D.P.U. 93-196 (Phase II)

Investigation by the Department of Public Utilities of the Braintree Electric Light Department Long Range Forecast of Electric Power Needs and Requirements.

APPEARANCES: Kenneth M. Barna, Esq.
Robert D. Shapiro, Esq.
Rubin and Rudman
50 Rowes Wharf
Boston, MA 02110
FOR: Braintree Electric Light Department
Petitioner

TABLE OF CONTENTS

I. INTRODUCTION . . . . . Page 1
A. Background . . . . . Page 1
B. Procedural History . . . . . Page 2

II. SUPPLY PLAN REVIEW . . . . . Page 4
A. Standard of Review . . . . . Page 4
B. Previous Supply Plan Review . . . . . Page 6
C. Supply Planning Process . . . . . Page 8
D. Least-Cost Supply . . . . . Page 10
1. Identification of Resource Options . . . . . Page 10
a. Available Resource Options . . . . . Page 11
i. Types of Resource Sets . . . . . Page 11
ii. Compilation of Resource Sets . . . . . Page 12
iii. Conclusion on Available Resource Options . . . . . Page 16
b. Development and Application of Screening Criteria . . . . . Page 16
c. Conclusions on Identification of Resource Options . . . . . Page 21
2. Evaluation of Resource Options . . . . . Page 21
a. Evaluation Process . . . . . Page 21
b. Cost . . . . . Page 22
i. Description . . . . . Page 22
(A) Supply-Side Resources . . . . . Page 23
(B) Demand Side Resources . . . . . Page 25
ii. Analysis . . . . . Page 27
c. Risk Minimization . . . . . Page 28
i. Description . . . . . Page 28
ii. Analysis . . . . . Page 31
d. Environmental Impacts . . . . . Page 32
i. Description . . . . . Page 32
ii. Analysis . . . . . Page 34
e. Conclusion on Resource Evaluation Process . . . . . Page 35
3. Conclusions on Least-Cost Supply . . . . . Page 36
E. Adequacy of the Supply Plan . . . . . Page 37
1. Adequacy of the Supply Plan in the Short-Run . . . . . Page 37
a. Definition of the Short-Run . . . . . Page 37
b. Base Case Supply Plan . . . . . Page 37
c. Short-Run Contingency Analysis . . . . . Page 38
i. Description . . . . . Page 38
ii. Analysis . . . . . Page 41
2. Adequacy of the Supply Plan in the Long-Run . . . . . Page 41
3. Conclusion on Adequacy of the Supply Plan . . . . . Page 42
F. Conclusions on the Supply Plan . . . . . Page 42

III. DECISION . . . . . Page 44

TABLES Page 45

I. INTRODUCTION

A. Background

Braintree Electric Light Department ("BELD" or "Company") is a municipally-owned electric utility serving the Town of Braintree. The Company serves approximately 13,500 retail customers. Braintree Electric Light Department, D.P.U. 93-196 (Phase I) 1994 ("1994 BELD Decision (Phase I)"). In 1993, the Company sold approximately 355,474 megawatthours ("MWH") of electricity. Id. Additionally, in 1993 the Company experienced a summer system peak of about 74.5 megawatts ("MW") and a winter system peak of about 65 MW. Id.

BELD owns and operates a two-unit generating station, the Potter station. Id. The station consists of one 2.25 MW diesel unit ("Diesel No. 1") which operates in a peaking mode, and one 96 MW winter rated dual-fueled (oil and natural gas) combined cycle unit[1] ("Potter II") which operates in an intermediate mode. Id. Both units are dispatched by the New England Power Exchange. Id.

On January 24, 1992, the Energy Facilities Siting Council ("Siting Council") issued a decision in Braintree Electric Light Department, 24 DOMSC 1 (1992) ("1992 BELD Decision").[2] In the 1992 BELD Decision, the Siting Council approved BELD's 1989 demand forecast, and rejected BELD's 1989 supply plan. Id. As part of its rejection of BELD's supply plan, the Siting

---

[1] The combined cycle unit was converted to fire natural gas effective June 19, 1990.

[2] The Siting Council's review of the BELD's 1989 Demand forecast and supply plan was its second independent supply plan and its first independent demand forecast to be reviewed by the Siting Council. 1992 BELD Decision at 2. Previously, BELD had been a member of the Massachusetts Municipal Wholesale Electric Company. Id.

Council issued two directives relative to that supply plan. The Company's compliance with these directives is discussed below.

Effective September 1, 1992, pursuant to legislation reorganizing the Department of Public Utilities ("Department") to include the functions of the Energy Facilities Siting Council, the Siting Council and the Department were merged.[3] As a result of the merger, the Department assumed the function of reviewing long-range plans of electric and gas companies. This proceeding represents the first Department review of BELD's supply plan.

B. Procedural History

On January 24, 1992, the Energy Facilities Siting Council issued a decision approving BELD's demand forecast, rejecting BELD's supply plan, and establishing February 1, 1993 as the date of BELD's next demand forecast and supply plan filing. 1992 BELD Decision at 5, 70. On January 26, 1993, BELD requested an extension until August 1, 1993 to file its next demand forecast and supply plan. On February 8, 1993, the Department granted BELD's request. On July 20, 1993, BELD requested an additional three month extension of time to file. On August 11, 1993, the Department granted a further extension of time to file until October 31, 1993. On November 4, 1993, the Company submitted to the Department its 1993 Demand Forecast. On May 6, 1994, due to a need for a technical correction in its demand forecast filing, BELD submitted a revised demand forecast.

In its transmittal letter of November 4, 1993, BELD indicated that it anticipated submitting its supply plan filing at the conclusion of negotiations regarding energy supply

---

[3] St. 1992, c. 141.

resources which were part of the Company's long term resource plan.[4] On March 25, 1994, the Hearing Officer notified the Company that the Department would proceed in this docket in two phases. Phase I consisted of a review of BELD's demand forecast. Phase II consists of a review of BELD's supply plan, and is the subject of this Order. BELD filed its supply plan with the Department on May 27, 1994. On November 23, 1994, the Department approved BELD's 1993 Demand Forecast. Braintree Electric Light Department, D.P.U. 93-196 (Phase I) (1994).

On March 28, 1994, the Department issued a Notice of Adjudication. BELD subsequently submitted proof of publication. The Notice set an intervention deadline of April 25, 1994. No petitions to intervene or participate in the proceeding were received by the Department.

On November 3 and 4, 1994, the Department conducted evidentiary hearings on Phase II. BELD presented three witnesses: Mayhew D. Seavey and Mark J. Cordeiro, consultants with PLM, Inc., and Laurie J. Heffron, energy services manager for BELD. The evidentiary record includes 68 exhibits[5] submitted by the Company, and the Company's responses to seven

---

[4] These negotiations related to Braintree's 1987 contract for power from the Newbay coal project in Rhode Island and an alternative supply offered by New England Power Company ("NEP"). On May 2, 1994, the Department approved a March 18, 1994 Offer of Settlement by eleven municipal light departments (including BELD) and Newbay Corporation. Newbay Corporation, et al., D.P.U. 88-265-A (1994). The Settlement terminated BELD's purchase power contract for 6 MW of power from Newbay and included a 2 MW purchase from NEP. According to the Company, a comprehensive analysis of the options available at the time revealed that the Newbay Settlement, including the NEP System Power purchase, was the least-cost means of resolving BELD's Newbay contractual obligations (Company Brief at 19, n. 11).

[5] Included in the Company's exhibits is a supply resource proffered by Boston Edison Company ("BECo"), the BECo contract demand. BELD did not request Department

(continued...)

Department record requests. On November 29, 1994, BELD submitted its brief for Phase II ("Company Brief").

II. SUPPLY PLAN REVIEW

A. Standard of Review

In accordance with the mandate in G.L. c. 164, § 69H, to "provide a necessary energy supply for the commonwealth with a minimum impact on the environment at the lowest possible cost," the Department reviews two dimensions of BELD's supply plan: adequacy and cost. See G.L. c. 164, § 69I.

