

CONNECTICUT ENERGY ADVISORY BOARD
EVALUATION REPORT TO
THE CONNECTICUT SITING COUNCIL

*AN ANALYSIS OF THE
CONNECTICUT LIGHT AND POWER COMPANY'S
PROPOSED GREATER SPRINGFIELD RELIABILITY PROJECT
AND MANCHESTER TO MEEKVILLE PROJECT
AND THE NON-TRANSMISSION PROJECTS PROPOSED
AS ALTERNATIVES*

Prepared by:

The Connecticut Energy Advisory Board

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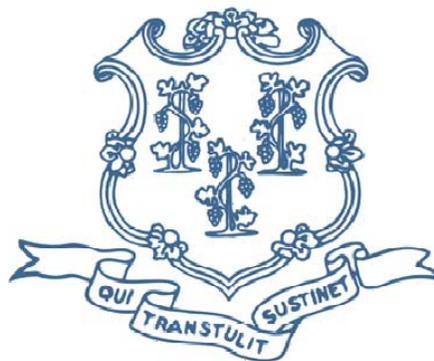


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CEAB Evaluation Report to CSC

CEAB Evaluation Report to CSC regarding
Connecticut Light and Power Company's
Proposed Greater Springfield Reliability Project
and Manchester to Meekville Project and the
Projects Proposed as Alternatives

I. EXECUTIVE SUMMARY

The Connecticut Energy Advisory Board (“CEAB”) is pleased to offer this Evaluation Report (“Report”) to the Connecticut Siting Council (“CSC”) for its consideration in the subject proceeding. The Report describes the CEAB’s solicitation of alternatives to the Connecticut Valley Electric Transmission Projects.

In accordance with the statutory requirements,¹ the CEAB issued a Request for Proposals (“RFP”) on November 4, 2008. On January 2, 2009, the CEAB received three proposals:

1. Ice Energy Solution – Ice Energy, LLC and Energy Capital Partners
2. Meriden Combined Cycle Project - NRG Energy Inc.
3. Towantic Energy Center – GE Energy Financial Services

This Report documents the CEAB’s evaluation² of these three proposals and the Transmission Projects, relative to the Preferential Criteria. The CEAB provides this report, within the statutory 45 day evaluation period, for the CSC’s consideration in the Docket No. 370 proceedings.

Since the requirement for RFPs of this type was established in 2003, the CEAB has now issued five RFPs in response to applications at the CSC for transmission facilities, although the first four applications were for substations. This is the first such RFP that has produced responsive proposals and, thus, is the CEAB’s first evaluation of alternatives of this type.

¹ Conn. Gen. Stat. Sec. 16a-7c.
Further information on the CEAB’s RFP process can be obtained at the CEAB’s website. See Appendix B for links to key documents.

² The CEAB conducted this evaluation through its NEEWS Subcommittee. The NEEWS Subcommittee was assisted by La Capra Associates, GDS Associates and ESS Group to issue the RFP and conduct the evaluation.

The statute contemplates that the RFP process would generate proposals for projects that would subsequently require an application to the CSC for project siting approval; and it established a 30 day period following the issuance of this Report for project proponents to file CSC applications. In this RFP, we understand that two of the proposed projects have completed most or all of the CSC's permitting process requirements.

The CEAB believes that each of the three proposed projects received in response to the RFP have the potential to be feasible and may, if implemented, have an effect on the overload conditions identified in the needs assessment and therefore are worthy of further consideration. Hence, the CEAB is of the view that the CSC should consider the RFP Projects as it assesses the need for a solution and the proposed transmission solution. The CEAB's key findings from its review of these four projects are as follows:

