway, Massachusetts (540 MW peaking facility (gas) – Sithe West Medway Development, LLC (2000)); (2) Everett, Massachusetts (350 MW generating facility (gas) – Cabot Power Corporation (1998)); (3) Sandwich, Massachusetts (addition of new gas turbines – Mirant Canal II, LLC (2001)); (4) Dracut, Massachusetts (750 MW generating facility (gas) – Nickel Hill Energy, LLC (2000)); (5) Bellingham, Massachusetts (700MW generating facility (gas) – IDC Bellingham Corporation (1999)); and (6) Brockton, Massachusetts (270 MW facility (gas) – Brockton Power, LLC (2000)) (Exh. EFSB-G-27(S), Attachment 1, App. A at 2-2 to 2-3). After reviewing these six sites, MMWEC concluded that the Medway, Everett, and Sandwich sites were not viable options (id.). According to MMWEC, using the Medway site would have required purchasing an existing facility, and using the Sandwich site would have required repowering an existing generating facility that would have twice the operating capacity of the proposed facility (id.). The Everett site was not available to a third party developer (id.).

For the SBEC site and the remaining three alternative sites, MMWEC established twelve criteria to review and rank these options: (1) site availability and potential for development; (2) availability of existing and adequate site access; (3) proximity to electric transmission lines; (4) proximity to natural gas transmission pipelines; (5) proximity to fuel oil pipelines or other fuel oil delivery infrastructure; (6) availability of adequate water supply; (7) availability of an industrial sewer connection; (8) site zoning and compatibility of the facility with surrounding land uses; (9) distance from wetlands and other sensitive environmental resources; (10) existence of site buffers, distance from residences and/or commercial activity; (11) potential for noise impacts; and (12) probability of community support (Exh. EFSB-G-27(S), Attachment 1, App. A at 3-2).

MMWEC indicated that it evaluated each potential site using each criterion measured on a scale of zero to ten, with ten representing the best combination of environmental characteristics and low mitigation costs (Exh. EFSB-G-27(S), Attachment 1, App. A at 4-1 to 4-2). Accordingly, the maximum potential score for each site was 120 (id.).

1. SBEC Site

MMWEC stated that the SBEC received the best score (100) (Exhs. MMWEC-1, at 4-8, App. A at 4-2; EFSB-G-27(S), Attachment 1, App. A at 4-2). According to MMWEC, this score resulted from numerous favorable attributes of the SBEC site, including the fact that: (1) MMWEC owns the site; (2) the SBEC is presently used for power generation; and (3) there is existing utility infrastructure on the site (Exh. MMWEC-1, at 4-8). MMWEC stated that the infrastructure includes an electric switchyard and transmission lines that have adequate capacity to handle an additional 280 MW, a high pressure natural gas transmission pipeline that has adequate capacity to serve both the existing intermediate unit and the proposed facility, a fuel oil pipeline that has sufficient capacity to serve both the existing intermediate and peaking units and the proposed facility, a water main through which water from the SWSC can be supplied, and a sewer line which connects to the Ludlow sanitary sewer system (Exhs. MMWEC-1, at 4-8, 4-9, App. A at 4-5, 4-4, 4-9, 4-10, 4-11; EFSB-G-27(S) Attachment 1, App. A at 4-5, 4-4, 4-10, 4-11).

MMWEC stated that the SBEC site also offers an access road, and is located in an area zoned for industrial use, with the area surrounding the site generally devoted to light industrial or commercial uses, so that construction and operation of the proposed facility would be wholly consistent with surrounding land uses (id., App. A at 4-1, 4-9; Exh. MMWEC-1 at, 4-9, App. A at 4-13). MMWEC stated that in addition, the SBEC site is large and well buffered (Exhs. MMWEC-1, at 4-9, App. A at 4-15; EFSB-G-27(S), Attachment 1, App. A at 4-5). To the west/southwest, a buffer is provided by the WARB and wooded property owned by MMWEC (Exhs. MMWEC-1, at 4-9, App. A at 4-15; EFSB-G-27(S), Attachment 1, App. A at 4-5). On the west, the site is bounded by property owned primarily by an industrial manufacturer (Exh. MMWEC-1, at 4-9). To the east, a buffer is provided by a large hill on the site, and primarily wooded land (id.). MMWEC further stated that the area in which MMWEC would construct the proposed facility is largely cleared and covered by a parking lot or dirt/grass areas (Exhs. MMWEC-1, at 4-8, App. A at 4-2; EFSB-G-27(S), Attachment 1, App. A, at 4-2). According to MMWEC, there is no history of oil releases and no indication of other hazardous materials on the site (Exhs. MMWEC-1, at 4-8, App. A at 4-2; EFSB-G-27(S), Attachment 1, App. A, at 4-2).

MMWEC indicated that location of its proposed facility on the SBEC would maximize the distance between the proposed facility and residences in the area (Exhs. EFSB-L-8; EFSB-G-27(S), Attachment 1, at 6). MMWEC stated that the distance

between these residences and the proposed facility's major components would be over one-half mile, with the exception of the oil storage tank, which would be approximately 1,800 feet from the nearest residence (Exh. MMWEC-1, at 4-9). MMWEC indicated that the closest non-industrial neighbor to the SBEC is the Correctional Center, a 1,250 bed correctional facility, which forms the northern boundary of the SBEC (id.). The distance between the Correctional Center and the facility would be about 850 feet (id.). MMWEC indicated that on the SBEC site itself, there are few significant environmental resources, and that it would locate the facility in an area that would avoid all direct impacts to the wetland resources that are in relatively close proximity to the proposed facility (Exh. EFSB-G-27(S), Attachment 1, App. A at 4-14).

2. Brockton Power Site

MMWEC stated that the alternate Brockton Power site received the second highest score (89) (Exhs. MMWEC-1, at 4-8, App. A at 4-2; EFSB-B-G-27(S), Attachment 1, App. A at 4-2). According to MMWEC, favorable attributes included the fact that the Brockton Power site is largely cleared and/or previously disturbed, and construction on the site would require only minor re-grading (Exhs. MMWEC-1, at 4-10, App. A at 4-3; EFSB-G-27(S), Attachment 1, App. A at 4-3). MMWEC stated that the site is in an area zoned Heavy Industrial, and power generation is a permitted use (Exhs. MMWEC-1, at 4-10, App. A at 4-13; EFSB-G-27(S), Attachment 1, App. A at 4-13). According to MMWEC, this site has reasonable electric and natural gas interconnections available, and also has treated sewage effluent that could have been used for the evaporative wet cooling that MMWEC was considering at the time it performed its site study (Exhs. MMWEC-1, at 4-10, App. A at 4-6, 4-8, 4-10, 4-11; EFSB-G-27(S), Attachment 1, App. A at 4-6, 4-8, 4-10, 4-11).

MMWEC indicated that a drawback to the Brockton Power site is the less than ideal access route to and from Route 24, the closest major highway (Exhs. MMWEC-1, at 4-10, App. A at 4-5; EFSB-G-27(S), Attachment 1, App. A at 4-5). MMWEC indicated that a further drawback is the likelihood that oil would need to be delivered by truck, using this access route for such deliveries (Exhs. MMWEC-1, at 4-10, App. A at 4-9; EFSB-G-27(S), Attachment 1, App. A at 4-9). In addition, construction of the facility on the site would have required installation of a wastewater discharge main running to the Brockton Advanced Water Reclamation Facility, which may have had impacts to bordering vegetative wetlands along the Salisbury Plain River on the site (Exhs. MMWEC 1, at 4-11, App. A at 4-12; EFSB-G-27(S), Attachment 1, App. A at 4-12).

3. Nickel Hill Site

MMWEC stated that the alternate Nickel Hill site in Dracut received the third highest score (76) (Exhs. MMWEC-1, at 4-8, App. A at 4-2; EFSB-G-27-(S), Attachment 1, App. A at 4-2). MMWEC stated that the Nickel Hill site is largely cleared and/or previously disturbed, and construction on the site would require only minor re-grading. (Exhs. MMWEC-1, at 4-11, App. A at 4-3; EFSB-G-27-(S), Attachment 1, App. A at 4-3). According to MMWEC, the Nickel Hill site is situated relatively close to two major highways, Routes 110 and I-93 (Exhs. MMWEC-1, at 4-11, App. A at 4-3). In addition, it is in an area zoned for light industrial use and power generation is a permitted use (Exhs. MMWEC-1, at 4-11, App. A at 4-13; EFSB-G-27-(S), Attachment 1, App. A at 4-13). MMWEC stated that the Nickel Hill site has reasonable, but not ideal, available electric and natural gas connections, and water for the evaporative cooling contemplated by MMWEC at the time of the site study could be obtained from the Merrimac River (Exhs. MMWEC-1 at 4-11, App. A at 4-6, 4-7, 4-10; EFSB-G-27-(S), Attachment 1, App. A at 4-6, 4-7, 4-10).

However, MMWEC indicated that use of the Nickel Hill site would require purchasing or leasing the site, constructing a new 1,500-foot access road from Route 110, part of which would be within the 100-foot buffer zone of a wetlands area, and constructing new sewer mains to connect with the Town of Dracut sanitary system. (Exhs. MMWEC-1, at 4-11, App. A at 4-5, 4-11, 4-12; EFSB-G-27-(S), Attachment 1, App. A at 4-5, 4-11, 4-12). MMWEC stated that because there are no fuel oil pipelines in proximity to the Nickel Hill site, oil supply would require delivery by truck from Boston area oil terminals approximately 30 miles away (Exhs. MMWEC-1, at 4-11, App. A at 4-9; EFSB-G-27-(S), Attachment 1, App. A at 4-9). Finally, MMWEC indicated that the original Nickel Hill facility was subject to considerable local opposition, and MMWEC was concerned that its proposed facility could be subject to a similar level of local opposition (Exh. MMWEC-1, at 4-11, App. A at 4-18).

4. IDC Bellingham Site

MMWEC stated that the IDC Bellingham site in Bellingham, Massachusetts received the lowest score (59), in part due to a significant change in circumstances following Siting Board approval of the original Bellingham facility in December 1999 (Exhs. MMWEC-1, at 4-8, 4-12, App. A at 4-2, 4-16; EFSB-G-27-(S), Attachment 1, App. A at 4-2, 4-16). According to MMWEC, the originally approved Bellingham site was subdivided, with the result that the Bellingham site considered in MMWEC's study was a

much smaller parcel than the site originally approved by the Siting Board. (Exhs. MMWEC-1, at 4-12, App. A at 4-16; EFSB-G-27-(S), Attachment 1, App. A at 4-16). MMWEC stated that this smaller parcel is currently wooded and thus would require clearing (Exhs. MMWEC-1 at, 4-12, App. A at 4-4; EFSB-G-27-(S), Attachment 1, App. A at 4-4). MMWEC also stated that there is less buffer between the smaller parcel and a nearby residential community that opposed the original IDC Bellingham facility (Exhs. MMWEC-1, at 4-12, App. A at 4-16, 4-18; EFSB-G-27-(S), Attachment 1, App. A at 4-16, 4-18). In addition, MMWEC asserted that the smaller site has less favorable available electric and gas interconnections (Exhs. MMWEC-1, at 4-12, App. A at 4-7, 4-8; EFSB-G-27-(S), Attachment 1, App. A at 4-7, 4-8).

MMWEC indicated that use of the IDC Bellingham site would require construction of a new overhead transmission line crossing a wetland area to connect to a high voltage transmission line owned by NSTAR (Exhs. MMWEC-1 at, 4-12, App. A at 4-7; EFSB-G-27-(S), Attachment 1, App. A at 4-7). According to MMWEC, use of the Bellingham site would require construction of a natural gas transmission pipeline to connect to a nearby high-pressure natural gas transmission pipeline, and the acquisition of easements to permit construction of the needed pipeline (Exhs. MMWEC-1, at 4-12, App. A at 4-8; EFSB-G-27-(S), Attachment 1, App. A at 4-8). Further, MMWEC stated that while the Bellingham site is located relatively close to I-495, construction of the MMWEC proposed facility at the Bellingham site would require construction of an approximately 500-foot access drive (Exhs. MMWEC-1, at 4-12, App. A at 4-5; EFSB-G-27-(S), Attachment 1, App. A at 4-5).

MMWEC stated that there are no fuel oil pipelines in proximity to the Bellingham site, and the Town of Bellingham does not have the ability to provide an industrial sewer connection for the site (Exhs. MMWEC-1 at 4-12, App. A at 4-9. 4-12; EFSB-G-27-(S), Attachment 1, App. A at 4-9, 4-12). MMWEC further stated that, in contrast to the SBEC site, it would have been required to lease the IDC Bellingham site, likely at a relatively high cost, given that the owner may instead develop and lease the site for industrial use (Exhs. MMWEC-1, at 4-12, App. A at 4-4; EFSB-G-27-(S), Attachment 1, App. A at 4-4).

C. Analysis and Findings

The record shows that MMWEC conducted an in-depth evaluation of four sites, the SBEC site and three other sites located in Massachusetts that previously had been approved by the Siting Board for the construction of electric generating facilities.

MMWEC has presented twelve siting criteria it used to evaluate each of the four identified sites, and a discussion of the manner in which it applied the criteria to each of

the sites. We note that the range of environmental issues MMWEC evaluated is comprehensive and does not exclude any significant factors associated with the proposed site. Based on the circumstances of this case, the criteria MMWEC used are reasonable, and reflect a reasonable approach to site selection. In applying the criteria, MMWEC has shown the SBEC site to be preferable to the Brockton Power, Nickel Hill, and Bellingham sites considering on balance site availability and potential for development, proximity to electric transmission lines, proximity to fuel oil pipelines, availability of industrial sewer connection, and the existence of site buffers, distance from residences and/or commercial activity. MMWEC has also shown the SBEC site to be preferable, or comparable to, the Brockton Power, Nickel Hill, and Bellingham sites in terms of the availability of existing and adequate site access, zoning and compatibility of the facility with surrounding land uses, and the probability of community support. MMWEC has also shown the SBEC to be generally comparable to, or only slightly different from, the three alternate sites in terms of proximity to natural gas transmission lines, the availability of adequate water supply, and distance from wetlands and other sensitive environmental resources.

MMWEC has identified advantages of using MMWEC's existing infrastructure at the SBEC, which include electric transmission, natural gas, fuel oil, water and sewer infrastructure. The Siting Board notes that re-use of previously disturbed sites and use of existing infrastructure can eliminate or minimize many of the environmental impacts associated with industrial development. While the Siting Board also notes that the benefits of re-use are necessarily site and facility specific, the Siting Board agrees that the scale, nature, and physical attributes of MMWEC's proposed facility are consistent with the existing use of MMWEC's SBEC.

The Siting Board notes that, in most cases, restricting the evaluation of alternative sites to those approved by the Siting Board eight or more years ago likely will not demonstrate that the applicant used a process that resulted in the selection of a site that contributes to minimization of environmental impacts, and the cost of mitigating, controlling, and reducing such impacts. In this case, where the applicant is proposing to construct a generating facility which would be consistent with the scale, nature, and attributes of an existing generating facility on the proposed site, the Siting Board finds that the Applicant has overcome what otherwise might be a deficiency in its site selection process.

The record shows that MMWEC would need to minimize, through limited use of ULSD oil the proposed facility's air quality impacts. The record also shows, however, that location of MMWEC's proposed facility at the SBEC, on balance, would minimize its

environmental impacts. These issues are discussed in Sections III.B through III.K, below. Accordingly, the Siting Board finds that MMWEC's site selection process accurately described the environmental, reliability, regulatory and other considerations, and 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, § 69¼ 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, § 69¼.

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 costs. A facility proposal which achieves this balance meets the Siting Board's statutory requirement to minimize environmental impacts consistent with minimizing the costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility.

B. Air Quality

This section describes emissions and air quality impacts of the proposed facility, compliance with existing regulations, and emission offsets proposed by MMWEC.

1. Applicable Regulations

MMWEC indicated that regulations governing the air quality impacts of the proposed facility include National Ambient Air Quality Standards ("NAAQS") and Massachusetts Ambient Air Quality Standards ("MAAQS");[2] New Source Review ("NSR") requirements; Prevention of Significant Deterioration ("PSD") requirements, and New Source Performance Standards ("NSPS") (Exhs. MMWEC-1, at 5-1 to 5-8; EFSB-G-29(S), Attachment 1, at 3-1). MMWEC indicated that all areas of the country are classified as "attainment," "non-attainment," or "unclassifiable" with respect to NAAQS for six criteria pollutants: sulfur dioxide (SO_2), particulates (PM-10),[3] nitrogen dioxide (NO_2), carbon monoxide (CO), ground level ozone (O_3), and lead (Pb) (Exh. MMWEC-1 at 5-2 to 5-3). According to MMWEC, if a new source of air pollution is proposed in an attainment/unclassifiable area, it must meet PSD requirements. (id. at 5-3). If the source is being built in a non-attainment area, it must meet the requirements of the Non-Attainment NSR Program (id.).

MMWEC indicated that the SBEC is located in the Springfield area, which presently is classified as "attainment" for SO_2 and NO_2, and "unclassifiable/attainment" for CO and particulates (PM-2.5 and PM-10) (Exh. MMWEC-1, at 5-3). Therefore, MMWEC's proposed facility must meet PSD requirements. (id.) MMWEC stated that all of Massachusetts is classified as moderate non-attainment for 8-hour ozone (Exh. EFSB-G-29, at 3-2). Therefore, MMWEC's proposed facility must meet non-attainment NSR requirements for the chemical precursors to ozone, Nitrogen Oxides (NO_x) and volatile

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[2] The Massachusetts Department of Environmental Protection ("MDEP") has adopted the NAAQS as the MAAQS (Exh. MMWEC-1, at 5-2 n.12).

[3] MMWEC stated that particulate matter is characterized according to size (Exh. MMWEC-1, at 5-2, n.11). Particulate matter having an effective aerodynamic diameter of 10 microns or less is referred to as PM-10 (id.). Particulate matter having an effective aerodynamic diameter of 2.5 microns or less is referred to as PM-2.5 or "fine particulate" (id.). According to MMWEC, PM-2.5 is a subset of PM-10 (id.).

organic compounds (VOCs) and the proposed facility must achieve the Lowest Achievable Emission Rate ("LAER") for NO_x and VOCs, and procure emissions offsets (id at 5-6).[4]

MMWEC stated that the MDEP requires Air Plans Approval for all new fuel combustion facilities meeting specific criteria (Exh. MMWEC-1, at 5-10). In addition to requiring compliance with federal and state regulatory requirements, MDEP Air Plans Approval requires the implementation of Best Available Control Technology ("BACT") for each pollutant regulated as part of the Air Plans Approval process (id ; Exh. EFSB-G-29(S), Attachment 1, at 4-9).[5]

MMWEC stated that the Siting Board has established Technology Performance Standards ("TPS") (Exh. MMWEC-1, at 5-11 to 5-12). A facility proponent must demonstrate either that emissions from its proposed facility would comply with the TPS emissions criteria, or provide data showing that the proposed facility would contribute to a reliable, low-cost, diverse, regional energy supply with minimal environmental impacts. G.L. c. 164, § 69J¼.

MMWEC further stated that beginning in 2009, CO_2 emissions will be regulated in Massachusetts under the Regional Greenhouse Gas Initiative ("RGGI"), which is a cooperative effort undertaken by ten Northeast and Mid-Atlantic states to design and implement a regional cap-and-trade program to control CO_2 emissions from power plants in the region (Exh. EFSB-G-29(S), Attachment 1, at 3-6 to 3-7). MMWEC stated that its proposed facility would be subject to the CO_2 reduction requirements of RGGI (Exh. MMWEC-1, at 5-27).

Finally, MMWEC indicated that its proposed facility would be subject to the federal acid rain deposition requirements (Exh. MMWEC-1, at 5-27). Pursuant to those requirements, MMWEC would need to procure SO_2 allowances (id. at 5-27 to 28).

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[4] MMWEC stated that the EPA defines the LAER as the emission rate that reflects: (1) the most stringent emissions limitation included in the implementation plan of any state for a similar source unless the source proponent demonstrates such limitations are not achievable; or (2) the most stringent emissions limitation achieved in practice, whichever is more stringent (Exh. MMWEC- 1 at 5-6 n.14).

[5] MMWEC stated that Massachusetts BACT is based on the maximum degree of reduction of any criteria pollutant that the MDEP determines is achievable, taking into account energy, environmental, and economic impacts (Exh. MMWEC-1, at 5-10).

2. Baseline Air Quality

MMWEC presented background air quality concentrations of criteria pollutants based on recent air quality data collected by the MDEP at monitoring stations in Chicopee, Springfield and Boston, approximately two, ten, and sixty miles, respectively, from the SBEC (Exhs. MMWEC-1, at 5-13; EFSB-G-29(S), Attachment 1, at 3-2; Tr. 1, at 134-135, 138). According to MMWEC, the data for each criteria pollutant is from one of the three MDEP monitoring stations, based on three years of monitoring, from 2004-2006 (Exh. MMWEC-3, at 3-2, 3-3; Tr. 1, at 134-135).[6] MMWEC indicated that the background air quality values were below NAAQS for all criteria pollutants except ozone, which exceeded the NAAQS by 14 micrograms per cubic meter ("$\mu g/m^{3"}$) for the 1-hour averaging period, and by 12 $\mu g/m^3$ for the 8-hour averaging period (Exhs. MMWEC-3, at 3-3; MMWEC-5, at 3-3).

3. Emissions, Impacts, and Compliance

The proposed facility stack height would be 150 feet, selected on the basis of maintaining emissions impacts at acceptable levels, minimizing visual impacts and complying with requirements imposed due to the proximity of the WARB (Exh. MMWEC-5, at 3-26; Tr.1, at 66).

MMWEC stated that to reduce emissions, the proposed facility would use natural gas as the primary fuel, ULSD oil as a secondary fuel, a highly efficient gas combustion turbine, and advanced pollution control equipment (Exhs. MMWEC-1, at 5-14; MMWEC-5, at 1-7; EFSB-G-29(S), Attachment 1, at 1-1 to 1-3; EFSB-RR-25; EFSB-A-1; EFSB-G-15 Tr. 1, at 30, 37, 76). MMWEC stated that it expected that it would operate the proposed facility on natural gas for most of the year and that operation on ULSD most likely would be reserved for periods when the natural gas supply is curtailed or unavailable, or when oil is less expensive than natural gas, i.e., the winter months (Exh. EFSB-RR-23). MMWEC stated that it expects that typically the proposed facility would operate approximately 60 days per year on ULSD, primarily during the winter months (Exhs. EFSB-A-6; EFSB-A-20; EFSB-RR-24). During natural-gas fired operation, the facility would employ a dry low-NO_x combustor followed by selective catalytic reduction ("SCR") to control NO_x emissions (Exhs. MMWEC-3, at 3-8; EFSB-G-29(S), Attachment 1, at 1-1 to 1-3). During oil-fired operation, the facility would use water injection with SCR in the combustion

[6] NO_2, PM-2.5 and ozone are measured using the Chicopee monitoring station; PM-10, SO_2, and CO use the Springfield monitoring station; and Pb is measured using the Boston monitoring station (Exh. MMWEC-3, at 3-3).

turbine to control NO_x emissions (Exh. MMWEC-3, at 3-8). In addition, the facility would incorporate a CO catalyst to control emissions of CO (Exhs. MMWEC-5, at 3-16; EFSB-G-29(S), Attachment 1, at 1-3).

The proposed facility emissions in the Petition and the Air Plans were calculated based on full load equivalent (8,760 hours per year of full operation), with operation on natural gas for six months, and ULSD oil for six months (Exh. MMWEC-1, at 5-97 to 5-98). In addition, MMWEC provided a number of projections of maximum potential emissions from the proposed facility, based on operating at a 100% capacity factor and on ULSD oil for 30, 60, and 120 days per year (Exhs. EFSB-RR-20; EFSB-A-17(S)). MMWEC stated that for each calculation, it assumed that the proposed facility would run on natural gas during the remainder of the year (Exh. EFSB-RR-20). MMWEC provided emission calculations for CO, SO_2, VOCs, NO_x, CO_2, and particulate matter and also provided projections of maximum potential emissions of lead and NH_3, based on a 100% capacity factor and six months of operation on ULSD oil (Exhs. MMWEC-1, at 5-19; EFSB-G-29(S), Attachment 1, at 2-4).

MMWEC stated that, for purposes of PSD review, the existing SBEC facility is considered a major source, because it has the potential to emit greater than 100 tons per year ("tpy") of one or more attainment criteria pollutants (Exh. MMWEC-5, at 3-6 to 3-7). MMWEC stated that it therefore performed a PSD major modification threshold analysis for its proposed facility, which showed that because the predicted emissions of PM/PM-10, CO, and NO would exceed the PSD review thresholds, MMWEC's proposed facility is subject to PSD review (Exhs. MMWEC- 1, at 5-5, MMWEC-5, at 3-7). MMWEC stated that the key requirements for obtaining a PSD permit are a demonstration of BACT, and a demonstration of compliance with the NAAQS and PSD increments (id.).

MMWEC stated that BACT for the proposed facility would be determined by the MDEP based on its review of the Air Plans Application, and by the EPA based on its review of the PSD Permit Application (Exh. EFSB-A-4). MMWEC asserted that for similar facilities, the MDEP has established that the use of natural gas as the primary fuel and ULSD oil as the back-up fuel, is considered BACT (id.). MMWEC stated that it would limit the sulfur content of the ULSD oil used as a secondary fuel to a maximum of 0.0015% wt. (Exh. MMWEC-1, at 5-11; EFSB-A-4; Tr. 2, at 270).[7]

[7] MMWEC indicated that ULSD oil has a maximum SO_2 emission rate of 0.0015 lb/MMBtu, the same maximum SO_2 emission rate that MMWEC proposes for natural gas (Exh. EFSB-A-4).

MMWEC stated that the generating units currently located at the SBEC are a major existing source of both NO_x and VOCs, which are the chemical precursors to ozone (Exh. EFSB-G-29(S), Attachment 1, at 3-3). Consequently, for purposes of the Non-Attainment NSR Program, the proposed facility would constitute a major modification to the SBEC if potential emissions of NO_x and VOCs would be equal to or greater than 25 tpy (id.; Exh. MMWEC-3, at 3-8). MMWEC indicated that the projected emissions of the proposed facility are greater than 25 tpy, therefore the proposed facility would be required to achieve the LAER for NO_x and VOCs, and procure emissions offsets (Exh. MMWEC-3, at 3-8; Tr. 1, at 42-43). MMWEC asserted that it would achieve LAER by using dry low-NO_x combustion and SCR for natural gas combustion, and by using water injection and SCR for ULSD oil combustion (Exhs. MMWEC-3, at 3-8; EFSB-G-29(S), Attachment 1 at 4-2).

MMWEC stated that under the NSPS, the NO_x standard for the proposed facility when burning natural gas is 0.43 lb/MWhr, and when burning ULSD oil is 1.3 lb/MWhr (Exhs. MMWEC-3, at 3-9; EFSB-G-29(S), Attachment 1, at 3-4). MMWEC projected that NO_x emissions of its proposed facility when operating on either fuel would be well below the NSPS (2 ppmd on natural gas, 5 ppmd on oil) (id.). MMWEC state that the proposed facility would meet the NSPS for SO_2, by using natural gas as the primary fuel and ULSD oil as the secondary fuel (Exh. MMWEC-3, at 3-10). According to MMWEC, the sulfur contents of both natural gas and USLD are well below the NSPS limits (id. at 3-9).

MMWEC indicated that it performed air dispersion modeling using the AERMOD model in accordance with procedures approved by the EPA and MDEP for purposes of evaluating the impacts of proposed facility operation on ambient air quality (Exhs. MMWEC-1, at 5-21; EFSB-G-29(S), Attachment 1, at 5-1, App. E). MMWEC stated that it performed the dispersion modeling to predict the concentrations of pollutant emissions with operation at a variety of emission sources in the SBEC area, and considering the topographical features in the SBEC area (Exhs. MMWEC-1, at 5-21 to 5-22; EFSB-G-29(S), Attachment 1, at 5-1). MMWEC then compared the predicted concentrations to significant impact levels ("SILs") defined by the EPA and MDEP for criteria pollutants (Exhs. MMWEC-1, at 5-21 to 5-22; EFSB-G-29(S), Attachment 1, at 5-1).[8] Based on this comparison, MMWEC predicted that the maximum ambient air quality impacts would be

[8] The MDEP has not established separate SIL values for PM-2.5 (Exh. EFSB-G-29, at 5-1).

below SILs for all pollutants except PM-10 for the 24-hour averaging period (Exh. EFSB-G-29(S), Attachment 1, at 5-1).[9]

Since the SILs for the PM-10 24-hour concentration are exceeded, MMWEC conducted an interaction dispersion modeling evaluation to predict the maximum total proposed facility concentrations for PM-10 in combination with other sources in the area and background air quality (Exh. EFSB-G-29(S), Attachment 1, at 5-2). These total concentrations were then compared to the NAAQS for 24-hour PM-10 (id.). This analysis was also conducted in accordance with procedures approved by the MDEP, and focused on those locations close to the SBEC where the predicted PM-10 24-hour concentration is greater than the SILs (id.). MMWEC stated that the analysis included the predicted impacts of the proposed facility, the existing SBEC facility, and nine other regional particulate emissions sources (id.). MMWEC stated that the analysis showed that the resulting total concentration for 24-hour PM-10 would be below the NAAQS value of 150 ug/m^3 (id.).

MMWEC also conducted interactive modeling for PM-2.5 for both 24-hour and annual concentrations using the same protocol described for PM-10 (Exh. EFSB-G-29(S), at 5-2 to 5-3). MMWEC stated that the analysis showed that the resulting total concentration for 24-hour would be equal to the NAAQS value of 35 ug/m^3, and be below NAAQS for the annual averaging period (id.). MMWEC explained that it based this analysis on the use of filterable emissions only (Exh. EFSB-RR-18). Based on an updated directive from MDEP with regard to the draft air permit, MMWEC recalculated the predicted 24-hour PM-2.5 using the sum of filterable and condensable PM-2.5 (Exhs. EFSB-RR-18; EFSB-RR-20).[10] The results of the analysis using both filterable and

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[9] The maximum predicted PM-10 24-hour concentration would be along the SBEC site fence line (Exh. MMWEC-1, at 5-23). The area where the maximum predicted PM-10 concentration would exceed the SILs would be limited to within one kilometer of the proposed facility exhaust stack (Exh. MMWEC-5, at 3-22).

[10] MMWEC explained that filterable particulate measurements are based on extracting a measured volume flue gas sample through a probe, and then measuring the amount of material collected on a glass fiber filter maintained at stack temperature. Condensable particulate measurements are based on the amount of material recovered in the same flue gas sample after the sample has passed through the glass fiber filter. This "condensable" material is recovered by passing the sample through water-filled impingers surrounded by an ice bath to cool the sample gas to 20° C (68° F) or less. The solid (non-water) material collected in the impingers and connecting glassware is then measured. MMWEC stated that this test method is believed to produce artificially high measurements, because sample gaseous substances, which would be gases in the atmosphere, are converted to

(continued...)

condensable PM-2.5 showed that the predicted 24-hour PM-2.5 exceeded the NAAQS (Exh. EFSB-RR-18). MMWEC stated that in response to the results of the modeling, it modified the facility design so that subsequent modeling showed that total concentrations of 24-hour PM-2.5 using both filterable and condensable data would be equal to NAAQS (Exh. EFSB-RR-18).[11]

The PSD New Source Review program also requires a demonstration that MMWEC's proposed facility, in combination with other PSD increment-consuming emission sources, would comply with the maximum allowable PSD "increment" (Exhs. MMWEC-1, at 5-24; MMWEC-3, at 3-19). MMWEC presented the results of a PM-10 source interaction analysis for evaluation of PM-10 PSD increment compliance for the 24-hour averaging period (Exh. MMWEC-3, at 3-20). The analysis included the predicted impacts of MMWEC's proposed facility, the existing SBEC intermediate and peaking facilities, and the other regional PSD-increment consuming PM emission sources, and showed that the resulting total concentration would be less than the maximum allowable PSD increment of 30 ug/m^3 (id. at 3-19 to 3-20). The location of this maximum predicted concentration is along the SBEC site fence line (Exh. MMWEC-5, at 3-23).

With respect to the TPS, the Siting Board assesses the predicted emissions that would be produced by the proposed facility when it operates solely on its "primary fuel" (980 CMR § 12.03(1); EFSB-RR-25; Tr. 1, at 76-77; EFSB-A-1). MMWEC stated that natural gas would be the primary fuel for its proposed facility, and ULSD oil would be the secondary fuel (Exhs. MMWEC-1, at ii; EFSB-G-29(S), Attachment 1, at 3-4).[12] MMWEC presented data comparing the TPS to the projected facility emissions rates, based on the proposed facility operating on natural gas, at 100% load and at 50° F (Exhs. EFSB-A-2, Attachment 1; EFSB-RR-25). According to MMWEC, the predicted emissions for the proposed facility based on natural gas as the primary fuel are below or equal to TPS for all criteria pollutants (id.).[13] MMWEC also indicated that it anticipates

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[10](...continued)
particulates in the impingers. This may include some portion of the SO_2, NH_3, and/or NO_x in the flue gas sample (Exh. EFSB-RR-20).

[11] MMWEC modified its proposed project design features by reducing the length and width of the high bay structure to fit more closely over the top of the proposed project's heat recovery steam generator (Exh. EFSB-RR-18).

[12] MMWEC asserted that natural gas is the primary fuel under all dual fuel scenarios presented by the Company, ie., whether gas is proposed for six months, 120 days, 60 days or 30 days per year (Exhs. EFSB-RR-25; EFSB-G-15).

[13] The predicted emissions for PM-10 and PM-2.5 based on natural gas are equal to (continued...)

that the proposed facility would not result in any quantifiable emissions of any trace metals while firing the primary fuel (Exh. MMWEC-1 at 5-20 to 5-21). MMWEC indicated that, as a result, the proposed facility would also meet the TPS for non-criteria pollutants (id.).

As requested by EFSB staff, MMWEC also presented data comparing the TPS to the projected facility emissions rates, based on the proposed facility operating on ULSD oil at 100% load (Exh. EFSB-RR-25). According to MMWEC, the data shows that when operating on ULSD oil for up to 120 days per year, the predicted emissions are below the TPS for all pollutants except PM-10 and PM-2.5 (id.). In addition, the data shows that when operating on ULSD oil for up to 182.5 days per year, the predicted emissions are above TPS for PM-10, PM-2.5, and VOCs (Exhs. EFSB-RR-25). MMWEC stated that, in accordance with the most recent MDEP policy, the PM-10 and PM-2.5 values for these calculations reflect the sum of filterable and condensable particulate matter (id.). However, MMWEC asserted that the methodology for measuring particulate matter that is set forth in the TPS regulations, 980 CMR §12.03, may require measurement of just filterable particulate matter and that when the PM-10 and PM-2.5 values are measured on the basis of just filterable particulate matter using ULSD for up to both 120 days and 182.5 days, the TPS for PM-10 and PM-2.5 are met (Exh. EFSB-A-2; EFSB-RR-25).[14]

4. Offset Proposals

MMWEC stated that the need to acquire NO_x and VOCs offsets are dictated by Non-Attainment NSR requirements as implemented in Massachusetts through the MDEP Air Plans Approval process (Exh. MMWEC-5, at 3-26; EFSB-G-29(S), Attachment 1, at 3-3). Offsets for NO_x and VOCs are required at a minimum ratio of 1.2:1 in areas classified as serious non-attainment for ozone (Exh. EFSB-G-29(S), Attachment 1, at 3-3). The MDEP requires an additional 5%, bringing the effective minimum ratio to 1.26:1 (id.). According to MMWEC, emissions reductions from shutting down an existing source, or curtailing its operation, can be used as offsets if the reductions are demonstrated to be real,

[13](...continued)
TPS when calculated using the sum of filterable and condensable particulate matter; when only filterable matter is measured, the particulate emissions are below TPS (Exhs. EFSB-A-2; EFSB-RR-25).

[14] MMWEC stated that using filterable plus condensable particulate matter typically produces a higher measurement than when using just filterable particulate matter, which in some cases may be twice as high as a measurement using just filterable particulate matter (Exh. EFSB-RR-20). MMWEC informed the Siting Board that the EPA is suspending the use of condensable particulate measurements due to concerns over the accuracy of the condensable test (Tr. 1, at 530).

surplus, permanent, quantifiable, and federally enforceable (Exh. MMWEC-5, at 3-26). MMWEC stated that it would obtain the required NO_x and VOCs offsets through contracts with facilities with qualifying shutdowns or surplus emission credits and that a sufficient supply of these offsets exists in the region (Exhs. MMWEC-3, at 3-8; EFSB-G-29(S), Attachment 1, at 3-3).

MMWEC stated that its proposed facility would be subject to the federal acid rain deposition requirements, and that it would need to procure SO_2 allowances under the requirements (Exh. MMWEC-5, at 3-28). MMWEC indicated that because there is a robust national market for SO_2 allowances, and facility emissions of SO_2 are predicted to be very low, it anticipates that acquisition of SO_2 allowances would not be problematic (id.).

MMWEC indicated that, assuming a 100% capacity factor, the calculated annual CO_2 emissions of the proposed facility would be: 1,224,513 tpy if the proposed unit runs on ULSD for 30 days per year (with operation on natural gas for the balance of the year); 1,258,390 tpy if the proposed unit runs on ULSD for 60 days per year; 1,326,145 tpy if the proposed unit runs on ULSD 120 days per year; and 1,380,728 tpy if the proposed unit runs on ULSD 182.5 days per year (Exh. EFSB-RR-20, Table RR-20-2).

MMWEC indicated that under RGGI, MMWEC would be required to purchase or obtain 100% of all CO_2 allowances, or offsets, necessary to operate the proposed unit (Exh. EFSB-A-24). MMWEC stated that while it expects the RGGI requirements to supersede the previous Siting Board requirements relating to CO_2 offsets, it would comply with the RGGI requirements as well as any other requirements that might be imposed by the Siting Board with regard to CO_2 emissions (Exh. MMWEC-1, at 5-27).

SBEC Project Emissions Impacts (Based on 6 months gas and 6 months ULSD)

	Averaging Period	Maximum Predicted Project Impact	SIL	Background	Maximum Total of Modeled Sources	Cummulative Impact	NAAQS	Comparison
		µg/m3	µg/m3			µg/m3	µg/m3	
NO2	Annual	0.65	1				100	Below SIL
CO	1-Hour	773	2000				40,000	Below SIL
CO	8-Hour	307	500				10,000	Below SIL
VOC	N/A	N/A	N/A					No NAAQS
PM-10	24-Hour	12.8	5	53	25.1	78.1	150	Exceeds SIL but w/in NAAQS
PM-10	Annual	.80	1				50	Below SIL
PM-2.5	24-Hour	12.2	N/A	21	14	35	35	Equal to NAAQS
PM-2.5	Annual	0.55	N/A	10	3.2	13.2	15	w/in NAAQS
SO2	3-Hour	1.4	25				1,300	Below SIL
SO2	24-Hour	0.73	5				365	Below SIL
SO2	Annual	0.04	1				80	Below SIL

(Exhs. EFSB-G-29(S); EFSB-A-8; MMWEC-5; EFSB-RR-26)

5. Analysis and Findings

The record indicates that the proposed facility would provide efficient baseload power based on dual-fuel combustion turbine technology using natural gas as the primary fuel and ULSD oil as a secondary fuel. The record indicates that emissions from the proposed facility would cause 24-hour PM-2.5 concentrations to increase from 22.8 ug/m^3 (66% of NAAQS) to 35 ug/m^3 (100% of NAAQS) and annual PM-2.5 concentrations to increase from 12.65 ug/m^3 (84% of NAAQS) to 13.2 ug/m^3 (88% of NAAQS). Concentrations of other parameters would also increase, but by amounts that are a smaller percentage of NAAQS and to levels that remain well below NAAQS. Based on modeling analyses provided by MMWEC, ambient impacts also would be below all established SILs for pollutants other than PM, and below the SIL for annual PM-10. However, ambient impacts would exceed SILs established for 24-hour PM-10 and we note that it may exceed the pending SILs for PM-2.5.

The record shows that the proposed facility is expected to meet applicable air quality standards, including ambient air standards, new source standards, performance

standards, and design standards. The MDEP and EPA would evaluate compliance with LAER and BACT, and overall compliance with air quality regulations as part of the Air Plans Approval process. Further, MMWEC proposes to acquire SO_2 allowances, and to obtain the NO_x and VOC offsets necessary to meet requirements for ozone non-attainment through a contract with facilities with qualifying shutdowns or surplus emission reduction credits.

The record shows that the proposed facility would have the potential to emit 1,224,513 tpy of CO_2 running on ULSD for 30 days per year; 1,258,390 tpy of CO_2 running on ULSD for 60 days; 1,326,145 tpy of CO_2 running on ULSD for 120 days; and 1,380,728 tpy of CO_2 running on ULSD for 182.5 days.

The record demonstrates that when operating on natural gas, MMWEC's proposed facility would meet all of the TPS for criteria pollutants as set forth in 980 CMR § 12.00 based on measuring filterable and condensable particulate matter. The Siting Board notes that the TPS regulations call for analyzing the predicted emissions of a facility on its primary fuel. However, in this case, due to MMWEC's initial proposal to operate for up to six months on ULSD, the Siting Board requested additional emission information to supplement the gas-firing TPS data provided by the Company, allowing consideration of primary and back-up fuel use. The record demonstrates that when operating on ULSD oil for 60 or 120 days per year, the proposed facility would meet the TPS for all criteria pollutants except PM-2.5 and PM-10, based on combined gas-fired and oil-fired operation and on inclusion of both filterable and condensable particulate matter, and would meet the TPS for all criteria pollutants based on measuring filterable particulate matter only. The record further demonstrates that when operating on ULSD oil for 182.5 days per year, the proposed facility would: (1) not meet TPS criteria for PM-2.5 and PM-10 for combined gas-fired and oil-fired operation, based on including both filterable and condensable particulate matter; and (2) would not meet the TPS for VOCs.

The Company has indicated that, in most years, it expects to operate mostly on gas, with approximately 60 days of operation on ULSD. However, MMWEC has proposed to operate on ULSD for up to a significantly larger number of days per year as a maximum limit - - up to 182.5 days according to its Petition as well as its Air Plan Application. To the extent such maximum ULSD-fired operation were to occur in any year, versus MMWEC's expected ULSD-fired operation of approximately 60 days in most years, air quality impacts related to facility emissions of some pollutants - - including facility emissions of PM - - also would be greater in that year based on emission rates of ULSD versus gas.

The Siting Board is concerned about the potential for such additional impact with respect to PM-10 and PM-2.5, given modeled worst case conditions that equal or approach NAAQS. The Siting Board notes its concern reflects modeled conditions for both the annual and 24-hour NAAQS for PM-10 and PM-2.5, in that (1) the facility's annual emissions of those pollutants in a particular year actually are increased with greater ULSD-fired operation, and (2) the facility's 24-hour emissions, while not necessarily increased, could occur on more days over a particular year with greater ULSD-fired operation.

To limit emissions of criteria pollutants, including PM-10 and PM-2.5, the Siting Board therefore directs MMWEC, for each calendar year, to limit operation of the proposed facility on ULSD oil to : (1) no more than 60 days from January 1st to November 30 (but not during the ozone season); and (2) no more than 30 days for the month of December; provided that this limitation on operation on ULSD oil will not apply when natural gas is unavailable to operate the proposed facility (either due to gas transportation disruptions, or supply disruptions or curtailment), and ISO-NE calls on the facility to operate out of economic merit.

In addition, in order to reduce the potential emissions of PM, the Siting Board directs MMWEC to submit to the Siting Board, prior to commercial operation, a PM reduction measure plan including; (1) identification and description of PM reduction measures that could be implemented in the vicinity of the SBEC; (2) the cost of such measures; and (3) a proposal for MMWEC's participation in the implementation of such reduction measures.[15]

The record also shows that recently promulgated RGGI regulations would apply to the proposed facility beginning in 2009. The Siting Board notes that, under the RGGI regulations, the requirements for CO_2 emissions offsets for MMWEC's proposed facility would exceed existing Siting Board requirements for CO_2 emissions mitigation. However, in the event that the proposed facility commences operation prior to the implementation of the RGGI requirements, the Siting Board directs MMWEC, before or within the first year of operation, to provide the Siting Board with information demonstrating that either: (1)

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[15] The Siting Board notes that the MassClean Diesel program was launched in June, 2008. The MassClean Diesel program is a fully-funded statewide program designed to reduce air pollution from school buses by providing for all eligible diesel-powered schools buses in Massachusetts to receive retrofits at no expense to school bus owners. As part of MMWEC's filing, the Siting Board expects that MMWEC would address the role it could take in assisting area school bus companies to enroll in the MassClean Diesel program, if warranted. (see http://www.mass.gov/dep/air/diesel/masscleandiesel.htm).

RGGI implementation has commenced, and the proposed facility is in conformance with RGGI; or (2) MMWEC has developed and implemented a CO_2 offset program consistent with CO_2 emissions offset programs developed in previous cases before the Siting Board.

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

C. Noise Impacts

This section describes the noise impacts of the proposed facility and mitigation proposed by MMWEC.

1. Description

MMWEC stated that the MDEP Noise Policy[16] limits a new noise source to a 10 dBA increase above the ambient sound at the property lines of the new source and nearest residences (Exh. EFSB-G-29(S), Attachment 1, App. C, at 6). MMWEC also stated that the MDEP Noise Policy prohibits the production of "pure tone" conditions, where any one octave band center frequency is 3 dBA or greater than an adjacent frequency band (id.). MMWEC indicated that the Town of Ludlow zoning by-laws prohibits any "offensive noise" that may be dangerous or detrimental to the neighborhood, but do not define "offensive noise" (id. at 6-7).

MMWEC stated that it measured existing sound levels in the vicinity of the proposed facility by conducting ambient sound level surveys at eight locations (Exhs. MMWEC-1, at 5-79; ESFB-G-29(S), Attachment 1, App. C at 1-2). The eight locations consisted of four SBEC property line locations and four residential locations (id. at 2; Exh. MMWEC-3). MMWEC explained that the long-term sound measurements were taken at property line locations only and consisted of continuous unattended measurements over a 10-day period, while the short term measurements were taken at both property line locations and residential receptors, and consisted of intermittent, 10-minute samples (Exh. ESFB-G-29(S), Attachment 1, App. C at 1).[17]

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[16] MMWEC stated that the MDEP regulates the impact of new stationary noise sources through its Air Quality Regulations, 310 CMR 7.10, and its Noise Policy, DAQC Policy 90-001 ("MDEP Noise Policy") (Exhs. MMWEC-1, at 5-80; EFSB-G-29(S), Attachment 1, App. C, at 6).

[17] MMWEC stated that it also measured ambient sound levels for separate day and night periods at residential receptors (Exhs. ESFB-G-29(S), Attachment 1, App. C at 3-4; ESFB-N-12(S)).

MMWEC stated that it determined L_{90}[18] noise levels for each short-term monitoring period and for each hour of each long-term monitoring period, as an indicator of background noise over the daily cycle (Exh. ESFB-G-29(S), Attachment 1, App. C at 3-4). MMWEC stated that for the property line locations, in order to avoid unusually quiet hourly periods that may have occurred during the ten days of continuous monitoring, MMWEC selected the L_{90} noise level for the one hour that was exceeded by 90% of the hourly L_{90} measurements taken over 10 days, to represent ambient background sound levels (Exhs. EFSB-N-12(S); EFSB-G-29(S), Attachment 1, App. C at 3; Tr. 3, at 364 - 370). MMWEC referred to this methodology as the nominally lowest L_{90} (Exh. EFSB-N-12(S)). MMWEC asserted that this statistic represents a conservative estimate of the typical background sound levels during the quietest nighttime periods (Exhs. EFSB-G-29(S), Attachment 1, App. C at 3-4; EFSB-N-12(S); Tr. 3, at 365, 367). MMWEC stated that the results of its measurements indicated ambient L_{90} sound levels in the surrounding community areas range from 32 to 41 dBA for the property line locations using continuous monitoring, and from 24 to 36 dBA at residences using short-term intermittent measurements (Exh. EFSB-G-29(S), Attachment 1, App. C at 5).

MMWEC stated that the sound generated by the proposed facility would result from operation of the turbine generators, the heat recovery steam generator ("HRSG"), transformers, the air-cooled steam condenser, and the air inlet chiller system (Exhs. MMWEC-1, at 5-81 to 5-82; EFSB-G-29(S), Attachment 1, App. C at 10). MMWEC stated that each of these principal sound sources was evaluated in a computer model to predict the impacts of proposed facility operation at the SBEC property lines and at the closest residences in each direction (Exhs. MMWEC-1, at 5-82; EFSB-G-29(S), Attachment 1, App. C at 12; EFSB-N-2). MMWEC stated that the evaluation was conducted on the basis of a "worst case" assumption that the proposed facility and the existing SBEC intermediate and peaking facilities would operate simultaneously at full load (Exh. MMWEC-1, at 5-82). MMWEC stated that simultaneous operation of the proposed facility and the existing intermediate and peaking units would occur infrequently, since the peaking unit operates at an annual capacity factor of approximately 5%, and the intermediate unit operates at an annual capacity factor of approximately 20% (Tr. 3, at

[18] L_{90} is the sound level in dBA exceeded 90% of the time during the measurement period. The 90th percentile sound level represents the nominally lowest level reached during the monitoring interval and is usually influenced by sound of relatively low level, but nearly constant duration, such as distant traffic or continuously operating industrial equipment (Exh. MMWEC-1, App. F, Attachment 1, at 2).

289-93). MMWEC further indicated that the peaking unit most likely would only operate during the morning and evening peak and that the intermediate unit most likely would operate throughout the day; neither unit likely would operate overnight (Tr. 3, at 291-292, 349).

MMWEC stated that the modeling predicted maximum increases in sound levels over ambient noise levels at the four residential receptors ranging from zero to 5 dBA (Exhs. EFSB-N-2; EFSB-N-16). MMWEC noted that it does not consider the Correctional Center,[19] located near the north property line, a residential receptor; however, MMWEC considered it as a sensitive receptor with respect to noise increases (Tr. 3, at 337). MMWEC stated that the highest modeled increase over ambient noise levels, which would occur based on the simultaneous operation of the proposed facility and both the existing SBEC intermediate unit and peaking units, using the nominally lowest L_{90} was 10.45 dBA at the SBEC north property line, adjacent to the pre-release center (Exhs. EFSB-N-2; EFSB-RR-16(S); Tr. 3, at 377). MMWEC also stated that, when measured using the lowest measured hourly ambient L_{90} levels from the continuous monitoring, rather than the nominally lowest levels, the highest modeled noise increase at the north property line was approximately 12 dBA (Exh. EFSB-N-13).

MMWEC reported that noise increases at other SBEC property lines varied from 5 to 9 dBA based on the nominally lowest level method, and 12 to 13 dBA based on the lowest measured hourly ambient L_{90} level method (Exhs.EFSB-N-13; EFSB-RR-16(S); EFSB-G-29(S), Attachment 1, App. C at 12). MMWEC asserted there are no sensitive receptors in proximity to the other SBEC property lines (Exh. EFSB-G-29(S), Attachment 1, App. C, at 2). MMWEC indicated that, with the exception of the Correctional Center at the north property line, the adjacent properties are either existing industrial uses, or vacant land that is zoned for industrial use (Exh. EFSB-G-29(S), Attachment 1, App. C at 12).

MMWEC indicated that the noise increase at the north property line during the quietest period would drop from 12 dBA to 10.05 dBA if only the proposed facility and the intermediate unit were operating, and that the noise increase would drop to 8.47 dBA if only the proposed facility were operating (Exh. ESFB-RR-16(S)). MMWEC further stated that special features relating to the Correctional Center would serve to mitigate the impacts of the predicted noise increase (Exh. EFSB-RR-18). First, the windows in the Correctional Center cannot open, and second, no one is allowed outside of the Correctional Center

[19] The Correctional Center consists of two facilities, the main correction facility and a pre-release center (Tr. 3, at 399-401). The pre-release center is located closest to the north property line, and the noise measurements are modeled at the pre-release center (Tr. 3, at 400-401).

between the hours of midnight and 6:00 a.m. which coincides with the period when the predicted 10.45 dBA or 12 dBA noise increases would occur (Exh. EFSB-RR-18; Tr. 3, at 344-350).

MMWEC stated that sound resulting from operation of the proposed facility would be mitigated through facility design (Exh. MMWEC-1, at 5-81). MMWEC incorporated the following proposed facility design features into its noise modeling: low noise air cooled-condenser; low noise inlet air chiller tower; additional silencers for the stack and combustion turbine air intake; placement of the combustion turbine, HRSG, steam turbine, generators, boiler feed pumps, cooling water pumps, and other auxiliary equipment within the power plant addition; and enclosures for the combustion turbine, steam turbine, and generators within the power plant addition (Exh. EFSB-29(S), Attachment 1, App. C at 11).

MMWEC indicated that additional mitigation options may exist beyond the facility design features described above and referred to those options as Best Available Noise Control Technology ("BANCT") 1, BANCT 2, and BANCT 3 (Exhs. EFSB-RR-16; EFSB-RR-16(S)). MMWEC stated that BANCT 1 would consist of utilizing additional duct silencers in the exhaust outlet or stack (Exhs. EFSB-RR-16; EFSB-RR-16(S)). MMWEC stated that the additional silencers would cost $1 million and achieve a decrease of 1 dBA at the northern property line (id.). BANCT 2 would consist of using a lower noise air-cooled condenser, and building a sound barrier on the north side of the gas turbine transformer or specifying a lower noise transformer (id.). According to MMWEC, the BANCT 2 option would achieve a decrease of 2 dBA at the north property line, but its vendors stated that these reductions are not technically feasible (id.). MMWEC stated that BANCT 3 would consist of a further reduction in HRSG noise, based on an even quieter air-cooled condenser, and adding sound walls on the north side of the gas turbine transformer and the inlet chiller cooling tower (id.). MMWEC indicated that the BANCT 3 option would achieve a decrease of 3 dBA at the north property line, but also is not technically feasible (id.).

MMWEC stated that there would be noise associated with facility construction (Exhs. MMWEC-1, at 5-81; EFSB-G-27(S), App. A at 4-13). MMWEC indicated that the majority of the proposed project construction would occur during a daytime shift from approximately 7:00 a.m. to 3:30 p.m., Monday through Friday (Tr. 2, at 242, 243). MMWEC indicated that during some construction periods, multiple shifts and/or around-the-clock activities might be required depending on labor availability, cost and type of construction activity (Exh. EFSB-N-11; Tr. 3, at 393). MMWEC stated that a second,

much smaller, nighttime shift might also be used on occasion (Tr. 2, at 242, 243). MMWEC indicated that the construction activities that would be conducted at night would consist primarily of welding, as well as continuous activities such as concrete pouring (Tr. 3, at 394). MMWEC explained that there would also be a Saturday day shift to ensure the schedule is on track, but it would be much smaller than the weekday shift (Tr. 2, at 245).

MMWEC stated that the noise associated with construction occasionally would be noticeable at the nearest property lines (Exh. MMWEC-1, at 5-81). At the more distant residential properties, MMWEC predicted that noise associated with construction would be consistent with typical daytime background noise, and would have only minimal impacts (id.; Exh. EFSB-N-11). MMWEC stated that with the exception of construction related needs, such as concrete pouring, which must continue until completed, MMWEC would mitigate noise associated with facility construction by: (1) limiting construction activities producing significant sound to daylight hours, where possible; (2) limiting weekend construction to Saturdays; and (3) requiring contractors to comply with all federal regulations limiting noise from trucks and other powered equipment, and to keep sound muffling devices in good repair throughout construction (Exhs. MMWEC-5, at 3-76; MMWEC-1, at 5-81; EFSB-N-11). MMWEC reported that it had obtained the names and addresses of residences and businesses within one mile of the SBEC site boundary, and that it would notify those residents and businesses of planned activities outside of normal business hours that would be expected to generate excessive noise (Exh. EFSB-N-19).

MMWEC provided information regarding construction-related steam blows, stating that steam blows would be completed within five days, with a maximum of four steam blows per day (Exhs. EFSB-N-8; EFSB-N-17). MMWEC indicated that the steam blows would last from ten minutes to four hours, depending on the size of the equipment being cleansed by the steam blow (Exh. EFSB-N-8). MMWEC stated that the steam blows would be carefully planned for the daylight hours on weekdays (id.).

2. Analysis and Findings

In prior decisions, the Siting Board has reviewed the noise impacts of proposed generating facilities for general consistency with applicable governmental regulations, including MDEP's 10 dBA standard. Braintree Decision at 34; Southern Energy Canal II, 12 DOMSB 155, at 229 (2001) ("Southern Energy Canal II Decision"); Brockton Power, 10 DOMSB 157, at 217. 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. Southern Energy Canal II Decison at 229;

IDC Bellingham, 9 DOMSB 225, at 311(1999) ("IDC Decision"); Sithe Mystic Development LLC, 9 DOMSB 101, at 164 (1999) ("Sithe Mystic Decision"). In previous cases where measured background and calculated facility noise levels at the most affected residential receptors were neither unusually quiet nor unusually noisy, the Siting Board has accepted or required facility noise mitigation which was sufficient to hold residential L_{90} increases to 5 to 8 dBA. IDC Decision at 311; ANP Bellingham, 7 DOMSB 39, at 190-196 (1998).

The record shows that MMWEC has provided a comprehensive measurement study of ambient sound levels in the SBEC vicinity and predicted increases in sound levels resulting from operation of the proposed facility. The record shows that with the noise reduction features incorporated in the design of MMWEC's proposed facility, noise impacts at residences closest to the proposed facility, other than the Correctional Center, would be at the most 5 dBA above ambient levels in the quietest nighttime hours, and equal to or less than 5 dBA above ambient levels during the day/evening hours.

The record shows that simultaneous operation of the proposed facility and the existing SBEC intermediate and peaking units potentially would increase noise at the northern SBEC property line, the location of the Correctional Center, by: (a) 12 dBA during the very early morning hours, which is based on the quietest six minutes of the quietest hour of the 240-hour monitoring period; or (b) 10.45 dBA, using the nominally lowest L_{90}, which is based on the quietest six minutes of the quietest 24^{th} hour of the monitoring period. The record shows, however, that given the capacity factors of the existing SBEC facilities, simultaneous operation of the proposed facility and the existing facilities likely would occur infrequently.

The record shows that the Correctional Center is located at the northern SBEC property line, and, therefore, may be subject to a 12 dBA (or 10.45 dBA, based on the nominally quietest hour) noise increase. However, the record also shows that the residents are not allowed outside of the Correctional Center during the early morning hours when those increases might occur, and that the windows at the Correctional Center do not open. Therefore, the record demonstrates that it is unlikely that any Correctional Center resident would experience the 12 dBA (or 10.45 dBA, based on the nominally quietest hour) noise increase.

The record shows that an additional noise reduction of 1 dBA at the northern property line could be achieved at a cost of approximately $1 million. The Siting Board notes that, while the $1 million cost for the reduction of 1dBA would be a small percentage of total project cost, residents at the Correctional Center likely would not experience the

potential 12 dBA (or 10.45 dBA, based on the nominally quietest hour) noise increase, and therefore may not benefit from the 1 dBA decrease. The Siting Board also notes that this potential increase would occur in the very early morning hours, with the simultaneous operation of the proposed facility, the intermediate unit, and the peaking unit, and further notes that it is unlikely that the peaking unit would be running during those very early morning hours since the demand for electric power generation at that time is generally lower. See Braintree Decision at 40. The Siting Board concludes, therefore, that, with respect to the BANCT 1 option, the tradeoff of expenditure for likely mitigation of noise impacts would not be cost effective.

The record shows that MMWEC is committed to limiting construction activities producing significant sound to Monday through Friday from the hours of 7:00 a.m. to 3:30 p.m. to the extent possible. The record further shows that while MMWEC anticipates the possibility of construction work on Saturday and nighttime periods in order to maintain its schedule, it would be limited to construction activities that do not produce significant sound, such as welding. Based on the record, for both the possible nighttime and Saturday daytime construction work, MMWEC anticipates communicating with area residents if planned construction activities outside of normal business hours would be expected to generate excessive noise.

We note, however, the possibility of noise impact issues arising from construction activities at times other than during MMWEC's typical workweek construction shift of Monday through Friday, 7:00 a.m. to 3:30 p.m.. The Siting Board therefore directs MMWEC to confine noisy construction activities to weekdays only, to the extent practicable. Specifically, MMWEC may engage in any construction activities Monday through Friday, during daylight hours, not earlier than 7:00 a.m. and not later than 5:30 p.m. Further, the Siting Board directs MMWEC to limit any necessary weekend construction to Saturdays, between the hours of 8:00 a.m. and 5:30 p.m., to the extent practicable. Further, it is important that an outreach plan is in place to communicate with the area residents in the event, although infrequent, of (1) planned construction events outside of normal business hours, and (2) steam blows at any time. Consequently, the Siting Board directs MMWEC, in consultation with the Town of Ludlow, to develop an outreach plan for the proposed facility. The outreach plan should lay out the procedures to be used to notify the public in particular locations about the scheduled start, duration, and hours of construction outside of normal business hours, as well as steam blows at any time, and should include information on complaint and response procedures and contact information.

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

D. Safety

This section describes the safety impacts of the proposed facility with regard to overall safety and the handling and storage of aqueous ammonia and the mitigation proposed by MMWEC.

MMWEC asserted that the SBEC has an excellent safety history, and that it would endeavor to continue this safety record in constructing and operating its proposed facility (Exhs. MMWEC-1, at 5-118; EFSB-S-1; ESFB-S-3). MMWEC stated that chemicals and related substances used in construction would be managed in accordance with all relevant statutes and regulations, and that hazardous chemicals would be contained after use and hauled off-site by a licensed contractor for environmentally safe disposal or re-use (Exh. MMWEC-1, at 5-119).

MMWEC also stated that the proposed facility would include safety and emergency systems to ensure safe and reliable facility operations, including: (1) containment basins or dikes around all non-water storage areas; (2) placement of equipment and structures so as to provide adequate access for fire fighting vehicles and equipment; (3) emergency lighting, with backup power supply; (4) automatic shutdown systems with backup power supply for the turbines, fuel supply and chemical systems; (5) fire-retardant building materials; and (6) a self-sufficient fire protection system (Exh. MMWEC-1, at 5-119). MMWEC stated that the SBEC site currently is enclosed by a security fence, and that a guarded access gate provides 24-hour control of access to the site (id.; Exh. EFSB-S-12).

MMWEC further stated that as with the existing intermediate and peaking units, the maintenance program would include provisions for regular visual inspections, preventative maintenance checks, and continuous documentation of operating and maintenance parameters (Exh. MMWEC-1, at 5-119 to 5-120). MMWEC also represented that a comprehensive safety and health protection plan would be prepared prior to facility operation, and as part of this plan, all new employees would be trained in emergency procedures, including fire protection, first aid and cardiopulmonary resuscitation ("CPR") (id. at 5-120; EFSB-S-10).

MMWEC indicted that existing emergency response plans ("ERPs"), including a Spill Prevention, Control and Countermeasure ("SPCC") plan, would be updated to include the facility and would be coordinated with Ludlow emergency support services (Exhs.

EFSB-S-3; EFSB-S-4). MMWEC stated that the updated ERPs would mirror the existing ERPs, but would include sulfur hexafluoride ("SF6") emergency response procedures and procedures regarding aqueous ammonia (Exhs. EFSB-S-3; EFSB-S-5). MMWEC indicated that it expects to finalize the updated ERP's just prior to commercial operation (Exh. EFSB-S-3).

1. Materials Storage and Handling

MMWEC stated that the proposed facility would use 19% aqueous ammonia for the SCR, the pollution control device that would reduce NO_x emissions (Exh. MMWEC-1, at 5-70). MMWEC indicated that the 19% aqueous ammonia would be stored in two 20,000 gallon above-ground tanks just to the west of the proposed ACC (id. at 3-11; Exh. EFSB-RR-13; Tr. 3, 330).

MMWEC initially proposed that the ammonia tanks would be single-walled, and would be located within a 10-foot high concrete-walled containment area capable of holding 110% of the tanks' capacity (Exhs. MMWEC-1, at 3-11, 5-70, 5-100; EFSB-RR-15(1)). MMWEC indicated that the containment area would include two levels of containment: (1) an upper level that would support the ammonia tanks and the ammonia forwarding pumps, and would include a pitched dike floor draining to the lower level containment area; and (2) a lower level that would include a sump with a heating element to remove rainwater, snow and ice (Exh. EFSB-RR-15(1); Tr. 3, at 326). MMWEC reported that in the event of a spill into the containment area, ammonia vapor would be controlled by the deployment of spheres resting on the surface of the aqueous ammonia in the lower-level dike containment area (Exh. EFSB-S-10; Tr. 3, at 327). MMWEC stated that the spheres would reduce the surface area of the ammonia by 90% (Exh. MMWEC-1, at 5-100 to 5-101). MMWEC indicated that the entire ammonia truck unloading area and diked containment area would be protected by a roof and that the roof, grate, and heated sump would combine to guarantee the effectiveness of the ammonia containment area and vapor-controlling spheres in all weather conditions, including snow and ice (Exh. EFSB-RR-15(1)).

MMWEC indicated that the two ammonia tanks would be located approximately 875 feet from the parking lot for the MMWEC office building, 1,000 feet from the MMWEC office building, 1,250 feet from the nearest property line, 1,450 feet from the nearest residential property (the Correctional Center), and 1,700 feet from the nearest commercial facility (Exhs. EFSB-S-9; EFSB-RR-12). MMWEC indicated that it used the EPA's Areal Locations of Hazardous Atmospheres ("ALOHA") model to predict the

maximum one-hour averaged concentrations at the nearest public receptors for a worst-case contingency ammonia release (Exh. MMWEC-1, at 5-102). MMWEC reported that, based on the ALOHA model, the predicted ammonia concentration for a hypothetical worst-case release (a complete tank failure) would be 56.3 ppm at the MMWEC office parking lot, and would be 21.7 ppm at the Correctional Center (Exh. EFSB-RR-12).

MMWEC interpreted the health effects of a worst-case release of ammonia from the storage tanks using three methods: (1) American Industrial Hygiene Association ("AIHA") Emergency Response Planning Guideline ("ERPG"); (2) the Agency for Toxic Substances and Disease Registry ("ATSDR") guidelines; and (3) the EPA airborne ammonia concentration level health effect guidelines for emergency and planning purposes (Exh. MMWEC-1, at 5-114 to 5-118). According to MMWEC, each guideline identifies a range of ammonia concentration levels corresponding to health impacts and ability to leave the ammonia exposure area (id.).

MMWEC reported that the AIHA guidelines define level ERPG-2, exposure of 150 ppm for up to 1 hour, as the minimum level at which an individual will experience or develop irreversible or other serious health effects or symptoms (Exh. MMWEC-1, at 5-114; Tr. 3, at 316).[20] MMWEC reported that according to the ATSDR, exposure to 50 ppm for up to one day will result in slight, temporary eye and throat irritation, but not serious or long-term health effects or impaired ability to escape (Exh. MMWEC-1, at 5-115 to 5-116; Tr. 3, at 322). According to MMWEC, the ATSDR guidelines state that long-term health effects or impaired ability to escape will result only from exposure at levels exceeding 200 ppm for several hours (Exh. MMWEC-1, at 5-116). MMWEC also stated that the EPA guidelines provide that long-term adverse health effects or impaired ability to escape will result only from exposure to a minimum of 380 ppm for five minutes,

[20] AIHA has developed ERPGs for a large number of chemicals that can potentially be released into the air, including ammonia. A series of three EPRGs was recommended for ammonia, including: (1) ERPG-3 level of 750 ppm, which is defined as the maximum airborne concentration of ammonia below which it is believed all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects; (2) ERPG-2 level of 150 ppm, which is defined as the maximum airborne concentration of ammonia below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms, which could impair an individual's ability to take protective action; and (3) ERPG-1 level of 25 ppm, which is defined as the maximum airborne concentration of ammonia below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined, objectionable odor.

or exposure to 110 ppm for an hour (id. at 5-116 to 5-117). MMWEC noted that the odor detection threshold for ammonia is approximately 5 ppm, with concentrations in the range of 10 to 50 ppm resulting in the detection of ammonia odors (id. at 5-114, 5-115). MMWEC indicated that at 50 ppm concentrations odor perception could be accompanied by eye, nose, and throat irritation (id. at 5-115).

MMWEC stated that, based on these guidelines, only one of the predicted worst-case ammonia exposure levels, 56.3 ppm at the MMWEC offices parking lot, would exceed any of the three threshold levels for long-term health effects or impaired ability to escape (Exh. EFSB-RR-12).

MMWEC indicated that installation of double-walled tanks would result in a $30,000 increase in the total cost of the storage system, and that enclosing the tanks would result in a $175,000 cost increase (Exh. EFSB-RR-13). MMWEC stated that a leak would most commonly result from a minor leak in a pipe fitting, and that a double-walled tank would not protect against such a leak (id.; Tr. 3, at 330-331). MMWEC further stated that if it enclosed the ammonia tanks, ammonia from the most common leak would concentrate to levels that would pose a hazard to the MMWEC staff dispatched to isolate the leak, so that enclosure would in that way actually increase the safety risk posed by a leak (Exh. EFSB-RR-13; Tr. 3, at 331). Nevertheless, MMWEC has committed to installing double-walled tanks to mitigate potential leak impacts (Tr. 3, 331).

MMWEC stated that its proposed facility would include construction of a 10.6 million gallon oil storage tank, which would be 48 feet high and approximately 200 feet in diameter (Exh. MMWEC-1, at 3-9). MMWEC stated that the proposed fuel oil storage tank would be located within a diked containment area capable of holding 110% of the tank capacity (Exh. MMWEC-1. at 3-9). MMWEC further stated that it currently receives fuel oil through the existing pipeline at the SBEC, which originates in New Haven, Connecticut and that following placement of an oil order, there often is a wait of 3 to 6 weeks before delivery (id.). MMWEC opined that given this delay and given that the proposed facility might be dispatched to run during a period of severe winter weather, when natural gas supplies in New England are curtailed, demand for fuel oil is increased, and the fuel oil pipeline is committed to other customers, operation of the proposed facility requires a stored supply of oil (id.). MMWEC indicated that because it receives fuel oil through the existing pipeline, deliveries by truck would be unnecessary, except for the occasional delivery to run the emergency diesel generators (Exh. EFSB-G-4).

2. Analysis and Findings

MMWEC has shown that it would have in place programs to ensure safety for employees and the surrounding community during facility construction and operation. MMWEC also has shown that it would store, handle and dispose of oil and other non-fuel-chemicals properly and in accordance with applicable regulatory standards, and that it would have in place secondary systems to contain oil and chemical spills or releases.

The record also shows that MMWEC proposes to store aqueous ammonia in two double-walled 20,000 gallon storage tanks. The record shows that in the event of a worst-case ammonia release, ammonia concentrations of approximately 56 ppm could occur in the parking lot used by MMWEC employees, and that ammonia concentrations of approximately 21.7 ppm could occur at the Correctional Center. MMWEC has represented that it would install double-walled tanks to provide further protection from exposure to ammonia. In previous cases, parties have proposed aqueous ammonia tanks that were either double-walled or enclosed ammonia tanks, or the Siting Board has required either double-walled or an enclosure to protect the public from the effects of an ammonia spill. Braintree Decision at 50; Southern Energy Kendall Decision, 11 DOMSB at 354; Brockton Power Decision, 10 DOMSB at 226; Sithe Edgar Decision, 10 DOMSB at 97; IDC Decision at 317-318; Sithe Mystic Decision at 166-167; ANP Blackstone Decision, 8 DOMSB 1, at 179.

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

Accordingly, the Siting Board finds that with the implementation of the above condition, and with MMWEC's agreement to install double-walled ammonia storage tanks, the safety impacts of the proposed facility would be minimized.

E. Water Resources

This section addresses the water-related impacts of the proposed facility, including: (1) the water supply requirements and related impacts on water supply systems; and (2) the water-related discharges (wastewater and stormwater), and related impacts on wastewater

systems, wetlands, and ground and surface waters, and the mitigation proposed by MMWEC.

1. Water Supply

MMWEC stated that its proposed facility would use water primarily for make up to the small evaporative cooling tower, feedwater make up to the HRSG, and water injection for NO_x control during oil-fired operation (Exh. MMWEC-1, at 5-37).[21]

MMWEC indicated that water use at its proposed facility would vary depending on, among other things, ambient temperature and the type of fuel (natural gas or ULSD oil) being used (Exh. MMWEC-1, at 5-36). MMWEC initially projected that maximum incremental water use would be approximately 122,000 gallons per day ("gpd"), assuming an 83% capacity factor and 30 days per year of oil-fired operation (id. at 3-23; Exh.EFSB-RR-4). MMWEC subsequently revised its projected capacity factor to 65% (Exh. EFSB-RR-4(S); Tr. 3, at 429). MMWEC stated that, assuming the 65% capacity factor and 30 days per year of oil-fired operation, it projected that incremental water use for the facility would be 99,000 gpd, based, in part, on inlet cooling for the entire months of June through September and 81,000 gpd in conditions not requiring inlet cooling (Exh. EFSB-RR-4(S)).[22] Assuming the 65% capacity factor and 60 days per year of oil-fired operation, MMWEC projected that incremental water use for the facility would be 121,000 gpd, based, in part, on inlet cooling for the entire months of June through September and 103,000 gpd in conditions not requiring inlet cooling (Exhs. EFSB-RR-17; EFSB-RR-22). MMWEC noted that the predicted water usages are much lower without inlet cooling than with inlet cooling, and further noted that the predicted usages with inlet cooling are conservative, high-end estimates because inlet cooling may not be economic at a given time, and thus might not be used to the extent assumed for those predictions (Exh. EFSB-RR-17; Tr. 3, at 324).

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[21] MMWEC explained that the water that would be used in the steam cycle and for NO_x suppression during ULSD firing would come from the existing SBEC reserve water storage tank and would be treated by the demineralizer system in the existing power plant (Exh. MMWEC-1, at 5-37). The existing plant has a 500,000-gallon demineralized water storage tank (id.). To ensure capacity in the system and/or the storage tank adequate to supply both the existing intermediate and peaking units and the new facility, MMWEC would construct an additional demineralized water storage tank (id.). The tank would have a capacity of 450,000 gallons and be 48 feet high and 40 feet in diameter (id.).

[22] Inlet air cooling may be employed when the ambient temperature exceeds 50 F° (typically during the four-month period from June through September) (Exh. MMWEC-1, at 5-36).

MMWEC stated that in May 2007, SWSC notified MMWEC that it would provide MMWEC with an annual incremental water supply for MMWEC's proposed facility averaging 122,000 gpd, or 44.53 million gallons per year (Exhs. EFSB-RR-5(1); EFSB-RR-21). MMWEC represented that the SWSC noted that the proposed water consumption allocation will have no impact on the Ludlow municipal water supply (Exh. EFSB-W-3).

MMWEC emphasized that the incremental 122,000 gpd is in addition to the water supply currently provided by the SWSC for the existing intermediate and peaking units (Exh. EFSB-RR-21). MMWEC also emphasized that the 122,000 gpd is not a maximum daily limit for MMWEC's proposed facility, rather, it is the maximum average daily increment over a one year period. (Exh. EFSB-RR-22; Tr. 1, at 55-56). MMWEC stated that because the average daily increment of 122,000 gpd is based on an annual limit, daily usage of the proposed facility could fluctuate on a seasonal basis, with daily usage likely to be lower than the average during the shoulder months, and higher than the average during periods of extreme winter and summer weather (Exh. EFSB-RR-23). MMWEC stated that the existing intermediate and peaking units have a maximum design use in excess of 2.0 million gallons of water per day, but provided historical data showing that the actual daily water consumption of the existing units has been much lower, averaging approximately 226,000 gpd (id.). MMWEC further stated that it predicts that the existing intermediate and peaking units will continue to experience low capacity factors (Exh. EFSB-RR-22). MMWEC stated that when the incremental water allowance of 122,000 gpd for MMWEC's proposed facility is added to the established maximum water consumption of 2.0 million gpd for the existing units, there is sufficient water available for the existing units and MMWEC's proposed facility over the course of a year (id.).[23]

MMWEC noted that its proposed use of an air-cooled condenser rather than wet evaporative cooling for steam condenser cooling would minimize the proposed facility's water consumption (Exh. MMWEC-1, at 5-36). MMWEC stated that water consumption also would be reduced by using dry low-NO_x combustion as opposed to steam or water injection for the control of NO_x emissions during gas-fired operation, and implementing

[23] MMWEC indicated that in the unlikely event that its demands on any given day exceeded SWSC's capacity to deliver water to MMWEC, MMWEC would use water from the 12-million gallon reserve water tank at the SBEC (Exh. EFSB-RR-17). This resource could be used for either the existing intermediate and peaking facilities or the proposed new facility (Exh. EFSB-RR-22). MMWEC further stated that although the water used to fill the reserve tank would be counted as part of MMWEC's annual water limit, the tank would be filled during low water demand periods, and thus would serve to protect against high demand days or periods (id.; Exh. EFSB-RR-17).

increased cooling cycles (id.). In addition, MMWEC stated that it would recycle stormwater from the oil storage containment dike where the stormwater would be pumped through an oil/water separator, and then directed to the existing service water system and existing cooling tower (id.).

2. Wastewater Discharge

MMWEC stated that wastewater generated during operation of its proposed facility, like wastewater generated by the existing intermediate and peaking units, would consist primarily of process-related waste streams such as boiler blowdown, demineralizer regeneration, cooling tower blowdown, oil-water separator effluent and miscellaneous plant equipment drainage (Exhs. MMWEC-1 at 5-39; MMWEC-5, at 3-62). MMWEC estimated that daily wastewater discharge from the proposed facility would be approximately 22,000 gpd and assuming a worst-case scenario, the maximum wastewater discharge would be 74,000 gpd (id.).

MMWEC indicated that process wastewater would be discharged to the Ludlow sanitary sewer system, which connects with the SWSC sanitary sewer system (Exhs. MMWEC-1, at 5-39, 3-26; MMWEC-5, at 3-62). MMWEC stated that prior to discharge, demineralization wastewater, boiler blowdown, and wastewater passing through floor drains in chemical storage and treatment areas would be treated in a wastewater neutralization system (Exh. MMWEC-5, at 3-63). MMWEC further stated that wastewater passing through floor drains in other than chemical storage and treatment areas would pass through oil/water separators and that it would comply with all applicable pre-treatment standards (id.). From the Ludlow municipal sewer system, the wastewater would travel through the SWSC sewer system to SWSC's Bondi's Island Wastewater Treatment Facility ("Treatment Facility") (Exh. MMWEC-5, at 3-64). MMWEC indicated that SWSC has reported to MMWEC that: (1) the SWSC system has adequate capacity to accept the projected wastewater discharges, including the project maximum daily discharge; and (2) the Treatment Facility has adequate capacity to accept the project wastewater (id.).[24] MMWEC indicated that construction of its proposed facility would require MMWEC to update its existing industrial wastewater sewer connection permit from SWSC and the MDEP for the additional volume of wastewater generated (Exh.

[24] MMWEC stated that the Treatment Facility has a design average flow of 67 million gallons per day, with average flows in 2004 and 2005 of 43.1 and 47.2 million gallons per day, respectively (Exh. EFSB-5, at 3-64).

EFSB-W-2). MMWEC stated that the modification would take approximately one month to procure (Exh. EFSB-W-8).

3. Stormwater Discharge

MMWEC indicated that a portion of the stormwater runoff generated by operation of the facility would be discharged to the existing drainage system (Exhs. MMWEC-1, at 5-67; MMWEC-5, at 3-65). The remaining portion would be sheet flow directed to a vegetated swale that would connect to a large retention basin to be constructed immediately northwest of the proposed power plant addition (Exh. MMWEC-5, at 3-66). MMWEC stated that it designed this basin to retain stormwater from 2 and 10-year storm events and to detain discharges for 25 and 100-year storm events, and that it designed the basin, and would maintain the basin, in a manner consistent with the MDEP's Stormwater Management Policy (id.). MMWEC explained that the retention basin would be a "wet" basin (intersecting the estimated high groundwater table elevation), with a flat bottom and grassed slopes (id. at 5-63).[25]

MMWEC indicated that the existing stormwater collection system at SBEC consists of "open" devices, including vegetated swales, ditches, and the retention pond (Cooley Pond) and drainage system that empties into Cooley Brook (Exh. MMWEC-1, at 5-68). MMWEC indicated that the components of the new system would be established with vegetated surfaces, with the exception of the catch basins, which would be located in paved or graveled areas (id.). MMWEC stated that drainage culverts would be used only when necessary to convey collected stormwater under roadways that cross drainage pathways (id.). According to MMWEC, appropriate structural devices, consisting of headwalls, flared-end sections and/ or rock rip rap at culvert discharge points, would be used to terminate the culverts in the vegetated drainage swales (id.).

MMWEC stated that during construction of its proposed facility, appropriate measures would be taken to control stormwater runoff from the construction site so as to protect wetland resource areas on and off the SBEC site, as well as surface and groundwater resources (Exh. MMWEC-1, at 5-66). MMWEC indicated that these measures would include the control of erosion and sediment transport by means of properly placed silt fence and/or staked hay bales (id.).

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[25] MMWEC stated that an oil-water separator would be installed in the basin, and that the basin would include a V-notch weir discharge structure to regulate the flow of the stored run-off out of the impoundment (Exh. MMWEC-5, at 5-63).

4. Analysis and Findings

The record shows that the SWSC has notified MMWEC that it would provide MMWEC with an incremental water supply for MMWEC's proposed facility, averaging 122,000 gpd. The record shows that the incremental 122,000 gpd is not a limit on daily consumption for the proposed facility, rather, it is the limit for the average daily increment over one year. The record further shows that when this incremental water allowance is added to the historical maximum water consumption of 2.0 million gpd for the existing intermediate and peaking units (for a total daily average maximum of 2.12 million gpd), there is sufficient water available for MMWEC's proposed facility and the existing units over the course of a year. The record also shows that there is a 12-million gallon reserve water tank at the SBEC. The record demonstrates that in the event the proposed facility's water supply demands exceed the SWSC capacity to deliver water to the SBEC, MMWEC would be able to use water stored in the reserve tank.

The record demonstrates that operation of the proposed facility would result in the discharge of relatively modest quantities of wastewater, and that the discharge would be accomplished with no adverse effect to the Ludlow municipal sewer system or to the SWSC system. The record also shows that MMWEC addressed the impacts of stormwater discharge through development of a comprehensive stormwater management plan that would minimize such impacts.

Accordingly, the Siting Board finds that the water resources impacts of the proposed facility would be minimized.

F. Wetlands

This section describes the wetlands impacts of the proposed facility and the mitigation proposed by MMWEC.

1. Description

MMWEC stated that there are five wetlands within 100 feet of the work area for the proposed facility. (Exh. MMWEC-1, at 5-52).[26] MMWEC further stated that four of the wetlands are Bordering Vegetated Wetlands ("BVWs"), defined as freshwater wetlands that border on creeks, rivers, streams, ponds and lakes (id. at 5-57). MMWEC explained that BVWs have a 100-foot buffer zone (id.). MMWEC stated that it has limited facility-

[26] MMWEC stated that it delineated the wetlands in accordance with the methodologies described in the MDEP "Handbook on Delineating Bordering Vegetated Wetlands" (March 1995) and the U.S. Army Corps of Engineers "Wetlands Delineation Manual" (January 1987) (Exh. MMWEC-1, App. D).

related impacts to wetlands by siting the proposed facility addition and associated facilities as far to the east and as close to the existing power plant as possible, and by using areas on the SBEC site that are currently developed or previously disturbed (Exhs. MMWEC-1, at 5-62; EFSB-G-27(S), App. A at 4-14). The Ludlow Conservation Commission, which administers the Town of Ludlow wetlands bylaw and the Massachusetts Wetlands Protection Act, G.L. c. 131, § 40 has indicated to MMWEC that its proposed facility work does not require the filing of a Notice of Intent ("NOI") (Exhs. EFSB-W-1; MMWEC-1, at 5-59).

MMWEC represented that none of the work proposed as part of its proposed facility would alter or directly impact any wetlands (Exh. EFSB-G-27(S); App. A at 4-1). However, MMWEC stated that some unavoidable impacts to the 100-foot buffer zone of the BVWs would occur as a result of necessary extensions of the existing oil and gas pipelines, construction of the small building housing the chiller for inlet air cooling, construction of the small evaporative cooling tower, installation of two step-up transformers, and installation of one of two transition structures in the existing switchyard (Exh. MMWEC-1, at 5-61). MMWEC stated that the area of the 100-foot buffer zone that would be affected would total approximately 1.06 acres (44,866.8 square feet) in areas that have been previously disturbed, are presently paved, gravel covered, or maintained as lawn (id.; Exh. EFSB-W-5). In addition, MMWEC indicated that most of the impacts would result from construction activities, and therefore would be temporary (Exh. ESFB-W-5). MMWEC stated that the only identified permanent impacts to wetlands buffer zones would result from installation of one of the transition structures in the switchyard and construction of a small portion of the chiller building in an area of buffer zone that was previously disturbed and currently is lined with crushed stone, and is maintained as lawn (Exh. MMWEC-1, at 5-61).

MMWEC noted that, with the exception of road crossings, the proposed oil and gas pipeline extensions would be above ground, which would result in fewer impacts to buffer zones than below grade construction (Exhs. EFSB-G-6; EFSB-W-4).

MMWEC indicated that it would avoid alteration of wetland hydrology as a result of stormwater runoff by directing a portion of the runoff along a grassed swale into a retention basin that would act to recharge groundwater adjacent to on-site wetlands (Exh. MMWEC-5, at 3-38) (see Section III.E.3, above). MMWEC stated that the remainder of the stormwater runoff would be collected in storm drains, and discharged into Cooley Pond (Exh. MMWEC-1, at 5-63). According to MMWEC, by splitting the discharge in this

manner, wetlands on the site would receive an amount of runoff similar to the amount generated by the existing power plant (id. at 5-63 to 5-64).

MMWEC stated that during the construction of the proposed facility, it would protect against indirect impacts to wetlands caused by erosion and sedimentation by employing best management practices until all disturbed areas were stabilized (Exh. MMWEC-1, at 5-62). MMWEC indicated that these practices would include the delineation of wetland resource areas using high visibility flagging prior to clearing and grubbing; the use of silt fence and/or hay bales to control erosion following clearing, but prior to grubbing and grading; and stabilization of disturbed areas using appropriate seed mixes following construction (id.).

2. Analysis and Findings

The record shows that MMWEC designed the facility layout to avoid wetland areas and, to the extent possible, wetland buffer zones, with the result that there would be no direct impacts to wetlands resulting from construction or operation of the proposed facility. The record demonstrates that some unavoidable impacts to the 100-foot buffer zones of the BVWs would occur, but the impacts would occur in areas that have been previously disturbed, and are presently paved, maintained as lawn, or lined with crushed stone. Moreover, most of the impacts would result from construction activities, and therefore would be temporary. The record shows that permanent impacts to the buffer zones would result only from location in the buffer zones of a small portion of the chiller building and one switchyard transition structure, both of which would be in previously disturbed areas. The evidence shows that the Ludlow Conservation Commission has determined that MMWEC is not required to file a Notice of Intent for the proposed facility work.

The record further demonstrates that MMWEC has developed a stormwater management plan to prevent alteration of wetland hydrology as a result of stormwater runoff following facility operation.

Overall, the record establishes that MMWEC has taken reasonable measures to reduce the wetlands impacts associated with construction and operation of its proposed facility, and that the limited impacts that would occur would be temporary in nature, or would occur in previously disturbed areas.

Accordingly, the Siting Board finds that the wetlands impacts of the proposed facility would be minimized.

G. Solid Waste

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

1. Description

MMWEC stated that in connection with operation of the SBEC, it handles and stores wastes in accordance with applicable federal and state regulations under a hazardous waste generator's license granted by the EPA (Exhs. MMWEC-1, at 5-69; MMWEC-5, at 3-68). MMWEC also stated that it maintains a MDEP Class A recycling permit for burning waste oil for heat recovery in two on-site waste oil furnaces (Exh. MMWEC-1, at 5-69). MMWEC stated that it stores all waste materials in a bunker that meets MDEP requirements for hazardous waste storage prior to the materials being shipped off-site by a licensed contractor to a licensed treatment storage and disposal facility (id.). MMWEC further stated that upon commencement of operation of its proposed facility, it would continue to use the services of licensed transporters and licensed treatment storage and disposal facilities to dispose of any hazardous or universal wastes generated (Exh. MMWEC-5, at 3-70).

MMWEC projected that operation of its proposed facility would result in the generation of approximately 130 cubic yards of solid waste per year (Exh. EFSB-SW-1). MMWEC also projected that operation of the proposed facility would result in the generation of approximately 1,920 gallons of waste oil liquid per year, most of which would be recycled or reclaimed by a hazardous waste contractor (id.). MMWEC further projected that facility operation would produce approximately 1,510 gallons of waste oil solids per year, comprised largely of crushed filters, soiled rags, and absorbents (id.). According to MMWEC, estimates of paper wastes are not easily calculated, as paper wastes are combined with paper wastes from MMWEC's office building prior to pick-up (id.). MMWEC stated that it based these waste estimates on the assumption that the proposed facility would generate approximately the same volume of waste as the existing intermediate and peaking units (id.). MMWEC indicated that no bottom ash would be generated during operation of the proposed facility's combustion turbine (Exh. EFSB-SW-2).

MMWEC stated that, as a political subdivision of the Commonwealth, it is not subject to the Toxics Use Reduction Act (id.). However, MMWEC indicated it would work to mitigate the production of solid and hazardous wastes generated by its proposed new facility, as it works to mitigate the production of those wastes by its existing facilities

(id.). MMWEC stated that its mitigation efforts include reclaiming waste oil for heat recovery, and the recycling of paper, cardboard, batteries, and metals (Exh. EFSB-SW-3). MMWEC stated that it would consider recycling construction wastes such as cardboard and wood products (Exh. EFSB-SW-4). MMWEC did not provide an estimate of the volume of solid waste that would be generated during facility construction (id.).

2. Analysis and Findings

The record shows that to the extent possible, MMWEC would recycle, and otherwise contract for proper disposal of, solid wastes generated by construction, operation, and maintenance of its proposed facility. The Siting Board notes that although the proposed facility at times would operate on ULSD fuel oil, such operation would not generate bottom ash. The Siting Board further notes that MMWEC's commitment to work within the Toxics Use Reduction Act, and to recycle, where possible, solid waste from construction, maintenance, and operation of its proposed facility would contribute to minimizing the solid waste impacts of the facility. However, MMWEC has not detailed specific targeted goals and recycling rates it would work towards meeting, both for operational wastes and construction and demolition debris. As noted in prior decisions, Massachusetts has developed a Massachusetts Solid Waste Master Plan, that sets forth a specified state-wide goal for recycling municipal solid waste. Southern Energy Canal II Decision at 214, 215; Southern Energy Kendall Decision at 330, 331.[27] The Master Plan was last updated in 2006. According to information that appears on the MDEP website, MDEP is in the process of re-examining the Master Plan, starting with a series of stakeholder meetings to begin in December 2008 (see http://www.mass.gov/dep/public/hearings/smwpmtgs.htm). The Siting Board encourages MMWEC to work with Ludlow to develop a program with the goal of attaining the target recycling rate for solid waste set forth in the most recent update available of the Massachusetts Solid Waste Master Plan, at the commencement of construction, and to work with its contractor to attain the maximum feasible recycling of construction and

[27] The master plan referred to in the two Southern Energy Decisions was the Massachusetts Solid Waste Master Plan 1997 Update, which had a state-wide goal of 46 % for recycling of municipal solid waste. Southern Energy Canal II Decision at 214, 215; Southern Energy Kendall Decision at 330, 331. The master plan has been revised twice since the 1997 Update: Beyond 200 Solid Waste Master Plan and Solid Waste Master Plan - 2006 Plan Revision. The 2006 Plan Revision provides for a 56% recycling rate (see http://www.mass.gov/dep/recycle/priorities/dswmpu01.htm#swmp)

demolition debris. The Siting Board directs MMWEC, prior to the commencement of operation, to provide to the Siting Board a copy of its updated recycling plan, and to report on its recycling rate for construction and demolition debris and its anticipated recycling rate for operational wastes.

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

H. Visual Impacts

This section describes the visual impacts of the proposed facility and the measures MMWEC proposes to mitigate such impacts.

1. Description

MMWEC asserted that the existing power plant facility currently dominates the scenery at the Stony Brook site (Exh. MMWEC-1, at 5-71). The existing SBEC site consists of a power generating plant, switchyard, cooling tower, five large storage tanks, administrative offices, and ancillary structures, with three 150-foot stacks, and two shorter stacks (id. at 3-1, 5-71). The proposed facility would include a new addition to the existing power plant, 250 feet by 230 feet, with a maximum height of 118 feet, and one 150-foot stack,18 feet in diameter (id at 3-9; Tr. 3, at 454).[28] MMWEC indicated that the stack height of the proposed new facility would be lower than the GEP stack height of 272.5 feet, primarily due to the proximity of the WARB (Exh. EFSB-V-2; Tr. 1, at 67). MMWEC stated that the proposed facility would include a new ACC located to the west and south of the new power plant addition, approximately 220 feet by 130 feet, and 85 feet high (Exh. MMWEC-1, at 3-9).

MMWEC submitted an evaluation of the potential visual impacts of the proposed facility (Exh. MMWEC-1, at 5-74 to 5-78). MMWEC selected three visual receptor points, for each viewpoint MMWEC presented both a photograph of existing views looking toward the site, and prepared simulations of the view with a rendering of the proposed facilities (id. at 5-73 to 5-77).[29] MMWEC explained that the appearance of the proposed facility would be compatible with the appearance of the existing SBEC structures

[28] MMWEC stated that the existing intermediate unit exhaust stacks are also 150 feet tall, but are 15.5 feet in diameter (Tr. 1, at 66; Tr. 3, at 454).

[29] The three views are from: (1) the Moody Street entrance to facility; (2) West Street, near the intersection of Tank Farm Road; (3) and the Correctional Center (Exh. MMWEC-1, at 5-73).

(id. at 5-78). MMWEC asserted that the majority of the community would experience only limited views of the top of the new stack, and that locations with views of the new plant would be limited to isolated sections of West Street, Moody Street and the upper floors of the Correctional Center (id. at 5-78; Exh. EFSB-V-1). Further, MMWEC indicated that the SBEC site is located in a mixed industrial and commercial area, therefore the appearances of the proposed facility would be consistent with structures in the surrounding area (Exh. MMWEC-1, at 5-72).[30]

MMWEC stated that it would mitigate the limited visual impacts of its proposed facility by painting the new facility structures a neutral color similar to existing structures at SBEC (Exh. MMWEC- 1, at 5-72). In addition, MMWEC presented a landscaping plan that it would use to minimize visual impacts (Exh. MMWEC-3, App. D, Drawing C6.1; Tr. 1, at 65-66). MMWEC stated that pursuant to the plan, it would install plantings, including evergreen-screening shrubs near the transformers and several trees behind the proposed plant addition (Tr. 1, at 65). MMWEC stated that its landscaping plan is consistent with the predicted visual impacts of the proposed facility, the size of the SBEC site, and the distance of the facility from major roadways (id. at 65-66). MMWEC explained that, due to the location of the proposed facility in a remote industrial area, adjacent to MMWEC's existing and larger facilities, it did not consider off-site landscaping necessary (Exh. EFSB-V-4).

