COMMONWEALTH OF MASSACHUSETTS

ENERGY FACILITIES SITING BOARD

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In the Matter of the Petition of Dighton)

Power Associates for Approval to)

Construct a Bulk Generating Facility) EFSB 96-3

and Ancillary Facilities)

_____)

FINAL DECISION

Cheryl Kimball

Hearing Officer

July 8, 1997

On the Decision:

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The Energy Facilities Siting Board ("Siting Board") hereby approves subject to conditions the petition of Dighton Power Associates Limited Partnership to construct a 170 megawatt ("MW"), gas-fired combined cycle generating facility and ancillary facilities in Dighton, Massachusetts.

I. INTRODUCTION

A. Summary of the Proposed Project and Facilities

Dighton Power Associates Limited Partnership ("DPA" or "Company") has proposed to construct a nominal net 170 MW natural gas-fired, combined cycle independent power plant in the Town of Dighton ("Dighton" or "Town"), Massachusetts which would commence commercial operation in 1999 (Exh. DPA-1(A) at 1-2, 1-3). The proposed site consists of two adjacent parcels: a 17.5-acre industrial zoned parcel of which approximately six acres will be developed for the proposed facility; and a 28-acre business zoned property which abuts the 17.5 acre parcel to the south ("Beckwith parcel") (id. at 1-3). The Company proposes to use the Beckwith parcel primarily for buffer and wetlands replication, as well as for a portion of the facility access road and utility interconnects (id. at 1-3, 1-7). The Company stated that it has entered into option agreements to purchase both parcels (id. at 1-7).

The proposed facility would be powered with natural gas provided under a long-term firm supply and transportation contract via the existing Algonquin Gas Transmission Company ("Algonquin") pipeline which traverses the southern portion of the 17.5-acre parcel (id. at 1-3, 1-7). An existing Eastern Utilities Associates ("EUA") easement with three 115 kilovolt ("kV") transmission lines traverses the west side of the 17.5-acre parcel (id. at 1-7). The electricity generated by the proposed facility would be transmitted via an approximately 750-foot underground transmission cable from the proposed facility to the existing EUA lines (id.).

The major components of the proposed project include: (1) a 110 MW Asea Brown Boveri ("ABB") GT 11N2 combustion turbine generator which will generate approximately 110 MW of electricity; (2) a heat recovery steam generator ("HRSG"); (3) a steam turbine generator which will produce an additional 65 MW of electricity; (4) an air-cooled condenser; (5) a selective catalytic reduction system for nitrogen oxides ("NOx") control; (6) a carbon monoxide ("CO") catalyst; (7) a 150-foot exhaust stack; and (8) ancillary facilities (id. at 1-2, 1-3).

The Company stated that the principal structure of the proposed project would be the power generation building, which houses the combustion turbine generator, steam turbine and HRSG (id. at 1-3). The Company further stated that the generation building would be acoustically treated and at completion would be approximately 70 feet tall, with two raised enclosures over the HRSG extending ten feet beyond the top of the generation building (id.). The Company stated that the proposed facility also includes an air-cooled condenser, miscellaneous storage tanks and a step-up transformer for the transmission interconnect, as well as on-site interconnects to existing gas pipeline and electric transmission lines (id.).

The Company's proposed site is located in an area of Dighton zoned for industrial use (id.). The combined site is generally level and covered with a mix of even-aged secondary growth trees and shrubs and includes some wetlands areas (id. at 1-7). The site is abutted on the north by agricultural land owned by the Bristol County Agricultural School ("Agricultural School") (id. at 1-7, 6-32). To the east, the combined site is bound by an industrial facility ("Advanced Loose Leaf"), Route 138 and Elm Street (id.). To the south, the combined site is bound by an undeveloped residentially-zoned parcel beyond which are two residences and a historic cemetery (id.). To the west, the combined site is bound by property owned by the Town of Somerset and the Segreganset River (id.).

The proposed project would cost approximately $108 million in 1997 dollars (Exh. DPA-LF-12; Tr. 6, at 88).

The proposed facility is being developed by Energy Management, Inc. ("EMI"), a Massachusetts corporation with over 20 years of experience in the industrial energy business and the development of cogeneration and independent power facilities (Exh. DPA-1 at 1-1). The proponent of this petition, DPA, is a Massachusetts limited partnership of which EMI's affiliate, EMI/Dighton, Inc., is the general partner (id.). Other projects developed by EMI include the 68 MW Pawtucket Power project and the 68 MW Dartmouth Power project, both of which are owned and operated by EMI and its affiliates (id.). EMI will provide complete administrative and management services for the proposed project from the commencement of construction, as well as operation and maintenance services for the completed facility (id. at 4-3).

B. Jurisdiction

DPA filed its petition to construct a bulk generating facility in accordance with G.L. c. 164, § 69H, which requires the Siting Board to implement the energy policies embodied in the 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 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 an independent power plant with a design capacity of approximately 170 MW, DPA's proposed generating unit falls within the first definition of "facility" set forth in G.L. c. 164, § 69G. That section states, in pertinent 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 100 megawatts or more.

At the same time, DPA's proposals to construct a transmission interconnect and other structures at the proposed site fall 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 June 28, 1996,(1) DPA filed with the Siting Board a petition to construct and operate a 170 MW natural gas-fired independent power plant in Dighton, Massachusetts. The Siting Board docketed this petition as EFSB 96-3. On August 7, 1996, the Siting Board conducted a public hearing in Dighton and on August 12, 1996, the Siting Board held a second public hearing in Taunton, Massachusetts. In accordance with the direction of the Hearing Officer, the Company provided notice of the public hearings and adjudication.

The Siting Board received timely petitions to intervene from: Thomas and Penny E. Cartin ("the Cartins"); Alfred D. Kennedy, Jr. and Lisa Kennedy ("the Kennedys"); Bruce N. and Sharon C. Clark ("the Clarks"); and the International Brotherhood of Electrical Workers, Local Union No. 223. In addition, the Siting Board received timely petitions to participate in the proceeding as an interested person from: U.S. Generating Company ("USGen");(2) R. Melody Phinney; Mr. and Mrs. Mark Grassie ("the Grassies"); William Graban; Raymond Dougherty; and Berkshire Power Development, Inc. ("BPD").

The Hearing Officer allowed the petitions to intervene of the Cartins(3) and the Clarks as to any and all matters associated with this proceeding (Hearing Officer Procedural Order, September 27, 1996, at 2). The Hearing Officer also allowed the petitions to participate as an interested person of the Kennedys, the Grassies, R. Melody Phinney, Raymond Doherty, William Graban, USGen and BPD (id. at 2-3).

The Siting Board conducted eight days of evidentiary hearings commencing on January 23, 1997 and ending on February 24, 1997. DPA presented the testimony of six witnesses: Robert Graham, senior associate with La Capra Associates, who testified as to regional need, Massachusetts need and alternative technology issues; George S. Lipka, senior project manager with EARTH TECH, who testified as to environmental issues and site selection; David N. Keast, a consultant in acoustics, who testified as to noise analysis issues; Mitchell H. Jacobs, Esq., treasurer and general counsel for EMI, who testified as to financing and viability, site selection, local permitting, and carbon dioxide ("CO2") and NOx offset acquisition plans; James E. Doggart, vice president of finance for EMI,

who testified as to pro-forma financial analysis, project financing and marketing; and Leonard J. Fagan, vice president of engineering for EMI, who testified as to project design, engineering, construction, operation and maintenance. The Hearing Officer entered 479 exhibits into evidence, consisting primarily of information and record request responses. DPA entered 39 exhibits into the record. No other party presented any witnesses or introduced any evidence into the record.

After the close of evidentiary hearings, the Siting Board staff determined that an attempt to resolve the issues presented in this case through a series of conferences on the record ("record conferences") would be beneficial for both the parties and the Siting Board (Hearing Officer Procedural Memorandum, March 20, 1997, at 1). The Siting Board subsequently held three record conferences(4) with the Company and the intervenors to discuss and attempt to resolve open issues in the case and to produce a Draft Tentative Decision.

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. Berkshire Power Development, Inc., 4 DOMSB 221, 242 (1996) ("Berkshire Power Decision"); Silver City Energy Limited Partnership, 3 DOMSB 1, 31 (1994) ("Silver City Decision"); Northeast Energy Associates, 16 DOMSC 335, 343 (1987) ("NEA Decision") (see Section II.A, below). 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. Berkshire Power Decision, 4 DOMSB at 243; Silver City Decision, 3 DOMSB at 32; NEA Decision, 16 DOMSC at 364 (see Section II.B, below). Third, the Siting Board requires the applicant to show that the project is viable. Berkshire Power Decision, 4 DOMSB at 243; Silver City Decision, 3 DOMSB at 32; NEA Decision, 16 DOMSC at 364 (see Section II.C, below). 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. Berkshire Power Decision, 4 DOMSB at 243; Silver City Decision, 3 DOMSB at 32; NEA Decision, 16 DOMSC at 343 (see Section III.A, below). 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. Berkshire Power Decision, 4 DOMSB at 243; Boston Edison Company, 1 DOMSB 1, 149-153, 186-195 (1993) ("1993 BECo Decision") (see Section III.B, below).

II. ANALYSIS OF THE PROPOSED PROJECT

A. Need Analysis

1. Standard of Review

In accordance with G.L. c. 164, § 69H, the Siting Board is charged with the responsibility of 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.(5) 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)." Id. 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. Eastern Energy Corporation (on remand), 1 DOMSB 213, 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 416. 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 yet linked to individual utilities by PPAs. Id. 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, §§ 3 and 4, and in this same enactment acknowledged that power generating facilities would provide electric power across state

lines. Id. Accordingly, the Siting Board found that an analysis of regional need must serve as a foundation for an analysis of Massachusetts need. Id. 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. Berkshire Power Decision, 4 DOMSB at 245, 275-276, 284-285, 303-304; Silver City Decision, 3 DOMSB at 83, 126-127, 140-143; 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. Middleborough Gas and Electric Department, 17 DOMSC 197, 216-219 (1988); Boston Edison Company, 13 DOMSC 63, 70-73 (1985) ("1985 BECo Decision"); Eastern Utilities Associates, 1 DOMSC 312, 316-318 (1977).

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,(6) but also the consideration of whether proposals to construct energy facilities within the Commonwealth are needed to meet New England's energy needs. Berkshire Power Decision, 4 DOMSB at 246, 275-76; Silver City Decision, 3 DOMSB at 39, 83; Massachusetts Electric Company/New England Power Company, 13 DOMSC 119, 129-131, 133, 138, 141 (1985). 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. Berkshire Power Decision, 4 DOMSB at 276-285; Silver City Decision, 3 DOMSB at 95-147; EEC (remand) Decision, 1 DOMSB at 417-418. However, in response to the Court's reminder in City of New Bedford that our statutory mandate is limited to ensuring that a necessary energy supply is provided for the Commonwealth, the Siting Board has found 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 to be considered in support of a finding of Massachusetts need. EEC (remand) Decision, 1 DOMSB at 418. Berkshire Power Decision, 4 DOMSB at 246-247; Cabot Power Decision, 2 DOMSB at 241, 258 (1994) ("Cabot Decision").

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 either on reliability, economic or environmental grounds directly related to the energy supply of the Commonwealth. Berkshire Power Decision, 4 DOMSB at 248; Silver City Decision, 3 DOMSB at 39-40; West Lynn Cogeneration, 22 DOMSC 1, 9-47 (1991) ("West Lynn Decision"). Therefore, consistent with Siting Board precedent and reflecting the directives of the Court in City of New Bedford, the Siting Board here reviews the need for the proposed project for reliability purposes.

2. Capacity 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 review of non-utility generation ("NUG") projects. Berkshire Power Decision, 4 DOMSB at 248; Cabot Decision, 2 DOMSB at 289-290; 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. For the purposes of this review, the Siting Board finds that it is appropriate to explicitly consider the need for the proposed facility during the 1998/1999 to 2002 time period.

a. New England

DPA maintains that there is a need for at least 170 MW of additional energy resources in New England beginning in the year 1999 and beyond (Exh. DPA-1(C) at 2-14). In support of this assertion, the Company presented a series of forecasts of demand and supply for the region, based upon two primary reference sources: (1) the December 1996 report of the New England Governors' Conference ("NEGC") entitled "Assessing New England's Energy Future, A Report of the Regional Energy Assessment Project, Phase II Final Report to the U.S. Department of Energy ("1996 NEGC Report"); and (2) the 1996 Capacity, Energy, Loads and Transmission Report published by NEPOOL ("1996 CELT Report") (id. at 2-3; Exhs. HO-N-1 (att.); HO-RR-1). The Company combined the demand and supply forecasts to produce a series of need forecasts (Exhs. DPA-1(C) at 2-2; HO-RR-6; HO-RR-37). Table 1 summarizes the range of regional need cases presented by the Company. As in prior cases, the Siting Board reviews the Company's demand forecasts, including its demand forecast methods and estimates of demand-side management ("DSM") savings over the forecast period, and the Company's supply forecast, including its capacity assumptions and required reserve margin assumptions.

The Siting Board then analyzes the resulting need forecasts.

In order to develop its forecasts of the timing and magnitude of capacity need, the Company stated that it first developed individual forecasts of several underlying factors relevant to need for both summers and winters (Exh. DPA-1(C) at 2-2). The Company further stated that these factors were: (1) unadjusted peak loads; (2) utility-sponsored DSM resources available on peak; (3) NUG netted from load; (4) supply resources; and (5) required reserve margin (id.). The Company developed "adjusted" summer and winter peak load by subtracting the DSM and NUG factors from the unadjusted peak load, and the resulting adjusted peak load was then multiplied by a factor reflecting the required reserve margin to yield a forecast of total capacity requirements generally referred to as adjusted objective capability (id.). Projected supply resources were then subtracted from the adjusted objective capability in each year of the forecast to provide a forecast of the magnitude and timing of the need for new energy resources (id.).

The Company presented forecasts of regional unadjusted summer and winter peak load that were derived directly from the 1996 CELT Report reference forecast ("1996 CELT forecast"), the 1996 CELT Report high case forecast ("1996 CELT high forecast"), and the demand forecast contained in the 1996 NEGC Report ("1996 NEGC forecast") (Exhs. DPA-1(C) at 2-4; HO-N-1 (att.); HO-RR-1). DPA maintained that the 1996 CELT forecast, developed by the utility members of NEPOOL, is not an independent forecast of demand, but instead contains certain biases that cause demand to be underestimated, and that the 1996 NEGC forecast is a more objective analysis of future need for energy in the region (Exh. HO-N-9; Tr. 1 at 15-19, 69-70).

To develop forecasts of adjusted load, the Company combined the demand forecasts with (1) the 1996 CELT Report forecast of NUG netted from load, and (2) three forecasts of DSM savings based on the 1996 CELT Report forecast of DSM savings -- a base DSM scenario, which is the forecast of company-sponsored DSM used in the 1996 CELT Report, a high DSM scenario, which assumes an increase of ten percent in the annual post-1996 growth rate of the base scenario, and a low DSM forecast, which assumes a decrease of 25 percent in the annual post-1996 growth rate of the base scenario (Exhs. DPA-1(C) at 2-7; HO-RR-6; HO-RR-37).