1. **Electric demand in Connecticut is a key factor in the reliability issues and concerns identified in the Springfield Area.** It is clear from the CL&P's application and our review of the power flow studies that the reliability issues or concerns in the Greater Springfield area are, in large measure, the result of north to south power flows across the Springfield area 115 kV system to serve loads in Connecticut.
2. **Connecticut's recent power supply commitments are not included in needs assessment.** Project development activity in Connecticut resulting from the ISO-NE Forward Capacity Market, Connecticut's Energy Independence Act (2005) and Electricity and Energy Efficiency Act (2007) have led to commitments to new supply sources that are not reflected in the ISO-NE Needs Assessment, including over 1000 MW of Connecticut generation to which the state has since committed or which has been brought online by other parties. Some projects are also not reflected in the supplemental studies in the Application. The Application materials do not include any power flow assessments which include all of these committed sources, plus one or more of the three RFP proposals.
3. **ISO-NE has recently announced plans to review its Needs Analysis in the coming months.** In light of the recent Forward Capacity Auction ("FCA") results, including more than 1,100 MW of new Connecticut generation, and a new load forecast outlook, ISO-NE has announced plans to revisit Needs Assessments for Transmission Projects in the 2009 Regional System Plan, including the New England East-West Solution ("NEEWS") projects.³ This is consistent with CEAB's review, as noted above.
4. **The three proposals are all worthy of further consideration. Each of the proposals is technically feasible and the sponsors appear to have the ability to**

³ ISO-New England officials described plans for this review of the Needs Assessments for NEEWS and other New England transmission projects at the January 21, 2009 Planning Advisory Committee stakeholder meeting, the January 29, 2009 Transmission Cost Allocation Stakeholder meeting, and the February 6, 2009 Participants Committee.

implement their projects. As is well known to the CSC, the Meriden and Towantic projects are far along in the permitting process, each being projects that were previously fully permitted and approved by the CSC. The Ice Energy technology has been reviewed and approved by the Department of Public Utility Control (“DPUC”) in the context of its Electric Efficiency Partners (“EEP”) Program and has received a grant from the State of Connecticut under this program.. However, more detailed work will need to be done to assess the ability of the three of the RFP proposals to mitigate the reliability problems and to assess the cost effectiveness of the proposals.

5. **At a macro-level, the three proposals meet applicable statutory and regulatory environmental standards.** All three proposals incorporate, consistent with the technology employed, the concepts of avoidance, minimization, and mitigation, in that respective order.
6. **The three proposals offer over 1,000 MW of supply at favorable locations for reliability benefit.** The Meriden and Towantic sites are close to major load centers in Connecticut, which is generally beneficial for reliability purposes. The power flow assessments provided, while not fully analyzing these projects with current information, do show that generation additions in Southwest Connecticut can help mitigate the north to south flows at issue in the Needs Assessment. Ice Energy installations at customer locations dispersed throughout Connecticut are similarly able to help mitigate those flow conditions and these installations have the potential to significantly reduce electric loads during peak hours in the summer.
7. **Preliminary economic assessments indicate that each of these projects has potential to provide economic benefits to Connecticut consumers.** The addition of new, efficient combined cycle capacity near Connecticut load centers will help lower locational marginal prices in Connecticut. Further benefits to Connecticut consumers are possible if contractual commitments are made.
8. **There is considerable cost uncertainty for all alternatives.** The Transmission Project costs are still an estimate and subject to the potential for some undergrounding requirements which could add significant costs. Neither of the combined cycle options has contractual/financial commitments in place at this point nor has either provided detailed cost estimates to the CEAB.
9. **Interaction with other Components of NEEWS is a key consideration.** The GSRP is one of three components of a larger project that will come before the CSC. Together, the NEEWS projects are designed to increase import capabilities into Connecticut, principally associated with the Interstate Reliability Project. It will be important to consider whether one or more of the RFP alternatives would have an impact on the need for the other NEEWS components.
10. If it is determined that the added generation and demand resources proposed here, in addition to the recent resource commitments made in Connecticut, can address the

need for GSRP or other components of the NEEWS program, then there are several important factors to consider:

- a. **The ability to import renewable resources is a key energy strategy for Connecticut in meeting environmental, energy security, and energy diversity goals.** Both transmission and generation options pose significant energy policy choices for Connecticut. Added security and reliability benefits of more local, efficient gas-fired generation, on the one hand, must be weighed against added import capability providing the potential for renewable and carbon-free supplies from the north that could also offer environmental , energy diversity and energy security benefits, on the other hand.
- b. **Environmental goals are a key consideration.** Connecticut is currently not meeting federal health –based air quality standards for ground level ozone (state-wide), and fine particulate matter (New Haven and Fairfield Counties). In evaluating energy alternatives it will be important to consider which approach – more local, efficient generation or added reliance on imports -- will be more effective in advancing the State’s efforts in attaining federal air quality standards. Alternatives that could curtail the operation of older, inefficient generation in Southwest Connecticut could help to mitigate those sources of particulates and ozone-forming emissions. Further analysis could help to determine if the Meriden and Towantic Projects, under suitable conditions, have the capacity to displace emissions of ozone forming pollutants.
- c. **Fuel diversity is a key consideration.**⁴ Connecticut and the New England region are heavily dependent on natural gas for their electric generation. It will be important to consider whether additional efficient natural gas generation in Connecticut exacerbates the overall dependence on this fuel supply for the state and the region, which has implications for energy supply security and the region’s electric pricing relationship to natural gas prices. If the Meriden and Towantic Projects are not built and are replaced by gas-fired generation in New England but outside Connecticut, regional dependency on gas remains unchanged.
- d. **Cost impacts on Connecticut consumers are a key consideration.** Connecticut’s high power costs make the overall impact on consumers a

⁴ In the 2008 Comprehensive Plan for the Procurement of Energy Resources, which was approved by the CEAB on August 1, 2008, the Distributed Utilities in their Findings and Recommendations identified dependence on gas as an important resource planning issue (Appendix B, pages 2-3). The CEAB notes that, while the analysis in developing a Comprehensive Procurement Plan will always identify the impact different resource plans have on fuel diversity, it has not been demonstrated how it will exactly factor into the resource option decisions. It is recommended that the decisions regarding the alternatives to GSRP at least take into consideration the impacts on fuel diversity of the various resource options.

high priority. It will be important to consider how new, efficient generation in Connecticut would affect wholesale market prices in Connecticut as compared with a strategy relying on more imports enabled by the NEEWS projects.

- e. **Stimulus to the Connecticut economy is a consideration.** During construction, as well as later operation for the supply and demand-side projects, each of the proposed projects will add jobs to the local economy. Their significant capital investments will add to the local tax base.

II. BACKGROUND AND OVERVIEW OF THIS REPORT

On October 20, 2008, the Connecticut Light and Power Company (“CL&P”) filed an application⁵ (“CL&P Application”) to the Connecticut Siting Council (“CSC”) for approval to construct two related projects: the Connecticut portion of the Greater Springfield Reliability Project (“GSRP”) and the Manchester to Meekville Junction Circuit Separation Project (“MMP”). Collectively, the GSRP and the MMP are referred to by CL&P as the Connecticut Valley Electric Transmission Reliability Projects.

The GSRP improvements are part of a larger plan for regional transmission improvements, known as the New England East-West Solution (“NEEWS”). NEEWS is four related projects intended to be a long-term electric transmission construction plan that addresses multiple related electrical reliability issues in Connecticut, Massachusetts, and Rhode Island.

When an energy project is filed with the CSC, the Connecticut Energy Advisory Board (“CEAB”) is required by statute⁶ to issue a Request for Proposals (“RFP”) to identify alternatives to it. This is designed to encourage competing energy solutions and to provide the opportunity to review multiple energy solutions simultaneously.

On November 4, 2008, the CEAB issued a RFP seeking energy resource alternatives to CL&P’s proposed GSRP and MMP projects. The RFP specified that applicants could propose any projects that (a) may, alone or in combination, be alternatives to the proposed projects, or (b) may defer CL&P’s claimed need for new transmission to a later date. In general, the RFP sought project proposals that could add to local supply sources or reduce load within the targeted geographic area.

⁵ CL&P’s Connecticut Siting Council Application in Docket 370 for the Connecticut Valley Electric Transmission Reliability Projects, which includes the Greater Springfield Reliability Project and the Manchester to Meekville Junction Circuit Separation Project is at this link: <http://www.ct.gov/csc/cwp/view.asp?a=962&Q=425498&PM=1>

⁶ Conn. Gen. