COMMONWEALTH OF MASSACHUSETTS

Energy Facilities Siting Board

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In the Matter of the Petition of)

Cabot Power Corporation for Approval) EFSB 91-101A

to Construct a Bulk Generating Facility)

and Ancillary Facilities)

_____)

FINAL DECISION

Peter M. Palica

Hearing Officer

October 9, 1998

On the Decision:

Barbara Shapiro

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS

Abbreviation	Explanation
AALs	Annual allowable ambient limits
Act	Massachusetts Electric Restructuring Act of 1997
BACT	Best available control technology
BECo	Boston Edison Company
Btu	British Thermal Units

CAAA Federal Clean Air Act Amendments of 1990

CPC Cabot Power Corporation

CELT Capacity, Energy, Loads and Transmission (yearly reports prepared by NEPOOL)

City of New Bedford City of New Bedford v. Energy Facilities Siting Council, 413 Mass. 482 (1992)

CO Carbon monoxide

CO2 Carbon dioxide

Company Cabot Power Corporation

Daniels Daniels Printing, Limited Partnership

dBA A-weighted Decibel

DCR Debt coverage ratios

$/kW Dollars per kilowatt

DOMAC Distrigas of Massachusetts

DSM Demand side management

EFSB Energy Facilities Siting Board

EMF Electric and magnetic fields

EPC Engineering, procurement, and construction

ERCs Emission reduction credits

ERP Emergency Response Plan

Everett City of Everett, Massachusetts

FERC Federal Energy Regulatory Commission

gpd Gallons per day

HRSG Heat recovery steam generator

IEIP Island End Industrial Park

kJ Kilojoule

kV Kilovolt

L90 The level of noise that is exceeded 90 percent of the time

LAER Lowest Achievable Emission Rate

Leq 24-hour equivalent noise level

LNG Liquified natural gas

LOS Level of service -- a measure of the efficiency of traffic operations at a given location

MCP Massachusetts Contingency Plan

MCZM Massachusetts Coastal Zone Management

MDEP Massachusetts Department of Environmental Protection

MECo Massachusetts Electric Company

MMBtu Million British thermal units

MW Megawatt

NAAQS National ambient air quality standards

NEA Northeast Energy Associates

NEPCO New England Power Company

NEPOOL New England Power Pool

1994 Cabot Decision Cabot Power Decision, EFSB 91-101, 2 DOMSB 241 (March 9, 1994)

Notice Notice of Adjudication and Public Hearing

NOx Nitrogen oxides

NPDES National Pollutant Discharge Elimination System

NU Northeast Utilities

NUG Non-utility generator

Original Project Reference to EFSB 91-101

O&M Operation and maintenance

Pb Lead

PM-10 Particulates

PPAs Power purchase agreements

PSD Prevention of significant deterioration

PURPA Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§ 796, 824a-3

QF Qualifying facility

ROW Right-of-way

SCR Selective Catalytic Reduction System

SILs Significant impact levels

Siting Board Energy Facilities Siting Board

Siting Council Energy Facilities Siting Council

SO2 Sulfur dioxide

TELs Threshold effects exposure limits

tpy Tons per year

Updated Project Reference to EFSB 91-101A

VOCs Volatile organic compounds

Westinghouse PG Westinghouse Power Generation

Westinghouse OSC Westinghouse Services Company

Westinghouse 501G Model of Gas Turbine being proposed for the project

The Energy Facilities Siting Board ("Siting Board") hereby APPROVES subject to conditions the petition of Cabot Power Corporation to construct a 350 megawatt bulk generating facility and ancillary facilities in Everett, Massachusetts.

I. INTRODUCTION

A. Summary of the Proposed Project and Facilities

On August 15, 1997, Cabot Power Corporation(1) ("CPC" or "Company") filed with the Energy Facilities Siting Board ("Siting Board") an Updated Petition ("updated petition") for approval to construct, own, and operate a 350 megawatt ("MW") gas-fired, combined-cycle cogeneration power plant ("updated project") in the Island End Industrial Park ("IEIP") in Everett, Massachusetts (Exh. CPC-1, at 1). The updated petition follows from CPC's previous March 13, 1991 Petition ("original petition") for approval to construct, own, and operate a 235 MW power plant ("original project") at the same location. The original project was proposed for an in-service date of 1996. After conducting evidentiary hearings, the Siting Board conditionally approved the original project in its Final Decision dated March 9, 1994. Cabot Power Decision, 2 DOMSB at 241 ("1994 Cabot Decision").

The major components of the updated project consist of: (1) a 230 MW Westinghouse 501G combustion turbine-generator with dry low-NOx combusters; (2) a heat recovery steam generator ("HRSG"); (3) a 120 MW steam turbine-generator; (4) a selective catalytic reduction system; (5) an air-cooled condenser; (6) a turbine air inlet chiller; (7) a CO catalyst system; and (8) a 150-foot exhaust stack (Exh. CPC-1, at 3-6). Other components include a 345 kilovolt ("kV") air-insulated substation and an aqueous ammonia storage tank (id.). Relatively low temperature exhaust steam would be

converted to hot water and piped to the adjacent DOMAC liquefied natural gas ("LNG") terminal where it was to be used to vaporize LNG (id.).

The primary fuel for the updated project would be vaporized LNG provided by CPC's affiliate, DOMAC, which operates an LNG import terminal adjacent to the site of the updated project (id. at 69). Electrical output would be transmitted to Boston Edison Company's ("BECo") Mystic Station substation by way of an approximately one-half mile, underground 345 kV transmission line (id. at 3, 64-65). CPC anticipates that the updated project would begin commercial operation in mid-2001 (Exh. HO-V-1).

CPC indicated that the updated project would differ from the original project in the following ways: (1) the use of a Westinghouse 501G gas turbine rather than the Westinghouse 501F or General Electric 7111FA turbine proposed for the original project; (2) the use of a "split-shaft" rather than a "single-shaft" design; (3) the elimination of distillate fuel oil as a back-up fuel, which eliminates the need for an oil pipeline between the power plant and the nearby Exxon oil terminal, reduces water consumption for NOx control, and reduces most air emissions; (4) the addition of a CO oxidation catalyst which would reduce the allowable CO emissions of the updated project from 37 to 4.4 parts per million ("ppm"); (5) the substitution of an air insulated for a gas insulated 345 kV substation; and (6) a reduction in the exhaust stack height from 240 feet to 150 feet (Exh. CPC-1, at 4-6). CPC asserts that these changes would allow it to increase the power generating capacity of the updated project by roughly 50 percent while maintaining CO emissions below the level of 98.4 tons per year permitted in the original project.

B. Jurisdiction

The Company's petition to construct a bulk generation facility was filed in accordance with G.L. c. 164, § 69H, which requires the Siting Board to implement the energy policies in its statute to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, and pursuant to G.L. c. 164, § 69J, which requires electric companies to obtain Siting Board approval for construction of proposed facilities at a proposed site before a construction permit may be issued by another state agency.

As a wholesale electric generator with a design capacity of approximately 350 MW, the Company's proposed generating unit falls squarely within the first definition of "facility" set forth in G.L. c. 164, § 69G. That section states, in part, that a facility is:

(1) any bulk generating unit, including associated buildings and structures,

designed for, or capable of operating at a gross capacity of one hundred

megawatts or more.

At the same time, the Company's proposal to construct an electric interconnection, a gas interconnection and other structures at the site falls within the third definition of "facility"

set forth in G.L. c. 164, § 69G, which states that a facility is:

(3) any ancillary structure including fuel storage facilities which is

an integrated part of the operation of any electric generating unit

or transmission line which is a facility.

C. Procedural History

On August 15, 1997, CPC filed with the Siting Board(2) a Motion for Leave to Reopen the Administrative Record ("Motion to Reopen") and an Updated Petition for Approval to Construct a Bulk Generating Facility and Ancillary Facilities ("updated petition") to construct, own, and operate a 350 MW natural gas-fired, combined-cycle cogeneration power plant and ancillary facilities in the Island End Industrial Park in Everett, Massachusetts. On October 31, 1997, CPC filed a Motion for Extension of Time ("Motion for Extension") requesting additional time to meet certain conditions required by the Siting Board in the 1994 Cabot Decision before CPC could receive Final Approval for the original project, namely, the submittal by March 9, 1998 of signed and approved power purchase agreements which were to include capacity payments for at least 75 percent of the original project's electrical output. See 1994 Cabot Decision, 2 DOMSB at 429. On December 23, 1997, the Siting Board granted both the Motion to Reopen and the Motion for Extension. The Siting Board docketed the updated petition as EFSB 91-101A.

On January 29, 1998, the Siting Board conducted a public hearing in Everett, Massachusetts. In accordance with the direction of the Hearing Officer, the Company provided notice of the public hearing and adjudication.

Late-filed petitions to intervene were filed with the Siting Board on April 6, 1998 by Daniels Printing Limited Partnership ("Daniels") and the Building and Construction Trades Council ("Trades Council"). A letter dated February 2, 1998 was also filed with the Siting Board by Infrastructure Development Corporation ("IDC") seeking to participate as an interested person. CPC filed no opposition to the petitions of Daniels, the Trades Council or IDC.

The Hearing Officer allowed Daniels' status as a full intervenor and denied the petition to intervene by the Trades Council as well as the petition to participate as an interested person of IDC (Hearing Officer Procedural Order, April 15, 1998). The Trades Council filed a Motion to Reconsider Denial of Petition to Intervene with the Siting Board on April 27, 1998 which was denied by the Hearing Officer (Hearing Officer Procedural Order, May 15, 1998). The Siting Board conducted four days of evidentiary hearings commencing on May 27, 1998 and ending on June 22, 1998. CPC presented the testimony of eight witnesses: Daniel Peaco, Manager and Director of LaCapra

Associates, testified as to Massachusetts need; Ted Gehrig, Vice President and General Manager for CPC on the updated project, testified as to regional and Massachusetts need, project details, and viability as well as pile driving and safety issues; Peter J. Thalmann, an engineer with PLM Electric Power Engineering, testified as to the regional power system and interconnection with Boston Edison Company; Keith Kennedy and Peter H. Guldberg, Vice President and President, respectively of Tech Environmental, Inc., and Douglas S. Jones, CPC Manager of Environmental Services, testified as to environmental impacts(3); and George C. Klimkiewicz, Manager of Seismological Services at Weston Geophysical Corporation, and David Myers, Senior Engineer with Environmental Resources Management, both of whom testified as to vibration issues.

Intervenor Daniels presented the testimony of two witnesses: Richard M. Kenney, Chief Administrative and Financial Officer for Daniels, and Andrew Flanders McKown, Vice President of Haley & Aldrich, testified as to vibration issues.

The Hearing Officer entered 261 exhibits into the record consisting primarily of information and record request responses. CPC entered 30 exhibits into the record and Daniels entered 45 exhibits into the record. On July 9, 1998, initial briefs were filed by the CPC and Daniels. On July 21, 1998, reply briefs were filed by CPC and Daniels.

D. Scope of Review

In accordance with G.L. c. 164, §§ 69H and 69J, before approving a petition to construct facilities, the Siting Board requires applicants to justify generating facility proposals in five phases. First, the Siting Board requires the applicant to show that additional energy resources are needed. ANP Bellingham Energy Company, EFSB 97-1, at 6 (1998) ("ANP Bellingham Decision"); U.S. Generating Company, EFSB 96-4, at 6 (1997) ("Millennium Power Decision"); Northeast Energy Associates, 16 DOMSC 335, 343 (1987) ("NEA Decision"). Second, the Siting Board requires the applicant to show that, on balance, its proposed project is superior to alternative approaches in the ability to address the previously identified need and in terms of cost, environmental impact, and reliability. ANP Bellingham Decision, EFSB 97-1, at 6 (1998); Millennium Power Decision, EFSB 96-4, at 6 (1997); NEA Decision, 16 DOMSC at 364. Third, the Siting Board requires the applicant to show that its project is viable. ANP Bellingham Decision, EFSB 97-1, at 6 (1998); Millennium Power Decision, EFSB 96-4, at 6 (1997); NEA Decision, 16 DOMSC at 364. Fourth, the Siting Board requires the applicant to show that its site selection process did not overlook or eliminate clearly superior sites, and in cases where an alternative site has been noticed, that the proposed site for the facility is superior to the alternative site in terms of cost, environmental impact, and reliability of supply. ANP Bellingham Decision, EFSB 97-1, at 6 (1998); Millennium Power Decision, EFSB 96-4, at 6 (1997); NEA Decision, 16 DOMSC at 343. Finally, the Siting Board requires that a proposed project minimize environmental impacts and achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, cost

and reliability of supply at the site which is approved. Millennium Power Decision, EFSB 96-4, at 6 (1997); Berkshire Power Decision, 4 DOMSB at 243; Boston Edison Company, 1 DOMSB 1, 149-153, 186-195 (1993) ("1993 BECo Decision").

On December 23, 1997, the Siting Board determined that matters that were addressed in the 1994 Cabot Decision and which are unchanged in the updated petition are not at issue in this case (Procedural Order at 2-3, December 23, 1997). These issues include the superiority of the proposed project to alternative approaches and the site selection process. Consequently, in this decision, the Siting Board's scope of review is limited to: (1) whether additional energy resources are needed (see Section II.A, below); (2) whether the updated project is viable (see Section II.B, below); and (3) whether the updated project minimizes environmental impacts and costs and achieves an appropriate balance among conflicting environmental concerns as well as among environmental impacts, cost and reliability at the proposed site (see Section III.B, below). In reviewing these issues, the Siting Board relies, where the record is unchanged, on the findings made in the 1994 Cabot Decision.

II. ANALYSIS OF THE UPDATED PROJECT

A. Need Analysis

1. Standard of Review

In accordance with G.L. c. 164, § 69H, the Siting Board is charged with the responsibility for implementing energy policies to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. The Siting Board, therefore, must find that additional energy resources are needed as a prerequisite to approving proposed energy facilities. With respect to proposals to construct energy facilities in the Commonwealth, the Siting Board evaluates whether there is a need for additional energy resources to meet reliability, economic, or environmental objectives directly related to the energy supply of the Commonwealth.

In City of New Bedford v. Energy Facilities Siting Council, 413 Mass. 482 (1992) ("City of New Bedford"), the Supreme Judicial Court ("Court") concluded that the Siting Board's finding that New England needed additional energy resources for reliability purposes was inadequate in light of the statutory mandate that an energy supply must be necessary for the Commonwealth. 413 Mass. at 489. In addition, the Court noted that, although the Siting Board had argued that its mandate was to ensure an adequate energy supply at minimum cost, "[e]nsuring an adequate supply is not the same as 'provid[ing] a necessary energy supply for the commonwealth (emphasis added)." City of New Bedford, 413 Mass. at 490, citing G.L. c. 164, § 69H.

In response to the Court's directive in City of New Bedford, the Siting Board set forth a

standard of review for the analysis of need for non-utility developers consistent with its statutory mandate -- to implement the Commonwealth's energy policies to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost -- in Eastern Energy Corporation (on Remand), 1 DOMSB at 421-423 (1993) ("EEC (remand) Decision").

With respect to the issue of regional need versus Massachusetts need, the Siting Board noted the integration of the Massachusetts electricity system with the regional electricity system and the resulting link between Massachusetts and regional reliability (Id. at 422). The Siting Board noted the inherent reliability and economic benefits which flow to Massachusetts as a result of this integration (Id.). Thus, the Siting Board concluded that consideration of regional need must be a central part of any need analysis for a power generation project not linked to individual utilities by power purchase agreements ("PPAs") (Id. at 416). The Siting Board also noted that the Massachusetts Legislature clearly foresaw the need for "cooperation and joint participation in developing and implementing a regional bulk power supply of electricity" when it enacted G.L. c. 164A and in this same enactment acknowledged that power generating facilities would provide electric power across state lines. G.L. c. 164A, §§ 3, 4. Accordingly, the Siting Board found that an analysis of regional need must serve as a foundation for an analysis of Massachusetts need. EEC (remand) Decision, 1 DOMSB at 417.

In evaluating the need for new energy resources to meet reliability objectives, the Siting Board may evaluate the reliability of supply systems in the event of changes in demand or supply, or in the event of certain contingencies. With respect to changes in demand or supply, the Siting Board has found that new capacity is needed where projected future capacity available to a system is found to be inadequate to satisfy projected load and reserve requirements. ANP Bellingham Decision, EFSB 97-1, at 9; Millennium Power Decision, EFSB 96-4, at 9; New England Electric System, 2 DOMSC 1, 9 (1977). With regard to contingencies, the Siting Board has found that new capacity is needed in order to ensure that service to firm customers can be maintained in the event that a reasonably likely contingency occurs. ANP Bellingham Decision, EFSB 97-1, at 9; Millennium Power Decision,

EFSB 96-4, at 9; Eastern Utilities Associates, 1 DOMSC 312, 316-318 (1977). The Siting Board also may determine under specific circumstances that additional energy resources are needed primarily for economic or environmental purposes related to the Commonwealth's energy supply. ANP Bellingham Decision, EFSB 97-1, at 9; Millennium Power Decision,

EFSB 96-4, at 9; EEC (remand) Decision, 1 DOMSB at 422. With respect to the issue of establishing need on economic efficiency or environmental grounds, the Siting Board notes that such analyses of need would be consistent with its statutory obligation to ensure a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, §§ 69H, 69J. ANP Bellingham Decision, EFSB 97-1, at 9; Millennium Power Decision, EFSB 96-4, at 10; Enron Power Enterprise Corporation,

23 DOMSC 1, 49-62 (1991) ("Enron Decision").

Further, while acknowledging that G.L. c. 164, § 69H requires the Siting Board to ensure a necessary supply of energy for Massachusetts, the Siting Board interprets this mandate broadly to encompass not only evaluations of specific need within Massachusetts for new energy resources,(4) but also the consideration of whether proposals to construct energy facilities within the Commonwealth are needed to meet New England's energy needs. ANP Bellingham Decision, EFSB 97-1, at 10; Millennium Power Decision, EFSB 96-4, at 10; Massachusetts Electric Company/New England Power Company, 13 DOMSC 119, 129-131, 133, 138, 141 (1985) ("1985 MECo/NEPCo Decision"). In doing so, the Siting Board fulfills the requirements of G.L. c. 164, § 69J, which recognizes that Massachusetts' generation and transmission system is interconnected with the region and that reliability and economic benefits flow to Massachusetts from Massachusetts utilities' participation in the New England Power Pool ("NEPOOL").

The Siting Board has found that a demonstration of Massachusetts need based on reliability, economic efficiency or other benefits associated with additional energy resources from a proposed project remains a necessary element of a need review. ANP Bellingham Decision, EFSB 97-1, at 10; Millennium Power Decision, EFSB 96-4, at 10; EEC (remand) Decision, 1 DOMSB at 417-418. However, in response to the Court's reminder in City of New Bedford that its statutory mandate is limited to ensuring that a necessary energy supply is provided for the Commonwealth, the Siting Board found in the EEC (remand) Decision that reliability, economic, or environmental benefits associated with the additional energy resources from a proposed project must directly relate to the energy supply of the Commonwealth for them to be considered in support of a finding of Massachusetts need. 1 DOMSB at 418. See also Cabot Decision, 2 DOMSB at 258; Altresco Lynn Decision, 2 DOMSB at 26.