The Siting Board has previously acknowledged that the CELT Report is generally 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 NUG facilities. Berkshire Power Decision, 4 DOMSB at 257; Silver City Decision, 3 DOMSB at 55; NEA Decision, 16 DOMSC at 354. In addition, the Siting Board recognizes that the 1996 NEGC report offers an alternative perspective on need and sets forth reasonable projections of need for purposes of this proceeding. Therefore, the Siting Board accepts the alternative forecast based on the 1996 NEGC Report. Accordingly, the Siting Board accepts the 1996 CELT forecast and the 1996 NEGC forecast as base case peak load forecasts for purposes of this review.

The Siting Board has recently reviewed and accepted forecasts of DSM comparable to

the Company's base, high and low DSM forecasts. Berkshire Power Decision, 4 DOMSB at 262. Accordingly, the Siting Board accepts the NEPOOL base DSM scenario as the base case forecast of DSM savings for use in the regional need analysis. The Siting Board also accepts the Company's high DSM scenario as the high case forecast of DSM savings for use in the regional need analysis. The Siting Board further accepts the Company's low DSM scenario as the low case forecast of DSM savings for use in the regional need analysis.

The Company presented three supply scenarios based on the capacity projections in the 1996 CELT report -- a base supply scenario, a high supply scenario, and a low supply scenario (Exhs. DPA-1(C) at 2-8 to 2-13; HO-RR-6; HO-RR-37). For the base supply scenario, DPA included all existing plants, external purchases and sales, and committed utility and non-utility generation owned or contracted for by NEPOOL utilities, adjusted to reflect new information on actual changes in NEPOOL supplies and DPA-assumed changes in NEPOOL supplies (Exhs. DPA-1(C) at 2-8 to 2-10; HO-RR-6; Tr. 1, at 114-116). DPA also developed a low supply scenario which included less optimistic assumptions as to unit availability and retirements and a high supply scenario which included corresponding adjustments to reflect the possibility of greater than anticipated availability of supply sources in the region (Exhs. DPA-1(C) at 2-10 to 2-13; HO-RR-6; HO-RR-37). Although the Siting Board questions some of the Company's supply assumptions, such as the retirement of the Millstone 1 unit in the base case, the Siting Board agrees with the Company that all of the Company's need cases, even those incorporating the high supply case, show a need for the proposed facility by 1999. Therefore, for the purposes of this review, the Siting Board finds that the Company submitted a reasonable range of supply scenarios.

With respect to reserve margin, DPA utilized NEPOOL's current projections of required reserve margin reflected in the 1994 Annual Report of NEPOOL Objective Capability and Associated Parameters for the years projected and assumed a constant requirement thereafter (Exh. DPA-1(C) at 2-13). The Siting Board has recently reviewed and accepted reserve margin projections comparable to the Company's reserve margin projections. Berkshire Power Decision, 4 DOMSB at 272. Therefore, the Siting Board finds that the Company's projected reserve margins requirements are appropriate for the purposes of this review.

The Company's analysis demonstrated a need in New England of 364 MW in 1999, increasing over the forecast period, under the most conservative need forecast for summer peak load (1996 NEGC forecast, high supply forecast, high DSM forecast) (HO-RR-37). The Company's analysis also demonstrated a need of 216 MW in 1998/1999, increasing over the forecast period, under the most conservative need forecast for winter peak load (1996 CELT forecast, high supply forecast, high DSM forecast) (id.). Accordingly, the Siting Board finds a need for 170 MW or more of additional energy resources in New England for reliability purposes beginning in the winter of 1998/1999 and beyond.

b. Massachusetts

DPA also maintains that there is a need for at least 170 MW of additional energy resources in Massachusetts beginning in the year 1999 and beyond (Exh. DPA-1(C) at 2-15). In support of this assertion, the Company presented a series of demand and supply forecasts for Massachusetts based upon the 1996 NEGC Report, the 1996 CELT Report, the 1994 CELT Report (the last CELT Report to include state-specific load forecasts) and a state-specific load forecast provided by the Massachusetts Division of Energy Resources ("DOER") (id at 2-15, 2-16; Exhs. HO-N-1 (att.); HO-N-18 (att.); HO-RR-1). DPA applied essentially the same methodology to this data as that discussed above for determining regional need (Exh. DPA-1(C) at 2-15). The Company combined the resulting demand and supply forecasts to produce the a series of Massachusetts need forecasts (id.). Table 2 summarizes the range of Massachusetts need cases presented by the Company. As in prior cases, the Siting Board reviews the Company's Massachusetts 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 the resulting Massachusetts need forecasts.

In order to develop forecasts of Massachusetts adjusted summer and winter peak load corresponding to the 1996 CELT forecast, DPA multiplied the 1996 CELT adjusted(7) reference forecast by the ratio of (1) the 1994 Massachusetts adjusted reference forecast and (2) the 1994 CELT adjusted reference forecast in each year of the forecast period ("1996 Massachusetts CELT forecast") (id. at 2-15, 2-16; HO-RR-38). The Company considered the 1996 Massachusetts CELT forecast to be a low case forecast (id.). To develop forecasts of Massachusetts adjusted summer and winter peak load corresponding to the 1996 CELT high forecast, DPA multiplied the 1996 CELT adjusted high forecast by the ratio of (1) the 1994 Massachusetts adjusted reference forecast and (2) the 1994 CELT adjusted reference forecast in each year of the forecast period ("1996 Massachusetts high forecast") (Exh. DPA-1(C) at 2-16; HO-RR-38). To develop forecasts of Massachusetts adjusted summer and winter peak load corresponding to the 1996 NEGC forecast, DPA used the adjusted Massachusetts load forecast provided by DOER in connection with the 1996 NEGC Report, which assumed a level of DSM savings based on NEPOOL's projections for the Commonwealth ("1996 Massachusetts NEGC forecast") (Exhs. HO-N-19; HO-N-20; HO-RR-38).

The Company indicated that NEPOOL did not release state-specific DSM forecasts

for 1996 as it had in previous years, and therefore, discrete Massachusetts DSM forecasts were not available (Exhs. DPA-1(C) at 2-15; HO-N-19). However, the Company maintained that Massachusetts DSM could be estimated using each of the foregoing adjusted load forecasts for Massachusetts (Exh. HO-RR-7; Tr. 1, at 147-149).(8)

Consistent with its findings concerning the regional demand forecasts, the Siting Board accepts the 1996 Massachusetts CELT forecast and the 1996 Massachusetts NEGC forecast as base case forecasts for purposes of this review.

With respect to the Massachusetts supply forecast, DPA reflected the energy supply resources owned or contracted for by Massachusetts utilities to meet the needs of the Commonwealth, regardless of where that supply is located (Exh. DPA-1(C) at 2-17). DPA developed base, high, and low supply scenarios corresponding to the supply scenarios presented in its regional analysis (id. at 2-17 to 2-19, Tables 2.3-3 to 2.3-6; HO-RR-8). Therefore, consistent with its findings concerning the New England supply scenarios, the Siting Board finds that the Company submitted a reasonable range of Massachusetts supply scenarios.

With respect to reserve margins, DPA assumed that Massachusetts would have the same percentage reserve margin requirements as those projected for the region as a whole (Exh. DPA-1(C) at 2-20). Therefore, consistent with its findings relative to the New England need analysis, the Siting Board finds that, for purposes of this review, the Company's projected reserve margin requirements are appropriate.

The Company's analysis demonstrated a need in Massachusetts for 734 MW in 1999, increasing over the forecast period, under the most conservative need forecast for summer peak load (1996 NEGC Massachusetts forecast, high supply forecast) (Exh. HO-RR-38). The Company's analysis also demonstrated a Massachusetts need for 190 MW in 2001/2002, increasing over the forecast period under the most conservative need forecast for winter peak load (1996 Massachusetts CELT forecast, high supply forecast) (id.). Therefore, the Siting Board finds a need for 170 MW or more of additional energy resources in Massachusetts for reliability purposes beginning in 1999 and beyond. The Siting Board notes that, although a high case DSM forecast was not expressly presented, there is a clear need for at least 170 MW in Massachusetts beginning in 1999 because the margin of need, 734 MW, is significant. Any likely reduction in demand resulting from a high DSM forecast would not be sufficient to reduce the margin to 170 MW or less.

3. Conclusions on Need

The Siting Board has found that a need exists for 170 MW or more of additional energy resources in New England for reliability purposes beginning in the winter of 1998/1999 and beyond. In addition, the Siting Board has found a need for 170 MW or more of additional energy resources in Massachusetts for reliability purposes beginning in 1999 and beyond. Therefore, the Siting Board finds that the proposed project is needed to provide a necessary energy supply for the Commonwealth beginning in 1999 and beyond.

B. Alternative Technologies Comparison

1. Standard of Review

G.L. c. 164, § 69H, requires the Siting Board to evaluate proposed projects in terms of providing a necessary energy supply for the Commonwealth with a minimum impact on

the environment at the lowest possible cost. In addition, G.L. c. 164, § 69J requires a project proponent to present "alternatives to planned action" which may include: (a) other methods of generating, manufacturing, or storing, and other site locations; (b) other sources of electrical power or gas, including facilities which operate on solar or geothermal energy and wind or facilities which operate on the principle of cogeneration or hydrogeneration; and (c) no additional electric power or gas.

In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, the proposed project is superior to alternative approaches in the ability to address the previously identified need in terms of cost, environmental impact and reliability. Berkshire Power Decision, 4 DOMSB at 304; Silver City Decision, 3 DOMSB at 153; EEC (remand) Decision, 1 DOMSB at 296.

2. Identification of Resource Alternatives

As an initial step, DPA stated that it assembled a list of all electric generation technologies included in the latest Electric Power Research Institute ("EPRI"), Technical Assistance Guide: Electricity Supply-1993, EPRI Tr. 102275-V-R7 (1993) ("TAG Report") and NEPOOL's Summary of Generation Task Force Long-Range Study Assumptions (June 1995) ("1995 GTF Report") that are capable of operating in the same mode (base load or intermediate) as the proposed facility (Exh. DPA-1(A) at 3-3). These included a number of different fuel technologies, as well as renewable energy technologies (id.). The Company indicated that, in the first stage of the analysis, it evaluated each technology for any fatal flaw that would render the technology clearly unable to meet the identified need, including flaws as to siting/permitting feasibility, lack of significant requisite resources in the region, lack of cost-effectiveness, and inconsistency with long-standing regional policies to diversify away from oil (id. at 3-3, 3-4). As a result of the first stage of the analysis, DPA stated that it determined that nine technologies were at least theoretically capable of meeting the identified need for new capacity: (1) generic gas-fired combined cycle ("GCC"); (2) coal-fired atmospheric fluidized bed ("AFB"); (3) coal-fired pressurized fluidized bed ("PFB"); (4) integrated coal gasification ("IGCC"); (5) pulverized coal ("PC"); (6) wind energy; (7) municipal solid waste; (8) biomass; and (9) fuel cells (id. at 3-4). As the second phase of the review process, DPA reviewed the foregoing nine technologies for significant flaws that would render the technology practically incapable of meeting the identified need and eliminated any technologies with two or more of such flaws (id. at 3-9). The criteria employed by DPA in this stage were: (1) technical maturity based upon EPRI's technical development rating presented in the TAG report as "mature" or "commercial;" (2) siting/permitting feasibility based upon regional siting/permitting constraints; (3) reliability/availability; (4) cost-effectiveness based upon a 20-year nominal levelized cost per megawatt hour; and (5) ability to meet the identified need at a single site (id.). On the basis of the foregoing, the generic GCC, AFB, PFB, IGCC, and PC units each had one or less identified significant flaws and were therefore considered to be practical alternatives for

further consideration (id. at 3-12, 3-13).

Based on its review of the above-referenced analysis, the Siting Board recognizes that the criteria applied by the Company are reasonable for the purposes of identifying resource alternatives which will yield a reliable energy supply. Therefore, the Siting Board finds that DPA appropriately limited further evaluation to such options.

3. Comparison of Environmental Impacts

The Company compared the alternative technologies and the proposed project with respect to environmental impacts in the areas of air quality, water supply and wastewater, noise, fuel transportation, land use and solid waste (Exh. DPA-1(A) at 3-13). The Company compared technologies assuming location at the proposed site in Dighton, to the extent possible (id.).

a. Air Quality

DPA compared the air quality impacts of the proposed project and alternatives based on emissions of sulfer dioxide ("SO2"), NOx, particulates, CO, volatile organic compounds ("VOCs") and CO2 (Exh. DPA-1(A) at 3-13, 3-14). In addition to comparisons based on tons per year of emissions, DPA also compared tons of emissions per gigawatt-hour ("GWH"), which it believes to be a more meaningful comparison that takes into account differences in unit capacity, availability and heat rate (id. at 3-13). Emissions for the coal alternatives were calculated based on data from various sources, including the U.S. Environmental Protection Agency's ("USEPA") Best Available Control Technology ("BACT")/Lowest Achievable Emission Rate ("LAER") clearinghouse and the 1995 GTF Report, and are considered to represent BACT/LAER technologies (id. at 3-14). The Company's analysis indicated that the proposed project would produce less tons/GWH for each of the pollutants than all of the alternatives evaluated, with the exception of VOCs, where the PFB, PC, and IGCC alternatives have slightly lower, though still comparable, VOCs emissions (id.). The Company's analysis further indicated that, with respect to the coal alternatives, emissions for all pollutants except VOCs are much higher than those in both the proposed project and the generic GCC alternative (id.). In addition, pollutants of significant concern with respect to regional air quality, SO2 and NOx are substantially higher for the coal-based alternatives (id.). Further, the proposed project would be slightly preferable to the generic GCC on a per-GWH basis due to its higher operating efficiency (id.).