The adequacy of supply is an electric company's ability to provide sufficient capacity to meet its peak loads and reserve requirements throughout the forecast period. Eastern Edison Company and Montaup Electric Company, D.P.U. 92-214, at 35 (1993) ("1993 EUA Decision"); Fitchburg Gas and Electric Light Company, 24 DOMSC 322, at 351 (1992) ("1992 Fitchburg Decision"); 1992 BELD Decision at 34. Further, different standards of review are appropriate for evaluating supply adequacy in the short- and long-run. 1993 EUA Decision at 35; 1992 BELD Decision at 34; Commonwealth Electric Company and Cambridge Electric Light Company, 15 DOMSC 125, at 134 (1986).

In order to establish adequacy in the short-run, an electric company must demonstrate that it has an identified, secure, and reliable set of energy and power supplies sufficient to meet its New England Power Pool ("NEPOOL") capability responsibility[6] ("CR") under a reasonable

---

[5](...continued)
review of this contract pursuant to G.L. c. 164, § 56D, which provides for Department review and approval of electricity supply contracts for municipal plants.
(continued...)

range of contingencies, or that it operates pursuant to a specific action plan which allows it to rely upon alternative supplies in the event of certain contingencies. 1993 EUA Decision at 35; 1992 Fitchburg Decision at 351; 1992 BELD Decision at 34. In order to establish adequacy in the long-run, an electric company must demonstrate that its supply planning process can identify and evaluate a reasonable range of resource options on a continuing basis while allowing sufficient time for the company to make appropriate supply decisions to ensure adequate cost-effective energy and power resources over the forecast period. 1993 EUA Decision at 35; 1992 Fitchburg Decision at 352; 1992 BELD Decision at 34-35.

Finally, an electric company must demonstrate that a supply plan minimizes the cost of power. 1993 EUA Decision at 35; 1992 Fitchburg Decision at 352; 1992 BELD Decision at 35. In order to determine whether an electric company's supply plan minimizes the cost of power, the Department reviews an electric company's supply planning methodology and processes of identifying and evaluating a variety of supply options. 1993 EUA Decision at 35-36; 1992 Fitchburg Decision at 352; 1992 BELD Decision at 35. An electric company must demonstrate that it has identified a reasonable range of resource options by (1) compiling a comprehensive array of available resource options, and (2) developing and applying appropriate criteria for screening its array of available resource options. 1993 EUA Decision at 36; 1992 Fitchburg Decision at 352-353; 1992 BELD Decision at 35. In reviewing an electric

---

[6](...continued)

[6] For an industry-accepted definition of NEPOOL capability responsibility, see New England Power Pool Agreement at Sections 15.26 and 15.27. "NEPOOL Capability Responsibility for any month is the lesser of (i) NEPOOL Objective Capability for the month, and (ii) the minimum NEPOOL Capability during such month." Id. at Section 15.26.

company's resource evaluation process, the company must demonstrate that it fully evaluates all resource options. 1993 EUA Decision at 36; 1992 Fitchburg Decision at 353; 1992 BELD Decision at 35.

B. Previous Supply Plan Review

The Siting Council rejected BELD's previous supply plan, stating that BELD had failed to establish that its supply plan ensured a least-cost energy supply. 1992 BELD Decision at 68-69. In that decision, the Siting Council required BELD to comply with the following directives:[7]

1. (a) identify, and fully document, a comprehensive range of conservation technologies and programs, and (b) demonstrate how BELD evaluates the implementation of those technologies in its array of available resource options which potentially could contribute to a least-cost supply plan.

2. develop and implement a resource evaluation process for resource options which includes an adequate consideration of their environmental impacts.

With respect to the first directive, BELD asserted that it has fulfilled this requirement by identifying and evaluating a full array of Demand-Side Management ("DSM") options and by adding cost-effective DSM resources to the BELD supply plan (Exh. BELD-66, at 4; Company Brief at 6). To accomplish this, the Company issued a Request for Proposals for Demand-Side Options ("DSM RFP") (Exh. BELD-66, at 4). The Company stated that the purpose of the DSM RFP was to allow providers of DSM services to compete on an equal footing with supply-side resources (id.). The Company indicated that when the DSM RFP failed to provide sufficiently complete information on the DSM proposals, BELD responded by identifying DSM options internally (id. at 36). The Company also explained that it developed and implemented a screening

---

[7] In the 1992 BELD Decision, these directives were identified as Directives Eight and Nine.

and evaluation process for the identified DSM measures using both price and non-price criteria (id. at 4). See Section II.D.1.b., infra. The Department analyzes the Company's response to the first directive in Sections II.D.1.a.ii. and II.D.2.e.

With respect to the second directive, BELD asserted that it adequately considered environmental impacts through a number of changes to its supply planning process (id. at 5; Company Brief at 8). BELD indicated that its screening process for supply-side resources takes into account criteria which value environmental considerations, such as criteria that address whether a resource will be affected by the Clean Air Act Amendments ("CAAA") (Exh. BELD-66, at 5). Further, the Company stated that its two new supply resources, the Boston Edison Company ("BECo") Contract Demand ("BECo CD")[8] and the System Contract from New England Power ("NEP System Contract") both represent purchases from existing resources and as such will not increase actual emissions (id. at 5-6; Tr. 1, at 14). The Department analyzes the Company's response to the second directive in Section II.D.2.d.

C. Supply Planning Process

BELD stated that the objective of its resource planning process is to ensure a necessary energy supply for its customers at the lowest possible cost[9] with a minimum impact on the

---

[8] The BECo CD agreement enables BELD to select different levels of capacity from BECo, based on a contract schedule that takes into account variations in BELD's capability responsibility (Exh. BELD-66, at 19, n. 2).

[9] The Company indicated that it anticipates completing a cost-of-service-study in 1995

(continued...)

environment (Exh. BELD-1; Company Brief at 10). BELD indicated that its resource planning process is also designed to consider new resources in an integrated fashion and ensure that demand-side options and supply-side options compete on an equal footing, which BELD asserted represents a significant improvement over prior resource planning efforts (Exhs. BELD-1; BELD-2). The Company stated that in order to achieve the goal of integration, it issued simultaneous RFPs for both supply and demand-side options (Exh. BELD-2). Finally, BELD stated that its resource planning process is designed to minimize risk, maximize flexibility, and achieve resource diversity (Exh. BELD-1). The Company explained that in order to determine the appropriate resources, BELD utilized the following models: Energy and Peak Load Forecasting Model,[10] the

---

[9](...continued)
in order to analyze its rate design for each of its customer classes, and to allow it to stabilize costs of electricity over the forecast period (Exhs. BELD-3; BELD-62). The Company asserted that its rates are currently among the lowest in New England (Company Brief at 30).

[10] The Company uses the Energy and Peak Load Forecasting Model, which is an econometric model, to forecast BELD's future energy requirements and seasonal peak demand (Exh. BELD-66, at 11).

Capacity Expansion Model,[11] the POWRSYM Model,[12] and the Revenue Requirements Model[13] (Exh. BELD-66, at 7-8).

BELD stated that it first prepares its energy and peak load forecast using its Energy and Peak Load Forecasting Model (Exhs. BELD-4; BELD-66, at 7). See 1994 BELD Decision (Phase I). From this information, BELD explained that it projected its NEPOOL CR for twelve years, including the ten-year forecast period (Exhs. BELD-4; BELD-66, at 7). BELD then compared its existing and committed resources to its projected CR (Exh. BELD-66, at 7).

BELD developed an Initial Resource Plan by adding, as needed, at three year intervals, generic base/intermediate and/or peaking units, as determined by the Capacity Expansion Model (id. at 8). The Capacity Expansion Model optimizes the resource mix to produce the lowest total revenue requirements (id.).

---

[11] The Capacity Expansion Model utilizes seasonal load duration curves to approximate BELD's system and calculate the total power supply cost and revenue requirements of a particular long-range resource plan (Exh. BELD-66, at 13). The Capacity Expansion Model incorporates the capacity and transmission costs of each generating resource and is able to calculate the tradeoffs between base/intermediate and peaking resources, addressing fixed and variable cost attributes of those resources (id.).

[12] POWRSYM is a chronological probalistic production costing model (Exh. BELD-66, at 15). Mr. Seavey stated that it simulates the economic dispatch of the utility's resources to meet its actual hourly loads (Tr. 1, at 63-64). POWRSYM thereby more accurately determines a utility's weekly and annual costs (id.).