In its first review of a petition by a non-utility generator ("NUG") to construct a jurisdictional facility, the Siting Board found that, consistent with current energy policies of the Commonwealth, Massachusetts benefits economically from the addition of cost-effective qualifying facility ("QF")(5) resources to its utilities' supply mix. NEA Decision,

16 DOMSC at 358. In that case, the Siting Board also found (1) that a signed and approved PPA between a QF and a utility constitutes prima facie evidence of the utility's need for additional energy resources for economic efficiency purposes, and (2) that a signed and approved PPA which includes a capacity payment constitutes prima facie evidence for the need for additional energy resources for reliability purposes (id.). Thus, in cases where a non-utility developer sought to construct a jurisdictional generating facility principally for a specific utility purchaser or purchasers, the Siting Board has required the applicant to demonstrate that the utility or utilities need the facility to address reliability concerns or economic efficiency goals through presentation of signed and approved PPAs. MASSPOWER, Inc.,

21 DOMSC 196, 200 (1990); MASSPOWER, Inc., 20 DOMSC 1, 19-23, 32 (1990) ("MASSPOWER Decision"); Altresco-Pittsfield Decision, 17 DOMSC at 366-367. Two 1995 decisions of the Court, however, bring into question further reliance on such prima facie evidence in this and future cases.(6)

Where a non-utility developer has proposed a generating facility for a number of power purchasers that include purchasers that are as yet unknown, or for purchasers with retail service territories outside of Massachusetts, the need for additional energy resources must be established through an analysis of regional capacity and a showing of Massachusetts need based on reliability, economic or environmental grounds directly related to the energy supply of the Commonwealth. ANP Bellingham Decision, EFSB 97-1, at 11-12; Millennium Power Decision, EFSB 96-4, at 12; West Lynn Cogeneration, 22 DOMSC 1, 9-47 (1991) ("West Lynn Decision"). Consistent with the Siting Board's precedent and reflecting the directives of the Court in City of New Bedford, Point of Pines, and Attorney General, the Siting Board here reviews CPC's analysis of the need for the updated project for reliability purposes.(7)

2. Reliability Need

The Siting Board has found that it is appropriate to consider the need for capacity beyond the first year of proposed facility operation as part of assessing need for reliability purposes in reviews of NUG projects. See ANP Bellingham Decision, EFSB 97-1, at 12; Millennium Power Decision, EFSB 96-4, at 12; West Lynn Decision, 22 DOMSC at 14, 33-34. The Siting Board has acknowledged that the longer time frame is potentially useful regardless of whether need has been established for the first year of proposed operation. If need has been established for the first year, the longer time frame helps ensure that the need will continue over a number of years, and is not a temporary aberration. If need has not been established for the first year of proposed operation, a demonstration of need within a limited number of years thereafter may still be an important factor in reaching a decision as to whether a proposed project should go forward. Thus for the purposes of this review, the Siting Board finds that it is appropriate to consider explicitly need for the updated facility during the 2001 to 2006 time period.

a. New England

CPC asserted that there is a need for at least 330 MW(8) of additional energy resources in New England beginning in the year 2001 and beyond (Exh. CPC-1, at 18; Tr. 1 at 33; CPC Brief at 16). In support, the Company presented a series of forecasts of demand and supply for the region based primarily on the 1998 Capacity, Energy Loads, and Transmission ("CELT") forecasts and other data published by NEPOOL (Exhs. HO-N-

15; HO-N-15(S)).(9) The Company indicated that it combined its demand and supply forecasts to produce a series of need forecasts (Exh. CPC-1, at 31-32).

The Company stated that the forecasts of summer demand and supply were developed from individual forecasts of several underlying factors including: (1) unadjusted peak loads; (2) utility-sponsored demand side management ("DSM") resources available on peak; (3) NUG netted from load; (4) supply resources; and (5) required reserve margin (id. at 20; Tr. 1, at 36). The Company stated that it developed an adjusted summer peak load forecast by subtracting the DSM and NUG factors from the unadjusted peak load (Tr. 1, at 36).

In the following sections, the Siting Board reviews the Company's demand forecasts, including its demand forecast methods and estimates of DSM savings over the forecast period, and the Company's supply forecasts, including its capacity assumptions and required reserve margin assumptions. The Siting Board then analyzes a series of need forecasts.

(1) Demand Forecasts

(a) Description

CPC presented forecasts of unadjusted summer peak load and DSM savings derived from information contained in the 1998 CELT report (Exhs. HO-N-15(S); HO-RR-1).

To develop forecasts of adjusted load, the Company combined each of these peak load forecasts with (1) the 1998 CELT report forecast of NUG netted from load, and (2) one of three forecasts of DSM savings based on the 1998 CELT report forecast of DSM savings (Exhs. HO-N-15(S); HO-RR-1).

(i) Demand Forecast Methods

The Company presented a base case unadjusted peak load forecast, derived directly from the 1998 NEPOOL CELT report reference forecasts of unadjusted load for summer peak ("1998 CELT forecast") (Exh. HO-N15(S)). The Company stated that NEPOOL uses a sophisticated end-use model based on a number of New England economic variables to forecast trends in the economy and resulting levels of energy consumption and peak demand (Tr. 1,

at 37). The Company asserted that the reference forecast provides a reasonable projection of regional demand (Exh. CPC-1, at 31).(10) The Company indicated that the 1998 CELT

report does not contain high and low load forecast scenarios (Exh. N-15(S)). Therefore, the Company also presented the 1997 CELT report high case ("CELT high case") and low case ("CELT low case") demand forecasts, which are based on optimistic and pessimistic economic forecasts, respectively, to illustrate the full range of uncertainty in the peak load (Exhs.

CPC-1, 30, 32, App. F).(11)

(ii) DSM

The Company provided three forecasts of DSM: (1) a base DSM scenario, which is the current forecast of company-sponsored DSM savings used in NEPOOL's 1998 CELT report;(12) (2) a high DSM scenario, which is 110 percent of the base DSM scenario; and (3) a low DSM scenario, which is 90 percent of the base DSM scenario (Exhs. CPC-1, at 32: HO-N-3(S)). The Company stated that, historically, NEPOOL has overestimated DSM savings but that more recent NEPOOL forecasts have been lower and closer to actual savings (Exh. CPC-1, at 32).

(iii) Adjusted Load Forecasts

The Company stated that to develop forecasts of adjusted load, the 1998 CELT unadjusted summer base case load forecast was combined with the (1) the 1998 CELT report forecast of NUG netted from load, and (2) three forecasts of DSM savings (Exh. HO-N-3(S)).

Thus, the Company presented three forecasts of adjusted summer peak load based on the 1998 CELT forecast report.

(b) Analysis

The Siting Board previously has acknowledged that the CELT report generally can provide an appropriate starting point for resource planning in New England, and has accepted the use of CELT forecasts for the purposes of evaluating regional need in previous reviews of proposed NUG facilities. ANP Bellingham Decision, EFSB 97-1, at 16; Millennium Power Decision, EFSB 96-4, at 16; NEA Decision, 16 DOMSC at 354. In addition, the Siting Board has relied primarily on the more recent available forecasts in its analysis of need. See Berkshire Power Decision, 4 DOMSB at 257.

Here, the Company derived an unadjusted base case summer demand forecast and base

case DSM scenario directly from the 1998 CELT forecast, which is the most recent CELT forecast. The Company derived two additional DSM scenarios from the base DSM scenario. The Company adjusted the unadjusted base case forecast by base, high and low DSM scenarios, for a total of three adjusted forecasts.

In addition, the Company provided the 1997 CELT high case demand forecast and CELT low case demand forecast as extreme demand forecasts, in order to test the sensitivity of the results of analysis of the base case forecast.(13) As noted above, NEPOOL assigns a low probability of occurrence to each of these forecasts. Consistent with previous Siting Board decisions (see, e.g., ANP Bellingham Decision, EFSB 97-1, at 16; Millennium Power Decision, EFSB 96-4, at 17; 1994 Cabot Decision, 2 DOMSC at 274), the Siting Board finds that these forecasts represent a sensitivity analysis of varying economic assumptions rather than forecasts of regional demand.

Overall, the Company has presented one base case forecast adjusted by three forecasts of DSM. Given uncertainties in forecasting demand, the Siting Board has previously found that it is reasonable to include a range of forecasts in a company's reliability need analysis. See, e.g., ANP Bellingham Decision, EFSB 97-1, at 16-17; Millennium Power Decision, EFSB 96-4, at 17; Berkshire Power Decision, 4 DOMSB at 261, n.23. However, as noted above, the Siting Board has acknowledged the value of the CELT report for regional resource planning and has accepted the use of CELT forecasts for the purpose of evaluating regional need. In addition, in reviewing need forecasts, the Siting Board has placed more weight on the base case forecast. Berkshire Power Decision, 4 DOMSB at 274. Here, the Company has provided the most recent CELT forecast as a base case forecast and also has provided high and low forecasts from a recent CELT forecast for the purpose of demonstrating the range of potential demand. Therefore, the Siting Board finds that it is reasonable, for purposes of this review, to rely on one base case forecast for summer peak load.

Accordingly, the Siting Board finds that the 1998 CELT forecast is an appropriate base case summer peak load forecast for use in the analysis of regional need for the years 2001 and beyond.

The Company also provided three forecasts of utility-sponsored DSM -- a base case scenario, which is NEPOOL's current forecast of company-sponsored DSM savings, a low DSM scenario which discounts NEPOOL's projected DSM growth rates by ten percent, and a high DSM forecast, which inflates NEPOOL's projected DSM growth rates by ten percent. As noted above, although NEPOOL historically has overestimated DSM savings, the more recent NEPOOL forecasts of DSM have been lower and closer to actual savings. The Company's symmetrical ten percent adjustment of NEPOOL's DSM forecast is consistent with the trend toward the successive lowering of NEPOOL's DSM forecasts, and is consistent with the DSM scenarios accepted by the Board in its most recent generating facility decisions. See ANP Bellingham Decision, EFSB 97-1, at 17; Millennium Power Decision, EFSB 96-4, at 17-18.

Accordingly, for purposes of this review, the Siting Board finds that: (1) the Company's

base DSM scenario represents an appropriate base case forecast of DSM savings for use in the regional need analysis; (2) the Company's low DSM scenario represents an appropriate low case forecast of DSM savings for use in the regional need analysis; and (3) the Company's high DSM scenario represents an appropriate high case forecast of DSM savings for use in the regional need analysis.

In sum, the Siting Board has accepted one forecast of summer peak load. In addition, the Siting Board has accepted three forecasts of DSM -- a base case, low case and high case. Therefore, the Siting Board here accepts three forecasts of adjusted summer peak load for the purposes of this review.

(2) Supply Forecasts

(a) Description

(i) Capacity Assumptions

CPC presented three supply scenarios -- base, high and low -- based in large part on the supply resources included in the 1998 CELT report (Exhs. CPC-1, at 33; HO-N-8;

HO-N-8(S)). The Company stated that it updated the 1998 NEPOOL supply forecast to reflect changes in the regional supply not included by NEPOOL (Exhs. HO-N-8; HO-N-8(S); HO-N-2(S)).(14) Specifically, beginning in 2001, the Company deducted the capacity of:

(1) the Middletown 1 unit (66 MW), and the Norwalk Harbor 10 unit (12 MW), both reactivated from deactivated reserve in 1996 as a temporary response to the Millstone unit outages; and (2) the Mason 3,4,5 Units (92 MW) (Exhs. HO-N-8(S); HO-N-8). CPC also added the capacity of: (1) the Wyman 1-3 units (223 MW); and (2) the Devon 11-14 units (125 MW), both of which consist of combustion turbines recently granted permanent operating permits (Exh. HO-N-8(S)).

The Company stated that, to reflect uncertainties in future capacity in its supply scenarios, it then adjusted the 1998 NEPOOL forecast by varying projections of: (1) the availability of existing fossil fuel-steam units; (2) the availability of existing nuclear units; and (3) the capacity of new projects currently being developed (Exhs. CPC-1, at 33-41; HO-N-8; HO-N-8(S)). CPC asserted that the CELT supply forecast overstates expected future capacity from existing nuclear units and fossil fuel steam units because it is simply a tabulation of all existing generating units based on their design or contract life without consideration of uncertainty in future availability (Exh. CPC-1, at 33). Specifically, the Company stated that the 1998 CELT report assumes: (1) the continued operation of all active nuclear units in the region for the full terms of their current operating licenses, even though these units are old and are facing significant regulatory,

technical and economic issues; and (2) the limited retirement of existing fossil fuel steam units that have been in operation for more than 25 years even though 1,500 MW will be at least 40 years old by 2000 and 3,200 MW will be at least 40 years old by 2005 (id. at 34, 39).

With respect to nuclear units, CPC stated that the Millstone 1 unit (641 MW) has been out of service since 1995 and that the Millstone 2 and 3 units (2030 MW) have been out of service since 1996 (id. at 35-36). CPC stated that Northeast Utilities ("NU") has indicated its expectation that the Nuclear Regulatory Commission will approve the re-start of the Millstone 2 and 3 units by mid-1998 and has also indicated that it will examine whether to restart the Millstone 1 unit later in 1998 (Exh. HO-N-9; Tr. 1, at 48-49). CPC argued that it is increasingly likely that the Millstone 1 unit will be retired (Exh. HO-N-9; Tr. 1, at 48-49). CPC noted that the Connecticut Department of Public Utility and Control recently issued an order finding the Millstone 1 unit not used and useful based on NU's deferral of maintenance on this unit in favor of the Millstone 2 and 3 units, and thus removed the Millstone 1 unit from rate base (Exh. HO-N-9 (Att.1)).

The Company stated that the older fossil fuel steam units will typically require increased expenditures for operations and maintenance ("O&M") and potential capital costs to comply with Phase II of the Clean Air Act Amendments of 1990 ("CAAA")

(Exh. CPC-1, at 39).(15) The Company explained that many of these expenditures likely will be difficult to justify under restructuring due to competition from new generation technology which has significant efficiency, economic and environmental advantages (id.). CPC also noted that these units may experience performance degradation due to their age (id.).

In addition, the Company stated the 1998 CELT supply forecast does not include the capacity from all proposed new generating facilities that have reached significant licensing completion (Exh. HO-N-7).(16) The Company noted, however, the 1998 CELT report did include four new generating facilities that were not included in the 1997 CELT report -- Berkshire Power Development (265 MW), Dighton (170 MW), Bridgeport Harbor, Connecticut (520 MW), and Androscoggin, Maine (142 MW) (Exhs. HO-N-2(S); HO-N-8(S)). The Company also indicated that two new proposed generating facilities have reached significant licensing milestones -- Tiverton, Rhode Island (250 MW), and Millennium (360 MW) (Exhs. HO-N-7; HO-N-8).(17)

For its base supply scenario, the Company assumed reductions in the 1998 CELT forecast capacity based on retirement of (1) the Millstone 1 unit (641 MW), and (2) 25 percent of the fossil-fired steam capacity that is at least 40 years old (492 MW in 2001 increasing to 908 MW in 2006)(18) (Exhs. CPC-1, at 40; HO-N-8(S)). In addition, the Company added 50 percent of the capacity of new generating units that have reached significant licensing completion (305 MW) (Exhs. HO-N-8(S); HO-N-8).

For the high supply scenario, the Company assumed that: (1) the Millstone 1 unit would be returned to service (641 MW); (2) ten percent of the fossil-fired steam capacity that is

at least 40 years old would be retired (197 MW in 2001); and (3) 80 percent of the capacity of new generating units that have reached significant licensing completion would come on-line as scheduled (488 MW) (Exhs. CPC-1, at 40; HO-N-7; HO-N-8; HO-N-8(S)). For the low supply scenario, the Company assumed that (1) the Millstone 1 and 2 units would be retired (1,512 MW); (2) 50 percent of the fossil-fired steam capacity that is at least 40 years old would be retired (984 MW in 2001); and (3) 20 percent of the capacity of new generating units that have reached significant licensing completion would come on-line as scheduled (122 MW) (Exhs. CPC-1, at 40; HO-N-7; HO-N-8; HO-N-8-(S)).

ii) Reserve Margin

The Company indicated that it adopted NEPOOL's most current projections of required reserve margins which are set forth in the September 1994 NEPOOL document, "1994 Annual Review of NEPOOL Objective Capability and Associated Parameters" (Exh. CPC-1, at 33). CPC stated that, in that document, NEPOOL specifies required reserve margins of 15 percent of adjusted peak load (id.).(19)

(b) Analysis

The Company has presented a base supply scenario which was based on the 1998 CELT report supply forecast, updated to reflect adjustments for actual, planned and likely changes to NEPOOL supply. In addition, to account for uncertainties in future availability, the Company then adjusted the updated 1998 NEPOOL forecast by varying projections of three categories of capacity to develop base, high and low supply scenarios. Here, the Siting Board considers the reasonableness of the Company's assumptions.

The Company's adjustments to the 1998 CELT report supply forecast included changes to reflect likely long-term status of units put in service as a temporary response to the Millstone outages. The Company deleted the capacity of older units that were reactivated from deactivated reserve and added the capacity of units put into service that have received permanent operating permits. For purposes of this review, the Siting Board accepts the Company's assumptions.

As noted above, in the base case supply scenario, the Company assumed that 25 percent of the capacity of fossil fuel steam units that have been in operation for more than 40 years would be retired -- 492 MW in 2001 increasing to 908 MW in 2006. The Siting Board notes that it is reasonable to conclude that a portion of the units operating beyond retirement guidelines will be retired beginning in 2001, especially in light of CAAA

requirements that are likely to take effect by 2000. In previous reviews the Siting Board has accepted assumptions that one unit operating beyond NEPOOL's guidelines for retirement, or a like amount of capacity, would be retired. See, ANP Bellingham Decision, EFSB 97-1, at 23; Millennium Power Decision, EFSB 96-4, at 24; Berkshire Power Decision, 4 DOMSC at 270. The capacity reduction here for the year 2001 is consistent with previous reviews. Therefore, the Siting Board accepts the Company's assumption regarding retirement of fossil fuel steam units operating for more than 40 years.

The Company also assumed that the Millstone 1 unit would be retired in the base case supply scenario. The record demonstrates that the Millstone 1 unit has been out of service since 1995, that NU has not decided whether to restart the unit, that NU has deferred maintenance on the unit and that the Connecticut Department of Public Utility and Control has removed the unit from rate base. Therefore, for purposes of this review, the Siting Board accepts the Company's assumption of the retirement of the Millstone 1 unit. In addition, the Siting Board recognizes that it is appropriate to account for additional NUG resources that may commence operation during the forecast period. Here, the Company included 50 percent of the capacity of those units that have reached significant licensing completion. The Company's criteria for including new proposed units is reasonable given the development, licensing, financing, and construction uncertainties that could affect the successful completion of units that are not fully licensed and under construction and is consistent with Siting Board precedent. Therefore, for purposes of this review, the Siting Board accepts the Company's assumptions regarding the inclusion of newly proposed units in the base case supply scenario.

Accordingly, the Siting Board finds that the Company's base supply scenario represents an appropriate base case supply forecast for use in the analysis of regional need. In addition, the Siting Board finds that the assumptions reflected in the Company's low case supply scenario are reasonable low case assumptions and that the low case supply scenario represents an appropriate low case supply forecast for use in the analysis of regional need. The Siting Board further finds that the assumptions reflected in the Company's high case supply scenario are reasonable high case assumptions and therefore that the high case supply scenario represents an appropriate high case supply forecast for use in the analysis of regional need.

Finally, with respect to reserve margins, the Company used NEPOOL's projected reserve margin for the year 2001 and reasonably assumed that the reserve margins would remain at the projected values for the year 2001 in the years 2002 through 2006. Accordingly, consistent with recent Siting Board decisions, the Siting Board finds that the reserve margins projected by the Company are appropriate for purposes of this review.

(3) Need Forecasts

(a) Description

The Company developed nine need forecasts by adjusting the 1998 CELT summer peak load forecasts by each of three DSM scenarios, and combining each of the resulting three adjusted demand forecasts with three supply forecasts (Exhs. HO-N-15(S); HO-RR-1). All nine of these need forecasts demonstrate a sustained need for at least 350 MW of capacity in 2001 (id.). See Table 1, below.

Table 1

RANGE OF REGIONAL NEED CASES

2001

Demand Case	DSM High Supply	Base Supply	Low Supply
1998 CELT High	(1,552)	(2,672)	(4,217)
1998 CELT Base	(1,726)	(2,846)	(4,391)
1998 CELT Low	(1,900)	(3,020)	(4,565)

Source: Exhs. HO-N-15(S); HO-RR-1.

Note: Capacity deficits are shown in ( ).

(b) Analysis

In considering the Company's forecasts of summer and winter peak load, the Siting Board has found that the 1998 CELT forecast is an appropriate base case summer peak load forecast for use in the analysis of regional need for the years 2001 and beyond. In considering the Company's DSM forecasts, the Siting Board has found that: (1) the Company's base DSM scenario represents an appropriate base case forecast of DSM savings for use in the regional need analysis; (2) the Company's low DSM scenario represents an appropriate low case forecast of DSM savings for use in the regional need analysis; and (3) the Company's high DSM scenario represents an appropriate high case forecast of DSM savings for use in the regional need analysis.

In considering the Company's supply forecasts, the Siting Board has found that: (1) the Company's base supply scenario represents an appropriate base case supply forecast for use in the analysis of regional need; (2) the Company's low case supply scenario represents an appropriate low case supply forecast for use in the analysis of regional need; and (3) the Company's high case supply scenario represents an appropriate high case supply forecast for use in the analysis of regional need. In addition, the Siting Board has found that the reserve margins projected by the Company are appropriate for the purposes of this review.

The capacity positions under the summer need forecasts based on the 1998 CELT summer peak load forecast for the year 2001 are shown in Table 1, above. All nine need forecasts demonstrate a sustained need for at least 350 MW of capacity in 2001. Accordingly, the Siting Board finds that there is a sustained need for 350 MW or more of additional energy resources in New England for reliability purposes beginning in the year 2001.

b. Massachusetts

The Company asserted that there is a need for new capacity in Massachusetts by the year 2001 (CPC Brief at 35). To support its assertions, the Company presented a series of forecasts of demand and supply for Massachusetts, based primarily on NEPOOL's 1998 CELT forecast prorated to Massachusetts (Exhs. CPC-1, at 46; HO-N-4(S); HO-N-11; HO-N-15(S)). The Company stated that it then combined its demand and supply forecasts to produce a series of need forecasts (Exh. CPC-1, at 47).

In the following sections, the Siting Board reviews the demand forecasts provided by the Company, including its demand forecast methods and estimates of DSM savings over the forecast period, and the supply forecasts provided by the Company, including its capacity assumptions and required reserve margin assumptions. The Siting Board then reviews the Company's need analyses for Massachusetts.

(1) Demand Forecasts, DSM and Adjusted

Load Forecasts

(a) Description

The Company indicated that it relied primarily on information contained in the 1998 CELT report and NEPOOL's most recent Massachusetts-specific forecast of adjusted summer peak load,(20) which was published in 1994, to develop a Massachusetts peak

load forecast (id.). The Company explained that it prorated the 1998 CELT unadjusted reference forecast by the ratio of the 1994 NEPOOL forecast for Massachusetts to the 1994 CELT reference forecast to develop a Massachusetts unadjusted reference forecast (id.). The Company indicated that it applied the same 1994 ratios to the 1998 CELT report forecasts of base, high and low DSM and of NUG netted from load, and subtracted these prorated forecasts from the Massachusetts unadjusted reference forecast to develop the Massachusetts adjusted load forecasts (Exh. HO-N-4(S)). In addition, the Company stated that it applied the 1994 ratios to the 1997 CELT high and low load forecasts to develop the Massachusetts high case and low case forecasts, respectively (Exh. CPC-1, at 47).

(b) Analysis

In its Massachusetts need analysis, CPC provided base case demand forecasts for adjusted summer peak load which correspond to the base case demand forecasts presented in its regional need analysis. CPC also provided high and low forecasts of summer peak load demand in Massachusetts which correspond to the high and low forecasts presented in the regional need analysis. Additionally, the Company provided high and low DSM cases for Massachusetts, which correspond to the set of assumptions used in the regional analysis.

The Siting Board reviewed the regional demand forecasts in Section II.A.2.a.i, above. Consistent with its findings concerning the regional demand forecasts, the Siting Board finds that (1) the 1998 Massachusetts forecast of summer peak load is an appropriate base case peak load forecast for use in the analysis of Massachusetts need, and (2) the CELT report high case and low case demand forecasts for Massachusetts represent a sensitivity analysis of varying economic assumptions rather than forecasts of Massachusetts demand.

With respect to DSM, the Company provided three forecasts of DSM savings corresponding to the forecasts of DSM savings presented in its regional need analysis. The Siting Board reviewed the regional DSM forecasts in Section II.A.2.a.i.(A), above. Consistent with its findings concerning the regional forecasts of DSM savings, the Siting Board finds that: (1) the base Massachusetts DSM scenario represents an appropriate base case forecast of DSM savings for use in the Massachusetts need analysis; (2) the high Massachusetts DSM scenario represents an appropriate high case forecast of DSM savings for use in the Massachusetts need analysis; and (3) the low Massachusetts DSM scenario represents an appropriate low case forecast of DSM savings for use in the Massachusetts need analysis.

(2) Supply Forecast and Reserve Margin

(a) Description

CPC stated that it developed base, high and low supply scenarios for Massachusetts, consistent with its regional supply scenarios, with adjustments to reflect the generating resource ownership and commitments of Massachusetts electric utility companies (Exh.CPC-1, at 47).

The Company stated that it used information from the 1998 CELT report to determine, on a utility-by-utility basis, the capacity committed to utilities serving Massachusetts customers, including the total capability for utility generating capacity and non-utility capacity purchases claimed by utilities serving load exclusively within Massachusetts, combined with a percentage of the capability claimed by Massachusetts utilities that are part of holding companies serving load in multiple states including Massachusetts (id. at 47;

Exhs. HO-N-8(S); HO-N-11). The Company stated that it allocated an amount of these multi-state holding-companies' capacity to Massachusetts by calculating for each such holding company the ratio of Massachusetts peak load to total peak load on each system, and then using this ratio to apportion to Massachusetts the capacity of each generating facility owned by the holding company (Exh. HO-N-14).(21)

The Company stated that its Massachusetts base, high and low case supply scenarios are comparable to the regional base, high and low case supply scenarios (Exh. CPC-1, at 47). In allocating the share of the projects currently under development to Massachusetts, CPC assumed that Massachusetts consumers would purchase output from these facilities in proportion to Massachusetts' share of the New England market (id.; HO-N-14).

The Company stated that it assumed the same yearly percentage reserve margin requirements for Massachusetts as were assumed for the region (Exh. CPC-1, at 47). These percentages were applied to the Massachusetts load forecasts (id.).

(b) Analysis

The Company provided a base case, low case and high case supply scenario for Massachusetts, corresponding to the supply forecasts presented in its regional need analysis. The Siting Board reviewed those forecasts in Section II.A.2.a.ii, above.

Consistent with its findings relative to the regional need analysis, the Siting Board finds that: (1) the Company's base supply scenario represents an appropriate base case supply forecast for use in the analysis of Massachusetts need; (2) the Company's low case supply scenario represents an appropriate low case supply forecast for use in the analysis of Massachusetts need; and (3) the Company's high case supply scenario represents an appropriate high case supply forecast for use in the analysis of Massachusetts need.

The Company assumed the same percentage reserve margin requirements for

Massachusetts as were assumed for the region. Consistent with its findings relative to the regional need analysis, the Siting Board finds that, for purposes of this review, the reserve margin requirements projected by the Company are appropriate.

(3) Need Forecasts

(a) Description

Consistent with its regional need forecasts, the Company developed nine summer need forecasts by adjusting the 1998 Massachusetts forecast by each of three DSM scenarios, and combining each of the resulting three summer adjusted demand forecasts with three supply forecasts (Exhs. HO-N-15; HO-RR-1, Att.3, Att.4, Att.5). Of these nine summer need forecasts, all demonstrate a sustained need for at least 350 MW of capacity in 2001. See Table 2, below.

Table 2

RANGE OF MASS NEED CASES

2001

Demand Case	DSM High Supply	Base Supply	Low Supply
1998 CELT High	(1,541)	(1,807)	(2,172)
1998 CELT Base	(1,623)	(1,889)	(2,254)
1998 CELT Low	(1,706)	(1,972)	(2,336)

Source: Exh. HO-RR-1, Att.3, Att.4, Att.5

Capacity deficits are shown in ( ).

(b) Analysis

Consistent with the regional need analysis, the Siting Board finds that it is appropriate to consider explicitly Massachusetts need for the updated project starting in 2001, the year that the project is proposed to enter service.

The Siting Board has found that (1) the 1998 Massachusetts forecast of summer peak load is an appropriate base case peak load forecast for use in the analysis of Massachusetts need, and (2) the CELT report high case and low case demand forecasts for Massachusetts represent a sensitivity analysis of varying economic assumptions rather than forecasts of Massachusetts demand.

In considering the Company's DSM forecasts, the Siting Board has found that: (1) the base Massachusetts DSM scenario represents an appropriate base case forecast of DSM savings for use in the Massachusetts need analysis; (2) the high Massachusetts DSM scenario represents an appropriate high case forecast of DSM savings for use in the Massachusetts need analysis; and (3) the low Massachusetts DSM scenario represents an appropriate low case forecast of DSM savings for use in the Massachusetts need analysis.

In considering the Company's supply forecasts, the Siting Board has found that: (1) the Company's base supply scenario represents an appropriate base case supply forecast for use in the analysis of Massachusetts need; (2) the Company's low case supply scenario represents an appropriate low case supply forecast for use in the analysis of Massachusetts need; and (3) the Company's high case supply scenario represents an appropriate high case supply forecast for use in the analysis of Massachusetts need. In addition, the Siting Board has found that, for purposes of this review, the reserve margin requirements projected by the Company are appropriate.

The capacity positions under the Massachusetts summer need forecasts, based on the 1998 CELT summer peak load forecast for Massachusetts, for the 2001 are shown in Table 2, above. All such summer need forecasts show a sustained need for at least 350 MW in 2001. Accordingly, the Siting Board finds that there is a sustained need for 350 MW or more of additional energy resources in Massachusetts for reliability purposes beginning in the year 2001.

3. Conclusions on Need

The Siting Board has found that there will be a sustained need for 350 MW or more of additional energy resources in New England for reliability purposes beginning in the year 2001. In addition, the Siting Board has found that there will be a sustained need for 350 MW or more of additional energy resources in Massachusetts for reliability purposes beginning in the year 2001.

Based on a showing of a sustained need for 350 MW or more of additional energy resources in the Commonwealth for reliability purposes, the Siting Board finds that the updated project is needed to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, beginning in the year 2001.

In the 1994 Cabot Decision, the Siting Board found need for the original project was based on the submission of signed and approved PPAs which include capacity payments for at least 75 percent of the original project's electric output. 2 DOMSB at 333. In this proceeding, the Siting Board finds that there is a sustained need for 350 MW or more of additional energy resources in the Commonwealth for reliability purposes. Consequently, the Siting Board will no longer require CPC to comply with Condition A of the 1994 Cabot Decision, which required CPC to demonstrate need through the submission of signed and approved PPAs.

B. Project Viability

1. Standard of Review

a. Existing Standard

The Siting Board determines that a proposed NUG is likely to be a viable source of energy if (1) the project is reasonably likely to be financed and constructed so that the project will actually go into service as planned, and (2) the project is likely to operate and be a reliable, least-cost source of energy over the planned life of the proposed project. ANP Bellingham Power Decision, EFSB 97-1, at 66; Millennium Power Decision, EFSB 96-4,

at 71; Berkshire Power Decision, 4 DOMSB at 346.

In order to meet the first test of viability, the proponent must establish (1) that the project is financiable, and (2) that the project is likely to be constructed within the applicable time frame and will be capable of meeting performance objectives. In order to meet the second test of viability, the proponent must establish (1) that the project is likely to be operated and maintained in a manner consistent with appropriate performance objectives, and (2) that the proponent's fuel acquisition strategy reasonably ensures low-cost, reliable energy resources over the planned life of the proposed project. ANP Bellingham Power Decision, EFSB 97-1, at 66; Millennium Power Decision, 96-4, at 72; Berkshire Power Decision,

4 DOMSB at 345.(22)

2. Financiability and Construction

a. Financiability

In considering a proponent's strategy for financing a proposed project, the Siting Board considers whether a project is reasonably likely to be financed so that the project will actually go into service as planned. In the 1994 Cabot Decision, the Siting Board found that while CPC had developed a strong plan for financing the original project, one key assurance to obtaining project financing -- signed PPAs, for a significant majority of the original project's output -- was missing from an otherwise well developed financing plan. The Siting Board therefore required CPC to submit, within four years, signed and approved PPAs for at least 75 percent of the original project's electric output in order to receive final approval. The Siting Board found that upon compliance with this condition, CPC would have established that its original project was financiable. 1994 Cabot Decision, 2 DOMSB at 362.

In the current proceeding, CPC indicated its intention to finance the updated project as a merchant plant (Exh. CPC-1, at 57). CPC asserted that its parent company, Cabot Corporation, and its affiliates have extensive experience in developing, financing, and operating capital intensive projects with market risks, and that this experience ensures that the updated project would be financiable (CPC Brief at 47). CPC also asserted that the updated project's low capital and operating costs, along with its high efficiency, process hot water output, and location in a load center, give it a significant advantage in the competitive marketplace of the electric generation industry (Exh. CPC-1, at 62). CPC noted that Cabot LNG Corporation, which is a subsidiary of Cabot Corporation and the holding company for the other Cabot LNG companies, is developing a $900 million natural gas liquification plant in Point Fortin, Trinidad, using $600 million in limited recourse loans -- one of the largest limited recourse financings in Latin America (Exhs. HO-V-6; HO-V-17). The Company compared the Port Fortin LNG facility to a merchant generating facility, noting that approximately 60 percent of the revenues flowing from the LNG facility float with the New England market price for gas, translating into a significant level of market or merchant risk (Exh. HO-V-9). In addition, CPC stated that merchant plant financing, with its attendant market risk, is similar to activity in the field of commodity production, where Cabot Corporation has had extensive experience (Tr. 1, at 111). Further, CPC indicated that DOMAC has been involved in negotiating and structuring a number of gas supply agreements with power projects in New England, including the L'Energia project in Lowell, and the MASSPOWER project in Springfield (Exh. HO-V-9). Finally, the Company stated that Cabot Corporation has developed, financed, and currently operates several cogeneration projects including the Berre carbon black facility near Marseilles, France which contains a 20 MW cogeneration plant, and a plant located in Altona, Australia, which generates 16 MW (id.).

CPC stated that it currently intends to secure project financing, but that CPC may decide that it is more economical to finance the project internally (Tr. 1, at 133). CPC stated that it expects to finance the updated project with equity participation from Cabot Corporation, debt, and possibly equity from a joint partner (Exh. HO-V-10). The Company asserted that Cabot Corporation would be able, if necessary, to finance the entire project (Tr. 1, at 134). CPC reported that Cabot Corporation has approximately $2 billion in assets and $2.5 billion in market capitalization, is in good standing with credit rating agencies, with a BBB+ rating from Standard and Poors, and has a $300 million

revolving credit with major international lending institutions (Exh. HO-V-10; Tr. 1, at 134).(23) CPC stated that there is a high interest in equity participation, and that if an equity partner were selected, it would be added to bring incremental value to the project (Exh. HO-V-10; Tr. 1, at 133-134).

CPC asserted that the updated project has the ability both to compete with the going-forward costs of existing plants in New England and to bring regional economic benefits to New England by causing a reduction in the market-clearing price for energy (CPC Brief at 45). Finally, the Company indicated that a number of merchant plants in New England have recently secured limited-recourse financing, and that the financial community has confidence in lending substantial capital to merchant facilities in the Massachusetts and New England markets (Exh. HO-V-10). The Company added that financing for the updated project would be procured with the intent of maintaining debt coverage ratios acceptable to the financial community, as well as other potential commercial interests (Exh. CPC-1, at 60).(24)

The Siting Board recognizes that the updated project, like the four most recent generating projects reviewed by the Siting Board, is being financed as a merchant plant. The current nature of the power supply market is such that long-term power contracts will not be the vehicle for selling the output from the updated facilities. Therefore, as in prior cases, the Siting Board will focus on the financial experience of the proponent, its ability to market the output of the updated project, and its ability to produce reliable, low cost electricity. Evidence of signed long term contracts will not be required to establish financiability.

Here, Cabot Corporation, the parent company of CPC, has committed to finance the updated project internally if necessary. The record indicates that Cabot Corporation has a broad range of experience in the overall project development process, including financing, and has developed numerous energy facilities worldwide. Cabot Corporation also has substantial capital resources for equity investment in power projects. The range of debt coverage ratios and assumptions provided by the Company in its pro forma are generally reasonable and consistent with Siting Board reviews in prior proceedings.

Consequently, the Siting Board finds that the Company has established that its updated project is financiable.

In the 1994 Cabot Decision, the Siting Board's finding of financiability for the original project was conditioned on the submission of signed and approved PPAs which were to include capacity payments for at least 75 percent of the original project's electric output. In this proceeding the Siting Board has recognized changes in the energy market including decreased reliance on long-term contracts and has found that the updated project is financiable. Consequently, the Siting Board will no longer require CPC to comply with Condition A of the 1994 Cabot Decision, which required CPC to demonstrate financiability through the submission of signed and approved PPAs.

b. Construction

In considering a proponent's strategy for a proposed project, the Siting Board considers whether the project is reasonably likely to be constructed and go into service as planned. ANP Bellingham Power Decision, EFSB 97-1 at 69; Millennium Power Decision, EFSB 96-4, at 79; Berkshire Power Decision, 4 DOMSB at 332.

In the 1994 Cabot Decision, the Siting Board found that the Company had established that the original project was likely to be constructed within applicable time frames, based on CPC's submission of a signed engineering, procurement and construction contract ("EPC") with Fluor Daniel, Incorporated. In addition, the Siting Board required CPC to provide a signed copy of an agreement between CPC and BECo as evidence of the original project's access to the regional transmission system, and found that upon compliance with this condition, CPC would have established that its original project was likely to be constructed within applicable time frames and be capable of meeting performance objectives. 1994 Cabot Decision, 2 DOMSB at 117-118.

The EPC contract submitted in the original proceeding is no longer valid. However, the Company indicated that it is currently negotiating an EPC contract with Westinghouse Power Generation ("Westinghouse PG") (Exh. CPC-1, at 64). The Company stated that since the late 1940's, Westinghouse PG has supplied and installed over 1,000 combustion turbine power generating units, including 200 combined cycle/heat recovery units (Exh. CPC-1, at 12). CPC reported that Westinghouse's Project Implementation Department has managed the construction of an estimated total of 21,000 MW of generation since 1988, with an additional 13,000 MW currently under construction (id. at 12, 64).

CPC indicated that it expects to enter into a fixed-price turnkey contract with its EPC contractor (Exhs. CPC-1, at 64; HO-V-5). In addition, CPC stated that its EPC contract would include the following guaranteed performance criteria: net electrical output, heat rate, thermal output, compliance with all applicable environmental permits, and maximum emission level guarantees (Exh. CPC-1, at 64). The Company stated that the EPC contractor would be responsible for all design, engineering, procurement, manufacturing, delivery, construction tasks, and installation and training needed to bring the plant into operation at the guaranteed performance standards, and would be required to meet a 27 month construction schedule (id.). The Company also stated that the EPC contract will also include provisions for liquidated damages for any failure to meet the scheduled completion date, bonus/penalty provision to ensure timeliness of construction, and insurance provisions (Exh. HO-V-5).

CPC noted that the Westinghouse 501G, which is the combustion turbine proposed for the updated project, is the latest in Westinghouse's 500 line of turbines and does not have extensive commercial operating experience (Exh. HO-V-2; Tr. 1, at 86-87).(25) CPC indicated that Mitsubishi Heavy Industries ("Mitsubishi") which has been working with Westinghouse on the development, but not the marketing of this turbine, has had one 330 MW MHI 501G in operation in Japan since June 1997 (Exh. HO-V-2; Tr. 1, at 87). CPC

stated that it does not have access to the specific details of the operational characteristics of the MHI 5O1G, but understands that it is operating without problems and meeting its performance expectations

(Tr. 1, at 88).(26) In addition, CPC stated that Westinghouse conducted a full-scale compressor test on its 501G in October 1997 with excellent performance results (Exh. HO-V-2;

Tr. 1, at 88).

The Company stated that the updated project would be interconnected with the regional electric transmission grid via a 345 kV half mile underground cable to an existing substation at the Boston Edison Mystic Station (Tr. 1, at 69). CPC indicated that BECo was updating the interconnection study completed for the original 235 MW project, and that the preliminary results are encouraging (Exh. CPC-1, at 64). CPC asserted that the reinforcements needed to interconnect the updated project to the grid appear to be minimal and relatively routine in nature (Tr. 1, at 69-70). The Company indicated that based on its location in the local Boston import region, the updated project would: (1) off-load some remote transmission, thereby deferring the need for upgrades to the transmission system; (2) decrease transmission system losses; and (3) improve voltage when load is supplied locally (Tr. 1, at 84-85).

The Company indicated that the analysis was scheduled to be completed in September 1998 (Exh. HO-V-11; Tr. 1, at 69). CPC noted that the updated project is fairly high in the queue of projects waiting for a system impact study, and that none of the projects situated

ahead of it in the queue are located in the Boston import region of NEPOOL (Tr. 1,

at 78-79).(27)

The Company also noted that FERC Order 888 states that a transmission provider cannot refuse to interconnect a generator such as the updated project, and argued that an executed interconnection agreement therefore should no longer be a condition for Siting Board approval (CPC Brief at 52, citing Berkshire Final Decision on Compliance, EFSB 95-1, at 5 (1997)). The Company requested that the Siting Board not condition final approval of the updated project on the submission by CPC of a signed interconnection agreement since the schedule for finalizing the interconnection agreement would not necessarily coincide with CPC's need to complete the permitting process prior to construction (CPC Brief at 52).

Finally, in the original proceeding, CPC provided a copy of a signed 30-year

ground-lease agreement with MassGas, Inc. effective January 31, 1992. 1994 Cabot Decision, 2 DOMSB at 363. The Company stated that the lease agreement remains in force

(Exh. CPC-1, at 58).

In the past, the Siting Board has found that a signed agreement for the design and construction of a proposed project provides reasonable assurances that the proposed project is likely to be constructed on schedule and will be able to perform as expected. ANP Bellingham Power Decision, EFSB 97-1, at 72; Millennium Power Decision, EFSB 96-4, at 82; Altresco-Pittsfield Decision, 17 DOMSC at 380.

Here, the Company has not submitted a draft or final EPC contract. The record in this proceeding indicates that Westinghouse PG has experience in the design and construction of generation plants which use technology similar to that proposed for this project and have successfully completed comparable projects. The Siting Board accepts that the Company's experience in negotiating EPC contracts for energy-related projects contributes to its ability to negotiate an acceptable final EPC contract. It also notes that the Company has stressed its intentions to provide low cost, clean power and has stated that its construction practices are structured to fulfill these objectives. However, in the absence of a final EPC contract between CPC and Westinghouse PG, the record contains no assurance that Westinghouse PG actually will be the EPC contractor for this project. Therefore, the Siting Board requires the Company to provide the Siting Board with a copy of a signed EPC contract between CPC and Westinghouse PG, or a comparable entity, that contains provisions that provide reasonable assurance that the project would perform as a low cost, clean power producer.

The Siting Board notes that an interconnection study is being prepared, and that the Company has not yet entered into a signed interconnection agreement with BECo enabling transmission access. In the 1994 Cabot Decision, the Siting Board required CPC to provide a signed copy of an interconnection agreement between CPC and BECo as evidence that the original project had access to the regional transmission system. However, under FERC Order 888, NEPOOL has an obligation to connect the updated project with the regional transmission grid, and consequently, the outstanding interconnection issues relate to the difficulty and cost of interconnection, rather than to whether such a contract can be negotiated. The Company has addressed these issues by providing the preliminary results of its interconnection study, which indicate that only minimal upgrades would be necessary to interconnect the updated project. CPC has also demonstrated that the transmission grid would benefit from construction of new generation in the Boston import region. This lends credence to the expectations based on the preliminary results of the interconnection study, that only minimal upgrades will be needed for interconnection. Consequently, the Siting Board will no longer require CPC to comply with Condition B of the 1994 Cabot Decision, which required CPC to demonstrate access to the regional transmission system through the submission of a signed interconnection agreement.

Finally, the Siting Board notes that the proposed 501G series of turbine began commercial operation in June, 1997, and therefore has limited operating experience. However, the MHI 501G has been operating in a satisfactory manner for over a year. At

the time of commercial operation of the updated project, it is likely that at least two additional generating plants will have had experience with the 501G. Nevertheless, the updated project cannot go forward as planned if there are unexpected delays in turbine development or testing. The Siting Board reiterates that a project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal (see Section IV, below). Should the 501G turbine be unable to perform substantially as expected, CPC would be required to notify the Siting Board as explained in Section IV, below.

Accordingly, upon compliance with the above conditions that the Company provide the Siting Board with a copy of a signed EPC contract between CPC and Westinghouse PG or a comparable entity that contains provisions that would provide reasonable assurance that the project would perform as a low-cost, clean power producer, the Siting Board finds that the Company will have established that its updated project is likely to be constructed within the applicable time frames and be capable of meeting performance objectives.

The Siting Board has found that the Company has established that its updated project is likely to be financiable. The Siting Board has also found that, upon compliance with the above condition relative to a signed EPC contract CPC will have established that its updated project is likely to be constructed within applicable time frames and capable of meeting the Company's performance objectives. Accordingly, the Siting Board finds that, upon compliance with the above condition, the Company will have established that its updated project meets the Siting Board's first test of viability.

3. Operations and Fuel Acquisition

a. Operations

In determining whether a proposed NUG project is likely to be viable as a reliable, least-cost source of energy over the planned life of the proposed project, the Siting Board evaluates the ability of the project proponent or other entities to operate and maintain the facility in a manner which ensures a reliable energy supply. ANP Bellingham Power Decision, EFSB 97-1, at 74; Millennium Power Decision, EFSB 96-4, at 84; Altresco-Pittsfield Decision, 17 DOMSC at 381-382. In a case where the proponent has relatively little experience in the development and operation of a major energy facility, that proponent has been asked to establish that experienced and competent entities are contracted for, or otherwise committed to, the performance of critical tasks. These tasks have historically been enumerated in detailed contracts or other agreements that include financial incentives and/or penalties which ensure reliable performance over the life of the facility. ANP Bellingham Power,

EFSB 97-1, at 74; Millennium Power Decision, EFSB 96-4, at 84; Altresco-Pittsfield

Decision, 17 DOMSC at 382-383.

In the 1994 Cabot Decision, the Siting Board found that CPC had established that its updated project was likely to be operated and maintained in a manner consistent with reliable performance over the life of the power sales agreement, based on CPC's submission of a signed O&M contract with Mission Operation and Maintenance. This contract is no longer valid.

In the current proceeding, CPC stated that it is in the process of negotiating an O&M contract complete with bonus, penalty, and incentive provisions with Westinghouse Operating Services Company ("Westinghouse OSC"), a qualified vendor (Exhs. CPC-1, at 66; HO-V-5). The Company stated that Westinghouse OSC provides a full array of technical services, field services, repair training, and other operating and maintenance services (Exh. CPC-1, at 66). CPC reported that Westinghouse OSC currently provides O&M services at six combined cycle gas facilities, representing approximately 1,550 MW (Exh. HO-V-7). Further, CPC indicated that Westinghouse OSC has significant O&M experience with simple cycle gas facilities throughout the world (id.). The Company stated that the average availability reported by Westinghouse OSC for the projects that it operates is over 94 percent (id.). In addition, CPC stated that it would be advantageous to have the major equipment supplier be both the O&M contractor and the EPC contractor (Tr. 1, at 103).

The Company asserted that the terms of the O&M agreement would be designed to create incentives for the operator to maintain the updated project's longevity, availability, and maximum output without sacrificing environmental considerations or community relations (Exhs. CPC-1, at 66; HO-V-5). CPC provided a summary of its O&M program, which would include procedures for: (1) normal plant O&M functions; (2) catastrophic avoidance; (3) emergency preparedness; (4) incremental improvement in the condition and capability of the facility; and (5) equipment status monitoring and documentation (Exh. CPC-1, at 67-68). Specifically, the Company stated that it would implement a performance-based fee system to address plant availability, plant efficiency, heat-rate degradation, net power output, and safety practices (Exh. HO-V-5).

The Company asserted that it expects to sign a final O&M agreement by the end of 1998 which is prior to financial closing and well before the start-up of commercial operation

(Exh. CPC-1, at 67; CPC Brief at 55). CPC stated that the Westinghouse 501G has a six year maintenance cycle, and that the term of the O&M contract therefore will be either six or 12 years (Tr. 1, at 104). The Company indicated that, in the event that Westinghouse OSC is not selected as the O&M contractor, CPC will evaluate and compare the benefits of contracting O&M services with: (1) a turnkey construction contractor with O&M experience, (2) a power island vender, or (3) an electric utility or non-utility generator operating subsidiary

(Exh. CPC-1, at 67).

In past cases, the Siting Board has found that an acceptable, executed O&M contract with an appropriate, experienced entity provided sufficient assurance that a project is likely to be operated and maintained in a manner consistent with reliable performance objectives. ANP Bellingham Power Decision, EFSB 97-1, at 75; Millennium Power Decision, EFSB 96-4, at 85; Altresco-Pittsfield Decision, 17 DOMSC at 382. The Siting Board notes that Cabot Corporation, the parent company of CPC, has documented that it has experience in contracting for the operation of a variety of energy projects, although not necessarily of the type and scale of the updated project, and has indicated that it intends to contract with an experienced vendor to operate the updated project. In addition, CPC has provided a summary of its anticipated O&M plan. However, in the absence of a final O&M contract between CPC and Westinghouse OSC, the record contains no assurance that Westinghouse OSC actually will be the O&M contractor for this project. Therefore, the Siting Board requires the Company to provide the Siting Board with a copy of a signed O&M contract between CPC and Westinghouse OSC, or a comparable entity, that contains provisions that provide reasonable assurance that the project would perform as a low cost, clean power producer.

Accordingly, upon compliance with the above condition that the Company provide the Siting Board with a copy of a signed O&M contract between CPC and Westinghouse OSC or a comparable entity that contains provisions that would provide reasonable assurance that the project would perform as a low-cost, clean power producer, the Siting Board finds that the Company will have established that its updated project is likely to be operated and maintained in a manner consistent with appropriate performance objectives.

b. Fuel Acquisition

In considering an applicant's fuel acquisition strategy, the Siting Board considers whether such a strategy reasonably ensures low-cost, reliable energy resources over the life of the proposed project.

In the 1994 Cabot Decision, the Siting Board required CPC to provide a copy of the contract or any other agreement between the Company and Exxon Corporation ("Exxon") or any of Exxon's successors, regarding the supply of distillate oil to the original project, and found that upon compliance with this condition, CPC would have established that its fuel acquisition strategy reasonably ensured a low-cost, reliable source of energy over the likely term of project PPAs. The Siting Board based its conclusion on: the Company's articulation of a reasonable long-term primary fuel supply plan; the location of the original project adjacent to the fuel supply; and CPC's signed gas purchase contract with DOMAC with (1) a low initial fuel price, and (2) stable prices throughout the life of the original project. With respect to back-up fuel supply plans, the Siting Board found that the Company would utilize natural gas or distillate oil. The Siting Board also noted that the location of the original project was advantageous with respect to each of the back-up fuel supply options and that pipeline interconnects -- terminating at the original project --

would enable delivery of each option. The gas purchase contract with DOMAC provided that DOMAC would be responsible to supply natural gas to the original project in the event that it was unable to supply vaporized LNG. 1994 Cabot Decision, 2 DOMSB at 369-370.

In the current proceeding, CPC stated that its original contract with DOMAC does not provide CPC with the flexibility it needs in the current competitive energy market

(Exh. CPC-1, at 68, 70-71; CPC Brief at 57). However, CPC stated that it still plans to purchase all of its fuel requirements from DOMAC, located adjacent to the CPC updated project (id.).(28) CPC reported that it expects to execute a new fuel contract with DOMAC by the end of 1998, and noted that its affiliation with DOMAC provides for faster contract negotiations (Tr. 1, at 145). The Company indicated that it will enter into formal agreements documenting its long-term supply arrangement as the updated project progresses (Exh. CPC-1, at 71; Tr. 1, at 145).

CPC stated that Distrigas Corporation ("Distrigas")(29) would be responsible for importing the DOMAC volumes to the DOMAC Terminal, where it would be received and vaporized by DOMAC (Exh. HO-V-13). The Company indicated that DOMAC is actively marketing its gas supply to other Northeast and New England electric generators (Exh. CPC-1, at 10). CPC further reported that DOMAC is presently supplying gas to two Massachusetts non-utility generators -- MASSPOWER and L'Energia (id.).

The Company stated that the deliverability of LNG to the DOMAC Terminal is backed from a portfolio of supply that includes LNG from Algeria (Sonatrach), Trinidad (Atlantic LNG) and other LNG suppliers (Exh. HO-V-13). In addition, CPC indicated that there is a growing spot market for LNG, opening up additional short-term supplies of LNG to DOMAC (id.). The Company stated that the DOMAC facility is scheduled to receive between 30 and 40 of LNG cargoes a year,(30) of which six, equivalent to almost 60,000 MMBtu, would be consumed by the updated project (Exh. HO-V-16; Tr. 1, at 117). CPC asserted that the combined Algerian and Trinidad supplies alone would allow DOMAC to sustain an average daily sendout greater than 250,000 MMBtu of vaporized LNG from the Everett LNG terminal (Exh. HO-V-16). CPC explained that the expected level of LNG supplies to DOMAC is made possible by construction of the Atlantic LNG plant, a Trinidad LNG facility that is scheduled to be completed in the spring of 1999 (Exh. HO-V-15).(31)

CPC stated that in the unlikely event that DOMAC was temporarily unable to supply vaporized LNG to the updated project, DOMAC would provide either pipeline gas or other vaporized LNG to the project (Exh. CPC-1, at 71). The Company stated that the updated project and the DOMAC LNG terminal are both located at the intersection of the two interstate pipelines serving New England -- Algonquin Gas Transmission Company and Tennessee Gas Pipeline Company -- and adjacent to Boston Gas' LNG facilities (Exh. CPC-1, at 71). The Company pointed out that FERC has approved an expansion by Tennessee of its pipeline system from the end of the Revere lateral into Everett (Tr. 1, at 123).

In considering an applicant's fuel acquisition strategy, the Siting Board considers whether such a strategy reasonably ensures a low-cost, reliable source of energy over the planned life of the proposed project. ANP Bellingham Decision, EFSB 97-1, at 78; Millennium Power Decision, EFSB 96-4, at 90; Berkshire Power Decision, 4 DOMSB at 343. The Siting Board has recognized that, in considering a petitioner's fuel acquisition strategy, it is appropriate to consider the need for flexibility, the expected shorter time frame of PPAs in a restructured electric industry, and the industry-wide shift away from long-term gas supply contracts. ANP Bellingham Decision, EFSB 97-1, at 78; Millennium Power Decision,

EFSB 96-4, at 90; Berkshire Power Decision, 4 DOMSB at 343. Nevertheless, the proponent must demonstrate that a low-cost, reliable fuel supply will be available to a proposed project in order to determine that a proposed project will be capable of providing a necessary energy supply consistent with its mandate.

In past decisions, the Siting Board generally has reviewed final fuel transportation and/or supply contracts between proponents and pipeline companies. While the Siting Board has not required proponents to submit signed long-term fuel supply contracts in recent cases, it generally still has required firm transportation contracts from a major interconnection point as assurance that a proponent's gas supply strategy is viable.

Here, the Company has presented a fuel acquisition strategy that is similar to that presented in the original petition, with two exceptions: (1) CPC currently does not have in place a long-term LNG supply contract with its supplier, DOMAC; and (2) CPC no longer intends to use oil as a back-up fuel. The Company has stated that its affiliate DOMAC will be the principal supplier for all of the updated project's fuel requirements. The Company plans to have its gas supply contract with DOMAC in place prior to the start of construction. Distrigas has procured significant additional LNG gas supplies from a new facility being constructed in Trinidad, of which Cabot Corporation is a part owner. Further, the Company has provided information demonstrating that there are sufficient, available DOMAC supplies to be allocated to CPC exclusively and that the location of the updated project adjacent to the fuel supply is advantageous and cost efficient. In addition, DOMAC has demonstrated that it has experience in procuring fuel for comparable facilities including two facilities in Massachusetts.

In regard to a back-up fuel supply, CPC has a number of options with respect to receiving an alternative supply of gas through DOMAC, via Tennessee, Algonquin or Boston Gas. In addition, the LNG spot market is available to supplement existing LNG supplies. Therefore, the decision to forgo oil as a back-up fuel still ensures a reliable and sufficient back-up fuel supply, while contributing to increased environmental benefits.

It is likely that the fuel supplies selected by the Company will be low cost and reliable, due to DOMAC's location adjacent to the updated project, and the committed long term relationship between the corporate entities. Accordingly, the Siting Board finds that the Company has established that its fuel acquisition strategy reasonably ensures a low-cost,

reliable source of energy over the planned life of the updated project.

However, the Company has not yet entered into a final contract for gas supply. The Siting Board's conclusions regarding the Company's fuel acquisition strategy assume that the final contracts will be consistent with the fuel supply plan outlined during this proceeding. In Section IV, below, the Siting Board requires CPC 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 that issue. Therefore, the Company shall notify the Siting Board if contracts are executed that provide for fuel transportation and supply arrangements other than those considered in this analysis, and submit to the Siting Board a discussion of the changed arrangements and explain how such arrangements would affect the cost and reliability of the project's gas supply.

In the 1994 Cabot Decision, the Siting Board found that the fuel acquisition strategy of the original project was to be conditioned on the submission of a copy of the contract or any other agreement between the Company and Exxon or any of Exxon successors, regarding the supply of distillate oil to the original project. In the updated project, the Company will not use oil as a back-up fuel. Consequently, the Siting Board will not require CPC to comply with Condition C of the 1994 Cabot Decision, which required submission of a contract or agreement demonstrating a back-up fuel supply.

The Siting Board has found that, upon compliance with the above condition relative to a signed O&M, contract CPC will have established that its updated project is likely to be operated and maintained in a manner consistent with appropriate performance objectives. The Siting Board has also found that CPC's fuel acquisition strategy reasonably ensures a low-cost, reliable source of energy over the planned life of the updated project. Accordingly, the Siting Board finds that the Company has established that its updated project meets the Siting Board's second test of viability.

4. Conclusions on Project Viability

The Siting Board has found that, upon compliance with the conditions in Sections II.B.2 and II.B.3 above, CPC will have established that its updated project (1) is reasonably likely to be financed and constructed so that the project will actually go into service as planned, and

(2) is likely to operate and be a reliable, least-cost source of energy over the planned life of the updated project.

Accordingly, the Siting Board finds that, upon compliance with the aforementioned conditions, CPC will have established that its updated project is likely to be a viable source of energy.

III. ANALYSIS OF THE UPDATED PROJECT

The Siting Board has a statutory mandate to implement the policies of G.L. c. 164, §§ 69H-69Q to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. Further,

G. L. c. 164, § 69J requires the Siting Board to review alternatives to planned projects, including "other site locations." In implementing this statutory mandate and requirement, the Siting Board requires a petitioner to show that its proposed facilities' siting plans are superior to alternatives and that its proposed facilities are sited at locations that minimize costs and environmental impacts while ensuring supply reliability. 1993 BECo Decision,

EFSB 90-12/90-12A at 27. The Siting Board accomplishes this through a review of the applicant's site selection process, followed by a review of the environmental impacts, costs and reliability of the proposed facilities.

In the 1994 Cabot Decision, the Siting Board reviewed CPC's site selection process, including the consistency of the Company's proposal with the Siting Board's Coastal Zone Facility regulations.(32) The Siting Board found that: (1) CPC had developed a reasonable set of criteria for identifying and evaluating alternative sites; (2) CPC had appropriately applied a reasonable set of criteria for identifying and evaluating alternatives in a manner that ensured that it had not overlooked or eliminated any clearly superior sites; and (3) CPC was not required to provide an alternative site with some measure of geographic diversity.(33) 1994 Cabot Decision, 2 DOMSB at 388. The Siting Board also found that CPC had complied with the CZM requirement that its site evaluation and comparison "include a justification of the necessity for or advantage of coastal siting" for its proposed facility. Id. The Siting Board therefore found that CPC had considered a reasonable range of practical facility siting alternatives. Consistent with the Hearing Officer's December 23, 1997 procedural order, the Siting Board does not revisit these findings in this decision.

A. Description of Updated Project

CPC proposes to construct a 350-MW gas-fired, combined-cycle cogeneration facility within the IEIP which is located in the City of Everett and bordered, generally, by the Island End River, the Mystic River, Route 16 and Route 66 (Exh. CPC-1, at 1; 1994 Cabot Decision, 2 DOMSB at 371). The proposed site is currently occupied by a vacant warehouse and truck loading areas and is owned by MassGas, Inc., an affiliate of Cabot. 1994 Cabot Decision, 2 DOMSB at 371. The 5.2 acre proposed site is surrounded by industrial uses including the DOMAC LNG Marine Terminal and an unused rail spur to

the northwest, a warehouse to the northeast, and a cement storage facility and sand and gravel operation to the south. Id. See Figure 1.

The major components of the updated project consist of: (1) a 230 MW high temperature combustion turbine-generator with dry low-NOx combusters; (2) an HRSG; (3) a 120 MW steam turbine-generator; (4) an SCR system; (5) an air-cooled condenser; (6) a turbine air inlet chiller; and (7) a 150-foot exhaust stack (Exh. CPC-1, at 3-4). Additional components include a 345 kV standard air-insulated substation, and an ammonia storage tank (id.). Relatively low temperature exhaust steam would be converted to hot water and piped to the DOMAC Terminal where it would be used to vaporize LNG (Tr. 1, at 140-143).(34) Electricity output would be transmitted to the Boston Edison Mystic Station substation via an approximately one-half mile, underground, 345 kV transmission line (Exh. CPC-1, at 3-5).

The primary fuel for the updated project would be LNG supplied by DOMAC via a pipeline from the DOMAC Terminal. At times when vaporized LNG is not available, equivalent volumes of natural gas delivered via existing pipeline facilities connected to the DOMAC Terminal would be employed (id. at 3, 69, 71).

The updated project would cost approximately $241 million in 2000 dollars (id. at 73).

B. Environmental Impacts, Cost and Reliability of the Updated Project

1. Standard of Review

In implementing its statutory mandate to ensure a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires project proponents to show that proposed facilities are sited at locations that minimize costs and environmental impacts, while ensuring a reliable energy supply. In order to determine whether such a showing is made, the Siting Board requires project proponents to demonstrate that the proposed site for the project is superior to the noticed alternative on the basis of balancing cost, environmental impact and reliability of supply. ANP Bellingham Decision, EFSB 97-1, at 92; Millennium Power Decision, EFSB 96-4, at 106; Berkshire Gas Company, 23 DOMSC at 294, 324 (1991). In cases, such as the instant case, where a noticed alternative is not required, the facility proponent still must demonstrate that the proposed site for the facility will minimize environmental impacts and that an appropriate balance will be achieved among conflicting environmental concerns as well as among environmental impacts, cost and reliability. 1994 Cabot Decision, 2 DOMSB at 388-389; Altresco Lynn Decision, 2 DOMSB at 176 (1993); Berkshire Gas Company,

23 DOMSC at 294, 324 (1991).

An assessment of all impacts of a facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns as well as among environmental impacts, cost and reliability. ANP Bellingham Decision, EFSB 97-1,

at 92-93; Millennium Power Decision, EFSB 96-4, at 106; EEC Decision, 22 DOMSC at 334, 336. A facility proposal which achieves that appropriate balance is one that meets the Siting Board's statutory requirement to minimize environmental impacts. ANP Bellingham Decision, EFSB 97-1, at 92; Millennium Power Decision, EFSB 96-4, at 106; EEC Decision,

22 DOMSC at 334, 336.

An overall assessment of the impacts of a facility on the environment, rather than a mere checklist of a facility's compliance with regulatory standards of other government agencies, is consistent with the statutory mandate to ensure a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. ANP Bellingham Decision, EFSB 97-1, at 93; Millennium Power Decision, EFSB 96-4, at 106; EEC Decision, 22 DOMSC at 334, 336. Compliance with other agencies' standards clearly does not establish that a proposed facility's environmental impacts have been minimized. ANP Bellingham Decision, EFSB 97-1, at 93; Millennium Power Decision, EFSB 96-4, at 106; EEC Decision, 22 DOMSC at 334, 336. Furthermore, the levels of environmental control that the project proponent must achieve cannot be set forth in advance in terms of quantitative or other specific criteria, but instead, must depend on the particular environmental, cost and reliability trade-offs that arise in specific facility proposals. ANP Bellingham Decision, EFSB 97- 1, at 93; Millennium Power Decision, EFSB 96-4, at 106; EEC Decision, 22 DOMSC at 334-335.

The Siting Board recognizes that an evaluation of the environmental, cost, and reliability trade-offs associated with a particular decision must be clearly described and consistently reviewed from one case to the next. Therefore, in order to determine if a project proponent has achieved the appropriate balance among environmental impacts and among environmental impacts, costs and reliability, the Siting Board must first determine if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures in order to make such a determination.(35) ANP Bellingham Decision, EFSB 97- 1, at 93-94; Millennium Power Decision, EFSB 96-4, at 107; 1993 BECo Decision, EFSB 90-12/90-12A at 31-32. The Siting Board can then determine whether environmental impacts have been minimized. Similarly, the Siting Board must find that the project proponent has provided sufficient cost information in order to determine if the appropriate balance among environmental impacts, costs, and reliability has been achieved. ANP Bellingham Decision, EFSB 97- 1, at 94; Millennium Power Decision, EFSB 96-4, at 107; 1993 BECo Decision, EFSB 90-12/90-12A at 32.

Accordingly, in the sections below, the Siting Board examines the environmental and cost impacts of the proposed facilities at the Company's proposed site to determine:

(1) whether environmental impacts would be minimized at the site; and (2) whether an appropriate balance would be achieved at the site among conflicting environmental concerns as well as among environmental impacts, cost and reliability.(36)

2. Environmental Impacts of the Updated Project

a. Air Quality

In the 1994 Cabot Decision, the Siting Board found that CPC had provided adequate support for its assertion that emissions of criteria pollutants and other regulated pollutants from the updated project would be minimized, and that emissions of criteria pollutants would have acceptable impacts on existing air quality. The Siting Board also found that with the implementation of a specific offset plan required by the Siting Board, the environmental impacts of the CO2 emissions from the updated project would be minimized consistent with minimizing cost. The Siting Board therefore found that, with the implementation of CPC's proposed Best Available Control Technology ("BACT"), and with the implementation of the Siting Board condition regarding a CO2 mitigation plan, the environmental impacts of the updated project would be minimized with respect to air quality. 1994 Cabot Decision, 2 DOMSB at 402, 403.

(1) Description

The Company asserted that the stack emissions from the updated project would be adequately minimized and would have acceptable impacts on air quality (CPC Brief at 76). CPC asserted that the emissions of the updated project are significantly less than those of the original project, due primarily to the elimination of oil as a back-up fuel, the use of more efficient turbine and air pollution control equipment, and the installation of a carbon oxidation catalyst (Exhs. CPC-1, at 76; HO-E-13). CPC indicated that the air pollution control technologies proposed for the project and the resultant emissions are equal to or better than those proposed for similar projects recently approved by the Siting Board (Exh. CPC-1, at 76). The Company provided estimates of the quantity of pollutants that would be emitted from the updated project based on emission guarantees for the Westinghouse 501G gas turbine

(Exh. HO-E-10).

CPC explained that new Clean Air Act regulatory requirements have been promulgated since the 1994 Cabot Decision was issued (Exh. CPC-3, at 4-23). Specifically, the updated project now is classified as a major source for Nitrogen Oxide ("NOx") under Non-attainment New Source Review ("NSR") (id.). The updated project therefore must

meet emission controls associated with Lowest Achievable Emission Rate ("LAER") and must offset its NOx emissions (id.). Further, the updated project is now subject to Prevention of Significant Deterioration ("PSD") regulations for NOx, CO, Volatile Organic Compounds ("VOC") and Particulate Matter ("PM10"); therefore, these criteria pollutants must meet the standards for BACT (id.).

The Company provided data indicating that, for all criteria pollutants except VOC, annual emissions would be less under the updated project than the original project (Exh. CPC-1, at 75).(37) The Company explained, however, that although the emissions as measured in tpy would be less, maximum concentrations of NOx, CO, and PM10 would be greater under the updated project due to its lower stack height (Tr. 2, at 75). CPC asserted that the updated project's emissions are well within acceptable levels, that ambient impacts would be well below applicable standards, guidelines, and PSD increments, and that for many pollutants and averaging periods, the impacts would be below the Significant Impact Level criteria ("SIL") (id.; Exh. CPC-2, at 4-33).

The Company asserted that it will use dry low-NOx combusters and SCR to achieve a 3.5 ppm emission rate for NOx (Exhs. CPC-1, App. H at 2; CPC-3, at 4-26 to 4-27). The Company provided copies of correspondence between CPC and MDEP concerning (1) the use of a new NOx control technology called SCONOx, and (2) attainment of a new LAER standard for NOx emissions of 2.5 ppm with a zero ppm emission rate for ammonia slip (Exhs. HO-E-8; HO-RR-9 (Atts. 1, 2, and 3)). The Company stated that it is still reviewing with MDEP, in the context of CPC's air permit application, the issues of a lower LAER for NOx and the ability to eliminate ammonia slip (Tr. 2 at 81-91).

In regard to non-criteria pollutants, CPC indicated that the updated project would essentially no longer emit beryllium, fluoride, and mercury; sulfuric acid mist would be reduced; and ammonia and CO2 emissions are expected to increase over those identified in the original project (Exh. CPC-1, App. H at 2). CPC stated that the threshold effects limits ("TELs") and allowable ambient limits ("AALs") established by MDEP as guidelines for air toxics, which here apply to ammonia and sulfuric acid, show that air toxic impacts of the updated project would not exceed the TELs and AALs (Exh. CPC-2, at 4-34).

The Company stated that it is required by MDEP to provide NOx offsets at a minimum ratio of 1.2 to 1.0 in order to comply with non-attainment NSR for NOx (Exhs. CPC-1, at 77; CPC-2, at 5-1). The Company explained that it will be obligated to obtain MDEP-certified Emission Reduction Credits ("ERCs") in an amount five percent greater than needed based on the 1.2 to 1.0 ratio (Exh. CPC-1, at 77). CPC stated that it therefore would obtain, prior to the operation of the project, ERCs totalling 1.26 times the maximum annual NOx emissions, or 183 tons of offsets (id.). CPC indicated that it has discussed the possible purchase of either shutdown credits or a stream of ERCs with Boston Edison, New England Power and Eastern Utility Associates (id.; Exh. HO-E-9). Further, CPC stated that it anticipates future discussions regarding NOx offsets with other entities who have purchased investor owned utility electric facilities (Exh. HO-E-9). The Company stated that its first preference is to purchase shutdown credits, and that it would

purchase discrete credits as a second choice (id.). The Company indicated that the updated project would emit up to 1.25 million tpy of CO2, an increase of 307,000 tpy over the 943,000 tpy estimated for the original project (Exh. CPC-1, at 77). CPC stated that the estimated increase in CO2 emissions resulted from the increased capacity of the updated project, but asserted that the increase had been minimized by the elimination of oil as a back-up fuel and by the use of a more efficient turbine technology (id.). The Company has proposed to make contributions to cost-effective mitigation programs during the first five years of the project at a net present value equivalent to the total amount that would offset one percent of the annual CO2 emissions over a 20-year period at the cost of $1.50 per ton (id.; Tr. 2, at 91). CPC indicated that it would work in consultation with the Siting Board to select cost-effective mitigation programs toward which the contribution would be applied (Exh. CPC-1, at 77; Tr. 2, at 91). The Company asserted that its proposed CO2 mitigation approach complies with the standards set forth by the Siting Board in the Dighton Power Decision, EFSB 96-3, at 37-43 (Exh. CPC-1, at 77).

(2) Analysis

The Company has demonstrated that emissions of criteria and other pollutants from the updated project at the proposed site would have acceptable impacts on existing air quality. The Company has used reasonable and appropriate air modelling techniques to assess the impacts of emissions from the updated project. The record shows that the updated project would include a highly efficient combustion turbine with natural gas as the sole fuel. Additionally, the Company has indicated that the updated project would incorporate advanced emissions control technologies.

The Company has presented offset analyses for NOx and CO2 -- pollutants which potentially contribute to regional ground-level ozone concerns and international climate change concerns, respectively. With respect to NOx, the Company has established that it has a viable plan in place to obtain NOx ERCs consistent with non-attainment NSR and MDEP requirements.

In the Dighton Power Decision, the Siting Board set forth a new approach to the mitigation of CO2 emissions that required generating facilities to make a monetary contribution, within the early years of project operation, to one or more cost-effective CO2 offset programs, with such program(s) to be selected in consultation with the Siting Board Staff. EFSB 96-3, at 42-43.(38) In Dighton, the Siting Board expressed an expectation that the contributions of future project developers would reflect that set forth in Dighton, which was based on an offset of one percent of annual facility CO2 emissions, at $1.50 per ton, to be donated in the early years of facility operation. Id. at 43.

With respect to mitigation of CO2, the Company has proposed to contribute an amount,

based on the updated project's annual maximum CO2 emissions over 20 years of operation, that would be consistent with those ordered in recent generating facility cases. Based on projected maximum annual CO2 emissions of 1.25 million tpy for the updated project, the total contribution requirement would be $375,000. Therefore, the Siting Board requires the Company to provide CO2 offsets through a total contribution of $398,185 to be paid in five annual installments during the first five years of project operation, to a cost-effective CO2 offset program or programs to be selected upon consultation with the Staff of the Siting Board.(39) Alternatively, the Company may elect to provide the entire contribution within the first year of project operation. If the Company so chooses, the CO2 offset requirement would be satisfied by a single first-year contribution based on the net present value of the five year amount to a cost-effective CO2 offset program or programs to be selected upon consultation with the Staff of the Siting Board.(40)

Accordingly, the Siting Board finds that, with implementation of the foregoing NOx and CO2 offset measures, the environmental impacts of the updated project at the proposed site would be minimized with respect to air quality.

b. Noise

In the 1994 Cabot Decision the Siting Board found that the operation of the updated project would result in a maximum residential receptor noise increase of three decibels ("dBA") -- a level that not only would be within the MDEP ten decibel guideline, but would be less than half that amount. The 1994 Cabot Decision recognized that existing ambient residential noise levels were close to the highest levels addressed by the Siting Board compared to those in earlier previous reviews of proposed generating facilities. Altresco Lynn Decision, EFSB 91-102, at 188; 1993 BECo Decision, EFSB 90-12/90-12A at 100; Enron Decision, 23 DOMSC at 210-211.

The 1994 Cabot Decision noted that the Company did not expect that the three dBA maximum residential increase would be guaranteed by the contractor and that the Company did not expect to take any action, barring problems, if the actual noise increases were slightly higher than the projected three dBA increase. Given that the existing ambient noise levels in residential areas in the vicinity of the original project were higher than the levels identified by the EPA as requisite to protect public health, the Siting Board concluded that increases above the projected levels would not be acceptable. Finally, with respect to construction noise, the Siting Board noted in the 1994 Cabot Decision that since the calculated noise levels of most construction activity at the nearest residence would exceed existing daytime noise levels, construction noise could potentially impact nearby residential areas.

Therefore, in order to minimize noise impacts of community noise levels, in the 1994 Cabot Decision the Siting Board required that CPC: (1) incorporate all proposed

mitigation so that the continuous noise increase from the operation of the updated project would be no more than three decibels at any residence;(41) (2) refrain from conducting construction that generates significant noise before 8:00 a.m.;(42) and (3) confine all primary construction activity to between the hours of 6:30 a.m. and 5:30 p.m., Monday through Saturday, except as necessary for structural integrity or safety reasons. The Siting Board therefore found that, with the implementation of the aforementioned conditions, the environmental impacts of the original project would be minimized with respect to noise impacts. 1994 Cabot Decision,

2 DOMSB at 408.

In this proceeding, the Company asserted that it would undertake significant noise control measures to meet the conditions set forth in the 1994 Cabot Decision, and that the impacts of the updated project therefore would be minimized with respect to noise

(Exh. CPC-1, App. I, at 8). The Company further stated that the noise impacts of the updated project would comply with MDEP regulations and policies that restrict (1) increases in the broadband sound level to ten dBA above the pre-existing ambient level, and (2) production of a pure tone sound (CPC Brief at 79).

The Company indicated that the existing noise environment around the updated project site is essentially unchanged from that described in its original petition (Exh. CPC-1, App. I

at 1). CPC conducted an updated study of noise impacts study at the two most sensitive residential locations and at the nearest property line (id.). The Company indicated that the highest L90 noise increase at a residential receptor would continue to be at Admiral's Hill, where noise levels would increase by four dBA, from 50 dBA to 54 dBA (id. at 6). Noting that an increase of three dBA is the minimum increase that is perceptible to the human ear, the Company stated that the projected increase of four dBA would result in a barely perceptible change in community noise (id. at 7).

With regard to noise impacts at the property line, CPC indicated that L90 noise increases would range from five dBA to nine dBA, and that the maximum resultant noise level would be 75 dBA at the northeast property line (Exh. CPC-3(S)). CPC stated that facility noise at the adjacent indoor industrial locations would be negligible due to the noise reduction effect of building walls and existing noise within those adjacent industrial facilities (id. at 7). Further, CPC stated that combined facility and background noise levels at these facility locations would be one to six dBA lower than criteria that protect the most sensitive indoor use (Exhs.

CPC-3(S); HO-E-6).(43)

CPC asserted that it would guarantee that the updated project would not result in any noise increase of more than four dBA over the existing ambient noise levels at the residential receptors (Tr. 2, at 44). CPC explained that the EPC contract would include a

guarantee based on the MDEP ten dBA limitation in residential areas (Exh. HO-V-8; Tr. 2, at 44). However, the Company asserted that it has selected design and noise mitigation strategies that would ensure a maximum noise increase of four dBA at residential receptors and added that the contractor would install the equipment the Company had specified (Tr. 2, at 44-50).

The Company estimated an additional cost of $1.5 million to reduce the proposed noise increase from four dBA to three dBA (Exh. HO-RR-8). In addition, the Company stated that, the additional mitigation that would be achieved by an expenditure of $1.5 million would not result in any change in the nighttime total Leq noise level at the Admiral's Hill receptor (id.).

CPC stated that it is very difficult to quantify construction noise impacts due to the nature of construction activity (Exh. CPC-1, App. I at 6). The Company stated that it would comply with the operational limits placed on the construction activity in the 1994 Cabot Decision (id.; CPC Brief at 80).

As discussed above, the Siting Board recognized in the 1994 Cabot Decision that the operation of the updated project would result in a maximum residential noise receptor increase of three dBA, less than half of the MDEP guideline. The four dBA maximum noise increase with the updated project would still comport with that guideline, and further would still be comparable to or lower than the residential noise increase estimated in the earlier Enron project review. 1994 Cabot Decision, 2 DOMSB at 407, citing Enron Decision, 23 DOMSC at 208, 211. Further, CPC here has committed that the maximum increase over existing ambient noise levels at residential receptors will not exceed the calculated amount of four dBA.

The Siting Board notes that although the now proposed four dBA increase is larger than the three dBA increase accepted in the 1994 Cabot Decision, the impact falls below what the Siting Board has accepted in the past. Further, the additional noise mitigation necessary to attain a three dBA increase would not warrant an additional expenditure of $1.5 million dollars. Finally, with the limits on the working hours contained therein, the Siting Board reaffirms its finding in the 1994 Cabot Decision that construction noise impacts would be minimized (see Section III.B.2.j, for a discussion concerning vibration and construction).

Therefore CPC shall: (1) incorporate all updated mitigation as described in the 1994 Cabot Decision so that the continuous noise increase from the operation of the updated project is no more than four decibels at any residence; (2) refrain from conducting construction activities that generate significant noise before 8:00 a.m.; and (3) confine all primary construction activity to between the hours of 6:30 a.m. and 5:30 p.m., Monday through Saturday, except as necessary for structural integrity or safety reasons.

Accordingly, with implementation of the aforementioned mitigation measures, the Siting Board finds that the environmental impacts of the updated project will be minimized with respect to noise.

c. Water Use and Wastewater Discharge

In the 1994 Cabot Decision the Siting Board found that the Company: (1) had documented that there was an adequate supply of municipal potable water for operation of the original project; (2) had considered water conservation in the design of the original project such that water requirements would be minimized by project features such as dry low-NOx combustors and dry cooling, and that use of municipal water would be minimized by recycling process water, stormwater, and air chiller condensate; (3) had demonstrated that the capacity of the municipal sewer system was adequate for sanitary wastewater discharge from the original project; and (4) had demonstrated that the water quality and marine resources of the Mystic River would not be negatively impacted, based on the measures to pretreat process water so that wastewater discharges would meet all federal and state water quality requirements to preclude discharge of pollutants such as grease and oil, and monitor the quality of wastewater. Therefore, in the 1994 Cabot Decision, the Siting Board found that the environmental impacts of the original project would be minimized with respect to water use and wastewater discharge. 2 DOMSB at 410-411.

In this proceeding, the Company stated that the updated project would use approximately 60,000 gallons per day ("gpd") of potable water from the City of Everett (Tr. 2, at 125).(44) The Company provided correspondence from the City of Everett which stated that the City of Everett water supply can support the updated project's use of municipal water (Exh. HO-E-22). The Company asserted that it was committed to the water conservation measures documented in the 1994 Cabot Decision, and that discharges of wastewater, sanitary wastewater, and process wastewater(45) are not substantially different from those detailed in the 1994 Cabot Decision (Exh. CPC-1, at 79). Further, the Company stated that it has filed a renewal application for the National Pollution Discharge Elimination System ("NPDES") permit that it initially received March 18, 1993 (Exh. HO-V-18, Att. 1). The Company indicated that it has not proposed any changes for the discharge limits for constituents of concern in the initial NPDES permit (Exh. CPC-1, at 81).

The Siting Board notes that the Company intends to use less potable water for the updated project due to the elimination of oil as a back-up fuel, and that CPC would be implementing the same water conservation measures as accepted in the 1994 Cabot Decision. With regard to wastewater, sanitary wastewater, and process water, the discharges will remain essentially the same as in the 1994 Cabot Decision.

Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to water use and wastewater discharge.

d. Land Use

In the 1994 Cabot Decision, the Siting Board found that the record demonstrated that the original project would be compatible with the industrial nature of the surrounding land use. In addition, the Siting Board found that the record demonstrated that the original project would be consistent with City of Everett zoning requirements, area-wide development goals and CZM program policies. Therefore, the Siting Board found that the environmental impacts of the original project would be minimized with respect to land use. 1994 Cabot Decision, 2 DOMSB at 412.

In this proceeding, the Company indicated that the updated project would be sited at the same industrial location as the original project (Exh. CPC-1, at 1).(46) The Company stated that the updated proposal would be consistent with existing land-uses, area-wide development goals, and CZM program policies, as well as with the City of Everett's zoning by-laws (Exh. CPC-1, at 79). The Company indicated that the reduction in stack height from 240 feet as originally proposed to 150 feet would eliminate the need for a zoning variance (id.; Tr. 2, at 124). In addition, the Company provided a list of changes made to the zoning by-law of City of Everett since the date of the 1994 Cabot Decision, and asserted that the updated project complies with the current by-law (Exh. HO-E-24).

The Siting Board notes that the updated project would remain compatible with the industrial nature of the area as well as continue to be consistent with zoning and land use requirements, goals and policies. Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to land use impacts.

e. Wetlands and Waterways

In the 1994 Cabot Decision, the Siting Board found that the record demonstrated that the original project would not impact wetland resources associated with the Mystic River and that impacts to the water quality and marine resources of the Mystic River would be minimized. The Siting Board therefore found that the environmental impacts of the original project would be minimized with respect to wetlands and waterways. 1994 Cabot Decision, 2 DOMSB at 413.

In the current proceeding, the Company stated that the design of the updated project does not change the project's impacts on wetlands or on the water quality of the Mystic River and marine resources, and that construction would not occur within the coastal wetland resource areas of the Mystic River (Exh. CPC-1, at 81). In addition, the Company stated that the site of the updated project falls outside of the riverfront protection resource area, as established in the 1996 Rivers Protection Act (Exh. HO-E-23).

The Siting Board notes that the design of the updated project ensures the avoidance of impacts to the wetlands and waterways in the vicinity of the updated project. Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to wetlands and waterways.

f. Safety

In the 1994 Cabot Decision, the Siting Board found that the record demonstrated that the design of the original project included safety features to: (1) avert spills of hazardous materials; (2) contain any accidental spills of hazardous materials; and (3) ensure that operation of the original project in close proximity to the LNG terminal would not present hazardous conditions. 2 DOMSB at 417. The Company also committed in the 1994 Cabot proceedings to implement all recommendations set forth in an independent safety assessment conducted for the City of Everett and to developing an Emergency Response Plan in conjunction with local authorities, similar to plans found acceptable by the Siting Board in previous reviews of generating facilities. See Altresco Lynn Decision, EFSB 91-102, at 204; 1993 BECo Decision, EFSB 90-12/90-12A at 137; Enron Decision, 23 DOMSC at 220.

In the 1994 Cabot Decision, the Siting Board also held that the record demonstrated that the Company was committed, consistent with state requirements, to take appropriate measures during construction to avoid potential hazards resulting from existing site contamination. The Siting Board noted that construction plans for the original project would incorporate measures to ensure that worker exposure to subsurface contaminants was avoided and movement of existing subsurface contaminants was minimized. Where removal of contaminated soils and groundwater would be required, protocols for excavation would be established prior to excavation to protect worker health and safety, and hazardous materials would be removed and disposed of in accordance with applicable regulations. In addition, site remediation and final engineering design would be monitored by the MDEP and a site-specific Health and Safety Plan would encompass all construction-related activities. The Siting Board therefore found that with implementation of the aforementioned mitigation measures, that the environmental impacts of the original project would be minimized with respect to safety. 1994 Cabot Decision, 2 DOMSB at 417-418.

In the current proceeding, the Company asserted that the impacts of construction on public safety would not be different from the original project, and that the impacts of operations of the updated project, including the split shaft design, would not present any additional risk to the health and safety of either the public or workers (Exh. HO-CPC-1, at 81; CPC Brief at 81).(47)

The Company provided information indicating that the storage and transportation of

aqueous ammonia would be as described in the 1994 Cabot Decision (Exh. CPC-1, at 81). With regard to the storage and use of potentially hazardous substances, the Company indicated that it conducted an updated hazard assessment, which reflects the revised layout and split-shaft design, in order to comply with section 112(r) of the Clean Air Act (Exh. CPC-2, App. F). The hazard assessment evaluated the worst-case accidental release of aqueous ammonia (id.). The Company explained that the maximum predicated ammonia concentrations at the closest public use area are in the range of 22,200 to 30,560 ug/m3, well within a limit of 140,000 ug/m3, the guideline adopted by the American Industrial Hygiene Association (Exh. CPC-2(2A) at 6, 9). The results of the hazard assessment indicate that the distance to the nearest public receptor is greater than that to the point of maximum acceptable concentration for the worst-case accidental release (Exh. HO-E-31).

The Company stated that it has completed Phases I, II and III of the Massachusetts Contingency Plan ("MCP") process (Exhs. CPC-1, at 81; HO-E-34 (Att.1)).(48) CPC provided documentation from a licensed site professional that the remediation methodologies presented in the existing record remain sufficient to protect worker and public safety in accordance with the MCP standards (Exh. HO-E-34 (Att.1)).(49) The Company added that, as stated in the 1994 Cabot Decision, all construction activities would be subject to a site specific Health and Safety Plan, consistent with state requirements (Exhs. CPC-1, at 81; HO-E-33).

The Company stated that it would adhere to all recommendations cited in the independent safety assessment conducted for the City of Everett, as discussed in the 1994 Cabot Decision (Tr. 2, at 104).(50) In addition, the Company indicated that it would prepare an emergency response plan, in collaboration with local authorities, which would include specifications for prevention practices and emergency contacts (Tr. 2, at 105).

The Siting Board notes that the design of the updated project would not incur additional health or safety risks to the public. Further, the safety measures specified in the 1994 Cabot Decision would be adhered to under the updated project. In addition, a new ammonia modeling analysis was conducted on the updated project, with the results indicating that the project would fall well within the guidelines adopted by the American Industrial Hygiene Association. Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to safety.

g. Traffic

In the 1994 Cabot Decision, the Siting Board found that the intersection that provided direct access to the original site operated at an unacceptable level of service ("LOS") (LOS F) during the morning and afternoon peak hours, and that delays at the intersection would increase during construction of the original project. However, the Company had

proposed a number of mitigation measures that would restrict traffic to and from the site during peak hours and encourage use of alternative routes to the site. Therefore, in order to minimize traffic impacts during peak hours, the Siting Board required that CPC: (1) schedule the construction work shift to avoid arrivals and departures during the peak commuter hours of 7:30 a.m. to 8:30 a.m. and 4:30 p.m. to 5:30 p.m.; (2) schedule truck arrivals to be spread over the construction work shift; and (3) where possible, arrange for construction materials to be delivered by rail or barge. In addition, the Siting Board required that the Company, in consultation with the City of Everett, implement measures that would encourage the use of public transportation and alternative routes to the site by construction workers. The Siting Board found that with the implementation of these conditions, the environmental impacts of the original project would be minimized with respect to traffic impacts. 1994 Cabot Decision,

2 DOMSB at 419.

In the current proceeding, CPC asserted that the construction and operation of the updated project would not result in a significant impact to traffic in the vicinity of the updated project (Tr. 1, at 161; CPC Brief at 154-156). CPC stated that revised traffic analyses for the updated project indicate that the access intersection now operates at an acceptable LOS (LOS C) (Exh. CPC-1, at 82). However, the Company asserted that it would abide by the three conditions relative to traffic mitigation required by the Siting Board in the 1994 Cabot Decision (id.).

The Company's analysis demonstrated that the LOS would remain at level C under both 1999 construction conditions and 2000 operating conditions (id. at Tables J-6 and J-7). CPC explained that the difference between the 1990 LOS and the updated LOS is due to improved signal timing, poor estimation of the actual intersection delays in the original traffic study, and use of a more accurate LOS methodology in the updated study (Exh. HO-E-18; Tr. 1, at 159). The Company also provided information which now places the morning peak hour at 7:15 to 8:15 a.m. and the evening peak hour at 5:00 to 6:00 p.m. (Exh. CPC-1, App. J at 1).(51) In regard to parking for construction workers, CPC indicated that it is evaluating three off-site alternatives located in the IEIP, two properties owned by Boston Gas located west of the project site (one of which is presently leased by DOMAC), and a property owned by Exxon located north of the project site (Exh. HO-E-19; Tr. 1, at 164). Further, the Company indicated that DOMAC owns additional property close to the waterfront area which could be used for worker parking (Tr. 1, at 165).

The traffic analyses presented in the original proceeding identified an unacceptable

LOS F at the access intersection of Rover Street and Route 99, which required a series of traffic mitigation conditions developed in the 1994 Cabot Decision to ensure minimum traffic impacts. Here, the Company has determined through an updated traffic analysis that the existing LOS is acceptable and will remain at that level during both construction and operation. The Siting Board notes that although the LOS at this intersection has been improved through signal changes, Route 99 remains a heavily traveled road, and the IEIP hosts a significant amount of truck traffic which serves to slow down the traffic flow.

Therefore, it would be prudent to adhere to the original traffic mitigation conditions, as agreed to by the Company. Because the updated traffic study indicates that the peak morning hour is now 7:15 a.m. to 8:15 a.m., Condition E is revised to require CPC to schedule the construction work shift to avoid arrivals and departures during the peak commuter hours of 7:15 a.m. to 8:15 a.m. and 5:00 p.m. to 6:00 p.m.

Accordingly, with implementation of the aforementioned mitigation measures, the Siting Board finds that the environmental impacts of the updated project will be minimized with respect to traffic.

h. Visual

In the 1994 Cabot Decision, the Siting Board found that the record demonstrated that the original project would be located within an industrial area, would be consistent in terms of size, scale and form with the existing structures in the area and would not alter the visual character of the area. The Siting Board therefore found that the environmental impacts of the original project would be minimized with respect to visual impacts. 1994 Cabot Decision, 2 DOMSB at 420.

In the current proceeding, the Company stated that the height of the updated exhaust stack would be reduced to 150 feet, lower than the 240 feet originally proposed (Exhs. CPC-1, at 3; HO-E-28, Att. 1). The Company presented a comparison of the dimensions of the major structures between those proposed for the original project and those proposed for the updated project (Exh. HO-E-28, Att. 1). The comparison indicated that the ground area of the air-cooled condenser would be 28,675 square feet, approximately 80 percent larger than in the original proposal (id.). With the exception of the exhaust stack, the highest project feature would still be below the City of Everett zoning limitation of 100 feet (id.; Exh. CPC-1, at 82). The Siting Board notes that, as currently proposed, the exhaust stack will be 90 feet lower than in the original proposal. Further, the surrounding area remains predominantly industrial and includes expansive structures, such as LNG tanks and the Mystic generating station.

Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to visual impacts.

i. Electric and Magnetic Fields(52)

In the 1994 Cabot Decision, the Siting Board noted that the original project would be interconnected with the bulk transmission system via a 345 kV underground line

approximately one-half mile in length. The Siting Board found that based on the record, there would be no electric fields and only minimal magnetic fields at ground level along the route of the interconnection line between the original project and the Mystic Substation.(53) The Siting Board therefore found that the environmental impacts of the original project would be minimized with respect to EMF. 1994 Cabot Decision, 2 DOMSB at 421.

In the current proceeding, the Company stated that it does not propose any changes to the design of the transmission line except for the use of a slightly larger diameter conductor (Exh. CPC-1, at 83; Tr. 1, at 83). With regard to the regional transmission system, the Company indicated that, because of its location in the local Boston import region of NEPOOL, the proposed facility would: (1) off-load some remote transmission, thereby deferring the need for upgrades to the system; (2) decrease system losses; and (3) improve voltage when load is supplied locally (Tr. 1, at 84-85).

The Siting Board notes that the design of the transmission line remains essentially the same as described in the original proceeding. Consequently, electric fields and magnetic fields at ground level along the route of the interconnection would remain minimal. In past reviews, the Siting Board has held that, as part of pursuing interconnection plans that require upgrades to the regional transmission system, generating facility applicants also should work with transmission providers to seek inclusion of practical and cost-effective transmission designs to minimize magnetic field levels along affected ROWs. ANP Bellingham Decision, EFSB 97-1, at 157; Millennium Power Decision, EFSB 96-4, at 176; Silver City Decision, 3 DOMSB at 353-354. Given the updated project's location in the Boston import region, the project would off-load some regional transmission lines. Although the interconnection study is still pending, the Company does not expect the project to require more than minimal upgrades to the regional transmission system. Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the environmental impacts of the updated project would be minimized with respect to EMF.

j. Vibration

(1) Position of the Parties

(a) Arguments of Daniels

Daniels stated that its printing business is housed in two buildings, one which abuts the site proposed for the updated project ("Building 1"), and another which is directly across the street ("Building 2") (Daniels Brief at 1).(54),(55) Daniels asserted that pre-construction, construction, and/or operation activities at the proposed site will create "excessive or intolerable ambient noise, vibration and dust levels that would adversely impact and cause irreparable harm to Daniels' business operations" (Daniels Brief at 1).

Daniels stated that it is requesting the following relief from the Siting Board: (1) that the Siting Board approve CPC's updated petition only if and when engineering consultants have completed all noise, vibration and dust testing associated with the activities of both CPC and Daniels, and (2) in the alternative, that the Siting Board deny CPC's updated petition if engineering test results conclude that the demolition, pre-construction, construction and/or operational activities associated project would "impermissibly" impact the business activities of Daniels (id.). Daniels argued that pursuant to the authority given the Siting Board in G.L. c. 164, § 69J, enforceable conditions may be imposed by the Siting Board to prevent "irreparable harm" to the operations of Daniels from noise, vibration and dust (id. at 2).(56) Further, Daniels stated that it disagrees with the arguments of CPC that economic as opposed to environmental interests fall outside the scope of the Siting Board's review (Daniels Reply Brief at 3). Daniels also argued that vibration issues of all kinds should be considered noise impacts, since noise is the audible range of vibrations (id.).

With regard to the issue of impacts on its equipment, Daniels presented evidence that if its Heidelberg MV-30 press (the "Press") became misaligned, it would be inoperable, and due to the sensitive nature of the work, printing deadlines could be missed and it would be very difficult, if not impossible, to find vendors who could provide substitute service (Tr. 4, at 29 to 33). Daniels also asserted that differential displacement greater than 0.002 inches across the roller bearing of the Press "could result in problems" (Exh. HO-DP-5; Tr. 4, at 43; Daniels Brief at 8). In addition, Daniels presented a letter from the manufacturer of the Press stating that "that seismic vibrations and differential movements caused by the construction could affect both the alignment and the performance of the Press" (Exh. CAB 1-2, Att. 1). Further, the manufacturer stated that "[a]ny such misalignment might not be detected during printing, but could reduce the life of certain components. It is recommended that the [P]ress be realigned...after the construction is completed" (id.). Evidence was also presented that, according to the manufacturer, there is no practical way to calculate the effect of the construction activities on operations of the Press without a testing program prior to construction (id.).

On cross examination, Daniels' witness, Mr. McKown, indicated that he was not certain whether CPC's construction activity would disrupt the Press or any of Daniels' other equipment or presses (Tr. 4, at 59-60). Also on cross examination, Daniels' witnesses, Mr. Kenny and Mr. McKown, confirmed that the manufacturer of the Press does not have established vibration specifications for the Press (Tr. 4, at 26, 60-61).

Daniels presented extensive evidence as to the level of vibrations that could result from construction activities, specifically pile driving (Exhs. CAB 1-8, Att. No. 1; DP-7, DP-8;

Tr. 4, at 44-46, 53-55). Daniels' witness, Mr. McKown, testified that there are numerous obstructions and considerable debris at the proposed site and that hitting such obstructions during pile driving would result in higher than normal vibrations (Tr. 4, at 57-58; Daniels Brief at 4). In addition, Daniels argued that differential settlement as a result of pile driving could do damage to one of Daniels' buildings (Exh. DP-8; Tr. 3, at 84-96; Tr. 4, at 151-152, 164-165; Daniels Brief at 9).

Daniels stated that there are several mitigation measures that can be undertaken to significantly reduce or eliminate vibrations resulting from pile driving. Daniels asserted that, first, a test program should be implemented whereby test piles would be driven to measure vibrations and the resulting impacts to Daniels' equipment (Exhs. DP-11, at 5-6; HO-DP-1; Tr. 4, at 59; Daniels Brief at 11-12). Further, Daniels recommended that geotechnical borings at the site of the proposed project and at the site of both of Daniels' buildings be immediately undertaken to examine the subsurface conditions of these three parcels of lands (Daniels Brief at 12). Finally, Daniels asserted that the updated project could be constructed without driving piles and recommended use of alternative support mechanisms such as drilled shafts, minipiles, or other forms of deep foundational support (Tr. 4, at 58; Daniels Brief at 11).

(b) Arguments of CPC

CPC asserted that potential vibration impacts of projects have not traditionally been among the environmental impacts reviewed by Siting Board and that adverse economic impacts, if any, are more properly addressed in Courts and not before the Siting Board (CPC Brief at 6). In support, CPC argued that the Siting Board's mandate to ensure a necessary energy supply with a minimal impact on the environment at the lowest possible cost does not mean that the Siting Board is also mandated to prevent economic harm from environmental impacts such as noise, vibrations and dust (CPC Reply Brief at 1, 2). Relative to the relief sought by Daniels, CPC argued that the Siting Board does not and should not require the collection of project-specific empirical evidence for every possible environmental impact before it approves an application to construct a generating facility and that such a policy would be impractical and unnecessary (CPC Reply Brief at 19). Moreover, CPC contends that it has shown that the updated project is needed, least cost and viable, and that its impacts would be minimized consistent with the Siting Board's mandate in G.L, c. 164, § 69H (id. at 20).

CPC also argued that, to the extent that the Siting Board does take cognizance of the issue of vibration, CPC's estimates of vibration impacts at the Daniels' site from pile driving demonstrate that pile driving will not cause adverse impacts on Daniels' equipment (CPC Brief at 89).(57)

CPC stated that it was willing to undertake "intelligence gathering" before beginning pile driving to determine the most effective locations on the updated project site that would accommodate the project's structures while minimizing vibrations (Tr. 4, at 130;

CPC Brief at 106). Specifically, this process would involve data collection to learn more about the presence of any potential obstructions in the soil on the updated project site (CPC Brief at 106). CPC also stated that to the extent that significant obstructions are identified, CPC could pre-auger those obstructions to eliminate them from the path of the

pile, or move the pile to avoid the obstruction (Tr. 4, at 130; CPC Brief at 106). CPC also stated that it would then monitor all construction-related vibrations at the project site and at Daniels' Building 1 to confirm that vibrations from the updated project remain below state blasting limits (CPC Brief at 106).(58)

(2) Analysis and Findings

The record shows that construction of the proposed facilities will involve pile driving, possible augering, removal of debris and waste, and noise. CPC and Daniels each have presented evidence and argument as to whether vibrations caused by pile driving would have any impact on the Daniels' Press, and as to whether such impacts fall within the Siting Board's jurisdiction.(59) Before addressing the evidence regarding the impacts of vibrations caused by pile driving, the Siting Board first considers whether it has jurisdiction under G.L. c. 164, § 69J to consider the issue of vibration impacts as it is raised by Daniels in this proceeding.

Daniels has argued that CPC's petition should be denied if it is shown that construction or operation of the proposed project "would impermissibly impact the business activities of Daniels". The Siting Board notes that this argument reflects a fundamental misunderstanding of the Siting Board's mandate. Pursuant to G.L. c. 164, § 69H, the Siting Board is charged with ensuring "a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost". G.L. c. 164, § 69J sets forth a number of categories of environmental impacts which the Siting Board is required to investigate, including land use impacts, water resource impacts, air quality impacts, solid waste impacts, noise impacts, and radiation impacts. The Siting Board reviews these impacts in order to determine whether the overall environmental impacts and costs of a proposed facility have in fact been minimized. If the environmental impacts and costs of a necessary facility have, on balance, been minimized, the Siting Board is obligated to approve the facility; its statute does not provide for rejection of a facility simply because there may be some remaining impact to specific individuals or companies. The Siting Board recognizes that environmental impacts may well have economic consequences; however, the Siting Board's mandate is to minimize the impacts, not to quantify the consequences to each affected individual and company and determine whether any is "impermissible".(60) Similarly, any condition imposed on a proposed facility should relate to minimizing the environmental impacts or costs of the facility within the statutory framework.

Daniels notes that the Siting Board has jurisdiction over noise impacts, which it argues should be construed as including vibration impacts of all kinds. The Siting Board recognizes that noise is a manifestation of vibrations in a particular range of frequencies. "Noise can have many adverse effects, including damage to hearing, disruption of normal activity, and general annoyance. Extremely loud noise, such as a sonic boom, can also cause physical damage to structures." Environmental Law (2d Edition), Matthew Bender,

§6.01. In the past, the Siting Board has reviewed the impacts of audible noise (i.e., noise which is within the range of human hearing and can be measured in decibels by receptors placed in various locations away from the noise source). ANP Bellingham Decision, EFSB 97-1, at 130-144; Millennium Power Decision, EFSB 96-4, at 141-158; NEA Decision, 16 DOMSC at 401-403. While the Siting Board acknowledges that all noise is propagated by vibrations, it disagrees with Daniels' proposition that all vibrations must therefore be considered noise.(61) In the absence of a compelling argument otherwise, the Siting Board holds that it is inappropriate to stretch the common meaning of the term "noise" to include the inaudible impacts of vibrations caused by pile driving.

The Siting Board has in the past reviewed the effects of vibration on abutting land uses in the context of blasting and its potential to affect wells. 1990 Berkshire Decision, 20 DOMSB at 109, 189-190. We note that, in that context, the potential impact from vibrations was a water resource impact affecting a number of neighboring property owners, which clearly fell under the Siting Board's jurisdiction. It is also possible that construction operations such as pile driving could raise issues regarding solid waste, land use, or some other type of environmental impact. Here, however, Daniels has raised the issue of vibrations as it relates to a single private, economic interest -- the operation of an abutting industrial concern -- without offering an explanation of how that interest bears on the question of whether the environmental impacts and costs of the proposed facility have been minimized. The Siting Board therefore concludes that the impacts to Daniels' Press of vibrations caused by pile driving, and particularly the question of whether Daniel's business activities would be irreparably harmed by such impact, are not a proper subject for Siting Board review in this proceeding.

The Siting Board also notes that, even if it did take up this issue, it would consider the evidence in light of its statutory mandate to provide for a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. The record indicates that CPC has committed to a series of mitigation measures including detailed pre-planning of pile driving activity; pre-augering or relocation of piles as needed based on identifications of obstructions prior to or during pile driving; voluntary adherance to vibration regulations applicable to blasting; and monitoring of all construction-related vibrations. In addition, CPC has indicated that projects of this nature typically require pile driving or similar activities to create support for heavy pieces of equipment. Daniels has claimed that the pile driving required for this project nonetheless will cause damage to its highly sensitive Press. CPC and Daniels each have presented extensive evidence in this proceeding regarding the level of vibrations likely to result from the use of various types and sizes of pile drivers and piles, driven to various depths through various types of soil. However, neither Daniels nor CPC could document a threshold level of vibrations which would require realignment or otherwise damage the Press, and the record indicates that the manufacturer of the Press does not have an established standard for vibrations. Therefore, the record does not support a finding that vibrations caused by pile driving associated with the CPC project are likely to cause harm to the Press or its operations.

Consequently, if the Siting Board had taken up this issue, it would have found, based on

the information and data in the record, that, with the implementation of the mitigation measures to which CPC has committed in this proceeding, the impacts of vibrations caused by pile driving would be minimized consistent with minimizing cost. The Siting Board would not have conditioned its approval on the implementation of vibration mitigation beyond that to which CPC has committed in this proceeding.

Nothing in this analysis is intended to relieve any party from liability in any future litigation that might result from CPC's pile driving activities. If damage to the Press does ultimately ensue from CPC's construction work, the parties would still have recourse to their traditional legal remedies including but not limited to possible claims on insurance, construction bonds, or determination by a Court of competent jurisdiction.

The Siting Board does wish to note the substantial efforts on the part of both Daniels and CPC to develop the record and to search for compromise in this matter. Daniels and CPC have made substantial progress towards developing a common approach to the mitigation of vibration impacts. The Siting Board anticipates that CPC will fully implement the mitigation measures to which it has committed in this proceeding, and urges CPC to continue to work with Daniels to minimize any possible harm to Daniels' equipment.

3. Conclusion

The Siting Board finds that the Company has provided sufficient information on the environmental impacts of the updated project, including mitigation measures and project design, for the Siting Board to determine whether the environmental impacts of the updated project would be minimized.

The Siting Board has found that, based on the above mitigation measures, conditions, and project design, the environmental impacts of the updated project would be minimized with respect to air quality, noise, water use and wastewater, land use, wetlands and waterways, safety, traffic, visual impacts, and EMF.

C. Cost Analysis of the Updated Project

In this section, the Siting Board evaluates whether the Company has provided sufficient information on the costs of the updated project to allow the Siting Board to determine if an appropriate balance would be achieved between environmental impacts and cost.

In the 1994 Cabot Decision the Siting Board found that the Company had provided estimates of the overall costs of the original project and had specified cost advantages due to unique technological and siting aspects of the original project. The Siting Board

therefore found that the Company had provided sufficient information on the costs of the original project to allow the Siting Board to determine whether an appropriate balance would be achieved between environmental impacts and costs. 1994 Cabot Decision, 2 DOMSB at 424.

In the current proceeding, CPC provided a construction cost estimate of $221 million or $631/kW in 1997 dollars, and $689/kW in 2000 dollars (Exh. CPC-1, at 26, 73). CPC provided an itemized breakdown of these costs, including estimates of development costs, contingency funds, off-site project costs, start-up costs, and interest payments (id. at Table IV.C-1).

The Company maintained that the cost advantages of the updated project cited in the original review, relating to site and technological advantages, and to DOMAC's use of thermal energy from the updated project, are still applicable (see 2 DOMSB at 422-423; Tr. 1, at 139). The Company asserted that the updated project is substantially more efficient that the original project (Exh. CPC-1, at 26). Further, the Company indicated that the capital cost of the updated project would still compare favorably to the capital cost of a generic, advanced gas turbine combined-cycle facility (Tr. 1, at 144).

Accordingly, the Siting Board affirms the finding made in the 1994 Cabot Decision that the Company has provided sufficient information on the costs of the updated project to allow the Siting Board to determine whether an appropriate balance would be achieved between environmental impacts and costs.

D. Conclusions on the Updated Project

In this section, the Siting Board reviews the consistency of the updated project with its overall review standard, which requires that an appropriate balance be achieved between environmental impacts and costs. Such balancing includes trade-offs among various environmental impacts as well as between these environmental impacts and cost.

The Siting Board has found that, with the implementation of the conditions specified in Sections III.B.2.a, III.B.2.b, and III.B.2.g above, the environmental impacts of the updated project would be minimized with respect to air quality, water supply and wastewater, wetlands and waterways, noise, land use, visual impacts, traffic, safety, and EMF. Further, in Section III.B.3, the Siting Board has found that CPC provided sufficient information on the costs of the updated project to allow the Siting Board to determine whether an appropriate balance would be achieved between environmental impacts and costs.

The record indicates that there are no significant issues involving the balance among air quality, noise, water use and wastewater, land use, wetlands and waterways, safety, traffic, visual impacts, and EMF, nor between any of these concerns and cost. Consequently, there is no need for further analysis of the balance among conflicting environmental impacts or between environmental impacts and costs.

Therefore, the Siting Board finds that, with the implementation of the conditions set forth in Sections III.B.2.a, III.B.2.b, and III.B.2.g above, (1) the environmental impacts of the updated project would be minimized, and (2) an appropriate balance would be achieved among conflicting environmental concerns as well as between environmental impacts and costs.

IV. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. In addition, the statute requires the Siting Board to determine whether plans for expansion or construction of energy facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. G.L. c. 164, § 69J.

In Section II.A.3 above, the Siting Board found that the Company has established need for the updated project. Further, in Section II.B. 4, the Siting Board found that, upon compliance with the listed conditions, CPC will have established that the updated project is reasonably likely to be a viable source of energy.

In Section III.B.4 above, the Siting Board has found that with implementation of the listed conditions relative to noise, traffic and CO2 offsets, the environmental impacts from the updated project would be minimized.

Further, in the 1994 Cabot Decision and in Section III.B, above, the Siting Board has reviewed various environmental impacts of the proposed facility in light of related regulatory or other programs of the Commonwealth, including programs related to air quality, noise, wastewater discharges, riverfront protection, control of pre-existing site contaminants, and coastal zone management. As evidenced by these analyses, the proposed facility will be consistent with identified requirements under all such programs. The Siting Board therefore finds that the proposed project is likely to be consistent with various health, environmental protection and resource use and development policies of the Commonwealth which relate to the environmental impacts and cost of the Commonwealth's energy supply.

Accordingly, the Siting Board finds that, upon compliance with the conditions set forth in Sections II.B and III.B, above, and listed below, the construction and operation of the updated project and ancillary facilities will be consistent with providing a necessary 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 Cabot Power Corporation to construct a 350 MW bulk generating project and ancillary facilities in Everett, Massachusetts subject to the following conditions.

(A) In order to ensure that the project is likely to be constructed within the applicable time frames and be capable of meeting performance objectives, the Siting Board directs CPC to provide a copy of a signed EPC contract between CPC and Westinghouse or a comparable entity that contains provisions that would provide reasonable assurance that the project would perform as a low-cost, clean power producer.

(B) In order to ensure that the project is likely to be operated and maintained in a manner consistent with appropriate performance objectives, the Siting Board directs CPC to provide a copy of a signed O&M contract between CPC and Westinghouse OSC or a comparable entity that contains provisions that would provide reasonable assurance that the project would perform as a low-cost, clean power producer.

At such time as the Company provides the Siting Board with the information listed above, the Siting Board shall review the information and determine if the Company has complied with these conditions. The Company will not receive final approval of the updated project until it complies with these conditions.

In addition, the Company shall comply with the following conditions during construction and operation of the updated project.

(C) In order to mitigate CO2 emissions, the Siting Board requires CPC to provide CO2 offsets through a total contribution of $398,185, to be paid in five annual installments during the first five years of project operation, to a cost-effective CO2 offset program or programs to be selected upon consultation with Siting Board Staff. If the Company chooses to provide the entire donation by the end of the first year of project operation, the CO2 offset requirement would be a total contribution in the amount of $330,215, to a cost-effective CO2 offset program or programs to be selected upon consultation with Siting Board Staff.

(D) In order for impacts to community noise levels to be minimized, CPC shall: (1) incorporate all updated mitigation as described in Section III.B.2.b, above, so that the continuous noise increase from the operation of the updated project is no more than four decibels at any residence; (2) refrain from conducting construction that generates significant noise before 8:00 a.m.; and (3) confine all primary construction activity to between the hours of 6:30 a.m. and 5:30 p.m., Monday through Saturday, except as necessary for structural integrity or safety reasons.

(E) In order to minimize traffic impacts during peak hours, CPC shall: (1) schedule the construction work shift to avoid arrivals and departures during the peak commuter hours of 7:15 a.m. to 8:15 a.m. and 5:00 p.m. to 6:00 p.m.; (2) schedule truck arrivals to be spread over the construction work shift; (3) where possible, arrange for construction materials to be delivered by rail or barge; and (4) in consultation with the City of Everett, implement measures that would encourage the use of public transportation and alternative routes to the site by construction workers.

The conditions listed above supersede and replace Conditions A through F set forth in the 1994 Cabot Decision.

Because issues addressed in this decision relative to this project are subject to change over time, construction of the updated generating project and ancillary facilities must be commenced within three years of the date of this 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 project in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires the Company to notify the Siting Board of changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Company is obligated to provide the Siting Board with sufficient information on changes to the updated project to enable the Siting Board to make these determinations.

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Peter M. Palica

Hearing Officer

Dated this 9th day of October, 1998.

SITE VICINITY MAP

Unanimously APPROVED by the Energy Facilities Siting Board at its meeting of

October 8, 1998 by the members and designees present and voting. Voting for approval of the Tentative Decision as amended: Janet Gail Besser (Chair, EFSB/DTE); James Connelly (Commissioner, DTE); W. Robert Keating (Commissioner, DTE); and David L. O'Connor (for David A. Tibbetts, Director, Department of Economic Development).

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Janet Gail Besser

Chair

Dated this 9th day of October, 1998.

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).

1. Cabot Power Corporation ("CPC") was originally incorporated in 1990 to develop, own and operate the project that is the subject of this proceeding. CPC, Distrigas of Massachusetts Corporation ("DOMAC") and MassGas, Inc. are each wholly-owned subsidiaries of Cabot LNG Corporation. Cabot LNG Corporation is in turn a wholly-owned subsidiary of Cabot Corporation, which has been in the energy business since 1882.

2. 2 Prior to September 1, 1992, the Siting Board's functions were effected by the Energy Facilities Siting Council ("Siting Council"). See Acts of 1992, Chapter 141. As the Siting Council was the predecessor agency to the Siting Board, the term Siting Board should be read in this Decision, where appropriate, as synonymous with the term Siting Council.

3. Environmental impacts included air quality, noise, water use and waste water discharge, land use, wetlands and waterways, visual, electric and magnetic fields, safety and traffic.

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7. In the 1994 Cabot Decision, the Siting Board considered the need for the original project for both reliability and economic efficiency purposes. 2 DOMSB at 300. In this proceeding, the Company presented a comparison of the projected cost of power from the updated project with the Standard Offer Distribution Company Rates in the NEES Settlement Agreement for the years 2000 through 2004 (Exh. CPC-1, at 51). While the comparison provides evidence of the likely competitiveness of the updated project, it does not represent an updated economic dispatch analysis of the type needed to support findings of need based on economic efficiency. Consequently, the Siting Board does not evaluate the need for additional energy resources from the updated project for economic efficiency purposes in this decision.

8. The Company indicated that the updated project's summer capacity rating is 330 MW, its winter peak productive capacity is 395 MW, and its nominal average rating is 350 MW (Exh. CPC-1, at 18; Tr. 1, at 33). The Company stated that it assessed the need for 330 MW, the summer peak load, because the reliability need is more acute in the summer season rather than the winter season ((Exh. CPC-1, at 18; Tr. 1, at 32). In Section II.A.2.a.iii below, the Siting Board evaluates the need for 350 MW, the average annual capacity rating of the updated project. Use of the average annual rating is conservative in the case of a summer need analysis.

9. The Company initially relied on the 1997 CELT forecasts (Exhs. CPC-1, at 28, Appendix E, Appendix F; HO-N-15). During the course of the proceedings, NEPOOL issued the 1998 CELT report. CPC indicated that the 1998 CELT report projects a higher summer peak load than the 1997 CELT report (see Exh. HO-N-2(S)). For purposes of this analysis, the Siting Board will focus on the 1998 CELT report.

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13. As indicated above, the 1998 CELT report does not contain high and low load forecast scenarios, therefore for these purposes, the Siting Board relies on the 1997 CELT high and low load forecast scenarios.

14. The Company noted that the difference between the adjusted base case supply for the 1997 CELT and the 1998 CELT is an increase of approximately 200 MW (Tr. 1, at 51). CPC listed the most notable changes from the 1997 CELT: (1) the removal of capacity from Maine Yankee; (2) the deferral of the restart of Millstone 1 and 2; (3) the addition of new capacity from Bridgeport Harbor Combined Cycle in Connecticut, Berkshire Power in Massachusetts, Dighton Power in Massachusetts, Androscoggin Energy in Maine, and Worcester Energy in Maine; and (4) the reactivation of Indeck Jonesboro, West Enfield, and Mason Station, all located in Maine (Exhs. HO-N-2(S); HO-N-1 (Att. 2)).

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22. The Siting Board issued a Determination on August 17, 1998, regarding its fundamental standard of review for viability in light of ongoing changes in the electricity industry. The Determination states that the Siting Board will not continue to conduct a stand alone review of project viability for generating facilities filed pursuant to G.L. c. 164 §§ 69H and J¼. Because the updated project was filed pursuant to G.L. c. 164 § 69J, rather than § 69J¼, the Siting Board reviews the viability of the updated project in this

decision.

23. As in the 1994 Cabot Decision, CPC noted that Cabot LNG Corporation is providing funding for the development phase of the project which includes permitting, conceptual design, and securing project agreements (power purchase, fuel supply, thermal host, site lease, etc.) (Exh. CPC-1, at 61). CPC added that Cabot LNG Corporation is arranging for construction financing and would, if the project were to be internally funded, arrange for permanent financing (id.).

24. The Company provided, under confidential status, a pro forma detailing the levelized costs, debt coverage ratios, and financial assumptions of the project (Exh. CPC-1, Appendix C (confidential)).

25. CPC indicated that four Westinghouse 501G turbines are scheduled for delivery in the United States by the time that the updated project is scheduled to begin commercial operation (Exh. HO-V-2).

26. CPC indicated that Mitsubishi is precluded by its licensing agreement from selling its MHI 501G turbines in the United States (Exh. HO-RR-4; Tr. 1, at 91-92). However, the Company noted that the licensing agreements between Mitsubishi and Westinghouse may change if Siemens Company acquires Westinghouse (Exh. HO-RR-4; Tr. 1, at 92).

27. The Boston import region of NEPOOL refers to an area including Boston that imports power via the transmission system under particular load and generating contingencies, and may be affected by local deficiencies for power (Tr. 1, at 79, 84).

28. In the 1994 Cabot Decision the Company stated that, since the original project would be located adjacent to the DOMAC Terminal, there would be no need for fuel transportation by an outside pipeline/distribution company since the LNG is vaporized at the DOMAC Terminal. Other than the short interconnection piping which would be located on the DOMAC Terminal property and extend to the proposed site adjacent to the DOMAC Terminal, no new equipment would be required to provide the vaporized LNG to CPC. Regarding fuel costs, there would be no pipeline transportation charges because the original project would be located adjacent to the DOMAC Terminal. 1994 Cabot Decision, 2 DOMSB at 367.

29. Distrigas is a sister company to DOMAC. See Section II.A, for a description of the corporate affiliations of the Cabot Corporation.

30. The Company indicated that each cargo contains 2.7 trillion BTUs of gas (Tr. 1,

at 117). The Company asserted that to its knowledge, neither the Coast Guard nor MassPort has expressed concerns about the number of LNG tankers supplying the DOMAC facility (id. at 120).

31. The Company stated that construction of the Atlantic LNG plant is currently on

schedule and that the date of the first delivery to DOMAC is now projected to be between March 1, 1999 and May 29, 1999, approximately two years prior to the scheduled commercial operation date of the updated project (Exh. HO-V-15). Cabot Trinidad LNG limited, a subsidiary of Cabot Corporation, holds a ten percent equity interest in the Atlantic LNG plant (Exhs. HO-V-17; CPC-1, at 69).

32. The Updated Project lies within the boundaries of the Massachusetts coastal zone, which extends approximately three quarters of a mile inland from the Mystic River. 1994 Cabot Decision, 2 DOMSB at 375.

33. The Siting Board based this finding on the original project's status as a cogeneration facility located fully within the boundaries of the principal thermal host. 1994 Cabot Decision, 2 DOMSB at 386.

34. The Company indicated that, currently, LNG is vaporized by use of gas-fired boilers which require approximately 1.8 percent of the vaporized output of the DOMAC Terminal (Tr. 1, at 140-141).

35. The Siting Board notes that project proponents are required to submit to the Siting Board a description of the environmental impacts of the proposed facility.

G.L. c. 164, § 69J. Specifically, Siting Board regulations require that a proponent of a generating facility provide a description of the primary and alternatives sites and the surrounding areas in terms of: natural features, including among other things, topography, water resources, soils, vegetation, and wildlife; land use, both existing and proposed; and an evaluation of the impacts of the facility in terms of its effect on the natural resources described above, land use, visibility, air quality, solid waste, noise and socioeconomics. 980 C.M.R. § 704(8)(e).

In cases where a site is proposed in the coastal zone, as defined by Massachusetts Coastal Zone Management ("MCZM") statutes and regulations, the Siting Board's Coastal Zone Facility Site Selection, Evaluation and Assessment Regulations require: (1) an environmental description of each site and its vicinity, including a review of: significant land, air, and water use; ecology; geology; hydrology; meteorology; (2) an environmental analysis of construction impacts; (3) an environmental analysis of facility operation, including, but not limited to, land, air and water use impact, waste impacts, visual and aesthetic impacts; (4) a socioeconomic impact analysis, including measures to mitigate adverse impact during construction and operation; and (5) an analysis of all measures taken to comply with land, air, and water use and ecological standards, policies, regulations, bylaws and statutes of the Commonwealth and its political subdivisions. 980 C.M.R. § 9.02(1)(b).

36. The Siting Board notes that in the current proceeding, there are not any differential

reliability issues to be balanced against environmental and cost issues.

37. The emissions level changes are as follows: NOx decreased from 207 tpy to 145 tpy; CO decreased from 98 tpy to 93 tpy; Sulfur Dioxide ("SO2") decreased from 39 tpy to 11 tpy; PM10 decreased from 46 tpy to 44 tpy, and VOC increased from 16 tpy to 44 tpy (Exh. CPC-1, at 75).

38. Previously, the Siting Board required project proponents to commit to a specific program of CO2 mitigation, such as a tree planting or forestation program, designed to offset a percentage of project CO2 emissions within the early years of facility operation. See Berkshire Power Decision, 4 DOMSB at 373-374.

39. The contribution is based on offsetting 250,000 tons over 20 years at $1.50 per ton. The 20-year amount of $375,000 is first distributed as a series of payments to be made over the first five years of project operation, then adjusted to include an annual cost increase of three percent. Annual contribution amounts would be distributed as follows: year one $75,000; year two $77,250; year three $79,568; year four $81,955; year five $84,413. See ANP Bellingham Decision, EFSB 97-1, at 103-104; Millennium Power Decision, EFSB 96-4, at 114, 117-118.

40. The net present value amount is to be based on discounting, at ten percent, the five annual payment totalling $398,000. See ANP Bellingham Decision, EFSB 97-1, at 104; Millennium Power Decision, EFSB 96-4, at 117-118. The single up-front payment would be due by the end of the first year of operation, at a cost of $330,215

41. In the 1994 Cabot Decision, the Company indicated that the greatest residential noise impacts would occur at Admiral's Hill in Chelsea; that Admiral's Hill also had the highest background noise levels of all residential receptors, and that minimum ambient noise levels, would increase by three dBA, from 51 dBA to 54 dBA with operation of the updated project. 2 DOMSB at 405.

42. The Company explained that significant construction noise consists of for example, pile driving and heavy earth moving (Tr. 2, at 51).

43. The Company indicated that the Institute of Noise Control Engineering recommends an Leq of 48 dBA indoor criterion for offices in industrial areas, and added that the equivalent outdoor noise level is 73 dBA based on adding 25 dBA for shell attenuation (Exh. HO-E-6). The Company stated that the 73 dBA criterion is a conservative figure as OSHA uses 115 dBA as an outdoor equivalent (id.).

44. CPC stated that original project would have used approximately 60,000 gpd of potable water from the City of Everett when burning natural gas, and approximately 317,000 gpd when burning oil (Tr. 2, at 125).

45. The Company stated that the level of process wastewater discharge has been reduced from 50,400 to 36,300 gpd (Exh. CPC-1, at 79 and 81).

46. In the original proceeding the Company indicated that the original project would be located within an industrially zoned district and that existing land use in the vicinity included the DOMAC Terminal, a commercial printing facility, a sand and gravel facility, a cement receiving and distribution center, a petroleum products distribution terminal and electric and natural gas utility facilities. 1994 Cabot Decision, 2 DOMSC at 411. The Company stated that the original project would be compatible with existing businesses and would be located at least 2,000 feet from residential neighborhoods. Id.

47. In the original proceeding, the Company stated that to ensure that the operation of the original project in close proximity to the LNG terminal would not present hazardous conditions, it would include the following safety features: (1) safe location and orientation of major equipment; (2) extensive fire protection systems; (3) barrier walls; (4) automatic fuel shut-off valves, and (4) automatic shut-down of the original project where concentrations of natural gas are detected at the property line. In addition, since fuel would be delivered via off-site pipelines, no storage for flammable fuels at the site would be required. 1994 Cabot Decision, 2 DOMSC at 415.

48. In the 1994 Cabot Decision, the Company indicated that an initial evaluation of the site, performed in accordance with Phase I of the MCP, confirmed the existence of hazardous substances within the site subsurface and groundwater. CPC noted that the MDEP had classified the site as a "non-priority disposal site" and had granted a waiver of approval requirements. Thus, the Company indicated the MDEP would monitor completion of the MCP process but that the Company would be allowed to proceed through the MCP process without MDEP approval of each phase. 1994 Cabot Decision, 2 DOMSB at 416-417.

49. In the 1994 Cabot Decision, the Company stated that it would: (1) cap the entire site with clean fill to provide additional vertical separation between the new facility and subsurface contamination, and (2) use steel "H" piles for foundations to minimize movement of existing soils and alteration of groundwater paths. The Company maintained that protocol for the removal of all contaminated substances would be established prior to excavation to protect worker health and safety and that all contaminated substances would be disposed in accordance with applicable regulations. Further, the Company indicated that the existing warehouse contains asbestos floor tile which would be removed prior to the demolition of the structure in accordance with applicable regulations. 1994 Cabot Decision, 2 DOMSB at 416.

50. The safety assessment recommendations included: (1) installation of pressure relief devices in the ammonia storage tanks; (2) installation of gas detectors along the perimeter of the original project; and (3) use of explosion-proof electrical equipment close to the boundary of the DOMAC Terminal. 1994 Cabot Decision, 2 DOMSB at 414, n. 207.

51. In the original petition the morning peak hour was shown to be between 7:30 to 8:30 a.m. and the evening peak hour was shown to be between 4:30 to 5:30 p.m. (Exh. CPC-1, App. J at 1).

52. Electric and magnetic fields produced by the presence of voltage and the flow of current are collectively known as electromagnetic fields or "EMF."

53. In the 1994 Cabot proceeding, the Company stated that electric fields would be shielded by the overlying fill material and that the transmission line would therefore not generate above-ground electric fields. 1994 Cabot Decision, 2 DOMSB at 421. Further, the Company stated that magnetic fields at ground level would be minimal because the transmission line would be installed within a steel pipe which would shield the magnetic fields. Id.

54. Daniels stated that it is the fourth largest financial printer in the United States, employing 380 people in its four locations (two locations in Massachusetts, one in New York, New York, and one in Washington D.C.) (Exh. DP-10, at 2). Three hundred forty-five of the employees work at the Everett location which is staffed 24 hours per day for five or seven days a week depending on the needs of its customers (id.). Daniels stated that sales in 1997 were in excess of $66,000,000 and forecasted that sales in 1998 will exceed $70,000,000 (id.).

55. Buildings 1 and 2 are located at 61 and 40 Commercial Street, respectively (Exh. DP-10 at 2).

56. The Siting Board notes that this proceeding is being adjudicated pursuant to G. L. c. 164, § 69J and not the recently enacted G.L. c. 164, § 69J¼.

57. Evidence was presented by both parties indicating that the closest pile driving to the Press would be between 150 to 180 feet (Exh. DP-1, Att 1, at 3; Tr. 3, at 110; Tr. 4, at 66; Cabot Brief at 91, n.63). CPC estimated that peak vibration, based on pile driving in clay with a drop hammer producing 35,000 foot-pounds of energy, would be 0.04 inches per second, at a distance of 180 feet (Exh. DP-1). Daniels estimated that the maximum vibration, assuming pile driving in sand with hammers producing up to 50,000 foot-pounds of energy, would be eight times greater, at a distance of 150 feet, than that estimated by the CPC, above (Daniels Brief at 8).

58. Although the State Blasting Regulations of the Massachusetts State Fire Code are not directly applicable, CPC stated that during pile driving it will voluntarily undertake not to exceed the vibration threshold for blasting under 527 C.M.R. § 13.09 (Tr. 3, at 139-143; CPC Brief at 87).

59. Although Daniels initially raised concerns regarding adverse impacts on several pieces of its equipment, the only piece addressed with any specificity during the proceeding was the Press.

60. The Siting Board notes that certain steps taken to minimize the overall environmental impacts of a facility (e.g., moving an access road away from a wetland area or orienting a facility to minimize overall noise impacts) could increase impacts on an individual

abutter (e.g., by moving the access road or facility closer to the abutter's property).

61. The Siting Board notes from its review of Environmental Law, supra., that the concept of noise has been expanded in some venues to include broader impacts of so-called structure-borne or impact noise (e.g., the New York City Building Code, Environmental Law at §6.03)). However, the Siting Board has not construed its mandate this broadly and declines to do so in this case, particularly in the absence of express statutory language.