Therefore, the Siting Board finds that, on balance, considering all pollutants, the annual emissions of the proposed project would be preferable to those of all of the technology

alternatives. Accordingly, the Siting Board finds that, for the purposes of this review, the proposed project is slightly preferable to the generic GCC alternative and preferable to the AFB, PFB, IGCC, and PC alternatives with respect to air quality.

b. Water Supply and Wastewater

With respect to water supply and wastewater, the proposed facility and the alternative generic GCC unit were assumed to have similar process water and wastewater generation requirements at the proposed site, so as to be comparable for such factors (Exh. DPA-1(A) at 3-14). Each of the coal alternatives however, requires substantially greater water supplies and wastewater volumes than the proposed project or the generic GCC alternative (id.). Accordingly, the Siting Board finds that, for purposes of this review, the proposed project is comparable to the generic GCC alternative and preferable to the AFB, PFB, IGCC, and PC alternatives with respect to water supply and wastewater discharge.

c. Noise

In comparing noise impacts of the various technologies, DPA assumed that it would be possible to design each of the alternatives to achieve the same degree of general continuous noise levels as that of the proposed facility (Exh. DPA-1(A) at 3-15). DPA pointed out, however, that each of the coal-based alternatives would require coal deliveries that would generate significant intermittent noise that would be difficult to mitigate (id.). In addition, each would require a coal crusher (id.). The IGCC alternative would also include as a significant noise source a coal gasification plant, including a flare stack (id.). Thus, even assuming that the coal-based technologies could achieve the same continuous levels of noise impact as the proposed facility, each of the coal-based alternatives include significant additional sources of noise that would result in greater overall impacts to the surrounding community (id.). Accordingly, the Siting Board finds that, for purposes of this review, the proposed project is comparable to the generic GCC alternative and preferable to the AFB, PFB, IGCC, and PC alternative with respect to noise impacts.

d. Fuel Transportation

DPA maintains that the fuel transportation impacts associated either with the proposed facility or the generic GCC alternative would be superior to those associated with fuel transportation for coal-based technologies (Exh. DPA-1(A) at 3-16). In particular, DPA

notes that for either gas-fired technology, natural gas would be delivered to the facility via existing high-pressure interstate pipeline facilities which traverse the proposed site (id.). Even if the coal-based technologies are presumed to be located in proximity to existing rail lines with adequate capacity, deliveries by rail would necessarily still involve additional impacts to other rail users in abutting communities far greater than those associated with pipeline deliveries (id.). Further, the coal-based alternatives would require significantly greater on-site unloading and storage areas than the proposed project (id. at 3-16, 3-17). Accordingly, the Siting Board finds that, for purposes of this review, the proposed project would be comparable to the generic GCC alternative, and preferable to the AFB, PFB, IGCC, and PC alternatives with respect to fuel transportation.

e. Land Use

With respect to land use requirements, DPA indicated that the proposed facility and the generic GCC unit could be designed to fit within the same six-acre footprint of the proposed project and therefore would be comparable to the proposed facility (Exh. DPA-1(A) at 3-17). However, with respect to the coal-based technologies, the 1995 GTF Report indicates that the AFB, PFB, or PC units would require at least 40 acres, and the IGCC alternative at least 100 acres for the facility footprint, rail unloading and fuel storage areas (id.). In addition, the scale of the coal-based facilities would be significantly larger, including the height of stacks and buildings and larger cooling towers (id.). With respect to total land requirements, the coal alternatives would have greater land use impacts than the proposed facility and generic GCC alternative. In light of the foregoing facility footprint and building size requirements and the land use impacts of the technologies, the Siting Board finds that, for purposes of this review, the proposed facility would be comparable to the generic GCC alternative and preferable to the AFB, PFB, IGCC and PC alternatives with respect to land use impacts.

f. Solid Waste

DPA maintains that the proposed project and the generic GCC alternative would generate only minimal solid waste, consisting of incidental office and maintenance waste estimated at 15 tons per year (Exh. DPA-1(A) at 3-17, 3-18). In contrast, each of the coal-based technologies would produce far greater amounts of solid waste, ranging from 110,774 tons per year in the case of the IGCC, to 145,166 tons per year for the AFB, which would consist primarily of ash or slag (id. at 3-18). Even assuming that ash or slag could be shipped-off site via the return trip of the coal delivery trains, the Siting Board has previously found that, in the absence of detailed plans for the transport and disposal of solid waste in an environmentally beneficial way, solid waste impacts are greater for those technologies that generate greater amounts of wastes. EEC (remand) Decision, 1

DOMSB at 351-352. Accordingly, the Siting Board finds that, for the purposes of this review, the proposed facility would be comparable to the generic GCC alternative and preferable to the AFB, PFB, IGCC, and PC alternatives with respect to solid waste impacts.

g. Findings and Conclusions on Environmental Impacts

Based on the foregoing analysis, the Siting Board finds that the proposed facility would be slightly preferable to the generic GCC alternative with respect to environmental impacts. Also based on the foregoing analysis, the Siting Board finds that the proposed facility would be preferable to the AFB alternative, the PFB alternative, the IGCC alternative and the PC alternative with respect to environmental impacts.

4. Cost

DPA performed detailed 20-year levelized cost analyses of the proposed facility and each of the nine alternative technologies that were considered in the second stage of its evaluation process (Exh. DPA-1(A) at 3-10, 3-13). DPA calculated the cost of each alternative technology on a bus-bar basis that did not include any wheeling costs or allow for potential variations in unit economic dispatch, and DPA assumed that the alternative technologies would operate on a must-run basis, limited only by their projected equivalent availability factors (id. at 3-11). DPA based its analysis on a consistent set of financial assumptions for all alternatives (including debt and equity ratios, interest rates, taxes and inflation) and assumed that each unit would begin commercial operation on April 1, 1999 (id. at 3-10, 3-11). DPA used cost performance data for the proposed facility from its pro forma, and the cost and performance data for generic units from the TAG Report and the 1995 GTF Report (id. at 3-11).

The results of DPA's cost analysis shows a significantly lower 20-year levelized cost for the proposed facility in comparison to any of the alternative technologies (id. at 3-11, Att. 3.5.3). Accordingly, the Siting Board finds that, for purposes of this review, the proposed facility would be preferable to the generic GCC, AFB, PFB, IGCC and PC alternatives with respect to cost.

5. Reliability

DPA asserted that the proposed facility is superior to the alternative technologies with

respect to reliability, considering both unit availability and technical maturity (Exh. DPA-1(A) at 3-18, Att. 3.5.1). In terms of availability, the proposed project has an expected average annual availability of 93.5 percent, which compares favorably to the expected availability of 88.9 percent for the generic GCC alternative, as well as to the expected availabilities of the AFB alternative (90.4 percent) the PFB alternative (80.8 percent), the IGCC alternative (85.7 percent) and the PC alternative (85.5 percent) (id. at 3-18). With respect to technical maturity, DPA differentiated the technologies according to the most recent TAG Report, which classified both the proposed facility and the generic GCC alternative as mature technologies, and thus comparable in terms of reliability (id. at 3-19). DPA asserted that although the PC technology alternative was also classified by EPRI as mature, due to the more complex nature of the coal plan technology, the plant may be somewhat less reliable (id.). In contrast, DPA stated that the AFB alternative is classified as commercial (a lesser classification) and the PFB and IGCC units are both classified as demonstration level technologies, and thus are significantly less proven than combined cycle technology (id.).

Accordingly, the Siting Board finds that the proposed facility would be comparable to the generic GCC and PC alternatives and preferable to the AFB, PFB and IGCC alternatives with respect to reliability.

6. Comparison of the Proposed Project and Technology Alternatives

In order to establish that a proposed facility is preferable to technology alternatives in its ability to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that, on balance, its proposed facility is superior to alternative approaches in the ability to address the previously identified need in terms of environmental impact, cost, and reliability.

In Sections II.B.3, II.B.4, and II.B.5, above, the Siting Board has compared the proposed facility to generating technology alternatives that have been determined capable of meeting the identified need, on the basis of specific environmental impacts, costs, and reliability. Based on its comparison, the Siting Board has found that the proposed project would be: (1) slightly preferable to the generic GCC alternative and preferable to the AFB, PFB, IGCC and PC alternatives with respect to environmental impacts; (2) slightly preferable to the generic GCC alternative and preferable to the AFB, PFB, IGCC, and PC alternatives with respect to costs; and (3) comparable to the generic GCC and PC alternatives and preferable to the AFB, PFB, and IGCC alternatives with respect to reliability.

Accordingly, the Siting Board finds that the proposed facility is superior to the GCC alternative, the AFB alternative, the PFB alternative, the IGCC alternative and the PC alternative with respect to providing a necessary energy supply with a minimum impact

on the environment at the lowest possible cost.

C. Project Viability

1. Standard of Review

The Siting Board determines that a proposed non-utility generating project 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. Berkshire Power Decision, 4 DOMSB at 328, 346; Silver City Decision, 3 DOMSB at 236; NEA Decision, 16 DOMSC at 380.

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 frames 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 a low cost, reliable source of energy over the planned life of the proposed project. Berkshire Power Decision, 4 DOMSB at 328-329, 343; Silver City Decision, 3 DOMSB at 236-237; NEA Decision, 16 DOMSC at 378-380.

Here, DPA has argued that the project fully meets each of the Siting Board's viability tests, and that the proposed project will be a viable source of energy (Exh. DPA-1(A) at 4-1).

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. DPA asserted that a number of factors, including the project's low cost and low environmental impacts, the successful experience of the developers, the interest and commitment of the fuel supplier, and the need for the proposed project at the time of commercial operation, will assure that the proposed project is financiable (id. at 4-1).

DPA presented evidence regarding the experience of its development team, which

indicated that DPA's key personnel have developed and arranged financing for four power generation projects in New England, including Pawtucket Power, Dartmouth Power and two smaller projects, representing over $250 million in project financing (id.; Exhs. HO-V-7; HO-V-33). In addition, DPA indicated that its development team includes Fieldstone Private Capital Group ("Fieldstone") as financial advisors and that Fieldstone was ranked by Project Finance International in 1996 as the top American project finance firm and one of the world's leading project finance advisory firms, having served as advisor for over $7 billion in transactions for its clients (Exh. HO-V-33 (att.)). Thus, the record indicates that the project proponents have a broad range of experience in overall project development, including project financing.

DPA maintains that the financiability of the project is further demonstrated by its unique fuel procurement strategy (Tr. 5, at 49-50). The Company submitted to the Siting Board an executed 20-year gas supply contract with a wholly-owned natural gas marketing subsidiary of a major diversified natural gas holding company with gas markets and investments throughout North America providing for the firm supply and delivery of up to 33,000 MMBtu per day of the natural gas required to operate the facility (Exhs. DPA-1(A) at 4-4; HO-V-17 (supp.); HO-V-22 (att.)). The gas supply contract further provides that (1) the price for gas is tied to the market price of electricity, and (2) the non-gas operating expenses and debt service of the project will be paid out of electric sales revenue prior to payment to the gas supplier (Exh. HO-V-22 (att.); Tr. 5, at 21-23, 49-50). The Company explained that under these terms, the gas supplier effectively bears the risk of uncertainties in the electricity market, and therefore, the fuel procurement strategy assures financiability by effectively insulating prospective lenders from the risks of low load factor operation and uncertainties in energy market pricing (Tr. 5, at 21-23, 49-50).

DPA will finance the project as a "merchant plant," which assumes that electricity will be sold at market price rather than pursuant to long-term PPAs (Tr. 5, at 12). In order to demonstrate its financiability, the Company prepared pro forma financial statements reflecting a wide range of electric and gas market pricing scenarios (Exhs. HO-RR-29; HO-RR-29(a)). DPA indicated that, for the combined worst case scenario of low electric price revenues and high gas price expenses, the pro formas showed an after-tax internal rate of return ("IRR") of 16.8 percent and debt coverage ratios ("DCRs") of a minimum of 3.3 and an average of 5.06, which DPA maintains, is an extremely attractive level to project lenders (Exh. HO-RR-29). Further, under the more likely situation of must-run dispatch and the most likely gas pricing, the pro formas showed even more favorable DCRs under various scenarios -- an average of 6.40 and a minimum of 4.17 -- which DPA maintains is in excess of the ratios typically required of project financiers (Exh. HO-RR-29(a)).

Accordingly, the Siting Board finds that DPA has established that its proposed project is financiable.

b. Construction

In considering a proponent's construction strategy for a proposed facility, the Siting Board considers whether the project is reasonably likely to be constructed and to go into service as planned. In this regard, the Company submitted to the Siting Board an executed turnkey contract for the construction and installation of a power production facility with Parsons Power Group, Inc. ("Parsons") (Exh. HO-V-12). The record indicates that Parsons has substantial experience in the development of such projects, having completed 15 major engineering, procurement, and construction services contracts totaling 1,400 MW, most of which are gas-fired combined cycle projects (Exh. DPA-1(A) at 4-2). The contract with Parsons provides for the turnkey construction of the facility at a fixed price by a date certain, and establishes liquidated damages for delay and performance shortfalls (id.; Exh. HO-V-12). Under the terms of the contract, Parsons is responsible for providing complete design, engineering, procurement, equipment delivery and construction services for the proposed project as necessary to bring the facility on-line consistent with the guaranteed performance standard and schedule (id.). In prior decisions, the Siting Board has found that a signed agreement for the design and construction of a generating project provides reasonable assurance that the proposed project is likely to be constructed on schedule and will be able to perform as expected. Berkshire Power Decision, 4 DOMSB at 335; Silver City Decision, 3 DOMSB at 245; Altresco-Pittsfield, Inc., 17 DOMSC 351, 380 (1988) ("Altresco-Pittsfield Decision"). Furthermore, DPA submitted to the Siting Board an executed interconnection agreement between DPA and EUA for the requisite interconnect services (Exh. HO-V-26(b) (supp. 2)).

DPA has also received the requisite zoning relief from local municipal authorities, including a special permit granted by the Dighton Zoning Board of Appeals ("ZBA") allowing structures over 65 feet in height and a variance granted by the Dighton ZBA allowing partial access to the site in a business-zoned district (Exhs. HO-RR-10(A) and (B)). The Company noted that the respective appeal periods of such decisions have expired without the filing of a timely appeal (HO-RR-10 (supp.)). DPA has further obtained approval of the project's site plan and a special permit for planned development from the Dighton Planning Board (Exh. HO-E-36 (supp. 2) (att.)).

Accordingly, the Siting Board finds that DPA has established that the proposed project is likely to be constructed within the applicable time frames and be capable of meeting performance objectives. The Siting Board has found, above, that DPA has established that its proposed project is financiable. Therefore, the Siting Board finds that DPA has established that its proposed project meets the Siting Board's first test of viability.

3. Operations and Fuel Acquisition

a. Operations

In determining whether a proposed non-utility generation 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 its agent(s) to operate and maintain the facility in a manner which ensures a reliable energy supply. Berkshire Power Decision, 4 DOMSB at 337-339; Silver City Decision, 3 DOMSB at 247-249; Altresco-Pittsfield Decision, 17 DOMSC at 381-382. In this case, DPA submitted an executed Operation and Maintenance ("O&M") Agreement with EMI to the Siting Board (Exh. HO-V-16 (supp. 2) (att.)). The O&M Agreement provides that EMI will operate and maintain the facility in accordance with the appropriate industry standards, including preventative maintenance activities, operating procedures, availability requirements and other pertinent operational characteristics (id.; Exh. DPA-1(A) at 4-3). DPA maintains that EMI has had a successful history in providing operating and management services to the Pawtucket Power project and the Dartmouth Power project (Exh. DPA-1(A) at 1-1).

In past cases, the Siting Board has found that an executed O&M Agreement 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. Berkshire Power Decision, 4 DOMSB at 338; Silver City Decision, 3 DOMSB at 249; Altresco-Pittsfield Decision, 17 DOMSC at 382. Here, DPA has provided an executed O&M Agreement with EMI, a qualified entity that is familiar with similar projects, that includes provisions similar to those reviewed and approved in prior decisions. Accordingly, the Siting Board finds that DPA has established that the proposed 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 planned life of the proposed project. Berkshire Power Decision, 4 DOMSB at 343. In so doing, the Siting Board has recognized that it is appropriate to consider the need for flexibility, the expected shorter time frame of electric sales arrangements in a restructured electric industry, and the industry-wide shift away from long-term gas supply contracts (id.). As noted above, the Company executed a 20-year gas supply contract with the wholly-owned natural gas marketing subsidiary of a major diversified natural gas holding company with gas markets and investments throughout North America (Exhs. DPA-1(A) at 4-4; HO-V-17 (supp.); HO-V-22 (att.)). That agreement provides for the firm supply and delivery of up to 33,000 MMBtu per day of the natural gas required to operate the facility (Exh. HO-V-22 (att.)). Under the terms of the contract, the seller is obligated to make firm deliveries to DPA at the Mendon station of the Algonquin system in Mendon, Massachusetts (Exhs. HO-V-18; HO-V-22 (att.); HO-V-40). The supplier will have access to multiple gas sources and multiple transportation routes to enhance the supplier's ability to contend with any interruptions or contingencies, which are the contractual responsibility of the supplier (Exh. HO-V-40). DPA will hold firm capacity on the Algonquin system to transport the gas from Mendon to the facility and Algonquin has

confirmed that such firm capacity is available (Exh. HO-V-25 (supp.)). As noted above, the price for gas will be tied to the market price of electricity.

DPA indicated that backup fuel oil was not required because of the high reliability of the gas pipeline transportation system (Exh. HO-V-40; Tr. 6, at 46-49). The Company stated that gas service interruptions would be infrequent and if an interruption lasted several days, the Company would take the opportunity to perform maintenance at the facility (id.). The Company noted that over a five-year period at the Dartmouth Power and Pawtucket Power projects, it had only experienced several days of gas pipeline interruption (Tr. 6, at 46-47).

Accordingly, the Siting Board finds that DPA has established that its fuel acquisition strategy reasonably ensures a low-cost reliable source of energy over the planned life of the proposed project. The Siting Board has found, above, that DPA has established that the proposed project is likely to be operated and maintained in a manner consistent with appropriate performance objectives. Therefore, the Siting Board finds that DPA has established that its proposed project meets the Siting Board's second test of viability.

4. Findings and Conclusion on Viability

The Siting Board has found that DPA has established that its proposed project is (1) reasonably likely to be financed and constructed so that the project will be operational as planned, and (2) likely to operate and be a reliable, least-cost source of energy over the planned life of the proposed facility. Accordingly, the Siting Board finds that DPA has established that its proposed facility is likely to be a viable source of energy.

III. ANALYSIS OF THE PROPOSED FACILITIES

A. Site Selection Process

The Siting Board has a statutory mandate to implement the energy policies embodied in 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 and 69J. 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, the Siting Board requires a petitioner to show that the proposed facility's siting plans are superior to alternatives and that its proposed facility is sited at a location that minimize costs and environmental impacts while ensuring supply reliability. Berkshire Power Decision, 4 DOMSB at 347; Silver City Decision, 3 DOMSB at 256; 1993 BECo Decision, 1 DOMSB at 27.

1. Standard of Review

In order to determine whether a facility proponent has shown that its proposed facility's siting plans are superior to alternatives, the Siting Board requires a facility proponent to demonstrate that it examined a reasonable range of practical facility siting alternatives. Berkshire Power Decision, 4 DOMSB at 347; Silver City Decision, 3 DOMSB at 257-258; NEA Decision, 16 DOMSC at 381-409. In order to determine that a facility proponent has considered a reasonable range of practical alternatives, the Siting Board requires the proponent to meet a two-pronged test. First, the facility proponent must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternatives in a manner which ensures that it has not overlooked or eliminated any alternatives which are clearly superior to the proposal. Berkshire Power Decision, 4 DOMSB at 347; Silver City Decision, 3 DOMSB at 258; Berkshire Gas Company (Phase II), 20 DOMSC 109, 156 (1990) ("1990 Berkshire Decision"). Second, the facility proponent must establish that it identified at least two noticed sites or routes with some measure of geographic diversity.(9)

Berkshire Power Decision, 4 DOMSB at 347-348; Silver City Decision, 3 DOMSB at 258; NEA Decision, 16 DOMSC at 381-409. In the sections below, the Siting Board reviews DPA's site selection process, including its development and application of siting criteria, and the geographic diversity of DPA's primary and alternative sites.

2. Development and Application of Siting Criteria

As an initial step, DPA identified its search area as those portions of southeastern Massachusetts traversed by the Algonquin "G" high pressure gas pipeline system (Exh. DPA-1(A) at 5-2). DPA maintains that its search area was reasonable for several reasons. First, DPA chose southeastern Massachusetts because the area is relatively close to the operating generation facilities of DPA's affiliates and is close to EMI's principal offices, leading to efficiencies in O&M activities and optimized personnel and materials utilization (id. at 5-2, 5-3; Exh. HO-S-12). Second, DPA stated that it focused on portions of southeastern Massachusetts located in proximity to the Algonquin G system because this system is the only viable source for transporting necessary gas supplies within the geographic area (Exh. DPA-1(A) at 5-3). Third, DPA stated that southeastern Massachusetts is an optimal location due to the proximity to demand centers and the need for transmission system support, voltage support and reserve capacity (id.; Exh. HO-S-11 (supp.)). Lastly, DPA stated that EMI's established presence in the region would provide significant assurances to communities considering such a project (Exh. DPA-1(A) at 5-3).

DPA stated that it established two threshold criteria, based largely upon EMI's extensive experience in developing successful projects, and aimed at assuring the viability of the

potential sites (id.). Thus, DPA indicated that it first ruled out potential sites that would require new electric interconnects of a mile or more, or gas interconnects of a one-half mile or more (id.). Second, DPA indicated that it ruled out potential sites that were not zoned for industrial use (id. at 5-4).(10) Citing the importance of the above criteria, DPA indicated that it implicitly weighted these initial criteria heavily by eliminating sites that failed to comply (id.; Tr. 2, at 94). DPA stated that the Company and its consultants reviewed each of the twenty communities in southeastern Massachusetts along the Algonquin "G" system and identified four industrially zoned sites that satisfied the threshold for proximity to gas and electric interconnects (Exh. DPA-1(A) at 5-5). These sites were located in the towns of Attleboro, Somerset, Dighton and Taunton (id.).

DPA stated that it evaluated the four identified sites on a comparative basis according to seven screening criteria designed to reflect factors significant to the successful development of the facility (id. at 5-7). DPA indicated that these criteria included: (1) four criteria related to site suitability (physical site characteristics, length and ease of natural gas interconnect, length and ease of electric interconnect, and potential for site contamination); (2) one natural resource criterion (the potential for impacts to surface water and/or land resources); and (3) two criteria related to community impacts (proximity of noise/visual sensitive receptors to the site and community acceptance/support) (id. at 5-7 to 5-11). The four sites were compared for the foregoing criteria, and were evaluated as being "high," "medium" or "low" for each criterion (id.). Based on the comparative evaluation of the four identified sites, DPA confirmed the Dighton site as the primary site and selected the Taunton site as the alternative site (id. at 5-12).

During the course of the proceedings, Siting Board staff directed DPA to conduct additional comparative evaluation of all the potential sites that DPA disqualified for failure to meet only one of the following threshold criteria: (1) electric interconnect of a mile or more; (2) gas interconnect of one-half mile or more; (3) lack of available industrial zoned land; and (4) lack of apparent potential water source (Exh. HO-S-27). Pursuant to that request, DPA broadened the scope of the comparative screening analysis contained in the Company's original petition to qualitatively compare the six most preferable such sites to the primary site (id.). The results of the expanded evaluation confirmed that none of the additional potential sites were superior to the primary site with respect to minimizing costs and environmental impacts while ensuring supply reliability, which supported the Company's assertion that no clearly superior site was overlooked or eliminated (id.).

However, the Siting Board has certain concerns with the site selection process presented by DPA in its petition. Specifically, the Siting Board is concerned with DPA's development and use of the threshold criterion reflecting proximity to interconnects. Although the Siting Board has previously recognized proximity to interconnects as a legitimate siting concern,(11) the Siting Board questions the basis for the disparity between a one-mile limit for electric interconnects and a one-half mile limit for gas interconnects. The Siting Board is further concerned that the maximum distances specified in DPA's threshold criterion had the potential to limit the pool of prospective

sites that were analyzed. In addition, while the seven screening criteria identified and applied by DPA are generally consistent with criteria previously accepted by the Siting Board, the Siting Board is concerned that such criteria may not reflect the full range of expected environmental impacts. Finally, the Siting Board is concerned that DPA employed an unweighted analysis as a scoring mechanism rather than a weighted analysis, as accepted in recent decisions. Berkshire Power Decision, 4 DOMSB at 351, 353; Silver City Decision, 3 DOMSB at 262, 264.

Based on the above concerns, the Siting Board finds that DPA failed to justify the parameters for its threshold criteria concerning electric and gas interconnects, and failed to justify the lack of the use of weights for application of the screening criteria. However, the Company did conduct additional analysis on other sites, including qualitative comparison to the primary site, and thereby broadened the scope of the original site selection analysis contained in the petition. The record confirms that no identified potential site, including those evaluated through additional analysis, was clearly superior to DPA's primary site. Thus, DPA has minimally supported the selection of its primary and alternative sites.

Therefore, the Siting Board finds that: (1) DPA has developed a minimally acceptable set of criteria for identifying and evaluating alternative sites; and (2) DPA has appropriately applied a minimally acceptable set of criteria for identifying and evaluating alternative sites in a manner that ensures that it has not overlooked or eliminated any clearly superior sites.

3. Geographic Diversity

In this section, the Siting Board considers whether DPA's site selection process included consideration of site alternatives with some measure of geographic diversity. DPA asserted that it has identified at least two sites with some measure of geographic diversity (Exh. DPA-1(A) at 1-3, 1-7, 1-9).

The Siting Board requires applicants to provide at least one noticed alternative with some measure of geographic diversity. Berkshire Power Decision, 4 DOMSB at 357; Silver City Decision, 3 DOMSB at 274; 1990 Berkshire Decision, 20 DOMSC at 181-182. The Siting Board notes that there is no minimum distance that is sufficient to establish geographic diversity in any given case. The Siting Board has previously determined that two sites in the same town can provide adequate geographic diversity for a generating facility review. Berkshire Power Decision, 4 DOMSB at 357; Silver City Decision, 3 DOMSB at 274; NEA Decision, 16 DOMSC at 385-388. Further, in a transmission line case, the Siting Board stated that simple quantitative diversity thresholds were not appropriate for evaluating geographic diversity. New England Power Company, 21 DOMSC 325, 393 (1991).

Here, DPA has provided two sites located approximately five miles apart in neighboring towns with significantly different environmental characteristics, such as site size and natural resource conditions. Accordingly, the Siting Board finds that DPA has identified at least two practical sites with a sufficient measure of geographic diversity.

4. Conclusions on Site Selection Process

While the Siting Board notes the above-referenced concerns with DPA's original site evaluation process, the Siting Board has found that: (1) DPA has developed a minimally acceptable set of criteria for identifying and evaluating alternative sites; (2) DPA has appropriately applied a minimally acceptable set of criteria for identifying and evaluating alternative sites in a manner that ensures that it has not overlooked or eliminated any clearly superior sites; and (3) DPA has identified at least two practical sites with a sufficient measure of geographic diversity. Accordingly, the Siting Board finds that DPA has considered a reasonable range of practical facility siting alternatives.

B. Comparison of the Proposed Facilities at the Primary and Alternative Sites

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 facility is superior to the noticed alternative on the basis of balancing cost, environmental impact and reliability of supply. Berkshire Power Decision, 4 DOMSB at 358; Silver City Decision, 3 DOMSB at 276; Berkshire Gas Company, 23 DOMSC 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. Berkshire Power Decision, 4 DOMSB at 358; Silver City Decision, 3 DOMSB at 276; Eastern Energy Corporation, 22 DOMSC 188, 334, 336 (1991) ("EEC Decision"). A facility proposal which achieves that appropriate balance is one that meets the Siting Board's statutory requirement to minimize environmental impacts. Berkshire Power Decision, 4 DOMSB at 358; Silver City Decision, 3 DOMSB at 276; 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. Berkshire Power Decision, 4 DOMSB at 358; Silver City Decision, 3 DOMSB at 276-277; 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. Berkshire Power Decision, 4 DOMSB at 358; Silver City Decision, 3 DOMSB at 277; 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. Berkshire Power Decision, 4 DOMSB at 358-359; Silver City Decision, 3 DOMSB at 277; 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 review must be clearly described and consistently applied, to the extent practicable, from one case to the next. Therefore, in order to determine if a project proponent has achieved the appropriate balance 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.(12) Berkshire Power Decision, 4 DOMSB at 359; Silver City Decision, 3 DOMSB at 277; 1993 BECo Decision, 1 DOMSB at 39-40, 154-155, 197. 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. Berkshire Power Decision, 4 DOMSB at 359; Silver City Decision, 3 DOMSB at 278; 1993 BECo Decision, 1 DOMSB at 40.

Accordingly, in the sections below, the Siting Board examines the environmental impacts of the proposed facilities at the Company's primary and alternative sites to determine (1) whether the Company's proposal minimizes specific sets of environmental impacts, and (2) which site is preferable based on each specific set of environmental impacts. The Siting Board then examines the cost of the proposed facility, including costs of further mitigation, in order to determine whether an appropriate balance would be achieved among conflicting environmental concerns and among environmental impacts, costs and reliability. Finally, the Siting Board compares the two sites to determine which is preferable with respect to providing a necessary energy supply for the Commonwealth at the least cost with a minimum environmental impact.

2. Environmental Impacts

a. Air Quality

DPA maintains that the proposed facility will have an insignificant impact upon air quality (Exh. DPA-1(A) at 6-2). The Company indicated that emissions will be controlled to a significant degree through the use of clean burning natural gas, advanced pollution control technology, a highly-efficient gas combustion turbine, and elimination of oil as a secondary fuel (id. at 6-15; Exh. HO-E-76). DPA stated that acquisition of NOx and CO2 offsets will further mitigate air quality impacts (Exh. DPA-1(A) at 6-15).

The Company indicated that the project will be subject to comprehensive air quality regulation by the Massachusetts Department of Environmental Protection ("MDEP") and the USEPA, including regulation as to: (1) national ambient air quality standards; (2) New Source Review requirements; and (3) New Source Performance Standards (id. at 6-2). DPA further indicated that the project will be required to meet BACT standards for specified pollutants and LAER technology requirements for NOx, which will be demonstrated by the use of dry low-NOx combustion and selective catalytic reduction (id. at 6-3, 6-6). The Company stated that compliance with all federal and state requirement is reviewed in the MDEP Air Plan Approval process (id. at 6-2).

With respect to ambient air quality impacts, DPA conducted air quality modeling according to the prescribed standards of the USEPA and MDEP to compare the predicted concentrations from the proposed project to significant impact levels ("SILs") to ensure compliance with applicable ambient air quality standards (id. at 6-9 to 6-14). The Company conducted air quality modeling for a Good Engineering Practices ("GEP") stack of 183 feet and a lower stack of 150 feet and indicated that air quality impacts would be acceptable at both stack heights (id. at 6-12; Exhs. HO-E-6 (supp.); HO-E-44). The Company indicated that refined air quality modeling demonstrated that, with a 150-foot stack, combined background and facility ambient concentrations would be below SILs and comply with all ambient standards (id.). The Company indicated that a 183-foot stack would have greater visual impacts than a 150-foot stack and would likely require additional construction and visual screening costs (Exh. HO-E-7). Therefore, the Siting Board concludes that any air quality benefits associated with a 183-foot GEP stack would not outweigh its additional visual impacts and costs.

DPA indicated that it will obtain required NOx offsets from qualifying shut-downs or surplus emission reduction credits (Exhs. DPA-1(A) at 6-5; HO-E-74).

DPA calculated that the maximum predicted CO2 emissions from the proposed facility would be 651,220 tons per year (Exh. HO-E-112). During the course of the proceedings, the Company presented a number of options for attaining CO2 offsets, including: (1) a seedling distribution program that would offset more than 0.385 percent of facility emissions by the fifth year of facility operation and more than 0.55 percent of facility emissions by the seventh year of facility operation;(13) (2) a donation to the UtiliTree Carbon Company ("UtiliTree"), a utility-led effort to help reduce greenhouse gases, that would offset one percent of facility emissions each year for 20 years at a cost of $1.00 per ton of CO2;(14) and (3) a donation to Massachusetts ReLeaf ("ReLeaf"), a program to facilitate the planting of landscape trees in Massachusetts cities and towns, in the same

amount as the proposed donation to UtiliTree.(15)

In the record conferences discussions, the Company agreed to a CO2 mitigation donation in the amount of $150,000 in the first year of facility operation to a cost-effective CO2 mitigation program(s), to be selected upon consultation with Staff of the Siting Board. The basis of this amount is an offset of one percent of emissions at up to $1.50 per ton.(16)

In Enron Power Enterprise Corporation, the Siting Board established the requirement that all proponents of proposed facilities that emit CO2 must comprehensively address the mitigation of CO2 impacts. 23 DOMSC 1, 196 (1991) ("Enron Decision"). In Berkshire Power, the Siting Board required the applicant to provide CO2 offsets through an annual seedling distribution program or comparable tree planting or forestation program, or combination thereof, so as to attain an annual offset level equivalent to 0.385 percent of annual facility emissions within five years of facility start-up and 0.550 percent of annual facility emissions within 20 years of facility start-up. 4 DOMSB at 373. However, in that case, the Siting Board noted that this CO2 offset level, although larger than that required in earlier reviews of gas-fired generating facilities, still represents a small percentage reduction amounting to less than one percent of facility emissions. Id. The Siting Board further recognized the applicant's attempt to develop a more cost-effective CO2 mitigation approach, which potentially would allow a significantly larger offset level and encouraged future applicants to pursue such approaches. Id. In that case, the Siting Board stated that it would accept implementation of a plan to offset one percent or more of the proposed facility's emissions, in lieu of implementation of the seedling distribution, provided that the applicant's plan would lead to proven, incremental reductions in CO2 emissions, consistent with Siting Board criteria. Id. at 374.

Here, the Company has considered alternative means to attain CO2 offsets, and has proposed to attain an increased level of offsets in a cost-effective manner. DPA proposes to contribute $150,000 in the first year of facility operation to cost-effective CO2 mitigation program(s) selected in consultation with the Siting Board staff. The record in this case indicates that UtiliTree makes CO2 emissions offset programs available at a cost of $1.00 per ton. Based on the current cost of CO2 offsets that can be purchased through UtiliTree, DPA proposes to offset over one percent of facility emissions over the 20-year life of the project, and to fund that offset level within the first year of facility operation.

Given its commitment to a dollar amount rather than an offset level, DPA's proposal also provides for some flexibility to partially include CO2 mitigation programs that appear to be less cost-effective than Utilitree, but which provide advantages that are not quantifiable, such as the ReLeaf program. Coincident with that flexibility, however, is the possibility that the actual CO2 mitigation program(s) selected under DPA's proposal may differ from the targeted amount of one percent of facility CO2 emissions. For example, assuming a potential overall program cost of $1.50 per ton in 1999, which is the basis of DPA's proposal, the program would provide offsets of less than one percent.(17) Conversely, assuming availability of a future CO2 mitigation program(s) that are more cost-effective, with overall program costs of $1.00 per ton or less, the percent of

emissions offset would be greater than one percent.

The Siting Board recognizes that DPA proposes an increase in CO2 offsets over previous Siting Board requirements, and that the Company's up-front contribution would make the CO2 offsets more fully available during the early years of operation of the proposed facility. Further, the Siting Board recognizes the overall environmental mitigation included as features of the proposed project, most notably elimination of fuel oil as a back-up fuel source and use of an air-cooled condenser. Thus, considering the increase in CO2 offsets, the timing of the contribution and other environmental advantages of the project, DPA's CO2 mitigation proposal is an acceptable means of achieving CO2 offsets.

The Siting Board herein sets forth a CO2 mitigation requirement for DPA in dollar terms, recognizing that the actual dollar commitment may vary in cost-effectiveness from what is set forth in the record. Accordingly, the Siting Board requires DPA to provide CO2 offsets through a donation in the first year of facility operation of $150,000 in 1999 dollars, to a cost-effective CO2 offset program(s), to be selected upon consultation with Staff of the Siting Board.

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

The record shows that there is no significant difference between air quality at the primary and alternative sites with construction of the proposed facilities (Exhs. DPA-1(A) at 7-1, 7-2; DPA-GL-7). Therefore, the Siting Board finds that the primary site would be comparable to the alternative site with respect to air quality.

The Siting Board notes that this requirement represents a new approach to meeting the CO2 mitigation requirements established in the Enron Decision. In previous cases, the Siting Board has required developers to commit to a specific program of CO2 mitigation, such as a tree planting or forestation program, designed to offset a certain percentage of facility emissions within the early years of facility operation. Here, the Siting Board instead has required DPA to make a monetary contribution within the first year of facility operation to one or more cost effective CO2 offset programs to be selected in consultation with Siting Board staff.

The Siting Board considers this new approach to be preferable to earlier approaches to CO2 mitigation for a number of reasons. First, we recognize the difficulties of designing and accurately quantifying the benefits of specific CO2 offset programs in the context of an adjudicatory proceeding. In particular, calculations of CO2 benefits of the specific tree planting/forestry programs that have been proposed in this and previous proceedings: (1) are based on tree characteristics and survival rates that may not be realistic; and, (2) may not take into account subsidiary benefits such as a reduction in energy demand due to shading of buildings.

Second, based on the record in this and previous proceedings, we note that the most cost-effective CO2 mitigation programs that are currently available appear to be forestry-related programs that are implemented outside of New England. However, we recognize that there are many potential non-forestry options for cost-effective CO2 mitigation, and that cost-effective mitigation programs may be developed in Massachusetts and the New England region during the approximately two-year time period between the issuance of this decision and commencement of facility operation. The monetary contribution approach allows DPA the flexibility to support newly-developed Massachusetts or regional CO2 offset programs and to include, within a mix of programs, existing Massachusetts programs such as Mass Re-Leaf, which may not be the most cost-effective of CO2 mitigation options but are reliable offset programs and offer other advantages.

For these reasons, the Siting Board intends to pursue this monetary contribution approach to CO2 mitigation in future generating facility proceedings. We will no longer require project proponents to develop a record of the offset potential and cost of various CO2 mitigation options in each facility case, but instead will expect proponents to commit to a certain level of support for cost-effective CO2 mitigation programs selected in consultation with Siting Board staff. This approach should both simplify the evidentiary phase of our proceedings, and provide project proponents with a measure of certainty regarding the likely costs of CO2 mitigation during the project planning stage.

In this instance, the Siting Board has accepted a contribution towards CO2 mitigation that is based on an offset of one percent of facility emissions at $1.50 per ton, to be donated in the early years of the project. We would expect future monetary commitments to be in this range. However, the Siting Board may revisit this standard at a later date, particularly if there are significant improvements in the cost effectiveness of CO2 mitigation approaches.

b. Water-Related Impacts

In this section, the Siting Board addresses the water-related impacts of the proposed facility, including: (1) the water supply requirements of the facility and related impacts on affected water supply systems and on wetlands and other water resources; (2) the water-related discharges from the facility, including wastewater discharges and discharges from on-site stormwater management facilities, and related impacts on wastewater systems and on wetlands and other water resources; and (3) the construction impacts of the proposed facility and associated interconnection facilities on wetlands and other water resources. The Company stated that water supply and wastewater impacts for the project at the primary site will be substantially reduced by the use of air-cooled condenser technology and the elimination of oil as a backup fuel which, in turn, eliminates the need for water injection for NOx control (Exhs. DPA-GL-1, at 3; HO-E-81). The Company also stated that the total facility water demand would be 112,320 gallons per day ("GPD") on average and 184,320 GPD maximum, which is approximately 1 million GPD less than that required by conventional water-cooled technologies (Exhs. DPA-GL-1, at 3; HO-E-81; HO-RR-20). DPA indicated that the

water necessary for facility operation will be obtained from the Dighton municipal system, which currently has the capability to supply the project with no adverse impact to existing customers (Exhs. DPA-GL-1, at 3; HO-E-86 (supp.)).

The Company indicated that the wastewater discharge from the proposed facility would be, at a minimum, 44,640 GPD and, at a maximum, 86,400 GPD (Exh. DPA-LF-5). Wastewater from the proposed facility will be discharged through a new main to an existing Dighton municipal system main, where it will travel through the Dighton municipal sewer system to the Taunton municipal sewerage system, where it will be treated at the Taunton wastewater treatment plant (Exh. DPA-1(A) at 6-30). The Company has committed to extend the existing sewer main along Route 138 by 2000 feet and to provide stub connections for any property along such extension (Exh. HO-E-95). The Company has indicated that the wastewater generated by the proposed project will be well within the current capability of such municipal systems and the Taunton wastewater treatment plant system, and that the project has been designed to ensure minimal impacts to this system and other municipal users (Exhs. DPA-1(A) at 6-30; HO-E-91; HO-E-92 (supp.)).

The Company maintains that water resources in the vicinity of the project will not be significantly impacted by the project and that the facility has been designed to minimize impacts to water resources, wetlands, surface waters and ground water (Exh. DPA-1(A) at 6-16). The Company stated that the main facility structure would be located outside of wetland areas and that wetland impacts would be limited to the construction of one access roadway, a service roadway and utility interconnects (id. at 6-20; Exh. HO-E-85). The Company added that by designing the access road to cross the wetlands area at the narrowest point available on-site, and by making the access road as narrow as possible, the area of disturbance would be minimized where construction within wetlands was unavoidable (id.). The Company further stated that, during construction, comprehensive erosion and sediment control measures would be used and maintained along all limits of work and that unavoidable wetlands impacts would be compensated for on a 1:1 ratio in accordance with state and federal requirements (id. at 6-21).

The Company stated that stormwater discharge during construction and operation would be subject to the federal and state stormwater discharge permit program (id. at 6-25). Stormwater discharges would be attenuated by means of an on-site drainage system consisting of catch basins, vegetated swales and detention basins which will detain the excess runoff and release it back into the existing wetlands at a peak rate no greater than the pre-development rate (id.). DPA noted that this system design would prevent the flow of pollutants to wetlands and the Segreganset River, while maintaining pre-construction flow characteristics (id.; Exh. HO-E-84).

On the basis of the foregoing, the Siting Board finds that the water supply impacts of the proposed facility at the primary site would be minimized. The Company has demonstrated that impacts on all water resources resulting from wastewater and stormwater discharge from the proposed project would be minimized at the primary site. The Company has also demonstrated that wetlands and construction impacts associated

with the project at the primary site would be minimized. Accordingly, the Siting Board finds that the environmental impacts of the proposed facility at the primary site would be minimized with respect to water-related impacts.

With respect to the alternative site, the project would likely utilize treated sewage effluent from the Taunton wastewater treatment facility for its cooling requirement and Taunton municipal water supply for its higher-quality requirements (Exhs. DPA-1(A) at 7-8, 7-9; HO-E-97; HO-E-98). Due to the availability of less valuable non-potable effluent and the constraints of the alternative site as to noise and space, the alternative site would utilize wet-cooling technology (Tr. 3, at 71-73). Construction of the proposed facility at the alternative site would impact a smaller area of wetland resources. However, the alternative site would involve significantly greater supply and wastewater volumes than the primary site (Tr. 3, at 71-73; Exh. HO-RR-20). Accordingly, on balance the Siting Board finds that the primary site would be preferable to the alternative site with respect to water-related impacts.

c. Visual Impacts

Dighton maintains that the visual impacts of the proposed facility at the primary site will be minimal and that the site offers significant natural and structural buffer from surrounding visually-sensitive receptors (Exh. DPA-1(A) at 6-37). DPA stated that the primary site is located in a mixed industrial, commercial and residential section of Dighton (id.). Specifically, the Company stated that to the east of the primary site is an existing industrial facility, beyond which is a multi-family residence and Route 138 (id.). The Company stated that the southern portion of the primary site, the Beckwith parcel, is heavily wooded and will remain a visual buffer pursuant to a conservation easement granted by DPA to the Town (id.; HO-RR-10). The Company also stated that property to the west of the primary site along the Segreganset River, is owned by the Town of Somerset, and beyond that, is undeveloped wooded land (Exh. DPA-1(A) at 6-37). To the north is the agricultural land managed by the Agricultural School, beyond which are schools and residential developments (id.).

The Company indicated that views of the facility from the south and west will primarily be limited to the top of the stack due to the significant intervening vegetation and that views from the east along Route 138 will be screened by the existing industrial facility now along Route 138 (id.). The Company further indicated that the most prominent views of the facility will be from the north across the Agricultural School land and from isolated locations to the north and east along Route 138 through gaps in intervening development and vegetation (id. at 6-37, 6-38). In order to demonstrate the foregoing, DPA submitted a comprehensive computer-generated evaluation of potential visual impacts of the proposed facility at the primary and alternative sites from multiple vantage points (id. at 6-38, Fig. 6.6-1, 6.6-2; Exh. HO-E-46(supp.)).

To minimize visual impacts of the facility, the Company stated that the facility structures will be painted a neutral color and that landscaping plans will focus on mitigating views from the east and the north (Exh. DPA-1(A) at 6-37). DPA has further proposed to plant an on-site vegetated buffer of evergreen trees between the facility and the agricultural lands to the north (Tr. 2, at 139, 140). In addition, DPA has committed to minimize exterior lighting, consistent with GEP and code requirements by utilizing sodium directional lighting, which will direct exterior lighting downward and result in a softer, less noticeable light (Record Conference, April 10, 1997, Tr. at 12-13). DPA noted that the use of an air-cooled condenser, which eliminates the cooling tower plume, and the absence of night-time stack lighting, will minimize the visual impacts at the primary site (id. at 9, 12-13). DPA further noted that it has committed to maintain an open dialogue with neighbors respecting any disturbances related to visual impacts and to have a direct phone line available 24 hours per day to respond to neighbor concerns or problems (id. at 18-19).

As noted above, DPA has proposed to plant an on-site vegetated buffer consisting of a row of evergreen trees for mitigation of visual impacts to the north and northeast of the proposed facility. However, the Siting Board is concerned that while this on-site landscaping will diminish the visual impacts of the proposed facility, there are areas to the north and northwest of the primary site, specifically the elementary school and associated playing fields, and residences located to the south of Center Street, that would benefit from additional off-site tree planting. Therefore, in order to ensure that visual impacts will be minimized, the Company will develop and implement an off-site tree planting plan that includes, as agreeable to affected school officials and landowners, evergreen plantings of eight to ten feet in height spaced ten feet apart, or selectively placed trees of greater height, or other screening: (1) along the southern boundary of the Dighton school property beginning along the stone wall at the southern corner of the middle school extending easterly to the end of the school property; and (2) along the southern property line of the Cartin, Clarke, and Kennedy properties.

Further, in past reviews the Siting Board has also required that proponents provide selective tree planting in residential areas up to one mile from the proposed stack location to help ensure no more than intermittent visibility of the stack and other facility structures in such areas. Berkshire Power Decision, 4 DOMSB at 394-395; NEA Decision, 16 DOMSC at 408-409. Accordingly, in order to ensure that visual impacts are minimized, the Siting Board directs the Company to provide reasonable and mutually agreeable off-site shrub and tree plantings to help screen the proposed facility at locations other than those identified above that are within one mile of the proposed facility, where requested by property owners or appropriate municipal officials. In implementing its plan for off-site shrub and tree planting, DPA: (1) shall provide shrub and tree plantings on private property only with the permission of the property owner and along public ways only with the permission of the appropriate municipal officials; (2) shall provide written notice of this requirement to appropriate officials in Dighton and to all affected property owners prior to commencement of construction; (3) may limit requests from local residents and town officials for shrub and tree plantings to a specified period ending no less than six months after initial operation of the plant; (4) shall complete all such requested plantings

within one year after commencement of construction, or if based on a request after commencement of construction, within one year after such request; and (5) shall be responsible for the reasonable maintenance or replacement of such plantings as necessary to ensure that healthy plantings become established. In addition, the Siting Board encourages DPA to work with affected local residents, entities and institutions to develop other reasonable forms of cost-effective visual mitigation.

Accordingly, the Siting Board finds that with implementation of the aforementioned conditions and mitigation proposed by the Company, the environmental impacts of the proposed facility at the primary site would be minimized with respect to visual impacts.

The Company maintains that, although the alternative site is located in an area primarily utilized for industrial activities, the visual impacts to the surrounding community will be substantially greater than those at the primary site. The Company explained that this difference is attributable to several factors at the alternative site, including: (1) a more limited natural vegetated or wooded buffer; (2) more densely developed residential areas surrounding the site; and (3) more direct views of the facility buildings and stack from all surrounding areas (Exh. DPA-1(A) at 7-15). The Company provided a comprehensive evaluation of the potential visual impacts at the alternative site (id., Fig. 7.5-1; Exh. HO-E-47 (supp)).

Based upon the foregoing, construction of the project at the alternative site would affect a significantly greater number of sensitive visual receptors including residences in close proximity to the facility. Moreover, use of the alternative site would afford unbuffered views of both the main facility and stack. Therefore, the Siting Board finds that the primary site is preferable to the alternative site with respect to visual impacts.

d. Noise

DPA maintains that the projected noise impacts of the proposed facility at the primary site would not adversely affect neighboring residences or properties and would be minimized in accordance with Siting Board standards of balancing environmental impacts consistent with minimizing cost (Exh. DPA-1(A) at 6-52). DPA also maintains that the projected noise from operation of the facility as proposed (1) would produce noise increases at nearby residences within the applicable ten-dBA limit imposed by MDEP's Policy 90-001 ("MDEP Guideline"), while providing less residential noise than other generating facilities reviewed by the Siting Board; and (2) would cause no adverse impacts at the facility property lines based on existing non-residential land uses and zoning and applicable federal guidelines for non-residential exposure (Exhs. HO-E-1(C), App. M at 38; HO-RR-27; Tr. 4, at 7). DPA further maintains that the worst-case construction noise levels would be intermittent and temporary, and noise from construction traffic would be comparable to the daytime noise environment in which heavy traffic is a common occurrence (id. at 15-16).

To determine the noise impacts from operation of the facility as proposed, DPA studied and provided estimates of combined facility and background noise at receptors for daytime and nighttime periods(18) (Exhs. HO-E-1(C), App. M; HO-E-14 (supp.), (supp.2)). Such analysis indicates that, during facility operation, daytime L90 levels would increase by one to five dBA at residential receptors and that nighttime L90 levels would increase by five to ten dBA at such receptors, thereby satisfying the MDEP Guideline at the residences (Exh. HO-E-14 (supp. 2) (att. 4); HO-RR-36).(19) The study also indicates L90 increases at the property lines of the facility site ranging from six to 23 dBA during the daytime, and 14 to 29 dBA at night (Exhs. HO-E-14 (supp. 2) (att. 4); HO-E-60). At such levels, the ten-dBA limit imposed by the MDEP Guideline would be exceeded at the eastern and southern property lines at night, and at the northern and southwestern property lines both during the day and at night (id.).

The Company indicated, however, that there are no residences, noise-sensitive receptors or likely nighttime uses near such property line locations (Exhs. HO-E-1(C), App. M at 38; HO-E-14(supp. 2) (att. 4)). DPA stated that the site is directly abutted by the Advanced Loose Leaf facility on the east, and by largely undeveloped land in other directions (id.). DPA further stated that the abutting land to the north is an agricultural preserve, zoned as open recreation and conservation land,(20) and restricted by deed to the "use and benefit" of the Agricultural School (id.; Exh. HO-RR-25). The Company further stated that land to the west and southwest, which borders the Segreganset River, is owned by the Town of Somerset and is also zoned as open conservation land (Exh. HO-E-1(C), App. M at 38). DPA added that the vacant parcel directly south of the site contains significant wetlands and topographical grading that effectively restrict future residential development, and that the vacant parcel abutting the northwest corner of the site, identified as Lot #64, has no street frontage and, on its eastern portions nearest the site boundary, also contains wetlands and flood plain area (Exhs. HO-E-1(C), App. M at 38; HO-RR-15; HO-RR-18; HO-RR-26). DPA cited prior instances in which MDEP relaxed its noise guidelines respecting property lines, where there was no possibility for residential development of abutting land due to zoning, wetlands or topographical grade limitations (Exh. HO-RR-27).

The Company also stated that the resulting noise levels at neighboring residences would be substantially less than those allowed by the Siting Board in other generating facility cases, and well within the limits recommended by federal government agencies (Exhs. HO-E-1(C), App. M at 38; HO-RR-27; Tr. 4, at 7). Further, the Company noted that two Dighton municipal boards reviewing and approving the project, the Dighton ZBA and Dighton Planning Board, have both explicitly considered and accepted the expected effects of the project as proposed (Exhs. HO-E-36 (supp. 2); HO-RR-10).

Based on its studies, the Company indicated that the projected nighttime L90 levels at the nearest residences would range from 37 to 40 dBA and thus compare very well to the residential receptor levels ranging from 48 to 51 dBA presented in prior reviews of independent power projects by the Siting Board (Exh. HO-E-14 (supp. 2) (att.4)). Enron Decision, 22 DOMSC at 208; MASSPOWER, Inc., 20 DOMSC 301, 390 (1990); NEA

Decision, 16 DOMSC at 401-402. DPA's analysis also indicates that operation of the facility would produce noise at a 24-hour Ldn level of 46 dBA at the most affected residential receptor point (RP-1), which would result in no change in the existing ambient Ldn level of 55 dBA at that point (Exhs. HO-E-14 (supp. 2) (att. 4); HO-RR-23). Thus, the Company's analyses conclude that the noise impacts of the facility would be sufficiently low to maintain an Ldn level within the limit of 55 dBA recommended by the USEPA as "requisite to protect the public health and welfare with an adequate margin of safety" at residential locations (Exh. HO-E-1(C), App. M at 38).

The analysis further shows that the highest facility noise level at any property line location would be a 24-hour Leq level of 57 dBA at receptor CNL-2, on the northern property line of the site, which would be 18 dBA less than the 75 dBA limit recommended by the USEPA to protect hearing, and 28 dBA less than the threshold of the Occupational Safety and Health Administration Employee Noise Exposure Regulation for a worker with an eight-hour work day on the opposite side of the property line (id.; Exh. HO-E-60).

The Company further indicated that the proposed facility at the primary site has been designed with careful consideration of measures to minimize noise impacts to the surrounding community (Exh. DPA-1(A) at 6-38). Additions to the facility designed specifically for noise control purposes include: (1) muffling in the combustion turbine exhaust stream; (2) muffling of air inlet for the combustion turbine; (3) extensive quieting of the air-cooled condenser; (4) enclosure hoods for turbines and generator; and (5) careful control of size and location of ventilation air inlets for the turbine building or acoustical treatment of the inlets to meet outdoor noise requirements (Exhs. HO-E-1(C), App. M. at 39; HO-E-142).

DPA also offered evidence that projected noise levels based upon the proposed facility design are overestimated due to the inherent conservatism of the noise studies, including: (1) DPA's use of the lowest ambient noise levels from six measurements; (2) DPA's omission of allowances for additional residential area noise attenuation due to time varying atmospheric factors; (3) and DPA's use of preliminary and worst-case assumptions on plant noise sources (Exh. HO-RR-27; Tr. 7, at 23-32). Mr. Keast testified that such conservatism would likely overstate the actual incremental L90 noise increase at the nearest residences by an amount between two and five dBA (Tr. 7, at 46-47). Further, Mr. Fagan explained that the project contractor would also provide for a conservative allowance in satisfying its contractual requirement to meet the design noise criteria, which he estimated to be in the range of an additional one to two dBA (id. at 29-32, 48).

With respect to construction noise, the Company noted that the work is temporary in nature and the record indicates that the following mitigation steps will be taken: (1) compliance with all federal regulations limiting noise of trucks; (2) construction activities that generate significant noise will be limited to weekday common daytime hours; (3) appropriate silencing will be used, as required, for the preparation of the plant and boiler system operations; and (4) the construction equipment manufacturers' normal sound

muffling devices will be used, and will be kept in good repair during the construction process (Exh. HO-E-1(C), App. M. at 15). The projected levels of construction noise at the nearest residence would range from 58 to 63 dBA during construction hours (id.). Further, with respect to noise at the schools, DPA stated that it will maintain an open line of communication throughout construction with school officials, including consultation as to the use of mutually-agreeable temporary noise barriers to mitigate noise impacts for the schools during construction (Exh. HO-E-59). The Company further indicated that the estimated level of construction noise at the schools during the noisiest construction phase would be about 60 dBA (Exh. HO-E-144). DPA asserted that building walls typically provide a 25 dBA noise reduction, and added the resultant interior level of 35 dBA would be below the range of 38 to 47 dBA considered acceptable for classrooms (id.).

In response to requests of the Siting Board staff, the Company identified and considered the cost-effectiveness of various further measures for mitigation of the projected noise impacts of the proposed facility, including: additional inlet silencing on gas turbines; acoustic walls surrounding the transformers; a lower transformer noise design and testing; additional acoustic baffles over the condenser air inlet; additional HRSG silencing; shrouding around the base of the stacks; and increased sound insulation in the main building (Exh. HO-E-53 (supp.)). DPA analyzed three sets of additional noise mitigation at the primary site, including: (1) an option to reduce the maximum projected nighttime L90 increases to eight dBA at the residences (costing an additional $3,439,601 for installation and $640,000 in lost operating efficiency); (2) an option to reduce projected nighttime L90 increases to seven dBA at the residences (costing an additional $4,627,336 for installation and $694,566 in lost operating efficiency); and (3) an option to reduce projected nighttime L90 increases to ten dBA at the property lines of the site abutting residential land or undeveloped land which could be developed for residential use under the present bylaws (costing an additional $7,000,000) (id.). DPA has also identified additional noise mitigation options of adding a noise-insulating shroud around the base of the stack at an estimated cost of $175,000 and adding a sound wall along the northern side of the switchyard for approximately $212,000 (Exh. HO-E-54 (supp. 2)).

DPA has not proposed to incorporate any of these measures into the pre-construction design of the proposed facility, citing both undue costs and limited effectiveness (id.). However, during the record conferences, DPA indicated that it hoped to purchase and raze the nearest residence(21) to the facility footprint, at the receptor RP-1 location on Route 138 east of the site, with the site to be used for construction and by Advanced Looseleaf (Record Conference, April 10, 1997, Tr. at 69, 137-138). DPA also agreed as part of the record conferences to provide noise mitigation for six other residences where expected increases in nighttime L90 noise are eight dBA or greater, including the Holton residence east of the site, the Cartin, Clark and Kennedy residences north of the site (represented by receptor RP-4 in DPA's analysis), and the Elmasian residence and Travis parcel residence south of the site (represented by receptor RP-2 in DPA's analysis) (collectively, the "Residences") (Exh. EFSB-1; Record Conference, April 18, 1997, Tr. at 28-32). Specifically, DPA agreed, as part of the record conferences, to perform noise testing at the Residences within six months after the facility begins operation and, as may be determined from such testing and analysis of possible responses thereto, to install

additional on-site mitigation at a cost of up to $250,000, or provide residence-based mitigation for affected Residences at a cost of up to $20,000 per residence, or in the case of the Cartin, the Clark and the Kennedy residences, at the owner's option, to purchase at current fair market value affected properties (id.). With respect to the possible provision of additional on-site mitigation, DPA would install as applicable under the agreement and as effective, up to the $250,000 maximum cost, either a mitigation option identified in this record (the shroud around the base of the stack or the sound wall along the northern side of the switchyard) or such other on-site mitigation as DPA may determine effective (id.).

The Company further stated that, on balance, the alternative site is inferior to the primary site with respect to noise impacts (Exh. DPA-1(A) at 7-24). The record indicates that the facility, if constructed at the alternative site, would cause nighttime L90 noise increases of 18 dBA at the nearest residence to the west and of ten dBA at two other residences (Exh. DPA-1(A) at 7-24, Table 7.6-4). Notwithstanding the extensive mitigation already included in the projections of noise at the alternative site, substantial additional mitigation measures would be required even to comply with the MDEP Guideline at nearby residences (id. at 7-17; Exh. HO-E-61 (supp.)).

The record demonstrates that the expected noise levels with operation of the proposed facility would be less than those of previously approved projects. Additionally, noise levels at existing residences would be within the MDEP Guideline, and within the 55 dBA limit recommended by the USEPA as a "requisite to protect the public health and welfare with an adequate margin of safety." DPA has also shown that extensive noise mitigation efforts have already been incorporated into the proposed project design. In addition, due to conservative studies and contracting practices, the actual residential noise impacts upon operation will likely not reach the pre-construction design projections thereof. See Silver City Decision, 3 DOMSB at 336, n.418; NEA Decision, 16 DOMSC at 403.

However, the Siting Board has not previously accepted residential noise increases of as much as ten dBA, as proposed by DPA at residential receptors RP-2 and RP-4. Further, although DPA cites instances in which MDEP has accepted noise increases at non-residential property lines that are significantly over ten dBA, it is unclear that MDEP would accept noise increases of the magnitude proposed by DPA, particularly given the inclusion of currently vacant residentially zoned land as part of the affected area south and northwest of the site. While DPA has presented evidence as to practical limitations upon additional residential development of the affected area south and northwest of the site due to lack of frontage, wetlands and topographical grade, such evidence does not include information as to Board of Assessor valuations or re-valuations, or any supporting wetlands determination by the Conservation Commission, or information as to any plans the owner may have.

The record also includes DPA's consideration of options that would further minimize noise impacts from operation of the proposed facility. Such options would reduce expected noise increases that: (1) would be well above the three-dBA threshold for

noticeable noise; (2) would reach the ten-dBA MDEP Guideline at residential receptors and significantly exceed that guideline at property line receptors; and (3) would be larger than increases previously accepted by the Siting Board. Berkshire Power Decision, 4 DOMSB at 405. However, DPA has not proposed to implement as part of its pre-construction design identified options to further minimize noise impacts from operation of the proposed facility, citing cost and limited effectiveness.

Thus, based on the identification of options for additional noise mitigation in the record for this proceeding, there are noise issues which require the Siting Board to evaluate trade-offs between environmental impacts and cost. To complete its review, the Siting Board must address this issue in order to determine whether noise impacts would be minimized consistent with minimizing cost and other environmental impacts.

While the Siting Board has found in several prior cases that incremental mitigation to reduce projected L90 noise impacts at residences to eight dBA was cost-justified, the balancing of environmental impacts with increased costs in such cases was markedly different from the balance presented in this case. For example, the cost of the incremental noise mitigation measures considered in two recent cases ranged from $156,000 to $812,000, and were thus of a far lesser magnitude than the incremental costs of $3.5 million indicated in this case to limit L90 noise increases to eight dBA. Silver City Decision, 3 DOMSB at 357; NEA Decision, 16 DOMSB at 437. In addition, most of the Siting Board's prior decisions did not involve proposals for air-cooled technology, which, as the Siting Board has previously noted, limits cost-effective noise mitigation options, but improves environmental impacts relating to water consumption, visual impacts of plumes from water cooling towers and fogging and icing from such plumes. Berkshire Power Decision, 4 DOMSB at 345, 441. On the basis of the foregoing, the Siting Board concludes that the incremental noise reductions that could be achieved through additional pre-construction mitigation measures in the project design are not consistent with minimizing costs. The Siting Board therefore concludes that requiring additional mitigation measures in the pre-construction project design would not result in cost-effective benefits to neighbors of the proposed facility. We also note that, consistent with the Siting Board's statutory mandate to minimize environmental impacts consistent with minimizing costs, it is appropriate to consider the overall environmental impact of the facility, and that the limited cost-effectiveness of further noise mitigation measures is in part attributable to the planned use of air-cooling technology, which the Siting Board has previously recognized to be of substantial and offsetting environmental benefit due to greatly diminished water consumption. Id.

Notwithstanding the foregoing acceptance of the proposed project design in respect to noise, the Siting Board also finds, as a precautionary measure, that if operation of the proposed facility results in actual increases of L90 noise of greater than eight dBA at any of the Residences,(22) the following additional noise mitigation steps would then be implemented in order to minimize environmental impacts consistent with minimizing cost.(23) Specifically, DPA is directed to develop and implement a noise testing protocol covering a 12-month period beginning at commercial operation to determine, whether the actual L90 noise increase at the Residences is more than eight dBA above the L90

ambient level. Such protocol should be consistent with the type of protocol utilized for testing compliance with the MDEP Guideline, and should be conducted at four representative receptor points selected to indicate increased noise levels 50 feet from the various Residences in the direction of the proposed facility, or at the property lines of the various Residences nearest to the facility if such property lines are less than 50 feet from the respective Residences.

If such testing protocol demonstrates that operation of the facility is causing an actual L90 noise increase of greater than eight dBA at Residences in only one direction (i.e., only the Residences to the north, south, or east), then DPA shall offer to undertake mutually agreeable structural or noise-masking mitigation measures at such Residences at a cost of up to $20,000 per residence.(24) If such testing protocol demonstrates that the project is causing an actual L90 noise increase of greater than eight dBA at Residences in more than one direction (i.e., to two or more of the north, south, or east), then DPA shall evaluate whether additional on-site noise mitigation measures at the facility (including the above-referenced options of a noise-insulating shroud around the base of the stack and a sound wall along the northern side of the switchyard) at a cost of up to $250,000 would reduce the L90 noise increase to a level no greater than eight dBA for the Residences in all affected directions. If such on-site measures would reduce the incremental L90 noise increase to the Residences in all affected directions, then DPA shall undertake such measures. If, however, such on-site mitigation measures would not reduce the L90 noise increase at the Residences to a level no greater than eight dBA in all affected directions, then DPA would have the option of (i) implementing such on-site mitigation or (ii) implementing mutually agreeable off-site mitigation measures at the affected Residences at a cost of up to $20,000 per Residence, as discussed above. In light of the greater exposure of the Residences to the north (i.e., the Clark, Cartin, and Kennedy residences) as to both noise and visual impacts, however, the Siting Board further directs that, if DPA chooses in such case to implement the off-site noise mitigation at those residences, then the owners of the Cartin, Clark and Kennedy residences would have the option at any point between six and 18 months following commercial operation to require DPA to purchase the affected residence at today's fair market value, as determined by third-party appraisal. Such appraisals shall be conducted at DPA's expense within 90 days of the date of this decision. DPA is further directed to advise the Siting Board of the results of such testing and resulting mitigation efforts. Satisfaction of the foregoing conditions does not obviate the need to comply with the MDEP Guideline, and in particular DPA shall ensure that there will be no increases in nighttime L90 noise in violation of the MDEP Guideline as applied by MDEP, on any parcel where nighttime occupancy is present or reasonably likely, given existing zoning restrictions and physical limitations on the development of those parcels.

The Siting Board finds that, with the implementation of the above conditions and with the proposed mitigation set forth above, the environmental impacts of the proposed facility at the primary site would be minimized with respect to noise impacts consistent with minimizing cost. The Siting Board further finds that the primary site is preferable to the alternative site with respect to noise impacts.

e. Traffic

The Company maintains that the construction and operation of the proposed facility at the primary site will have a minimal impact on local traffic conditions, and that the record indicates that the scheduled routing of traffic will be planned to ensure minimal overlap with anticipated times and locations of non-project related traffic constraints (Exh. DPA-1(A) at 6-54). The Company's assertion was based upon an extensive traffic study of the affected local intersections, including the utilization of automatic traffic recorder counts and intersection turning movement counts, which indicated favorable existing conditions (id. at 6-56, 6-60). The Company's study further demonstrated that the potential impacts to traffic conditions from both construction and operation of the facility would have negligible impacts on traffic operations (id. at 6-76). DPA also indicated that the magnitude and scheduling of truck trips during the construction phase would be designed to minimize impact to the community, and that the design of the site driveway would incorporate measures intended to maximize safe access to and from the project site while maintaining safe operations on Somerset Avenue (id. at 6-70). Moreover, DPA's decision not to use oil as a backup fuel for the proposed facility will greatly reduce the truck traffic to the site (Exh. DPA-LF-1, at 2). Therefore, the Siting Board finds that the environmental impacts of the proposed facility at the primary site would be minimized with respect to traffic.

With respect to the alternative site, DPA conducted a comparable traffic impact study using similar methodologies (Exh. DPA-1(A) at 7-28, 7-29). As was the case for the primary site, the study indicated that construction and operation of the proposed facility at the alternative site would have a negligible impact on traffic operations in the affected area (id. at 7-47). However, the Company's analysis indicates that existing and projected traffic conditions are likely to be slightly more congested at the alternative site than at the primary site (id.). Therefore, the Siting Board finds the primary site is slightly preferable to the alternative site with respect to traffic impacts.

f. Safety

The Company asserted that the proposed facility would be designed, constructed and operated in a manner that ensures maximum safety for employees and the surrounding community and that all design, construction and operation activities would be in accordance with GEP and regulatory codes (Exh. HO-E-1(A) at 2-29, 2-30).

With respect to use and on-site storage of aqueous ammonia and other chemicals, the Company stated that all such substances will be managed in accordance with applicable public and occupational safety and health standards, including strict compliance with

delivery procedures applicable to aqueous ammonia delivery (id. at 2-29, App. I at § 3.0; Exh. HO-E-99; Tr. 3, at 102-104). The record demonstrates that the facility will be designed to prevent any spillage or release of aqueous ammonia from on-site storage facilities (Exh. HO-E-100). Aqueous ammonia will be stored in a coated steel storage tank with a liberal corrosion allowance to ensure tank integrity over the life of the facility and the tank will be tested to ensure absence of any leaks prior to filling (id.). The storage tank will be surrounded by a concrete dike, or catch basin, which will be designed to provide secondary containment for the entire tank contents (id.; Exh. HO-E-123). The dike will contain plastic baffles to significantly reduce the surface area of aqueous ammonia in the unlikely event of a release and will protect the tank from vehicle traffic (id.). The Company has committed to compliance with all coordination and communication requirements of local officials and to the preparation of a Spill Prevention, Control and Countermeasures Plan (Exhs. HO-E-1(C), App. J; HO-E-124). In addition, during the course of the proceedings, the Company agreed to develop a rapid response plan to be implemented in the case of an accidental release of aqueous ammonia (Tr. 3, at 102). The Company will also provide municipal safety officials and residents in the immediate vicinity of the facility with control room telephone numbers for direct access to the facility (Record Conference, April 10, 1997, Tr. at 18-19, 23-24).

The record shows that the aqueous ammonia and all other chemicals used and stored on site will be managed in accordance with all applicable public and occupational safety and health standards and that the Company will develop emergency procedures and response plans similar to those found acceptable in previous Siting Board reviews. Berkshire Power Decision, 4 DOMSB at 412-414, 416; 1993 BECo Decision, 1 DOMSB at 145. However, to ensure proper notification and coordination with local residents and institutions, the Siting Board directs the Company to consult school and municipal officials in developing all emergency procedures and response plans for the proposed facility. The Siting Board further directs the Company to consult school and municipal officials in developing measures to prevent unauthorized persons from gaining access to the proposed facilities and site, particularly during construction. Accordingly, the Siting Board finds that, with the implementation of the aforementioned conditions and safety measures proposed by the Company, the environmental impacts of the proposed facility at the primary site would be minimized with respect to safety.

The record demonstrates that the aforementioned safety measures would also apply to the proposed facilities at the alternative site. Accordingly, the Siting Board finds that the primary site would be comparable to the alternative site with respect to safety.

g. Electric and Magnetic Fields

The Company provided both an interconnection study and a study of potential electric and magnetic fields ("EMF") impacts of the proposed facilities at the primary site (Exhs. HO-V-4; HO-E-1(C), App. P). The record shows that, at the primary site, the proposed

facility would be interconnected to EUA transmission lines now traversing the site and that there would be some increase in magnetic field levels on the EUA lines to the south with operation of the proposed facilities at the primary site (Exh. HO-E-1(C), App. P at 1). However, even under a worst-case scenario, the EMF levels at the edge of the transmission right-of-way would be well below the 85 milligauss level previously accepted by the Siting Board and, in particular, EMF levels to the north of the site would be reduced due to the displacement of load flow under the current southerly load flow pattern (id.; Exh. HO-E-103; Tr. 8, at 5).

The record also shows that a substantial reduction of magnetic fields along the referenced transmission line corridor has already occurred due to EUA's recent rephasing of the U6 and V5 lines to reduce lightning strikes and outages (Exhs. HO-E-126; HO-RR-40; Tr. 8, at 19-21). The record further shows that a different rephasing of the U6 and V5 lines, while providing a small additional magnetic field reduction, would pose concerns because of the increased likelihood of lightning strikes and resulting outages (Exh. HO-E-126). Accordingly, the Siting Board finds that the environmental impacts of the proposed facility at the primary site would be minimized with respect to EMF.

The record shows the EMF levels related to power flows on the EUA lines would be generally comparable with construction of the proposed facility at the alternative site versus the primary site. The record also shows that construction of the proposed facility at the alternative site would require a longer and largely off-site interconnect route, assuming a dedicated interconnect line to the EUA lines, with correspondingly greater areas of EMF impact (Exh. HO-E-127). However, DPA also indicated that, if the proposed facility were interconnected directly to Taunton Municipal Light Plant transmission lines passing along the western edge of the alternative site, which in turn connect to the EUA lines, the magnetic field impacts would be comparable to those at the primary site (Exhs. DPA-1(A) at 7-48; HO-E-128).

Accordingly, the Siting Board finds that the primary site is comparable to the alternative site with respect to EMF impacts.

h. Land Use

The record indicates that the primary site is zoned for industrial use and that the project is an allowed use under the zoning by-laws of Dighton (Exhs. DPA-1(A) at 6-32; HO-E-16 (att.)). The abutting uses are industrial to the east, agricultural to the north, and vacant and residential to the south and west (Exh. DPA-1(A) at 6-32). The area within a half mile radius of the primary site contains minimal industrial/commercial uses (2.5 percent and 1.25 percent, respectively) with open vacant land comprising the largest percentage of land use (Exh. HO-E-33). Further, with the exception of the site and the adjacent Advanced Loose Leaf parcel, there is no other industrially-zoned land within a half mile radius of the primary site (Exh. DPA-1(A) at Figure 6.5-2). The record indicates that the

proposed power generation building and stack exceed the 65-foot limitation of the Dighton zoning by-laws, and the Siting Board notes that the proposed structures are considerably taller and of a different scale than the existing structures in the surrounding area (id. at 6-35). The record also indicates, however, that the Company's petition for a special permit to exceed the 65-foot height limitation has been granted unanimously by the Dighton ZBA and that the Company has received unanimous site plan approval from the Dighton Planning Board (Exhs. HO-E-36; HO-RR-10). Notably, in granting the special permit, the Dighton ZBA unanimously concluded that the project would be in harmony with the general purpose and intent of the zoning by-laws and Dighton's intended uses of its industrially zoned property (Exh. HO-RR-10).(25)

The Company indicated that it would complete a site examination survey of possible archeological attributes in an area near the proposed interconnect point, and would incorporate appropriate mitigation as part of proposed construction near this area, pursuant to the requirements of the Massachusetts Historical Commission (Exhs. HO-E-1(A) at 3-49 to 3-53; HO-E-1, App. D (supp.)). The Company also provided correspondence from the Massachusetts Department of Food and Agriculture and the Massachusetts Natural Heritage & Endangered Species Program, which indicates that the proposed facility would pose no concerns related to conversion of agricultural land or impacts on rare and endangered species (Exhs. HO-E-1(A), App. A; HO-E-1 (supp.), App. A, App. D).

The Siting Board has imposed conditions to limit visual and noise impacts of the proposed facility in Sections III.B.2.c and III.B.2.d above. The stated conditions address, to a substantial degree, the issue of consistency with land use objectives. Accordingly, the Siting Board finds that the environmental impacts of the proposed facility at the primary site would be minimized with respect to land use.

The record indicates that the alternative site is zoned for industrial use and that the facility is an allowed use under the zoning by-laws of the City of Taunton (Exhs. DPA-1(A) at 7-9; HO-E-17(att.)). The alternative site is part of a larger industrially zoned area, with a history of industrial use, including an abandoned power generating facility (Exh. DPA-1(A) at 7-10). The abutting uses are industrial to the north, south and east, and residential to the west (id.). However, the site is only eight acres in size, which is much smaller than the primary site, and the nearest residence is in very close proximity, approximately 300 feet, to the site (id. at 1-9; 7-10).

DPA has asserted that the land use impacts of the proposed facility at the primary and alternative sites are comparable. Unlike the primary site, the overall land use characteristic at the alternative site is overwhelmingly heavy industrial, such that additional industrial development would be largely consistent with the present land use impacts. The Siting Board recognizes, however, that this advantage is tempered by the fact that the alternative site borders industrial land in only three directions, with residential land in the remaining direction -- a major disadvantage given that the site lacks on-site buffer. Nonetheless, in this instance the significant difference in overall land use character is the more compelling consideration with respect to land use impacts, and

favors the alternative site. Accordingly, the Siting Board finds that the alternative site would be slightly preferable to the primary site with respect to land use.

3. Cost

In this Section, the Siting Board evaluates whether the Company has provided sufficient information on the cost of the proposed facility to allow the Siting Board to determine if an appropriate balance has been achieved between environmental impacts and cost. The Siting Board then compares the estimated costs of construction and operating the proposed facilities at the primary and alternative sites.

The Company provided a confidential construction cost estimate for the facility, both at the primary site and at the alternate site, which were based upon current, site-specific information regarding construction costs, electric and gas interconnect costs, contingency allowances, site costs, CO2 offsets and various other project costs (Exhs. DPA-LF-11; DPA-LF-12). As discussed in Sections III.B.2.a, and III.B.2.d, above, DPA also identified the cost of several options to mitigate CO2 emissions of the proposed project and to further reduce the noise impacts associated with operation of the proposed facility (Exhs. DPA-6; DPA-7; HO-E-53; HO-E-54 (supp. 2); HO-RR-31).

The record also contains estimates of the overall cost of the proposed facility at the primary and alternative sites, including components of capital and operational costs which are site-dependent, as well as cost information for measures to further minimize environmental impacts (Exhs. HO-C-2; HO-C-3; HO-C-5; HO-C-7). The Company's analysis shows a total capital cost advantage of approximately $4,000,000 for the primary site over the alternative site (Exhs. DPA-LF-11; DPA-LF-12).

Accordingly, the Siting Board finds that the Company has provided sufficient information on costs of the proposed facility to allow the Siting Board to determine which site is preferable with respect to cost and whether an appropriate balance would be achieved among environmental impacts and cost. The record demonstrates that the cost of constructing and operating the proposed facility at the primary site would be less than that of the alternative site. Accordingly, the Siting Board finds that the primary site is preferable to the alternative site with respect to cost.

4. Conclusions

In this section, the Siting Board reviews the consistency of the proposed facility with

its overall review standard, which requires that the 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 costs.

a. Conclusion on the Proposed Facility at the Primary Site

The Siting Board has found that, with the implementation of the conditions specified in Section III.B.2 above, the environmental impacts of the proposed facility at the primary site would be minimized with respect to water-related impacts, visual impacts, traffic, safety, EMF, and land use. Further, in Section III.B.3, the Siting Board has found that DPA has provided sufficient information on the costs of the proposed facility to allow the Siting Board to determine whether an appropriate balance would be achieved between environmental impacts and cost.

As discussed in Sections III.B.2 and III.B.3, above, the Company has identified and considered the cost-effectiveness of various further measures for mitigation of the projected CO2 emissions and estimated noise impacts of the proposed facility. In addition, as discussed in Section III.B.2.a, above, the Company considered the cost-effectiveness of increasing the facility's stack height and the relative trade-offs between air quality and increased visual impacts for that option.

The Siting Board finds that, with the implementation of proposed mitigation and conditions, the air quality impacts and the noise impacts of the proposed facility would be minimized, consistent with minimizing cost. Therefore, the Siting Board finds that, with the implementation of the above conditions and with the conditions set forth in Sections III.B.2 above, the environmental impacts of the proposed facility at the primary site would be minimized consistent with minimizing cost.

b. Comparison of the Primary and Alternative Sites

In Section III.B.2 above, the Siting Board has found that:

- the primary site would be comparable to the alternative site with respect to air quality;

- the primary site would be preferable to the alternative site with respect to water-related impacts;

- the primary site would be preferable to the alternative site with respect to visual impacts;

- the primary site would be preferable to the alternative site with respect to noise;

- the primary site would be preferable to the alternative site with respect to traffic impacts;

- the primary site would be comparable to the alternative site with respect to safety;

- the primary site would be comparable to the alternative site with respect to EMF impacts; and

- the alternative site would be slightly preferable to the primary site with respect to land use.

Accordingly, on balance, the Siting Board finds that the environmental impacts of the proposed facility at the primary site are superior to those at the alternative site.

The Siting Board also has found, in Section III.B.3, above, that the primary site would be preferable to the alternative site with respect to cost. Accordingly, the Siting Board finds that the primary site is preferable to the alternative site with respect to

minimizing environmental impacts consistent with minimizing cost.

IV. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H-69Q to provide a 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 the current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. G.L. c. 164, § 69J.

In Section II.A, above, the Siting Board has found that the Company has established need for the proposed project. Further, in Sections II.B and II.C, above, the Siting Board has found that the proposed project is superior to all alternative technologies reviewed with respect to providing a necessary energy supply with a minimum impact on the environment at the lowest possible cost, and that DPA has established that its proposed project is reasonably likely to be a viable source of energy. In Sections III.A and III.B, above, the Siting Board has found that DPA has considered a reasonable range of practical facility siting alternatives, and that with implementation of the listed conditions relative to air quality, visual impacts and noise, the environmental impacts of the proposed facility at the primary site would be minimized consistent with minimizing cost. Finally, in Section III.B, above, the Siting Board has found that the construction and operation of the proposed facility at the primary site is preferable to construction and

operation of the proposed facility at the alternative site.

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

In Sections III.A and 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 relating to air quality, water supply, water-related discharges, wetlands protection, noise, rare and endangered species, agricultural land preservation, and historical preservation. As evidenced by the above discussions and analyses, the proposed facility will be generally consistent with identified requirements under all such programs, although the facility as proposed by DPA would result in property line impacts in excess of the ten-dBA MDEP Guideline. However, the Siting Board agrees with the Company that, to the extent that there are limitations on residential development of the affected properties, and given the offsetting environmental and cost considerations discussed above, the Company has reasonably determined that further noise mitigation beyond that identified in this decision would not be warranted.

In its review and balancing of the overall environmental and cost considerations in Section III.B, above, the Siting Board has found that the environmental impacts of the proposed facility at the primary site would be minimized consistent with minimizing cost, with DPA's compliance with the conditions set forth in Section III.B relating to visual and noise impacts. 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 APPROVES the petition of Dighton Power Associates Limited Partnership to construct a 170 MW bulk generating facility and ancillary facilities in Dighton, Massachusetts subject to the following conditions during construction and operation of the proposed facility:

(A) In order to mitigate CO2 emissions, the Siting Board requires DPA to provide CO2 offsets through a donation of $150,000, in 1999 dollars, to a cost-effective CO2 offset program(s) to be selected in consultation with Siting Board Staff.

(B) In order to minimize visual impacts, the Siting Board directs the Company to develop and implement an off-site tree planting plan that includes, as agreeable to affected school officials and landowners, evergreen plantings of eight to ten feet in height spaced ten feet apart, or selectively placed trees of greater height, or other screening: (1) along the southern boundary of the Dighton school property beginning along the stone wall at the southeast corner of the Middle School extending easterly to the end of the school property; and (2) along the southern property line of the Cartin, Clarke and Kennedy properties consistent with the directives set forth in Section III.B.2.c, above. In addition,

the Siting Board directs the Company to provide reasonable and mutually-agreeable off-site shrub and tree plantings to help screen the proposed facility at locations other than those identified above that are within one mile of the proposed facility, where requested by property owners or appropriate municipal officials, consistent with the directives set forth in Section III.B.2.c, above.

(C) In order to minimize noise impacts consistent with minimizing cost, the Siting Board requires that, if the facility causes a L90 noise increase at the Residences of eight dBA or greater, DPA shall either (1) undertake additional on-site technical noise mitigation in amounts not exceeding $250,000, (2) undertake mutually-agreeable off-site noise mitigation measures at the affected Residences not exceeding $20,000 per residence, or (3) purchase the affected Residences to the north of the Site at today's fair market value consistent with the directives set forth in Section III.B.2.d, above.

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

Cheryl Kimball

Hearing Officer

Dated this 8th day of July, 1997

1. 1 The Company made an initial filing on May 17, 1996, which did not include a need analysis. Thus, the Company's filing was not complete until June 28, 1996 when the Company filed its need analysis. In addition, the Siting Board notes that on October 16, 1996, the Company notified the Siting Board of its decision to make two

design changes to the project in response to concerns raised subsequent to the Company's

initial filing (DPA Letter of October 16, 1996). Specifically, the Company eliminated the proposed use of oil as a secondary fuel and substituted an air-cooled design for the proposed water-cooled design (id.).

2. 2 USGen amended its petition to intervene to a petition to participate as an interested person on August 23, 1996.

3. 3 The Cartins withdrew as intervenors at the close of evidentiary hearings on February 24, 1997.

4. 4 The record conferences were held on April 3, April 10 and April 18, 1997.

5. 5 In Point of Pines Beach Association v. Energy Facilities Siting Board, the Court further found that the Siting Board's statutory requirement to make an independent finding of Commonwealth need is not satisfied where the finding is based solely upon the existence of signed and approved purchase power agreements ("PPAs"). 419 Mass. 281, 285-286 (1995). The Court referenced Point of Pines, in vacating a final decision of the Siting Board for that reason in Attorney General v. Energy Facilities Siting Board, 419 Mass. 1003 (1995).

6. 6 See Hingham Municipal Lighting Plant, 14 DOMSC 7 (1985); 1985 BECo Decision, 13 DOMSC at 70-73.

7. 7 As noted above, an "adjusted" forecast is a demand forecast combined with a forecast of DSM and NUG netted from load.

8. 8 The Company noted that to develop an approximated Massachusetts DSM forecast, the 1996 CELT Report DSM forecast for New England could be prorated by the ratio of Massachusetts to New England DSM for the most recent year that NEPOOL released state-specific DSM forecasts (Tr. 1, at 147-149). However, the Company further noted that because NEPOOL's DSM forecast has been lowered in each successive CELT Report, the Massachusetts DSM forecast would likewise be lowered, thereby increasing the need forecasts (id.).

9. 9 When a facility proposal is submitted to the Siting Board, the petitioner generally is required to present (1) its preferred facility site or route, although this requirement has been waived for certain types of cogeneration projects and (2) at least one alternative site or route. These sites and routes often are described as the "noticed" alternatives because these are the only sites and routes described in the notice of adjudication published at the commencement of the Siting Board's review. In reaching a decision in a facility case, the Siting Board can approve a petitioner's preferred site or route, approve an alternative site or route, or reject all sites and routes. The Siting Board, however, may not approve any site, route or portion of a route which was not included in the notice of adjudication published at the commencement of the proceeding.

10. 10 DPA also initially limited its analysis to communities with adequate water supply

for a water-cooled facility. However, DPA later included consideration of potential sites lacking such water supply capability.

11. 11 See Bay State Gas Company, 21 DOMSC 1, 55 (1990), "[T]he Siting Council stated that installation and operation of a new pipeline always poses some risk of accident. Further it is reasonable to assume that the degree of risk bears some relationship to the length of pipeline in the extent of human exposure along the route." Moreover, the regulations of the Department of Public Utilities, 220 C.M.R. § 111.03, and the Policy of Accommodation of Utilities Longitudinally and Controlled Access Highways of the Massachusetts Highway Department impose practical limitations to extensive placements of new gas pipelines (Exh. HO-RR-9, Att.).

12. 12 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 alternative 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. § 7.04(8)(e).

13. 13 DPA's calculation of the offset potential of the seedling distribution program assumed planting of blue spruce seedlings with a 100 percent seedling survival rate (Exhs. HO-E-112; HO-RR-19).

14. 14 DPA indicated that UtiliTree had provided grants to a number of domestic and foreign rural tree planting, forest preservation and forest management projects, with an average cost of $1.00 per ton of CO2 removed (Exh. DPA-6). The record in this case does not indicate whether UtiliTree expects to continue to provide CO2 offsets at this cost.

15. 15 In previous cases the Siting Board assumed a ReLeaf cost of $3.33 per ton of CO2 removed. Eastern Energy Corporation (Compliance), 25 DOMSC 296, 350 (1992). Documentation from ReLeaf presented in this case suggests the cost may be higher (Exh. DPA-8). However the Siting Board recognizes that the calculation of the ReLeaf cost per ton of CO2 removed does not take into account many of the benefits of shade trees including energy conservation due to shading of buildings (id.).

16. 16 The Siting Board notes that an offset of one percent of facility emissions, 651,220 tons, at $1.50 per ton equals $9,768.30 per year or $195,366 for twenty years. The agreed donation, in 1999 dollars, is based on the net present value of the identified twenty-year amount, assuming expenditure of that amount over a period of approximately five years following facility start-up.

17. 17 The Siting Board notes that the calculation of DPA's donation assumed constant annual amounts in current dollars, without taking into account cost escalation.

18. 18 The Company indicated that there are various measures of noise, and noted that the MDEP Guideline is based on a relatively quiet measure of ambient noise, specifically that level of noise that is exceeded 90 percent of the time ("L90"), which essentially is the residual sound level observed when there are no transient, louder sounds (Exh. HO-E-1(C), App. M at 5). Another common indicator of ambient noise is the equivalent sound level ("Leq"), which is the time average of the fluctuating sound level over a 24-hour period (id. at 6). A variation of the Leq indicator is the day-night sound level ("Ldn"), which is the time average of the fluctuating sound level over a 24-hour period with a ten-dBA penalty factor added for a nine-hour nighttime period, to reflect the higher sensitivity to noise of people in their homes at night (id.).

19. 19 The Company's estimates showed expected nighttime L90 increases of eight dBA or more at four residential receptors, including increases of ten dBA at the RP-1 receptor east of the site, the RP-2 receptor south of the site and the RP-4 receptor north of the site, and an increase of nine dBA at the Holton residence east of the site (Exhs. HO-E-14 (supp. 2) (att. 4); HO-RR-36).

20. 20 Although the Company maintains that the abutting property to the north is an agricultural preserve, and therefore, is not subject to restrictions of the MDEP Guideline, the record also includes DPA's noise estimates for two existing residential properties located beyond the abutting agricultural preserve, further to the north and northeast of the proposed site (Exhs. EFSB-1; HO-RR-36). DPA's analysis shows that operation of the proposed facility would result in nighttime L90 increases of 12 dBA at the southwest corner of the residential property identified as the Leonard parcel, and 11 dBA at the west property line of the Holton property (Exh. HO-RR-36). In regard to the Leonard parcel, DPA indicated that the southwest corner of the property is approximately 1000 feet away from the existing residence and from other adjacent residences along Route 138 (Exhs. EFSB-1; HO-RR-36). The Company also asserted that the parcel is zoned as open recreation and conservation land, and therefore, residential use of the property is a non-conforming use, which would preclude construction of additional residences (Exhs. EFSB-1; HO-RR-17).

21. 21 The Company stated that the residence nearest to the proposed facility is owned by the Bristol County Savings Bank (Exh. EFSB-1; Tr. 7, at 44).

22. 22 The Siting Board notes that the Company intends to purchase and raze the residence nearest to the facility footprint ("nearest residence"). If the Company does not fulfill this intention, and if the nearest residence is occupied at the time of noise testing, it shall be included in the noise testing protocol. If off-site noise mitigation is

implemented at some or all of the Residences, and if the nearest residence is still occupied at the time such mitigation is implemented, it shall be treated as one of the Residences for purposes of mitigation.

23. 23 Given the current status of acoustic science, it is to be expected that the actual noise impacts during operation could vary materially from the pre-construction design projections thereof (Exh. HO-E-1(C), App. M at 17), and it is thus reasonable to also consider the appropriateness of additional post-construction mitigation measures conditioned upon actual noise impacts at neighboring residences. Indeed, such an approach is consistent with the Siting Board's previously articulated policy objective of considering whether noise impacts will be "sufficiently small to avoid or minimize ... related complaints by residential or other abutters." NEA Decision, 16 DOMSC at 65.

24. 24 Such off-site mitigation could include measures such as improved windows, doors, insulation, or screening at the residences.

25. 25 In addition, the Company submitted an executed Tax Increment Financing Agreement with Dighton (Exh. HO-V-27(b)).