[13] The Revenue Requirements Model is a detailed financial projection of BELD's non-power costs (Exh. BELD-66, at 16). BELD's operating expenses are projected by escalating historic values at the forecast rate of inflation, and plant-in-service is projected using BELD's current capital budget and historic averages of normal additions by plant type (id.). Depreciation expense and return on investment are projected based on BELD's policies, adjusted to keep future cash balances in line with historic values (id.). Debt service is based on actual debt service schedules (id.).

The Company indicated that after the Capacity Expansion Model had been used to determine the optimum resource mix, the POWRSYM and the Revenue Requirements models were used to further develop the total revenue requirements of each incremental resource plan (id. at 14). BELD stated that all DSM and supply-side options with a benefit/cost ("B/C") ratio of 1.0 or greater were considered in its Initial Resource Plan (id. at 11). BELD stated that if the options, either individually or grouped, reduced the system's revenue requirements, they were incorporated into the Least Cost Resource Plan (id.). Non-power costs, as forecasted by the Revenue Requirements Model, were added to the Least Cost Resource Plan to estimate the total projected system revenue requirements (id. at 16). Mr. Seavey stated that the final optimization therefore compared each incremental resource against a base which consists of all of the other identified least-cost resources (Tr. 1, at 26).

D. Least-Cost Supply

In this section, the Department reviews BELD's process for identifying and evaluating future resource options to determine whether BELD's supply plan ensures a least-cost energy supply. The Company asserted that its least cost planning methodology is designed to identify and evaluate a comprehensive range of supply and demand-side resource options simultaneously, ensuring that all resources are considered on an equal footing (Exh. BELD-66, at 25).

1. Identification of Resource Options

The Department focuses its review on whether BELD identified a reasonable range of resource options by: (1) compiling a comprehensive array of available resource options; and (2) developing and applying appropriate criteria for screening its array of available resource options.

a. Available Resource Options

In order to determine whether BELD compiled a comprehensive array of available resource options, the Department must determine whether BELD compiled adequate sets of available resource options for each type of resource identified in this proceeding.

i. Types of Resource Sets

The Company identified both supply-side and demand-side resources for its supply planning process (Exhs. BELD-3; BELD-66, at 25). BELD stated that it commenced its identification of the two resource sets through separate supply- and demand-side RFPs (Exh. BELD-66, at 25, 35; Company Brief at 16).

The Company indicated that the supply-side resources consisted of purchases from New England utilities, purchases from non-utility developers, and an enhancement to a Company-owned facility (Exh. BELD-66, at 25-26).[14] The Company stated that through its supply-side RFP, the following options were identified: short, intermediate, and long-term proposals; proposals with different capacity levels; system power and single unit entitlements; nuclear, coal, gas, oil and wood technologies; and proposals from existing and planned units (Exh. BELD-16). BELD indicated that it did not pursue any new Company-owned generation as a resource set, as the Company concluded that the regional power market provided sufficient resource options (id.).

---

[14] The Department notes that in previous supply plan reviews, the supply-side resources have been broken out into discrete types of resource sets. 1992 Fitchburg Decision at 362; 1992 BELD Decision at 47. Here, the supply-side resources have been grouped as one resource set since all supply-side resources were identified in the same manner. The Department notes that our review of combined resource sets should not be construed as minimizing the requirement that companies identify a full range of resource sets.

BELD stated that none of the proposals submitted in response to the DSM RFP were sufficiently complete to allow a detailed comparison with the supply options or to any other DSM options (Exhs. BELD-35; BELD-66, at 36). See, Section II.D.1.a.ii., infra. The Company stated that its set of DSM options was therefore developed in-house (Exh. BELD-66, at 37). BELD stated that it developed 20 potential options ranging from high efficiency lighting and motors to load management through air conditioning and pool pump controls (id. at 38-39). See footnote 20, infra.

The Department notes that BELD has identified DSM as a resource set, comporting with that segment of the previous directive to identify, and fully document, a comprehensive range of conservation technologies and programs. See 1992 BELD Decision at 72.

Accordingly, the Department finds that the Company has identified a reasonable range of resource sets.

ii. Compilation of Resource Sets

The Company stated that it issued the Supply and DSM RFPs in the summer of 1992, whereby it received twelve responses to the Supply RFP and six responses to the DSM RFP (Exh. BELD-66, at 25, 35). BELD stated that it developed the scoring criteria for both the Supply RFP and the DSM RFP before the RFPs were issued (Exh. BELD-19).

With respect to supply-side resources, BELD sent out RFPs to 42 separate suppliers (Exh. BELD-17).[15] BELD stated that its objective was to procure capacity to replace medium-term

---

[15] Although BELD chose to compile its available resource options through the use of a Supply RFP, BELD's purchase of NEP System power was made outside of the Supply RFP process. The Company indicated that the selection of that resource was a direct

(continued...)

contracts due to expire over the next several years (id.). The RFP delineated specific minimum requirements, price criteria, non-price criteria, and additional required information (id.).[16] The Company stated that it would consider offers consisting of unit entitlement contracts, contract demand service, and combinations of the two (id.). BELD reported that responses to the Supply RFP were divided into seven unit entitlement offers for existing facilities, one independent power producer ("IPP"), three qualifying facilities ("QF"), and an in-house iced-inlet expansion[17] of BELD's Potter II facility[18] (Exh. BELD-66, at 25-26).

The Department notes that responses to BELD's supply RFP encompassed a wide range of supply options for BELD's consideration. For example, the respondents included different fuel types, technologies, size increments, capacity factors, and costs. In addition, the Department has found that a formal RFP process constitutes an appropriate methodology for compiling a set of available non-utility purchases. 1993 EUA Decision at 45. See also, Nantucket Electric Company, 21 DOMSC 208, at 280 (1991) ("1991 Nantucket Decision"); Eastern Edison

---

[15](...continued)
outgrowth of BELD's contractual obligation to the Newbay project (Company Brief at 19, n. 11). See footnote 4, supra.

[16] The Company stated that the principal criterion used to rank supply-side responses was the present worth of the total power supply cost (Exh. BELD-17). The non-price criteria included term of contract, unit diversity, fuel diversity and transmission (id.).

[17] The iced-inlet expansion proposal was submitted by Company staff at the Potter II facility (Exh. BELD-19). BELD's screening process eliminated this option (id.).

[18] In the 1992 BELD proceedings, the Company had stated that it intended to reactivate Potter I (Potter Diesel) to run on gas and oil in the summer of 1995. See 1992 BELD Decision. Subsequently, the Company retired Potter I, citing a competitive supply market, expensive equipment replacement and repair costs, and new environmental compliance requirements as the factors in their decision (Exh. BELD-14).

Company and Montaup Electric Company, 18 DOMSC 73, at 115 (1988). Accordingly, the Department finds that BELD has compiled an adequate set of supply-side resources.

With respect to DSM, BELD stated that it sent out its DSM RFP to 57 separate DSM sources (Exhs. BELD-18; BELD-66, at 35). The Company stated that its goal was to provide cost effective programs for each customer class (Exh. BELD-18). The RFP delineated specific minimum requirements, price criteria, non-price criteria and additional required information (id.).[19] As noted earlier, the Company found all of the RFP-based DSM proposals unacceptable due to deficiencies in the responses, including the failure to provide: (1) costs of DSM resources; (2) end-use technical potential data estimates; and (3) market penetration estimates (Exh. BELD-35).[20] BELD indicated that it is in the process of developing its second DSM RFP, based on lessons from the first DSM RFP, and its review of the Department's decision regarding Commonwealth Electric's DSM RFP (Tr. 1, at 9). Further, the Company stated that the second

---

[19] The Company stated that the principal criterion which was used to rank the responses was the ratio of the present value of the cost of the proposed measure to the present worth of the total power supply cost savings, as well as the impact to ratepayers (Exh. BELD-18). The non-price criteria included: quality of service, load shape objectives, impact reliability, cost/benefit ratio, cream-skimming, an implementation plan, experience of bidder, a maintenance plan, term of contract, risk/new technologies, and societal impacts (id.).

[20] The Company also short-listed four DSM proposals, and issued specific clarification questions to each proponent (Exh. BELD-61). BELD explained that while three of the proponents submitted responses to the questions and attended follow-up meetings with BELD, the information generated by the proponents did not contain comprehensive measurement data, penetration levels, associated costs or kW/kWh savings (id.). BELD stated that one Company did respond to BELD's request for an updated offer, but that offer also lacked the information necessary to select that DSM proposal (id.).

DSM RFP will include an identified supply block consisting of specific target penetration rates for potential DSM programs (id. at 10).

BELD then identified 20 potential DSM options in-house that addressed all customer sectors -- residential, commercial and industrial (Exh. BELD-66, at 38-39, 43).[21] The Company stated that it identified these options through a literature search of Electric Power Research Institute ("EPRI") publications, a study of the DSM programs of other utilities,[22] experience based on implementation of their own residential DSM programs and pilot programs, and in conjunction with its consultant, PLM, Inc. ("PLM") (id. at 37-38).

Although BELD's RFP process failed to yield viable DSM proposals, BELD identified an adequate range of DSM options in-house, designed to address all customer sectors. Importantly, BELD has gathered valuable insights from the issuance of their first DSM RFP and intends to pursue a second DSM RFP in the near term that reflects this knowledge. Therefore, based on the above, the Department finds that BELD has complied with part (a) of Directive One (see, Sections II.B. and II.D.1.a.i., supra). Accordingly, the Department finds that BELD has compiled an adequate set of DSM resources.

---

21 The residential DSM programs identified by BELD are as follows: water heater blankets; energy efficient lighting; water heater control; central A/C control; pool pump control; high EER AC; storm windows; artificial intelligence control; building insulation; building window treatments; and electric thermal storage heating (Exh. BELD-66, at 43). The commercial and industrial DSM programs identified by BELD are as follows: energy efficient lighting; central A/C control; artificial intelligence control; building window treatments; cool storage; energy management systems; high efficiency motors; variable speed drives; and heat storage (id.).

22 BELD indicated that it reviewed the DSM programs of Massachusetts Electric Company, United Illuminating, Fitchburg Gas and Electric Light Company, BECo, and Taunton Municipal Lighting Plant (Exh. BELD-16).

iii. Conclusion on Available Resource Options

The Department has found that BELD has identified a reasonable range of resource sets. The Department has also found that BELD has compiled: (1) an adequate set of supply-side resources, and (2) an adequate set of DSM resources.

Accordingly, the Department finds that BELD has demonstrated that it compiled a comprehensive array of available resource options.

b. Development and Application of Screening Criteria

To determine whether BELD developed and applied appropriate criteria for screening its array of available resource options, the Department reviews the criteria developed and applied to both of BELD's resource sets. The Company indicated that it developed and applied separate sets of screening criteria for supply and DSM options (Company Brief at 18). The Company asserted that the screening process for its supply-side options and its DSM options were developed and implemented on a parallel track so as to ensure that all options were considered on an equal footing (Exh. BELD-66, at 35).

With respect to the supply-side resources, the Company developed price and non-price criteria, and assigned each a specific weight (id. at 26). The Company stated that the supply screening criteria and weights were developed by BELD's Energy Services Manager and its consultant, PLM (Exh. BELD-21). BELD explained that the Company and PLM distilled the final list of criteria from a review of other utilities' RFPs and EPRI literature (id.). The Company further indicated that it assigned weights to the criteria based on the relative importance that BELD management placed on each criterion (id.).

For its supply screening, BELD utilized the following four price criteria which accounted for 60 percent of the overall score: (1) B/C ratio; (2) price risk; (3) years to payback; and (4) amount of aggregate differential (Exhs. BELD-21; BELD-66, at 26). The Company stated that the principal price criterion used was the B/C ratio, which was given a weight of 45 percent, while the other three price criteria carried a weight of five percent each (Exh. BELD-66, at 26).[23] BELD utilized the following six non-price criteria which accounted for 40 percent of the overall score: (1) availability versus target;[24] (2) transmission risk; (3) fuel diversity; (4) age of generating units; (5) environmental challenges;[25] and (6) supplier criteria[26] (id.; Exh. BELD-21).

---

23 The B/C ratio for each of the options was derived by dividing the net present value of the total power supply cost savings produced by the option by the net present value of the total cost of the option (Exh. BELD-51). The Company determined that only those options which produced a B/C ratio of 1.0 or more were eligible to move on to the next phase of the screening analysis (id.).

24 This criterion compares the historic performance of a supply option with its current expected performance (Exh. BELD-66, at 29-30).

25 According to the Company, the environmental challenges criterion reflects the relative weights of Department-derived environmental externalities for each specific fuel type considered by BELD (Exh. BELD-21). Subsequent to the BELD filing, the Supreme Judicial Court ruled that the Department exceeded its authority in requiring consideration of environmental externalities values that may not reasonably be expected to have an effect on a utility's costs and hence on the rates that its customers must pay. Massachusetts Electric Company v. Department of Public Utilities, 419 Mass. 239 (1994). The Department notes that present policy requires companies to anticipate reasonably forseeable environmental control requirements with cost implications for ratepayers in weighing resource procurement alternatives. See Boston Edison Company, D.P.U. 95-1-CC at 13-14 (1995).

26 Supplier criteria refers to whether the proponent met all of the minimum requirements set forth in the Supply RFP (Exh. BELD-21).

In its filing, the Company provided a supply screening analysis which detailed how each criterion was applied, and how the subsequent total score was generated for each of the twelve supply proposals received by BELD (Exh. BELD-66, at 33-34). BELD calculated the total number of points for each proposal based on the ten criteria (four price and six non-price) and associated weighting system, which yielded individual final scores, whereby the four highest ranked proposals were selected for further consideration (id. at 32-34; Exhs. BELD-20; BELD-21).[27]

BELD stated that after it short-listed four proposals based on its supply-side screening analysis, it issued a set of individually-tailored clarification questions to each of the four remaining proponents (Exh. BELD-20).[28] The Company then sought best and final offers from the proponents, whereby two proponents indicated that their original offers represented their best and final offers, and BECo responded by restructuring its supply proposal into the form of a CD agreement (Exhs. BELD-31; BELD-46).

As with the supply-side resources, the Company also developed price and non-price criteria for the DSM options, each carrying specific weights (Exh. BELD-66, at 41). The Company stated that the DSM screening criteria and weights were also developed by BELD's Energy Services Manager and its consultant, PLM (Exh. BELD-21). The Company stated that the DSM criteria were developed by PLM based on its experience with other utilities of similar

---

[27] The four proposals that scored the highest were: BECo, Central Vermont Public Service Company, Peabody Municipal Light Company, and Kenetech Energy Systems, Inc. (Exh. BELD-66, at 32).

[28] One of the proponents dropped out of the selection process after the issuance of the clarification questions (Exh. BELD-66, at 32).

size and characteristics (id.). The Company further indicated that it assigned weights to the criteria based on the relative importance that BELD management placed on each criterion (id.).

BELD developed 25 criteria for DSM screening which were grouped into five categories as follows: (1) load shape objectives, consisting of six criteria; (2) costs and benefits, consisting of three criteria; (3) customer criteria, consisting of seven criteria; (4) implementation aspects, consisting of four criteria; and (5) utility criteria, consisting of five criteria (Exh. BELD-66, at 40-41).[29]

The Company stated that it used a DSM screening model which consisted of a decision matrix which prioritized the options based on their ability to meet specific criteria and the relative importance of the criteria to BELD (id. at 39). BELD explained that the DSM screening model translated each DSM option's score into a numeric score, which was then multiplied by its associated weight to generate a total score (id. at 43).

The Department notes that for both the supply-side resources and DSM resources, the application and development of screening criteria were carried out in a parallel manner utilizing similar methodologies. The Company developed clearly identified criteria for both resource sets in conjunction with its consultant, PLM. BELD developed price and non-price criteria for both resource sets, applied distinct weights to each criterion, and developed a numerical scoring system

---

[29] The Company assigned weights to each criterion, with the following breakdown for each category: load shape objectives - 11.5 percent; costs and benefits - nine percent; customer criteria - 22 percent; implementation aspects - 30.5 percent; and utility criteria - 27 percent (RR-DPU-2). As indicated above, the breakdown for price and non-price criteria was 60/40 percent (id.). The load shape objectives, costs and benefits, and utility criteria were comprised exclusively of price criteria, while the remaining two categories were comprised of both price and non-price criteria (id.).

for all of the options contained in each resource set. BELD's presentation represents an improvement over that of previous supply plan submittals. 1992 BELD Decision at 54, 55. Additionally, BELD's application of a quantifiable screening process to its DSM options concurrently with its supply screening process contributes to the Company's satisfaction of part (b) of Directive One in Section II.B., supra.

Therefore, the Department finds that BELD has developed and applied appropriate criteria for screening purchases from supply-side options. In addition, the Department finds that BELD has developed and applied appropriate criteria for screening purchases from DSM options. Accordingly, the Department finds that BELD has developed and applied appropriate criteria for screening its array of available resource options.

c. Conclusions on Identification of Resource Options

The Department has found that BELD (1) demonstrated that it compiled a comprehensive array of available resource options, and (2) developed and applied appropriate criteria for screening its array of available resource options.

Accordingly, the Department finds that BELD has established that it has identified a reasonable range of resource options.

2. Evaluation of Resource Options

a. Evaluation Process

The Department reviews BELD's resource evaluation process to determine whether BELD (1) has developed a resource evaluation process that fully evaluates all resource options

and treats all resource options on an equal footing, and (2) has applied its resource evaluation process to all of the resource options identified in Section II.D.1., supra.

In the past, a company's resource evaluation process has been reviewed in terms of its ability to reflect an adequate consideration of cost, risk minimization and diversity objectives. 1993 EUA Decision at 51; 1992 Fitchburg Decision at 368-369; 1992 BELD Decision at 56. In addition, the Department and the Siting Board have an obligation to balance economic considerations with environmental impacts in ensuring that the Commonwealth has a necessary supply of energy. G.L. 164, §§ 69H, 69I. Thus, in this section, the Department considers the extent to which BELD incorporates cost, risk minimization and diversity, and environmental impacts in its supply planning process.

b. Cost

i. Description

BELD incorporated the cost of supply- and demand-side options into its evaluation process through the design of its RFPs, and initial screening criteria (Exh. BELD-66, at 26, 41). The Company stated that in ranking their supply and demand proposals, the principal criterion was price (Exhs. BELD-17; BELD-18). The Company defined price as the present worth of the total power costs for the supply-side proposals, and the ratio of the present value of the cost of the proposed measure to the present worth of the total power supply reduction for the DSM proposals (Exhs. BELD-17; BELD-18).

BELD asserted that it included an option in its resource plan only if the Company's analyses determine that the option is least-cost (Exh. BELD-5). The Company stated that the

final decision variable for BELD's resource planning process was the ratepayer benefit in the form of reduced revenue requirements (Tr. 2, at 27).

BELD explained that it developed a tentative Least Cost Resource Plan which included all DSM options individually demonstrating a B/C ratio of 1.0 or greater and the least-cost supply option (the BECo CD) (Exhs. BELD-40; BELD-66, at 75). The Company explained that after a tentative Least Cost Resource Plan was developed, the total costs of that plan were calculated using POWRSYM, and the results were input into the Revenue Requirements Model to determine the present worth of the total revenue requirements (Exh. BELD-40). The tentative Least Cost Resource Plan was then tested by the Company to determine whether it was actually least cost (Exh. BELD-66, at 75). The Company explained that the testing process to determine the final Least Cost Resource plan consisted of removing the resource option(s) with the lowest B/C ratio and projecting the total system revenue requirements for the revised tentative Least Cost Resource Plan (Exh. BELD-40). If the revenue requirements for the revised plan were reduced, the revised plan then became the new tentative Least Cost Resource Plan and the testing resumed (id.). However if the revenue requirements were increased, the original tentative plan was determined to be the final Least Cost Resource Plan (id.).

BELD performed one iteration of its test to determine whether its tentative Least Cost Resource Plan was actually least cost (Exhs. BELD-40; BELD-66, at 75-76). The Company stated that the testing confirmed that the tentative plan was the final integrated Least Cost Resource Plan (Exhs. BELD-40; BELD-66, at 75-76). The Company asserted that, using the Capacity Expansion Model confirmed with results from the POWRSYM model, its integrated

planning methodology allowed BELD to determine the optimum purchase amounts of each resource for the Company's system (Exh. BELD-47).

(A) Supply-Side Resources

The Company stated that it analyzed the short-listed responses from its supply RFP in terms of total revenue requirements, savings, cost, B/C ratio, break even, payback and the aggregate differential which would result from each supply plan scenario (Exh. BELD-66, at 50-51). BELD explained that the total cost of each supply option was derived from capacity, energy, and transmission costs (Exh. BELD-51).

As discussed in Section II.C., supra, BELD utilized two production costing models to quantify the economic benefits of each option (Exh. BELD-66, at 12). The Capacity Expansion Model was used to calculate the total power supply cost and revenue requirements of its long-range resource plan (id. at 13). BELD then utilized the POWRSYM Production Costing Model to calculate the power supply costs for each option which passed the initial screening (id. at 10). The Company stated that the POWRSYM model is extremely accurate as it models generator operating characteristics such as start-up costs, low limits, ramp rates, minimum run times, and minimum down times (id. at 15). Mr. Seavey explained that the POWRSYM model projects energy costs only, that capacity costs are added externally, and that other non-power costs are derived through the Revenue Requirements Model (Tr. 1, at 66).

The Company indicated that the assumptions used to project future revenue requirements incorporated fuel price and economic assumptions derived from fuel forecasts and economic indicators (Exh. BELD-66, at 53-55).[30] The Company also based their estimated costs of generic

(continued...)

new base/intermediate combined cycle and peaking combustion turbine capacity on NEPOOL's Summary of Generation Task Force Long-Range Study Assumptions ("GTF") (id. at 55).[31]

The Company conducted optimization analyses of supply-side options which calculated the MW amount that best met BELD's capacity requirements and minimized total bulk power supply costs (Exhs. BELD-31; BELD-66, at 48). The BECo CD emerged from BELD's screening process as the primary proposal (Exh. BELD-31). BELD stated that it evaluated the BECo CD against the other two short-listed proposals individually and against the other two proposals together in combination (Exh. BELD-46; Tr. 2, at 28-29). The Company stated that its evaluation process ascribed a lower cost per kW and lower revenue requirement for the BECo CD alone (Tr. 2, at 29).

(B) Demand Side Resources

BELD stated that the total cost of each DSM option consisted of installation, operation, and administrative costs (Exh. BELD-51). To calculate the cost of the DSM options, BELD estimated the technical potential of each measure, and projected penetration rates and program costs (Exh. BELD-66, at 56-60).

---

[30](...continued)
[30] The Company stated that (1) the source of the fuel price escalation rates was the fall 1992 Data Resources, Inc. ("DRI") forecast; (2) base fuel prices were based on mid-1993 New England Power Exchange ("NEPEX") replacement price for each fuel; (3) the cost of NEPOOL Energy Services was based on average 1992 values at the DRI escalation rate for the Gross Domestic Product Implicit Price Deflator; and (4) projections of economic indices were based on the fall, 1992 DRI Long-Term Outlook (Exh. BELD-66, at 53-54).

[31] This document was prepared by Burns & Roe for NEPOOL (Exh. BELD-66, at 55).

BELD stated that it estimated the technical potential of its DSM programs in its commercial and industrial sectors by using data from EPRI reports to estimate the level of electric consumption by end-use within each of its commercial and industrial Standard Industrial Classification ("SIC") codes (id. at 57). For the residential sector, end-use specific data was derived from a residential end-use survey completed by the Company (id. at 56). BELD stated that it then estimated the likely impact from individual DSM options for each end-use and thus derived the technical potential for energy and peak demand reductions (id. at 59).

BELD stated that it estimated the annual penetration rates for each option based upon information obtained from other utilities and BELD's own experience (id.). The Company explained that the annual penetration rates were combined with the technical potential of each option to develop estimates of the annual and cumulative peak demand and energy reductions (id. at 59-60).

To develop hardware costs, BELD indicated that it obtained actual price data from vendors, technical journals, BELD's consultants, and BELD's own experience (id. at 60). Finally, labor and administrative costs were based on BELD's experience in implementing its residential DSM measures, its pilot commercial DSM measures, and data from other utilities (id.).

The Company stated that DSM options which had an annual impact of less than 100 kilowatt hours ("kWh") were evaluated by comparing their load impact to BELD's avoided cost (id. at 60).[32] DSM options which had an annual impact of greater than 100 kWh were evaluated using the POWRSYM model (id. at 62). Those DSM options which lowered revenue

---

[32] The Company indicated that the BECo CD represents the avoided capacity and was therefore used to calculate the avoided capacity costs (Exh. BELD-66, at 61).

requirements and had a B/C ratio of 1.0 or more were added to the tentative Least Cost Plan and analyzed using the production costing models (id. at 60-61).

As a result of its evaluation process, BELD will include a new commercial/industrial lighting retrofit program as part of its Least Cost Resource Plan (Exh. BELD-66, at 64; Tr. 1, at 110). In addition, the test results indicated that the Company's residential water heater blankets program demonstrated a B/C ratio of 1.0 or greater, and the program was included in the Least Cost Resource Plan (Exh. BELD-66, at 64, 66). The Company will continue to utilize previously-installed load control switches for central A/C and residential water heaters, though it does not plan to expand this program because testing revealed that installation of additional switches is not economical (id. at 64). Finally, the Company will continue to distribute efficient lighting to residential customers through its state-mandated Residential Conservation Service program (id. at 64-65).

ii. Analysis

The Department notes that BELD conducted a full analysis of the costs of both supply and demand-side resources utilizing a series of models that addressed both the optimum amount of needed resources and the revenue requirements for each resource. For supply-side resources, the Company developed costs based on commonly-accepted fuel forecast and economic indicators coupled with GTF Assumptions. In regard to DSM cost estimates, the Company estimated the technical potential, penetration rate, and program cost of each DSM measure in a methodical, iterative fashion. In developing the Least Cost Resource Plan, the Company detailed the present worth of total revenue requirements for both supply- and demand-side options. Previously, the

Department has accepted the use of production cost models, such as those utilized by BELD to determine optimum purchase amounts at the least cost. 1993 EUA Decision at 58.

Furthermore, BELD has demonstrated that it analyzed the associated cost of DSM options by evaluating the estimated technical potential of each measure, projected penetration rates, and program costs. The Company's evaluation process resulted in the continuation of an existing installation program, the institution of a new program, and the discontinuation of an existing program. BELD's steps in this area contribute to its satisfaction of part (b) of Directive One in Section II.B., supra.

Accordingly, the Department finds that BELD's methodology for evaluating resource options adequately considers cost.

c. Risk Minimization

i. Description

An electric company's resource planning process may address risk in a number of ways. In previous cases, electric companies have addressed minimization of risk by various means such as: (1) incorporating multiple scenarios into their demand forecasts to address uncertainty in the need for new supplies; (2) formulating action plans to address supply contingencies; or (3) minimizing financial risk through transactions with third parties. 1993 EUA Decision at 60; 1992 Fitchburg Decision at 376; Boston Edison Company, 18 DOMSC 201, at 271-272, (1989) ("1989 BECo Decision"). The Department notes that risk minimization is a broad topic encompassing numerous approaches. The Department recognizes that flexibility and diversity are relevant components of risk minimization, as the evaluation of these attributes can enhance a company's

risk minimization methodology. Therefore, to determine whether BELD adequately considered risk minimization, the Department reviews whether flexibility and diversity issues, among others, are included in the Company's least cost planning to meet the overall objective of achieving risk minimization.

BELD addressed risk minimization by employing multiple supply scenarios, including evaluating the performance of its least cost resource plan based on the impacts of an increase and a decrease in the long-term price of oil and related fuels (Exh. BELD-66, at 79). Further, the Company conducted sensitivity analyses on the load growth forecasts, using base, low and high growth scenarios (id. at 81). BELD also incorporated risk features into its supply-side RFP through the following criteria: (1) price risk criterion -- which favors those proposals in which the price escalators are not subject to sharp and unpredictable changes; (2) number of years to payback criterion -- which favors proposals in which the total savings exceed total annual costs in the first several years of the purchase; and (3) transmission risk (id. at 27-30). Finally, in order to minimize the risk of losing a large industrial customer, the Company now requires that such customers provide two-years notice before leaving the BELD system (Exh. BELD-3). The Company explained that it includes this termination provision in the tariffs of customers with significant demand and energy consumption (RR-DPU-6).[33] Finally, the Company minimized financial risk through transactions with third parties (Exhs. BELD-17; BELD-18).

---

[33] BELD included the two-year notice provision in its industrial rate tariff for customers with a total demand of 300 kilovolt-ampere ("KVA") or more and energy consumption in excess of 100,000 kWh per month (RR-DPU-6). The Company stated that it planned to amend its Large Commercial Rate tariff to apply the notice provision to all customers in that class (id.). The Company indicated that as of the date of the hearing, no customers had given notice of termination (Tr. 1, at 29).

With regard to flexibility, the Company asserted that the BECo CD provides true flexibility to BELD (Exh. BELD-3). The Company explained that the BECo CD is fully dispatchable with a low energy cost, therefore BELD would be able to optimize the use of its existing resources (Exh. BELD-66, at 52).[34] BELD stated that the purchase flexibility of the BECo CD would enable BELD to: (1) decrease BECo CD purchases to accommodate cost-effective DSM measures; (2) increase BECo CD purchases to meet higher than expected load growth; and (3) decrease BECo CD purchases in relationship to its capability responsibility if its load decreases (Exh. BELD-31).[35] The Company further indicated that the BECo CD and the NEP system contract are intermediate-term contracts,[36] providing BELD with flexible, fixed-price resources that would not be available with long-term contract options (Exh. BELD-3).

BELD asserted that a diverse mix of capacity in the Least Cost Resource Plan minimizes costs and reduces risks by diversifying the sources from which the Company obtains its capacity and energy (Exh. BELD-66, at 78).[37] BELD stated that it strives to achieve diversity in terms of

---

[34] Mr. Seavey stated that in regard to future resource planning, one should look at increased purchases of the BECo CD as an identified option that is still subject to screening and evaluation on the same level as other options (Tr. 2, at 24). He noted that the BECo CD does not preclude further supply planning, although it does provide one resource that is available over the next ten years at a known and set price (Tr. 1, at 50).

[35] The contract between BECo and BELD sets a schedule for minimum and maximum purchases (Exh. BELD-33). According to the contract, BELD would buy the amount designated as scheduled purchases unless its load has decreased such that purchasing the scheduled amount would exceed BELD's NEPOOL CR, in which case BELD could reduce purchases (Exh. BELD-67, at 4-5; Tr. 1, at 119-120). Further, the contract stipulates that BELD cannot purchase any increment less than the stated minimum (Exh. BELD-67, at 5).

[36] The Company defined intermediate term contracts as those for purchases for more than one year, but less than long term life-of-unit purchases (Tr. 1, at 23-24).

(continued...)

the types of resources it obtains, the fuel consumed by those resources, and the range of services which BELD provides its customers (Exh. BELD-41). The Company also stated that it seeks to achieve a balanced resource portfolio with respect to the following issues: (1) BELD-owned generation and purchases; (2) term of purchases; and (3) supply- and demand-side resources (id.). In its Supply RFP, BELD included a criterion with a relative weight of five percent which addressed fuel diversity, which was defined as any proposed unit entitlement which has a primary fuel which currently provides less than
25 percent of BELD's annual own-load energy requirements over the term of the offer (Exh. BELD-66, at 30). In addition, the Company stated that it identified and evaluated twenty discrete DSM resources (id. at 38).

Regarding unit diversity, BELD stated that it has an exchange agreement with Montaup Electric in which BELD sells 40 MW from its Potter II unit and purchases
25 MW from the Canal Two unit (Tr. 1, at 67). BELD stated that this arrangement provided greater unit diversity by reducing its dependence on any one particular unit (id.). Finally, the Company indicated that the system power purchase through the BECo CD inherently adds diversity to the BELD supply portfolio (Exh. BELD-49).[38]

ii. Analysis

---

[37](...continued)

[37] Mr. Seavey explained that the Company categorizes fuel diversity as a price-risk issue, where the cost of fuel approximates the cost of energy (Tr. 1, at 127).

[38] BELD stated that the BECo CD is approximately 62 percent gas, 15 percent oil, and 23 percent nuclear (Tr. 1, at 127). The Company stated that its fuel mix would have a higher reliance on oil if the BECo CD were not included in its supply portfolio (Exh. BELD-49).

The record in this case indicates that BELD employed multiple supply scenarios based on a range of fuel costs and load growth considerations. BELD utilized both supply-side and DSM RFPs, which insured reliance on third-party transactions. Further, the supply RFP contained criteria which directly addressed the issue of risk minimization in a number of areas. The BECo CD adds flexibility, allowing the Company to alter its purchases based on annual CR requirements.

In regard to diversity, BELD's resource planning process incorporated the ability to identify, screen and evaluate a diverse group of technologies encompassing a range of fuel types, technologies, size increments, capacity factors, and costs. See, Section II.D.1.a.ii. In addition, BELD's planning process included the identification and evaluation of a broad range of DSM resources. Finally, the BECo CD selected by BELD facilitates the diversity of BELD's resource portfolio.

Accordingly, the Department finds that BELD's methodology for evaluating resource options adequately considers minimization of risk.

d. Environmental Impacts

i. Description

In the past, the Department and Siting Council have considered whether an electric Company has attributed environmental impacts or benefits to different resource options. 1993 EUA Decision at 60; 1992 Fitchburg Decision at 376; 1989 BECo Decision at 270. The Company asserted that it has improved its supply planning process to consider environmental impacts adequately (Company Brief at 8-10). For example, the Company announced plans to

incorporate more explicit environmental criteria in its screening process (Tr. 1, at 13). The Company stated that it assigned a weight of five percent to the CAAA challenges/compliance criterion and five percent to a price risk criterion (id. at 13-14). BELD explained that the CAAA challenges/compliance criterion is based on the potential risk of increased capital or operating costs as a result of the CAAA (Exh. BELD-66, at 31). BELD also considered effects of state CAAA implementation plans based on the projected fuel mix of each option,[39] and the price risk exposure to ratepayers in light of future environmental costs (id.; Tr. 1, at 13-14).[40] Further, the Company noted that a minimum-requirements criterion, which had a weight of 15 percent, placed a premium on options which are already permitted and operational (Tr. 1, at 14).

In addition, the Company stated that its two new supply resources, the BECo CD and the NEP System Contract, both represent purchases from existing resources which result in no incremental emissions (id. at 15; Exh. BELD-66, at 5-6). The Company further explained that if BELD were to purchase a new resource which was not an existing resource, the new resource would need to be brought on line, thereby increasing actual emissions (Tr. 1, at 22). The Company noted that the NEP system contract was an alternative to a new coal plant (id. at 14). Furthermore, Ms. Heffron stated that the flexibility of the BECo CD will enable BELD to continue to add least-cost DSM to its resource mix (id. at 9). Finally, the Company stated that

---

39 The Company stated that hydro power and renewables were awarded a score of 50 percent, nuclear a score of 40 percent, natural gas a score of 30 percent, oil a score of 20 percent, and coal a score of ten percent, then a weighted average score was derived for each offer (Exh. BELD-66, at 31).

40 The Company indicated that BELD is not responsible for any permitting or Clean Air Act compliance in relation to the BECo CD and NEP system contract (Tr. 2, at 63).

conversion of BELD's Potter II generating facility to run on natural gas, and continuation of the Company's Re-Leaf program are further evidence of steps to minimize environmental impacts (Company Brief at 9).

BELD stated that it has developed a preliminary plan for incorporating more explicit environmental criteria into its planning process and will set out specific criteria designed to identify those resource proposals where the supplier assumes more rather than less risk associated with complying with future environmental regulations (Tr. 1, at 15; Company Brief at 9-10). BELD indicated that in its next resource plan, the Company will assign up to 20 percent of the total score to environmental factors (Tr. 1, at 15).

ii. Analysis

The record indicates that BELD's supply screening process consisted of ranking potential generating resource options according to both an environmental compliance criterion and a price risk criterion, each of which carried a weight of five percent, and a minimum requirements criterion which carried a weight of 15 percent. Further, the Company has indicated that in its next resource plan, it will apply more explicit environmental criteria, carrying a higher weight, to its resource options.

In regard to the Company claim that by choosing two new supply resources which consist of existing resources the Company will not cause actual emissions to increase, the Department notes that in previous cases the Siting Council held that a project proponent must provide full documentation of its assumptions pertaining to environmental benefits associated with the dispatch of generation capacity. Cabot Power Corporation, 2 DOMSB 241, at 326 (1994);

Altresco Lynn, Inc., 2 DOMSB 1, at 98 (1993); Enron Power Enterprise, 23 DOMSC 1, at 65 (1991). Here, the Company has not provided an environmental analysis based on actual emissions of its two new supply resources. Further, the argument made by BELD that the BECo CD and the NEP contract will not increase actual emissions ignores the process by which NEPOOL dispatches load, as load is dispatched based on variable costs and not on emissions levels.[41] However, the Department notes that the Company's use of environmental criteria in its ranking of supply options and its future plans for enhanced environmental criteria are appropriate to address the concerns of the last BELD supply plan review. Therefore, the Department finds that BELD has complied with Directive Two in Section II.B., supra, by developing and implementing a resource evaluation process which includes an adequate consideration of environmental impacts.

Accordingly, the Department finds that BELD's methodology for evaluating resource options adequately considers environmental impacts.

e. Conclusion on Resource Evaluation Process

In response to part (b) of Directive One in Section II.B., supra, the DSM resource options were subjected to a quantifiable screening process that evaluated DSM on an equal footing with potential components of a least cost resource plan. Further, the Company's evaluation process analyzed each DSM option and selected components of a cost-effective DSM program. Therefore, the Department finds that BELD has complied with Directive One by demonstrating

---

[41] The Department notes that new resources may or may not enhance air quality when compared to existing resources. Various factors, such as the operating characteristics of the units in question, including the technology, fuel, and relative cost, contribute to their overall impact on air quality. For example, a new renewable resource could actually decrease emissions if it were to displace the energy output of an existing thermal facility.

how the Company evaluates the implementation of conservation technologies in its array of available resource options that potentially could contribute to a least-cost supply plan.

The Department has found that BELD has established that it adequately incorporates consideration of cost, risk minimization, and environmental impacts in its supply planning process.

The record demonstrates that BELD has attempted to acquire a diverse set of resources. Through the parallel issuance of supply- and demand-side RFPs, and use of a "best and final offer," the Company has allowed the market the opportunity to provide a complete set of resource options. The record further demonstrates that supply- and demand-side options were allowed to compete against one another on an equal footing. The Department notes that the BECo CD is a flexible supply option, not long-term in nature, and does not include transmission costs. The flexible nature of this resource allows BELD the opportunity to adjust its supply portfolio in concert with prudent supply planning to meet the needs of a changing regulatory environment.

Based on the foregoing, the Department finds that BELD has established that it (1) developed a resource evaluation process that fully evaluated all resource options, including the treatment of all resource options on an equal footing, and (2) applied its resource evaluation process to all resource options.

3. Conclusions on Least-Cost Supply

The Department has found that BELD identified a reasonable range of resource options. The Department also has found that BELD established that it (1) developed a resource evaluation process that fully evaluates all resource options, including the treatment of all resource options on an equal footing, and (2) applied its resource evaluation process to all resource options.

Accordingly, based on the foregoing, the Department finds that BELD has established that its supply plan ensures a least-cost energy supply.

E. Adequacy of the Supply Plan

1. Adequacy of the Supply Plan in the Short-Run

a. Definition of the Short-Run

In the past, the short-run has been defined for all electric companies as four years from the date of the final hearing or from the date of the final record request, whichever is later. 1993 EUA Decision at 38; 1992 Fitchburg Decision at 357; 1989 BECo Decision at 225, n.10. BELD's final hearing was held on November 4, 1994, and the final record request was dated November 10, 1994. Therefore, the short-run in this proceeding extends from the winter of 1994-1995 through the summer of 1998.

b. Base Case Supply Plan

The data shown in Table 1 (attached) compare BELD's projected resource capability to its capability responsibility over the years 1995 through 1998. These data indicate that BELD is projecting short-run capability surpluses above its reserve margin, ranging from 6.6 MW in 1995 to 14.1 MW in 1998, 7.6 percent and 16.7 percent respectively, during summer peak periods.

Accordingly, the Department finds that BELD has established that its base case supply plan is adequate to meet requirements in the short-run.

c. Short-Run Contingency Analysis

i. Description

In order to establish adequacy in the short-run, a company must establish that it can meet its forecasted needs under a reasonable range of contingencies. 1993 EUA Decision at 38; 1992 BELD Decision at 40. BELD identified two contingencies at the time of its filing which could affect short-run adequacy: (1) high load growth scenario, referred to as the single contingency, and (2) high load growth combined with a reduction in planned DSM, referred to as the double contingency (Exh. BELD-66, at 19-20; Company Brief at 13-15).

The Company stated that previous Department and Siting Council reviews evaluated adequacy utilizing contingencies relating to a specific resource, such as if a planned resource had not yet commenced operation or an existing resource had experienced performance problems (Exh. BELD-10). In addition, the Company stated that it based its contingencies on high load growth since all supply in its current resource plan comes from operating resources (id.; Exh. BELD-66, at 19-20). BELD asserted that all of its existing resources and the new BECo CD are reliable (Exhs. BELD-10; BELD-66, at 19-20). BELD therefore concluded that the high load growth scenario is more likely to occur than the loss of any of its supply options, as the only new resources in the supply plan are contracts for entitlements or purchases from existing resources (Exh. BELD-66, at 20; Tr. 1, at 42). The Company also noted that two supply contracts are scheduled to expire over the short-run forecast period, however, both terminations are accounted for in the base case supply plan (Exh. BELD-12).[42]

---

[42] The two BELD entitlements scheduled to expire are: (1) Point LePreau for 7 MW (continued...)

The Company stated that the high load growth contingency is based on an average compound growth rate of 2.98 percent over the ten-year forecast period (Exh. BELD-66, at 19).[43] Under its high load growth forecast, BELD projected that its summer peak would grow from 79.67 MW in 1995 to 86.63 in 1998, versus 77.62 MW to 82.33 MW under the base case forecast (id. at Tables E-17, E-17(a)).

BELD asserted that its projections show that given the higher growth rate, the Company has sufficient existing and committed resources to meet its CR in the forecasted short-run period (id. at Table E-17(a)). In addition, the Company stated that due to the flexible nature of the BECo CD, whereby it can purchase different levels of capacity from BECo, BELD will not have non-economic excess capacity under this scenario (id. at 19, n. 2).[44] Further, as displayed in Table

---

[42](...continued)
which expired in 1994, and (2) Canal 2, purchased through Massachusetts Municipal Wholesale Electric Company for 4.92 MW in 1995 (Exh. BELD-12).

[43] The Company projected a 1.98 percent average compound growth rate for its ten-year base case forecast (Exh. BELD-66, at 19). Both the base case and high case growth rates of 1.98 percent and 2.98 percent, were the same as projected growth rates utilized in BELD's recently approved demand forecast, 1994 BELD Decision (Phase I) (Exh. BELD-11).

[44] According to the terms of the BECo CD, BELD must adhere to specific minimum and maximum purchases over the forecast period, though the Company asserts that the ranges are such that it has flexibility in selecting the purchase amounts within those ranges (Exhs. BELD-33; BELD-66, at 52-53). The Company indicated that the scheduled purchases vary from 1.70 MW in the winter of 1994-1995 and 13.10 MW in the winter of 1998 for the short run (Exh. BELD-33). Further, by the end of the long-run forecast period, BELD is scheduled to purchase 23.70 MW out of the possible maximum supply of 26.07 MW (id.).

2 (attached) and Table 3 (attached), the flexibility of the BECo CD allows the Company to increase its capacity to meet the higher load growth (id. at 22-23; RR-DPU-1).[45]

BELD selected a double contingency consisting of the high load growth scenario described above, and a 50 percent decrease in expected DSM contributions (Exh. BELD-66, at 20).[46] The Company stated that it utilized a 50 percent reduction in DSM as a component of the double contingency to illustrate an action that could have a significant effect on the adequacy of its supply plan (Exh. BELD-13).

BELD asserted that the contingency cases show that it can meet its projected requirements without incurring deficiencies (Tr. 1, at 34). Further, the Company indicated that applying the most significant contingencies that could be developed under the circumstances, BELD has adequate resources through the forecast period (id. at 43).

---

45 The Department notes that the scheduled purchases for the BECo CD are defined in Schedule 1 of the BECo CD contract (Exh. BELD-67). However, Table E-17(a), Table E-17(b) of Exhibit BELD-66, and RR-DPU-1 (which illustrates the contingency cases), are based on the current load forecasts and reflect what the Company now anticipates will be its purchases (Exh. BELD-66). Schedule 1 of the contract represents BELD's best estimate of what its purchases would be throughout the contract period at the time of the contract negotiation (Exh. BELD-67). Currently, the allocations presented in Tables E-17(a), and E-17(b), and RR-DPU-1 differ from the amounts listed in Schedule 1. The Company stated that the projected allocations from the tables will be revisited annually to comply with the terms of the contract (Tr. 1, at 118).

46 BELD's base case forecast shows that its DSM programs are projected to generate a reduction in load ranging from 1.73 MW to 1.96 MW annually over the forecast period, therefore a 50 percent reduction in DSM would range from .86 MW to .98 MW (Exh. BELD-66, Table E-17; RR-DPU-1).

ii. Analysis

In the past, the Department and Siting Council have accepted short-run contingency analyses that included an electric company's adequacy in terms of single and double contingencies, as well as multiple contingencies. 1993 EUA Decision at 40; 1992 Fitchburg Decision at 357-360; 1991 Nantucket Decision at 275-276. However, BELD's submittal is one of the first cases where a company's contingencies were based exclusively on load growth, not on the ability of a planned resource to come on line. The Department recognizes that the nature of the energy market has changed, and that the Company has chosen to meet its supply utilizing existing resources, and finds that the selection of these contingencies are appropriate. BELD has demonstrated adequacy in each year of the short-run period, while reflecting resource reductions due to the effects of load growth uncertainties. Further, the flexibility of the BECo CD enables the Company to increase its capability to meet such contingencies.

The Department notes that BELD has demonstrated that it can meet its projected requirements in the short-run in the event of (1) high load growth, and (2) a contingency combining both high load growth and a 50 percent reduction in DSM.

Accordingly, the Department finds that BELD has established that its supply plan contains adequate resources to meet its projected requirements in the short-run under a reasonable range of contingencies.

2. Adequacy of the Supply Plan in the Long-Run

BELD's long-run planning period is the remaining forecast horizon beyond the short run; this extends from the winter of 1998-1999 through the summer of 2002.

As discussed in Section II.A., supra, the Department requires an electric company to establish adequacy in the long-run by demonstrating that its planning process can identify and fully evaluate a reasonable range of resource options on a continuing basis while allowing sufficient time for the company to make appropriate supply decisions to ensure adequate cost-effective energy and power resources over the forecast period. 1993 EUA Decision at 35; 1992 BELD Decision at 34-35. The Department has found that BELD has established that it has identified a reasonable range of resource options. In addition, the Department has found that BELD has established that its planning process has evaluated a reasonable range of options.

Accordingly, the Department finds that BELD has established that its planning process has ensured adequate resources to meet projected requirements in the long-run.

3. Conclusion on Adequacy of the Supply Plan

The Department has found that BELD has established that (1) its base case supply plan is adequate to meet requirements in the short-run, (2) its supply plan contains adequate resources to meet its system CR in the short-run under a reasonable range of contingencies, and (3) its supply plan ensures adequate resources to meet projected requirements in the long-run. Accordingly, the Department finds that BELD has established that it has adequate resources to meet its projected requirements throughout the forecast period.

F. Conclusions on the Supply Plan

The Department has found that the Company's supply plan ensures a least-cost energy supply. The Department also has found that BELD has adequate resources to meet projected requirements throughout the forecast period. The Department has further found that BELD has

complied with Directives One and Two of the 1992 BELD Decision. Finally, the Department notes that BELD has incorporated significant improvements into its least-cost resource planning process since the previous review.

Accordingly, the Department hereby APPROVES BELD's 1993 supply plan.

BELD is to file its next demand forecast and supply plan two years from the date of this Order.

III. DECISION

The Department hereby APPROVES the 1993 Supply Plan of Braintree Electric Light Department for the period 1993-2002.

By Order of the Department,

_____
Kenneth Gordon, Chairman

_____
Mary Clark Webster, Commissioner

_____
Janet Gail Besser, Commissioner

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

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).