With respect to the new stack and navigational lighting, MMWEC provided a determination by the Federal Aviation Administration ("FAA") requiring obstruction lighting consisting of red flashing beacons equally spaced around the stack within 20 feet of the top of the stack (Exh. EFSB-RR-1-S). MMWEC asserted that, with the exception of adhering to the FAA requirements, the final lighting design for the proposed facility would be determined through an open interactive process with the Town of Ludlow (Tr. 1, at 68).

MMWEC analyzed the meteorological and operating conditions under which visible exhaust plumes likely would emanate from the new stack, noting that the facility does not include a wet cooling tower (Exh. EFSB-V-5). MMWEC explained that the stack emissions do include moisture from the product of combustion and from water injected for

[30] MMWEC represented that the closest scenic landscape areas are at least seven miles to the north and northwest of the SBEC, in and around elevated terrain in the vicinity of Mt. Tom State Reservation, the Connecticut River Greenway, Skinner State Park, and Holyoke Range State Park (Exh. EFSB-V-6). According to MMWEC, the scenic views in these areas are focused on the Connecticut River and elevated terrain, with the result that construction of the proposed facility would have a negligible impact on any views of the Ludlow area from these scenic landscapes (id.).

NOx control during oil firing (id.). MMWEC stated that the AERMOD model indicated that a plume potentially could be present for one or more hours on 261 days, assuming all hours were at the maximum oil firing condition (id.). In order to estimate the length of the plume, an extreme cold weather measurement was used, where the plume was estimated to be approximately 500 meters, therefore MMWEC asserted that on most days, the typical plume length likely would be much shorter than the 500 meters (id.).

2. Analysis and Findings

The proposed facility would be located at a site – the SBEC -- that is presently used for electric generation. The record demonstrates that land uses in the area around the proposed facility site consist primarily of commercial and industrial uses. The proposed site is 417 acres, which provides for a significant buffer based on distance, from most directions, with the exception of the Correctional Center to the north. The record shows that the proposed exhaust stack would be the same height as the stacks on the existing intermediate unit and that the new facility structures, including the power plant addition and ACC, as well as other elements such as the oil storage tank, ammonia storage and delivery system, and demineralized water storage tank, would be integrated with the existing structures. Further, the new facility would be painted a neutral color similar to the existing structures to minimize the visibility of the new structures. On-site landscaping, including evergreen-screening shrubs and trees, would further limit visual impacts of these components.

The record demonstrates that MMWEC analyzed the potential visual impacts of the proposed facility at three receptor locations in the surrounding area. For each receptor, MMWEC submitted a viewshed showing the current view from that location, and a second viewshed showing future views with the proposed facility. The viewshed analysis indicates that, where not fully screened, views of the proposed facility would be similar to views of the existing facility and that the majority of the community would experience only limited views of the top of the proposed facility exhaust stack. Further, views of the proposed power plant addition would be limited to isolated locations on Moody Street, West Street, which are areas of commercial and industrial use, and the upper floors of the Correctional Center.

Accordingly, the Siting Board finds that the visual impacts of the proposed facility would be minimized.

I. Traffic Impacts

This section describes the traffic impacts associated with the proposed facility, and potential mitigation measures.

1. Description

MMWEC stated that its proposed facility would be located on the SBEC site at the end of Moody Street in Ludlow (Exh. MMWEC-1, at 3-1). MMWEC stated that Moody Street can be accessed from either Holyoke Street, an unsignalized intersection; or from West Street, also unsignalized, by way of Stony Brook Street and Westover Street (Exhs. MMWEC-3, App. J at 1-2; EFSB-T-1; Tr. 2, at 236).[31] MMWEC indicated that it would direct construction workers to use the Route 291 and Exit 6 of the Mass Pike to access the route to Moody Street (Exhs. EFSB-T-2, EFSB-T-3).

MMWEC indicated that it determined existing traffic conditions in the SBEC area by conducting traffic counts at four local intersections considered the most likely to be affected by facility traffic: Holyoke Street/Moody Street (unsignalized); Holyoke Street/West Street (signalized); Mass Pike Exit 6 Ramps/Burnett Road (signalized); and Burnett Road/First Avenue (signalized) (Exhs. MMWEC-1, at 5-84, App. G at 1; EFSB-T-5). MMWEC stated that the traffic counts showed that acceptable operating conditions currently exist at the three signalized intersections for both peak morning and afternoon conditions (Exh. MMWEC-3, App. J at 6). MMWEC stated that the counts showed that at the unsignalized Holyoke Street/Moody Street intersection, failure conditions currently exist for vehicles exiting Moody Street during both morning and afternoon peak hours, due to the high volumes of through traffic on Holyoke Street (id.).[32]

MMWEC stated that there would be 325 workers on site during the peak of construction and that approximately 10% would use car pooling (Tr. 2, at 220-221). The traffic analysis calculated that 260 of the workers would be using the Holyoke

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[31] There is also a second access gate at the SBEC site, the Randall Road gate, which is used as a secondary access option (Exh. EFSB-T-1; Tr. 2, at 240-241). The Randall Road gate is the planned point of access for the 60 existing daytime on-site SBEC employees (Tr. 2, at 240-241). Randall Road is located off of West Street.

[32] Traffic is characterized by determining the "Level of Service" ("LOS"), which is a quantitative measure of the wait times and congestion at intersections, ranging from A to F, with F representing failure (Exh. MMWEC-3, App. J at 5-6). All LOS measurements, with the exception of LOS F, provide a specific numerical measurement, in seconds, corresponding to the delay (id.). However, an LOS F measurement is recorded as a single measurement, which is designated as greater than 50 seconds, for an unsignalized delay (id. at 7).

Street/Moody Street intersection to access the site (id. at 236).[33] MMWEC testified that in the event that workers have to wait too long at Moody Street to exit onto Holyoke Street, they may seek alternative routes through the neighborhood to the west of Moody Street (id. at 237-240).

MMWEC predicted that during the peak construction period, approximately 154 vehicles would enter and exit the SBEC during the peak morning and afternoon commuter traffic hours Monday through Friday (Exh. MMWEC-3, App. J at 13).[34] MMWEC based this prediction on the assumption that 50% of the construction workforce would travel during peak commuter traffic hours ("50% assumption") (Tr. 2, at 231). MMWEC stated, however, that this was an extremely conservative assumption because the peak morning traffic hours on local roadways begin after 7:15 a.m., while the normal construction day shift would begin at 7:00 a.m., with the construction workers arriving from 6:15 to 7:00 a.m. (id. at 233-34). Similarly, the peak afternoon traffic hours on local roadways begin after 4:30 p.m., while the construction day shift normally would end at 3:00 p.m. (id.). MMWEC also based its predictions on the assumption that eleven construction delivery trucks, out of an estimated 10-14 daily, would enter and leave the construction site during morning and afternoon peak traffic periods, although MMWEC considered that to be conservative (Exh. EFSB-T-4).

Based on the above assumptions, MMWEC estimated that the LOS at the three signalized intersections would not change as a result of this predicted construction-related traffic (Exh. MMWEC-3, App. J at 13). MMWEC further predicted that the failure conditions at the unsignalized intersection of Holyoke Street/Moody Street would continue to exist for vehicles exiting Moody Street, and that the frequency and length of delays would increase as a result of the predicted construction-related traffic (id.). MMWEC asserted that, given the conservative assumptions on which its predictions were based, the impacts of construction traffic at the Holyoke Street/Moody Street intersection likely would be less than predicted (id.).

MMWEC also performed a second LOS analysis, based on the assumption that 100% of the construction workers would arrive at the construction site between 6:15 and

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[33] MMWEC calculated that of the 325 workers, there would be 1.1 workers per vehicle due to carpooling, and of those 295 vehicles, 35 would use the alternative access onto the site from the Randall Road gate (Tr. 2, at 221).

[34] The peak commuter traffic hours are measured as 7:15 to 8:15 a.m. for the morning peak and 4:30 to 5:30 p.m. for the afternoon peak at the Ludlow intersections (Exh. MMWEC-1, App. G at 3; Tr. 2, at 233-234).

7:15 AM, and would leave between 3:00 and 4:00 PM, the peak commuter traffic hours ("100% assumption") (Exh. EFSB-T-5). The analysis showed that for no-build construction years, the predicted LOS at all intersections would be better under the 100% assumption than under the 50% assumption, except for the intersection of the MassPike Exit 6 ramps and Burnett Road ("Burnett Intersection") (Exh. EFSB-T-5, Table EFSB-T-5-4).[35] The analysis showed that for construction year build conditions, the LOS would also be better under the 100% assumption than under the 50% assumption, except for the Burnett Intersection during the afternoon peak travel period, and the left-turn traffic from Holyoke Street to Moody Street during the morning peak traffic period (Exh. EFSB-T-5, Table EFSB-T-5-5). The analysis also showed that for both the morning and afternoon peaks, all turns from Moody Street would continue to be an LOS F (Exh. EFSB-T-5).

MMWEC noted that the traffic related to construction of its proposed facility would be a temporary condition (Exh. EFSB-T-8). MMWEC stated that in actuality, the exact timing and sequence of peak construction volumes might not occur in a way that causes the worst-case predicted impacts discussed above (id.). MMWEC further stated that the Burnett Intersection has "smart" controllers which alter the cycle timings based on feedback from traffic sensors as well as a right-turn slip ramp from Burnett Road (northbound) onto the MassPike (Tr. 2, at 229-230). MMWEC explained that, while these right turns never reach the Burnett Intersection, they were included in the Burnett Intersection analysis, because the through traffic lanes have queues that could block the entrance to the slip ramp, thus eliminating its free flow status (id. at 230). MMWEC stated that it would monitor the traffic situation during construction and if construction traffic contributed to reported traffic problems at the Burnett Intersection, staggered construction shifts, and adjustments to cycle timing on the "smart" controllers, might be considered to limit or eliminate the problems (Exh. EFSB-T-8).

MMWEC indicated that it would direct construction workers and delivery trucks traveling on the MassPike to access the SBEC site from MassPike Exit 6, thereby avoiding central Ludlow (Exh. EFSB-T-2; Tr. 2, at 217, 224).[36] In addition, MMWEC indicated that unusual deliveries to the SBEC site, such as over-sized equipment, would be coordinated with local officials, and timed to avoid any adverse impacts on non-construction related

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[35] "No-build construction year" refers to the first projected year of facility construction (2009), prior to the construction (and associated traffic) actually beginning (Exh. MMWEC-1, App. G at 8 to 10). "Construction year build conditions" refers to the 2009 traffic conditions once construction begins (id.).

[36] MMWEC identified two areas on-site for construction worker parking (Exh. EFSB-T-6).

traffic (Exh. MMWEC- 1, at 5-86). MMWEC stated that it would consider using a uniformed police offer to control traffic at the Holyoke Street/Moody Street intersection during the morning and afternoon construction shift changes if traffic congestion became an issue at the intersection (id., at 5-85; Exh. EFSB-T-8; Tr. 2, at 235). MMWEC stated that it would determine the time and duration of any necessary officer control in coordination with the Ludlow Police Department (id.). MMWEC also suggested the possible use of the Randall Road gate to alleviate traffic congestion (Tr. 2, at 240-241). MMWEC stated that operation of its proposed facility likely would have a negligible effect on local traffic, since facility operation would require very few additional employees (Exh. MMWEC-1, at 5-86).

2. Analysis and Findings

The record shows that construction of MMWEC's proposed facility would produce a temporary increase in the number of trips to and from the SBEC site as a consequence of construction deliveries and the arrival and departure of approximately 325 construction workers.

MMWEC's primary traffic analysis demonstrates that there would be minimal changes in LOS classifications at the four modeled intersections as a result of either the construction or the operation of the proposed facility. However, the LOS at the Moody Street/Holyoke Street intersection, the main access point to the site, is currently failing, with an LOS F, and would continue under all assumed scenarios to have an LOS F. Since an LOS F is designated as a delay of 50 seconds or more, one cannot determine the actual amount of the increase in delay attributed to the construction worker traffic. Given that 260 workers are scheduled to enter and exit the site at this intersection, it is likely that the delay would be longer and may be significantly so.

The Siting Board notes that the analyses conducted by MMWEC reflect MMWEC's commitment to schedule shift changes to occur outside of the identified local peak traffic hours. MMWEC has noted that it will consider placing a uniformed officer at Moody Street/Holyoke Street based on the results of its monitoring the construction traffic during periods of maximum flow of construction traffic. MMWEC has noted that there is the potential for construction workers seeking alternative routes through the neighborhoods bordering Moody Street if the traffic delay existing onto Holyoke Street are substantial. Given that the traffic analysis for the Moody Street/Holyoke Street access route remains an LOS F regardless of whether the traffic analysis is based on 100% of the construction workers arriving at the peak morning commuter period between 6:15 a.m. and 7:15 a.m.

and exiting at the peak afternoon commuter period 3:00 p.m. to 4:00 p.m., or 50% arriving and exiting at peak morning and afternoon commuting periods, respectively, the shift changes proposed by MMWEC would not alleviate traffic impacts at this intersection.

MMWEC has not quantified its plans to schedule delivery of very large equipment and plant components. Although MMWEC has identified a likely route for such deliveries, it has not yet determined the particular schedule most appropriate to accommodate deliveries of very large plant components.

Based on the above, the Siting Board directs MMWEC to work with its EPC contractor and the Town of Ludlow[37] to develop and implement a traffic mitigation plan which addresses scheduling and any necessary roadway construction or improvements. This plan should: (1) to the extent practicable, address scheduling of arrivals and departures of construction-related traffic, including but not limited to construction labor, deliveries of materials, equipment, and plant components, so as to avoid daily peak travel periods in affected areas; (2) direct construction workers and delivery trucks accessing the SBEC site from the MassPike to use Exit 6 to avoid central Ludlow; (3) include the provision of a traffic control officer at the Moody Street/Holyoke Street intersection for the period designated as peak on-site construction, or a period agreed upon with the Town of Ludlow; (4) include an arrival schedule of between 6:15 a.m. to 7:00 a.m. and a departure schedule of between 3:00 p.m. and 4:00 p.m. for the majority of construction workers; (5) establish protocols allowing MMWEC to coordinate with the appropriate municipal authorities to identify and implement any traffic control measures, in addition to the traffic control officer at Moody Street/Holyoke Street, needed to mitigate traffic impacts at the access road; and (6) establish protocols allowing MMWEC to monitor and if necessary coordinate with the City of Chicopee regarding adjustments to the "smart" controllers at the intersection of Burnett Road and the MassPike Exit 6 ramps.

With respect to traffic impacts during facility operation, the record shows that operation of the proposed facility would have negligible impacts on local traffic.

Accordingly, the Siting Board finds that, with implementation of the above condition relating to the mitigation of construction-related traffic impacts, the traffic impacts of the proposed facility would be minimized.

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[37] The Siting Board notes that the construction and delivery routes include Exit 6 of the Mass Pike located in the City of Chicopee. Therefore, Chicopee officials should be consulted in developing any traffic mitigation that includes, if necessary, the Exit 6 area.

J. Land Use

This section describes the land use impacts of the proposed facility, including the impacts to protected species and habitat.

1. Description

MMWEC has proposed construction of its proposed facility on an approximately 10-acre portion of its approximately 417-acre SBEC site in Ludlow (Exh. MMWEC-1, at 3-1, 3-12). MMWEC stated that the SBEC site is currently used for power generation, and contains a power generating plant (intermediate unit and peaking unit), switchyard, cooling tower, five large storage tanks, and ancillary structures (id. at 3-1). MMWEC further stated that the SBEC is located in an area zoned for industrial use, within Westover Airpark East, a developed industrial park (id. at 5-89; Exh. EFSB-L-9). MMWEC stated that abutting land uses are mixed, consisting primarily of commercial business and industrial operations (Exh. MMWEC-1, at 5-89). MMWEC specified that approximately 64% of the land within a one-half mile radius of the center of the proposed facility footprint is occupied by industrial or commercial land uses, 10% is institutional use, approximately 21% is upland forest, and the remaining approximately 5% is comprised of wetlands or open disturbed land, or is devoted to airport uses (id. at 5-89; Exh. EFSB-L-6).

MMWEC stated that the proposed facility may require a special permit from the Town of Ludlow, and that MMWEC would work with the Town to address any permitting issues (Exh. EFSB- L-2; Tr.1, at 61-62). MMWEC stated that it expects to seek special permit approval from the Town Planning Board once the final design work for the proposed facility is complete, which currently is projected for the second or third quarter of 2009 (Exhs. EFSB-L-2; EFSB-L-10). MMWEC indicated that its proposed facility would not require a variance with respect to the height of the exhaust stack or other structures (Tr.1, at 63).

MMWEC indicated that the site is sufficiently large, not only to accommodate its proposed facility, but also to provide a significant buffer around the facility structures (Exh. MMWEC-1, at 5-90). MMWEC specified that on the east, the site is bounded by a large wooded area owned by the WMDC, and within the SBEC site itself, there is a large wooded area that would provide a buffer between the facility components and the property owned by WMDC (id. at 3-3; Exh. MMWEC-5, at 1-4). To the southwest, the site is bounded by an 86-acre parcel owned by MMWEC that is primarily wooded and the

WARB is to the west/southwest of the site (Exhs. MMWEC-5, at 1-4; MMWEC-1, at 3-3).[38]

MMWEC informed the Siting Board that the nearest residence is approximately 3,000 feet from the center of the proposed facility footprint, and approximately 1,800 feet from the proposed oil tank (Exhs. MMWEC-1, at 5-89; EFSB-L-8). MMWEC stated that the closest non-industrial neighbor is the Correctional Center, which is about 850 feet north of the edge of the proposed facility footprint (Exh. MMWEC-1, at 5-89 to 5-90). The Correctional Center is the only sensitive receptor within a one-half mile radius of the center of the proposed facility footprint (Exh. EFSB-L-7). MMWEC stated that there are no schools or hospitals within one mile of the proposed stack location (Exh. EFSB-L-1).

MMWEC indicated that in the early stages of project planning, it contacted the Massachusetts Natural Heritage and Endangered Species Program ("MNHESP"), which identified two state-listed protected species found near the footprint of MMWEC's proposed facility (Exh. MMWEC-5, at 3-36). These species are the blue-spotted salamander and the climbing fern, both of which are listed in Massachusetts Endangered Species Act Regulations (321 C.M.R. 10.90) as "Species of Special Concern" (id; Exh. MMWEC-1, App. C).[39]

According to MMWEC, the MNHESP surveys showed that: (a) no climbing fern is present in the survey area; and (b) wetlands and upland forest near and on a portion of the proposed facility footprint provide breeding and adult non-breeding habitat, respectively, for the blue spotted salamander (Exh. MMWEC-5, at 3-38). MMWEC stated that in consultation with MNHESP, MNHESP expressed concerns regarding direct alteration of the identified wetlands, indirect alteration of wetland hydrology resulting from stormwater runoff, and direct loss of the identified upland forest (id. at 3-38 to 3-39). MMWEC stated that, to the extent possible, it located the facility components on the SBEC site, and

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[38] MMWEC indicated that all facility interconnections for natural gas, oil, electricity, water and sewerage would occur on the SBEC site, thus minimizing alterations to abutting land use character (Exh. MMWEC-1, at 5-90).

[39] MMWEC stated that it also contacted the United States Fish and Wildlife Service ("USFWS"), which notified MMWEC that "no federally-listed or proposed, threatened or endangered or critical habitat under the jurisdiction of the [USFWS] are known to occur in the facility area(s)" (Exh. MMWEC-5, at 3-36). The USFWS also informed MMWEC that it was not required to prepare a biological assessment or engage in further consultation with the USFWS (id. at 3-36, 3-38; Exh. MMWEC-1, App. C).

designed the surrounding the facility components to avoid and minimize these impacts (id. at 3-42 (see Section III.F above)

MMWEC explained that it also designed its proposed facility to minimize impacts to upland forest (Exh. MMWEC-5, at 3-42). MMWEC stated that a corner of the proposed power plant addition, a portion of an access roadway, and a portion of a drainage swale would encroach on a small area of upland forest (0.7 acres), which would be lost permanently (id. at 3-42 to 3-43; Figure 3.3-3 at 3-44). To mitigate this loss, MMWEC stated that it would convert approximately 2.5 acres of open land to mixed deciduous forest which would mitigate the unavoidable loss of adult non-breeding habitat in a ratio of approximately 3:6:1 (id..; Exh. EFSB-G-1(S), Att. 2, at 3, 4).

MMWEC provided a copy of a letter from the Massachusetts Historical Commission ("MHC") reflecting the MHC's determination that the proposed facility is unlikely to affect significant historic or archaeological resources (Exh. MMWEC-1, Appendix. C).

2. Analysis and Findings

The Siting Board includes in its review of land use impacts a consideration of whether a proposed facility would be consistent with existing land uses, and state and local requirements, policies, or plans relating to land use and terrestrial resources. The Siting Board notes that MMWEC currently operates two generating facilities and maintains an office building at the SBEC. The Siting Board also notes that the areas immediately surrounding the SBEC are either undeveloped or devoted primarily to commercial and industrial uses. The Siting Board finds that construction of the proposed facility at the SBEC is consistent with the present use of the site, and that operation of the proposed facility would not alter current zoning and land uses in the SBEC vicinity.

The record shows that the SBEC is well buffered from surrounding areas, either by large tracts of wooded land, or by industrial and commercial uses, including the WARB. The record also shows that the residence nearest to the proposed facility is over one-half mile from the center of the proposed facility footprint, and while the Correctional Center is closer (about 850 feet north of the edge of the proposed facility footprint), there is a wooded area between the Correctional Center and the proposed facility structures.

The record shows that wetlands and upland forest near and on a portion of the proposed facility footprint provide breeding and adult non-breeding habitat, respectively, for the blue spotted salamander, a state-listed protected species. The record demonstrates, however, that MMWEC plans to provide mitigation by converting approximately 2.5 acres

of open land at the SBEC to upland forest to compensate for the loss of approximately 0.7 acres of upland forest resulting from construction of its proposed facility.

Accordingly, the Siting Board finds that with implementation of the mitigation measures proposed by MMWEC, land use impacts of the proposed facility would be minimized.

K. EMF

1. Description

MMWEC indicated that electricity generated by the proposed project would be transmitted to the regional power grid through an existing switchyard at the SBEC, and an existing 5.2-mile 345-kilovolt ("kV"), predominantly H-frame transmission line which serves the SBEC and is owned by MMWEC ("SBEC line") (Exh. MMWEC-1, at 5-104). MMWEC indicated that the SBEC line terminates at its connection to Northeast Utilities/WMECo's 19S Ludlow substation, located on Center Street in Ludlow (Exh. MMWEC-1, at 5-104).

According to MMWEC, the 345-kV voltage of the SBEC line would not change with the proposed project, and therefore electric field strength along the existing MMWEC-owned circuit would not change (id.). MMWEC indicated that amperage on the SBEC line would vary with output from the SBEC, and therefore because the proposed project would increase the SBEC's net peak output – from 530 MW to 810 MW -- it also would increase maximum magnetic fields along the SBEC line (id.; Exh. EFSB-E-1). MMWEC provided calculations indicating that with the project, maximum magnetic fields along most of the SBEC line would increase from 54 milligausse ("mG") to 82.9 mG on the north ROW edge, and from 9.9 mG to 15.2 mG on the south ROW edge; MMWEC identified an approximately one-third mile segment of the SBEC line consisting of a single-pole rather than the predominant H-frame design, and indicated that there, maximum magnetic field would increase from 26 mG to 40.5 mG on the north ROW edge and from 5.8 mG to 8.9 mG on the south ROW edge (Exhs. EFSB-E-1, EFSB-E-2).

MMWEC indicated that residences are proximate to the SBEC line route at some locations, including two road crossings and near the the19S Ludlow substation (Exh. EFSB-E-2). MMWEC indicated that two residences are located within 50 feet of the ROW, the nearest at 40 feet from the north ROW edge, along the portion of the line with single-pole construction, and the other at 48 feet from the north edge adjacent to a portion of line with the predominant H-frame construction (Exhs. EFSB-E-3, EFSB-E-3S). MMWEC further indicated that maximum magnetic field would be 20 mG at the nearest

residence, that located on the line segment with single-pole construction, and 31 mG at the next nearest residence (Exh. EFSB-E-3S). For other residences in the area, all over 100 feet from the ROW edge, maximum magnetic fields with the project would be 10 mG or less (id.).

MMWEC indicated that a feature of the SBEC line that serves to minimize magnetic field impacts is the line's relatively high voltage, allowing a given amount of power to be transmitted with less required current than at a lower voltage (Exh. EFSB E-2(1)). MMWEC further asserted that since the SBEC line transmission corridor is a single-circuit ROW, there are no conducter-phasing adjustments that could be made to the existing line that would affect magnetic field levels (Exh. EFSB-E-2(1)).

MMWEC provided a draft copy of the interconnection feasibility study for the proposed project, including ISO-NE's analysis of effects of the proposed project on the regional transmission system and any associated needs for system upgrades (Exh. EFSB-E-7, att.). According to the draft interconnection study, operation of the proposed project would increase transmission system overloads in the Springfield area during contingency outages; however, the overloads are identified as existing problems for which plans are being developed (id. at 2; Exh. EFSB-E-4).[40] MMWEC noted that the ISO-NE analysis shows the proposed project would increase system transmission power flow by typically several percent (Exh. EFSB-E-5). MMWEC further noted, however, that under normal system conditions the proposed project may lower output from older, less efficient generating units, and added it therefore is not clear from ISO-NE's analysis whether under such normal conditions the proposed project would increase, decrease or leave unchanged power flow on particular area transmission lines (id.).

2. Analysis and Findings

In a previous review of proposed 345 kV transmission line facilities, the Siting Board accepted edge of ROW levels of 1.8 kV/meter for electric field and 85 mG for magnetic field. 1985 MECo/NEPCo Decision, 13 DOMSC 119, at 228-242. In later reviews of proposed electric facilities, the Siting Board has compared estimated EMF impacts to the edge-of-ROW impacts accepted in the 1985 MECo/NEPCo Decision, and as applicable considered whether based on such comparison estimated EMF impacts are unusually high. Braintree Decision at 60 ; CELCo Kendall Decision, 12 DOMSB 305, at

[40] MMWEC indicated one such plan included a 345 kV line proposal as part of the Greater Springfield Reliability Project (Exh. EFSB-E-4, Tr. 3, at 283).

347-349; Sithe Mystic Decision, 9 DOMSB 101, at 181-183; Hingham Municipal Lighting Plant, 14 DOMSC 7, at 28 (1986).

The Siting Board did not conclude, in the 1985 MECo/NEPCo Decision or any later review referencing that decision, that an edge-of-ROW magnetic field of 85 mG is a level above which harmful effects would necessarily result. Sithe Mystic Decision, 9 DOMSB 101, at 181. Rather, the Siting Board has held that the edge-of-ROW magnetic field level of 85 mG serves as a benchmark of a previously accepted impact along a 345 kV transmission ROW in Massachusetts, not as a limit of acceptable impact. Id. Among past cases, for example, the Siting Board has approved petitions for: a generating facility that, with proposed interconnection plans, was expected to result in a magnetic field level at a residence along an interconnecting transmission line of up to 110 mG; and an underground transmission line that was expected to result in an in-street magnetic field level of up to 124 mG. Sithe Mystic Decision, 9 DOMSB 101, at 181. CELCo Kendall Decision, 12 DOMSB 305, at 348.

At the same time, the Siting Board in previous decisions has cited transmission line applicants' recognition that some members of the public are concerned about magnetic fields, and on this basis has found reasonable those applicants' proposed use of design features that would reduce magnetic fields at low additional cost or no additional cost. See, e.g., CELCo Kendall Decision, 12 DOMSB 305, at 349; New England Power Company, 4 DOMSB 109, at 148 (1995). In a previous transmission line review, the Siting Board directed the applicant to consult with local officials, and make a compliance filing, regarding use of cost-effective measures to reduce EMF exposure of students at a school along the route and, if reasonably feasible, reduce magnetic field to 10 mG at the school. CELCo Kendall Decision, 12 DOMSB 305, at 349.

In generating facility cases, the Siting Board has reviewed EMF in the context of possible impacts along interconnecting power lines. Braintree Decision at 61 ; Sithe Mystic Decision, 9 DOMSB 101, at 181-182; Silver City Decision, 3 DOMSB at 353-354. The Siting Board has held that, as part of pursuing interconnection plans that require upgrades to the regional transmission system, generating facility applicants should work with transmission providers to seek inclusion of practical and cost-effective designs to minimize magnetic fields along affected ROWs. Braintree Decision at 61 ; Sithe Mystic Decision, 9 DOMSB 101, at 181-182; Silver City Decision, 3 DOMSB at 353-354.

Here, based on an increase in total potential SBEC output to 810 MW, the proposed project would produce higher maximum magnetic field at the limited number of residences that are in the vicinity of the 5.2-mile long SBEC line ROW, including levels of 30 mG

and 20 mG at the two nearest residences, and 10 mG or less at other residences which all are over 100 feet from the ROW. The record shows that as the sole circuit in the ROW, the SBEC line provides no opportunity to reduce magnetic fields through phase adjustments to increase field cancellation effects, absent replacing transmission structures. The Siting Board also notes that, given the relatively low capacity factors of the existing 170 MW peaking unit and 360 MW intermediate unit, approximately 5% and 20% respectively, SBEC magnetic field impacts during operation of the proposed project would be well below the calculated maximum levels much of the time.

Regarding interconnecting transmission lines, the record shows that while the proposed project may increase transmission system overloads in the Springfield area during contingency outages, overloads are identified as existing problems for which plans are being developed. Nonetheless, more complete interconnection plans based on the final interconnection study, as well as final design work for system improvements being developed in the Springfield area for system elements affected by project operation, remain undetermined. Because the proposed project may contribute to higher power flows on area transmission lines, the Siting Board seeks to remain informed about MMWEC's interconnection plans and any associated transmission upgrades as they may relate to EMF impacts.

Accordingly, the Siting Board directs MMWEC to keep the Siting Board informed as to the progress and the outcome of MMWEC's interconnection plans and on designs for any transmission upgrades, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts at such time as MMWEC reaches final agreement with all transmission providers regarding interconnection. The Siting Board finds that, with implementation of the above condition, the environmental impacts of the proposed facility would be minimized with respect to EMF impacts.

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 facility is necessarily closely related to the analysis included in the sections above of specific environmental impacts which could have an effect on human health and any necessary mitigation measures. This section: (a) sets forth information on the human health effects that may be associated with air emission, including criteria pollutants and air toxics, discharges to ground and surface waters, the handling and disposal of hazardous wastes, EMF and noise; (b) describes any existing health-based regulatory programs governing these impacts; and (c) considers the impacts of the proposed facility in light of such programs.

1. Baseline Health Conditions

MMWEC provided summaries of three reports produced within the past three years documenting health conditions in the geographic area that includes the Town of Ludlow (Exh. MMWEC-1, at 5-91 to 5-92).

A report by the Massachusetts Department of Public Health ("DPH") titled "Pediatric Asthma in Massachusetts 2004-2005" examines the prevalence of reported asthma among schoolchildren (id. at 5-91). The report concludes that Ludlow has pediatric asthma rates (9.7%) that are slightly lower than the Massachusetts average (10%), although the difference is not statistically significant (id.). The DPH also publishes a "Health Survey Program" called "A Profile of Health Among Massachusetts Adults, 2005." (id. at 5-92). Ludlow is grouped with other communities in the "Western Massachusetts" category, which has a higher adult asthma prevalence than the statewide average (16.6% versus 14.2%) (id.).[41]

The Town of Ludlow is also part of the Massachusetts Cancer Registry, administered by DPH (Exh. MMWEC-1, at 5-91). The December 2006 report, "Cancer Incidence in Massachusetts, 1999-2003," provides estimates of cancer incidence for each of the 351 cities and towns of Massachusetts, for 23 types of cancer and for all cancer types combined, for both males and females (id.). City and town rates are compared to the statewide-average incidence rate for each cancer, for each city and town (id.). The December 2006 report shows that Ludlow cancer incidence does not differ statistically from state averages (id.). For all cancers combined, cancer incidence rates in Ludlow are slightly lower than the statewide averages (id.).

[41] The DPH monitors asthma hospitalizations for some cities and towns (Exh. MMWEC-1, at 5-91). The Town of Ludlow is too small to be tracked in this database, but the nearest tracked city is Chicopee, which has an annual rate of asthma hospitalizations (82 per 100,000) that is lower than the statewide-average annual rate (202 per 100,000) (id.).

2. Criteria Pollutants

As discussed in Section III.B, above, the MDEP and EPA regulate the emissions of six criteria pollutants under NAAQS: SO_2, PM_{10}, NO_2, CO, O_3, and lead. In September 2006, the EPA also promulgated NAAQS for a new fine particulate criteria, PM-2.5, setting the NAAQS for PM-2.5 at 35 $\mu g/m^3$ for the 24 hour average, and 15 $\mu g/m^3$ for the annual average (Exh. EFSB-G-29(S), Attachment 1, at 3-2).

The Clean Air Act directs EPA to develop NAAQS for criteria pollutants (including PM-2.5) that:

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

42 U.S.C.A §7409 (Exh. MMWEC-1, at 5-93).

The EPA is required to establish both primary and secondary NAAQS for the criteria pollutants (Exh. MMWEC-1, at 5-93). Primary standards must be set at the level that is "in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health" (id.,citing 42 U.S.C.A. §7409). The "margin of safety" requirement is intended to address uncertainties in the available scientific and technical information, to protect sensitive subpopulations, and to provide a reasonable degree of protection against harms that may be identified in the future (id.; Exh. EFSB-H-1).[42] MMWEC noted that the NAAQS PM-2.5 standard is not meant to be a dividing line between no adverse health affects and the presence of adverse health effects (Exh. EFSB-H-1(S)). In addition to NAAQS, both the EPA and the MDEP have adopted SILs for the NAAQS criteria pollutants for those new sources of air pollution with the potential to significantly alter ambient air quality by virtue of their incremental operation (Exh. MMWEC-1, at 5-3). Further, major new sources are required to meet BACT when the area in which the facility is located is classified as attainment or unclassifiable for a particular pollutant (id.). Proposed new sources of criteria pollutants must obtain emissions offsets and achieve more stringent pollutions control requirements (LAER) when a proposed facility is to be located in an area designated as nonattainment (id. at 5-6). The Siting Board notes that this approach is consistent with its own mandate to minimize both the environmental impacts and costs of proposed generating facilities. The Siting Board therefore gives great weight to expected compliance with EPA and

[42] Secondary standards, which are not human health-based, are developed to protect public welfare and the environment, including effects to crops and vegetation, wildlife, manmade materials, and visibility (Exh. MMWEC-1, at 5-93).

MDEP air quality programs as an indicator of whether the health impacts of a proposed facility would be minimized.

MMWEC provided data on background air quality from MDEP monitoring stations in Chicopee, Springfield and Boston indicating that the background concentrations were below NAAQS for all criteria pollutants except ozone, which exceeded the NAAQS by 14 $\mu g/m^3$ for the 1-hour averaging period, and by 12 $\mu g/m^3$ for the 8-hour averaging period (Exh. MMWEC-3, at 3-3). MMWEC indicated that the SBEC is located in the Springfield area, which presently is classified as "attainment" for SO_2 and NO_2, and "unclassifiable/attainment" for CO and particulates (id. at 3-5). Thus, with the possible exception of ozone, background levels of criteria pollutants in the Springfield area including the Stony Brook site are generally within the standards set for purposes of protecting public health (id. at 3-3).

MMWEC's air quality modeling results indicate that the modeling concentrations from facility emissions are below SILs for all NAAQS pollutants and averaging periods except 24-hour PM-10, but below the 24-hour PM-10 for combined proposed facility and other area sources concentrations when compared to the NAAQS (id. at 3-18 to 3-19). Of those proposed facility pollutants, only the 24-hour PM-10 levels exceeded the SILs (id. at 3-18).[43] MMWEC modeled background and proposed facility emissions for 24-hour PM-10 and both 24-hour and annual PM-2.5, and compared those levels to NAAQS. The comparison showed that the PM-10 and PM-2.5 levels were below or equal to NAAQS (Exh. EFSB-G-29(S), Attachment 1, at 5-2 to 5-3). As a result, the information in the record indicates that operation of the proposed facility would not cause health-based air quality standards to be violated, but the NAAQS for 24-hour PM-2.5 did equal the maximum limit. However, in Section III.B, above, the Siting Board directed MMWEC to develop a PM reduction program.

Consequently, the Siting Board finds that the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized.

3. Air Toxics

Two types of ambient air guidelines have been developed by MDEP for air toxics: "allowable ambient limits" (AALs) and "threshold effects limits" (TELs) (Exh. EFSB-G-29(S), Attachment 1, at 5-3).[44] In developing these limits, MDEP assures that compliance

[43] As discussed in Section III.B. above, there are no SIL regulations for PM-2.5.

[44] Toxics include both metals and non-metals such as: arsenic, cholorine, lead,

(continued...)

will "protect the public health and welfare from any air contaminant causing known or potentially injurious effects" (Exh. MMWEC-1, at 5-97). The TELs are based on consideration of acute and chronic health effects including developmental/reproductive effects. In addition, the AALs incorporate available information on mutagenicity and carcinogenicity. See generally Southern Energy Canal II Decision at 256-259; Southern Energy Kendall Decision at 380-381.

MMWEC modeled hazardous air pollutant emissions (non-criteria emissions) from the proposed facility on an annual basis (Exh. MMWEC-1, at 5-97 to 5-98). The proposed facility emissions were calculated based on full load equivalent (8,760 hours per year of full operation), with operation on natural gas for six months, and ULSD oil for six months (id.). The results of MMWEC's air toxics impact assessment demonstrate compliance with each of the MDEP's applicable ambient air guidelines for both AALs and TELs (id., App. B, at 4-7, Table 4-3). Based on this evidence, the Siting Board finds that the cumulative health impacts of air toxics from the proposed facility would be minimized.

4. Discharges to Ground and Surface Waters

According to MMWEC, proposed project industrial and sanitary wastewater would be discharged into the Ludlow sanitary sewer system, which would then discharge to the SWSC sewer system, and eventually to the Treatment Facility (Exh. MMWEC-1, at 5-98). MMWEC indicated that discharge of the Treatment Facility is regulated by an NPDES discharge permit to the Connecticut River (id.).

MMWEC indicated that wastewater discharges would be pretreated and meet all pretreatment limits of the Ludlow and SWSC sewer discharge and pretreatment regulatory programs (id.). MMWEC indicated that discharges would be regulated so as not to introduce any pollutants that would disrupt treatment operations at the Treatment Facility or otherwise cause the Treatment Facility to exceed its NPDES discharge limits to the Connecticut River (id.). According to MMWEC, the Treatment Facility NPDES permit limits were developed, in part, to ensure that appropriate water quality levels protective of human health are maintained in the Connecticut River (id. at 5-98 to 5-99). MMWEC asserted, therefore, that no adverse health impacts would be expected from proposed facility discharges to the Ludlow or SWSC sanitary sewer systems (Exh. MMWEC-5, at 3-64).

[44](...continued)
mercury, nickel, benzene, and formaldehyde (Exh. MMWEC-1, App.C, Table 4-3).

MMWEC indicated that the proposed facility has been designed to minimize the possibility of any introduction of pollutants to any local surface and ground water resources (Exh. MMWEC-1, at 5-99). According to MMWEC, local surface water resources at the SBEC are not registered sources of drinking water for any communities (id.). MMWEC indicated that the nearest known groundwater supply well is located about one mile east of the SBEC (id.).

MMWEC indicated that stormwater from the proposed facility site would discharge to local surface and ground waters (id.). MMWEC asserted, however, that the proposed facility would satisfy applicable regulatory requirements for maintenance of a Stormwater Pollution Prevention Plan ("SWPP"), and also would meet best management practices for detention and control of stormwater runoff (id.).

As discussed in Section III.E, above, the Siting Board has found that the wastewater impacts of the proposed facility on both the SWSC and the Connecticut River would be minimized. Accordingly, the Siting Board finds that the health impacts of wastewater and stormwater discharges would be minimized.

5. Handling and Disposal of Hazardous Materials

In Sections III.D and III.G, above, the Siting Board reviewed MMWEC's plans for storage and handling of hazardous materials, including 19% aqueous ammonia to be used for NO_x control, and limited amounts of industrial chemicals for facility maintenance. The Siting Board also reviewed MMWEC's plans for minimizing accidental releases of oil or other hazardous materials. MMWEC indicated that the proposed facility would use various chemicals and produce certain hazardous waste products to maintain proper facility operation (Exh. MMWEC-1, at 5-99). MMWEC stated that, with the exception of aqueous ammonia, the chemicals that would be used have been used at the SBEC for over 25 years (id.). MMWEC asserted that the chemicals used in, and the hazardous waste produced from, the operation of the existing SBEC units have not resulted in any local health issues over this time period (id.). Given that 19% aqueous ammonia would be a new chemical used at the SBEC for operation of the proposed facility, MMWEC stated that it would update its SPCC plan, as part of its ERPs, to account for the use and disposal of 19% aqueous ammonia (Exhs. EFSB-S-3; EFSB-S-4).

In Sections III.D and III.G, above, the Siting Board determined that MMWEC would store, handle, and dispose of chemicals properly, and that MMWEC would have in place programs to ensure maximum safety for employees and the surrounding community during facility construction and operation. The Siting Board also determined that MMWEC

would employ appropriate measures to prevent or contain chemical spills or releases. In addition, as directed by the Siting Board, MMWEC must update its Emergency Response Plan and SPCC Plan prior to the beginning any construction on site.

With respect to ammonia, MMWEC has committed to amending its ammonia storage tank plans to include a double-walled, rather than single wall tank structure. This will minimize risk to public health posed by on-site ammonia storage. Based on these safety and mitigation measures, the Siting Board finds that the health risks of the proposed facility related to the handling and disposal of hazardous materials, including amonia, would be minimized.

6. EMF

MMWEC stated that the International Commission on Non-Ionizing Radiation Protection ("ICNIRP") has published guidelines on the limits of exposure to 50/60-Hz electric and magnetic fields (Exh. MMWEC-1, at 5-109). MMWEC modeled the proposed facility magnetic field impact based on the FIELDS computer program, which projected field strengths associated with the 345-kV circuits (id. at 5-110). MMWEC stated that the results of the FIELDS modeling showed that the proposed project 345-kV line magnetic fields would be well below the ICNIRP levels at the edges of all transmission line rights-of- way (id. at 5-111; Exh. EFSB-E-1).

In Cambridge Electric Light Company, 12 DOMSB 305, at 348 (2001), the Siting Board found that "although some epidemiological studies suggest a correlation between exposure to magnetic fields and childhood leukemia, there is no evidence of a cause-and-effect association between magnetic field exposure and human health." Consistent with this Siting Board finding, and in light of MMWEC's projections regarding electric and magnetic fields at the edge of the transmission line rights-of-way, the Siting Board finds that the health effects, if any, of EMF associated with the proposed facility would be minimized.

7. Noise

As discussed in Section III.C, above, MMWEC has assessed the noise impacts of the proposed facility during construction and operation in relation to the applicable state and local criteria for acceptable ambient noise. The record demonstrates that with implementation of MMWEC's proposed noise mitigation measures, noise impacts at residences closest to the proposed facility would be at most 5 dBA above ambient noise in

the quietest nighttime hours and in the day/evening hours (Exhs. EFSB-29(S), Attachment 1, App. C at 12; EFSB-N-2; EFSB-N-16).

The potential for hearing damage occurs only at relatively high noise levels (Exh. MMWEC-1, at 5-112). The EPA document "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", EPA 550/9-74/004 indicates that there is virtually no risk of hearing loss to individuals exposed to an equivalent sound level (24 hours per day) that is below 70 dBA (id.). MMWEC's Environmental Sound Evaluation indicated that sound produced by its proposed facility during operation would not be expected to exceed 38 dBA at the nearest residences, and would not be expected to exceed 48 dBA at the SBEC property lines (Exh. EFSB-G-29(S), Attachment 1, App. C at 12). During facility construction, the maximum sound at the nearest residences and property lines also would not be expected to exceed 70 dBA (id. at 8). Therefore, sound produced by the proposed facility would not pose a risk of hearing damage to area residences, residents and employees at the Correctional Facility, or employees at adjacent industrial facilities (id. at 12).

In Section III.C, the Siting Board found that, with implementation of MMWEC's proposed mitigation measures and a condition imposed by the Siting Board, noise impacts of construction and operation of the proposed facility would be minimized, consistent with minimizing cost. Accordingly, the Siting Board finds that the health effects, if any, of noise from the proposed facility would be minimized.

8. Conclusions

In the sections above, the Siting Board has reviewed the potential for MMWEC's proposed facility to impact human health as a result of emissions of criteria pollutants, emissions of air toxics, discharges to ground and surface waters, handling and disposal of hazardous materials, EMF, and noise. The Siting Board has found that: (1) the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized; (2) the health impacts, if any, of air toxics emissions from the proposed facility would be minimized; (3) the health impacts of wastewater and stormwater discharges would be minimized; (4) the health risks of the proposed facility related to the handling and disposing of hazardous materials, including ammonia, would be minimized; (5) the health effects, if any, of EMF associated with the proposed facility would be minimized; and (6) the health effects, if any, of noise from the proposed facility would be minimized.

The Siting Board notes that the only indication of pre-existing health problems in the communities surrounding the proposed facility is the existence of statistically elevated

levels of adult asthma. However, there is no evidence in the record suggesting that the pollutants which the proposed facility would emit are in any way linked to adult asthma. The record shows that the proposed facility emits toxics, including carcinogens, at levels below TELS and AALs. Consequently, the Siting Board finds that there is no evidence that the proposed facility would exacerbate existing public health problems in the communities surrounding the proposed facility.

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

M. Conclusions on Environmental Impacts

Based on the information in Sections II and III above, the Siting Board finds that MMWEC's description of the proposed facility and the environmental impacts of the proposed facility is substantially accurate and complete.

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

In Section III.B, the Siting Board has found that to limit emissions of criteria pollutants, including PM-10 and PM-2.5, the Siting Board directs MMWEC, for each calendar year to limit operation of the proposed facility on ULSD oil to (1) no more than 60 days from January 1st to November 30 (but not during the ozone season), and (2) no more than 30 days for the month of December; provided that this limitation on operation on ULSD oil will not apply when natural gas is unavailable to operate the proposed facility (either due to gas transportation disruptions, or supply disruptions or curtailment), and ISO-NE calls on the facility to operate out of economic merit. In addition, in order to reduce the potential emissions of PM, the Siting Board directs MMWEC to submit to the Siting Board, prior to commercial operation, a PM reduction measure plan including; (1) identification and description of PM reduction measures that could be implemented in the vicinity of the SBEC; (2) the cost of such measures; and (3) a proposal for MMWEC's participation in the implementation of such reduction measures. Finally, the Siting Board directs MMWEC to file information relating to compliance with the RGGI regulations or the implementation of a CO_2 offset program. With the implementation of the above conditions, the Siting Board has found that the air quality impacts of the proposed facility would be minimized.

In Section III.C, the Siting Board has found that with the implementation of the conditions directing MMWEC (a) to confine noisy construction activities to weekdays from 7:00 a.m. to 3:30 p.m., and to limit weekend construction to Saturdays, between the

hours of 8:00 a.m. and 3:30 p.m., such construction to be undertaken only when necessary, for example, in the event that site work is delayed by bad weather; and (b) consult with the Town of Ludlow, to develop an outreach plan for the proposed facility, the noise impacts of the proposed facility would be minimized, consistent with minimizing costs.

In Section III.D, the Siting Board has found that with the implementation of the condition directing MMWEC to (1) update its Emergency Response and SPCC plans consistent with the construction and operation of SBEC; and (2) develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia together with contingency response plans; as well as the installation of double-walled tanks for the storage of aqueous ammonia, as proposed by MMWEC, the safety impacts of the proposed facility would be minimized.

In Section III.E, the Siting Board has found that the water resources impacts of the proposed facility would be minimized.

In Section III.F, the Siting Board has found that the wetlands impacts of the proposed facility would be minimized.

In Section III.G, the Siting Board has found that with the implementation of the condition directing MMWEC to file a copy of its updated recycling plan and report on its recycling rate, the solid waste impacts of the proposed facility would be minimized.

In Section III.H, the Siting Board has found that the visual impacts of the proposed facility would be minimized.

In Section III.I, the Siting Board has found that the Siting Board has found that with the implementation of the condition directing MMWEC to work with its EPC contractor and the Town of Ludlow to develop and implement a traffic mitigation plan which addresses scheduling and any necessary roadway construction or improvements, traffic impacts of construction and operation of the proposed facility would be minimized.

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

In Section III.K, the Siting Board has found that with the implementation of the condition directing MMWEC to keep the Siting Board informed as to the progress and the outcome of MMWEC's interconnection plans and on designs for any transmission upgrades, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts at such time as MMWEC reaches final agreement with all transmission providers regarding interconnection, the EMF impacts of the proposed facility would be minimized.

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

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

IV. CONSISTENCY WITH THE POLICIES OF THE COMMONWEALTH

A. Standard of Review

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

B. Analysis and Findings

In Sections II and III above, the Siting Board has reviewed the process by which MMWEC sited and designed the proposed facility, and the environmental and health impacts of the proposed facility as sited and designed. As part of this review, the Siting Board has identified a number of Commonwealth policies applicable to the design, construction, and operation of the proposed facility. These are described briefly below. As discussed in Section III.B above, the MDEP, in conjunction with the EPA, extensively regulates emissions of criteria and non-criteria pollutants from new sources such as the

proposed facility. MMWEC has demonstrated that operation of its proposed facility would comply with all applicable MDEP and EPA standards.

As discussed in Section III.C above, MMWEC has demonstrated that, consistent with MDEP Noise Policy 90-001, it will limit increases in off-site noises caused by operation of the proposed facility to less than 10 dBA at the nearest residences, with the exception of the Correctional Center at the northern SBEC property line. MMWEC has demonstrated that, while simultaneous operation of the proposed facility and the existing SBEC intermediate and peaking units would potentially increase noise at the northern SBEC property line by more than 12 dBA (10. 45 dBA if nominally) during the early morning hours, it is unlikely that MMWEC's proposed facility and the existing facilities would operate simultaneously, and further unlikely that any correctional center resident actually would experience any increase that did occur, as the windows do not open at the correctional center.

As discussed in Sections III.F and III.G above, the MDEP regulates wastewater discharges and construction in wetlands areas. MMWEC has demonstrated that it will comply with all applicable MDEP standards for wastewater discharges, and for work in wetlands areas.

As discussed in Section III.J, above, the MNHESP extensively regulates impacts to state-listed protected species. MMWEC has demonstrated that in consultation with MNHESP, MMWEC addressed protected species concerns and has adopted a comprehensive plan which would avoid or mitigate impacts to the blue spotted salamander (a state-listed protected species) found at the SBEC.

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

V. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H-69Q to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. Section 69J¼ requires that, in its consideration of a petition to construct a 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 MMWEC's description of the site selection process it used is accurate, and that the site selection process resulted in the selection of a site that contributes to the minimization of the environmental impacts of the proposed facility and the costs of mitigating, controlling, and reducing such impacts.

In Section III, above, the Siting Board has found that with the implementation of the listed conditions relative to air quality, noise, solid waste, traffic, safety, and EMF, MMWEC'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 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.D, III.G. III.I, and 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 the Massachusetts Municipal Wholesale Electric Company to construct a 280 MW baseload generating facility, subject to the following conditions:

A. In order to limit emissions of criteria pollutants, including PM-10 and PM-2.5, the Siting Board directs MMWEC, for each calendar year to limit operation of the proposed facility on ULSD oil to (1) no more than 60 days from January 1st to November 30 (but not during the ozone season), and (2) no more than 30 days for the month of December; provided that this limitation on operation on ULSD oil will not apply when natural gas is unavailable to operate the proposed facility (either due to gas transportation disruptions, or supply disruptions or curtailment), and ISO-NE calls on the facility to operate out of economic merit.

B. In order to reduce the potential emissions of PM, the Siting Board directs MMWEC to submit to the Siting Board, prior to commercial operation, a PM reduction measure plan including; (1) identification and description of PM reduction measures that could be implemented in the vicinity of the SBEC; (2) the cost of such measures; and (3) a proposal for MMWEC's participation in the implementation of such reduction measures.[45]

C. In order to ensure the minimization of CO_2 emissions, in the event that the proposed facility commences operation prior to the implementation of the RGGI requirements, the Siting Board directs MMWEC, before or within the first year of operation, to provide the Siting Board with information demonstrating that either: (1) RGGI implementation has commenced, and the proposed facility is in conformance with RGGI; or (2) MMWEC has developed a CO_2 offset program consistent with CO_2 emissions offset programs developed in previous cases before the Siting Board.

D. In order to ensure the minimization of construction noise, the Siting Board directs MMWEC to: (1) confine noisy construction activities to weekdays only, to the extent practicable, so that specifically, MMWEC may engage in any construction activities Monday through Friday, during daylight hours, not earlier than 7:00 a.m. and not later than 5:30 p.m., and further MMWEC shall limit any necessary weekend construction to Saturdays, between the hours of 8:00 a.m. and 5:30 p.m., to the extent practicable; and (2) to develop an outreach plan for the proposed facility. The outreach plan should lay out the procedures to be used to notify the public in particular locations about the scheduled start, duration, and hours of construction outside of normal business hours, as well as steam blows at any time, and should include information on complaint and response procedures and contact information.

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[45] The Siting Board notes that the MassClean Diesel program was launched in June, 2008. The MassClean Diesel program is a fully-funded statewide program designed to reduce air pollution from school buses by providing for all eligible diesel-powered schools buses in Massachusetts to receive retrofits at no expense to school bus owners. As part of MMWEC's filing, the Siting Board expects that MMWEC would address the role it could take in assisting area school bus companies to enroll in the MassClean Diesel program, if warranted. (see http://www.mass.gov/dep/air/diesel/masscleandiesel.htm).

E. In order to minimize safety impacts, the Siting Board directs MMWEC to: (1) update its Emergency Response and SPCC plans consistent with the construction and operation of SBEC; and (2) develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia together with contingency response plans.

F. In order to minimize solid waste impacts, the Siting Board directs MMWEC, prior to the commencement of operation, to provide to the Siting Board a copy of its updated recycling plan, and to report on its recycling rate for construction and demolition debris and its anticipated recycling rate for operational wastes.

G. In order to minimize traffic impacts, the Siting Board directs MMWEC to work with its EPC contractor and the Town of Ludlow[46] to develop and implement a traffic mitigation plan which addresses scheduling and any necessary roadway construction or improvements. This plan should: (1) to the extent practicable, address scheduling of arrivals and departures of construction-related traffic, including but not limited to construction labor, deliveries of materials, equipment, and plant components, so as to avoid daily peak travel periods in affected areas; (2) direct construction workers and delivery trucks accessing the SBEC site from the MassPike to use Exit 6 so as to avoid central Ludlow; (3) include the provision of a traffic control officer at the Moody Street/Holyoke Street intersection for the period designated as peak on-site construction, or a period agreed upon with the Town of Ludlow; (4) include an arrival schedule of between 6:15 a.m. to 7:00 a.m. and a departure schedule of between 2:30 p.m. and 3:30 p.m. for the majority of construction workers; (5) establish protocols allowing MMWEC to coordinate with the appropriate municipal authorities to identify and implement any traffic control measures, in addition to the traffic control officer at Moody Street/Holyoke Street, needed to mitigate traffic impacts at the access road; and (6) establish protocols allowing MMWEC to monitor and if necessary coordinate with the City of Chicopee regarding adjustments to the "smart" controllers at the intersection of Burnett Road and the MassPike Exit 6 ramps.

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[46] The Siting Board notes that the construction and delivery routes include Exit 6 of the Mass Pike located in the City of Chicopee. Therefore, Chicopee officials should be consulted in developing any traffic mitigation that includes, if necessary, the Exit 6 area.

H. In order to minimize EMF impacts, the Siting Board directs MMWEC to keep the Siting Board informed as to the progress and the outcome of MMWEC's interconnection plans and on designs for any transmission upgrades, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts at such time as MMWEC reaches final agreement with all transmission providers regarding interconnection.

Because issues addressed in this Decision relative to the proposed facility are subject to change over time, construction of the proposed facility must be commenced within three years of the date of the decision. In addition, the Siting Board notes that the findings in this decision are based upon the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board directs MMWEC 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. MMWEC is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.

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Selma Urman
Presiding Officer

Dated this 12th day of December, 2008

APPROVED by the Energy Facilities Siting Board at its meeting of December 11, 2008, by the members and designees present and voting. **Voting for** approval of the Tentative Decision **as amended**: Ann Berwick (Acting EFSB Chair/Designee for Ian A. Bowles, Secretary, Executive Office of Energy & Environmental Affairs); Philip Giudice, Commissioner (Division of Energy Resources); James Colman (Designee for Laurie Burt, Commissioner, Department of Environmental Protection); Paul J. Hibbard, Commissioner DPU; Tim Woolf, Commissioner DPU ; Dan Kuhs, Public Member. **Abstaining**: Robert Mitchell (Designee for Daniel O'Connell, Secretary, Executive Office of Housing & Economic Development); and Kevin Galligan, Public Member.

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Ann Berwick, Acting Chair
Energy Facilities Siting Board

Dated this 11th day of December, 2008

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

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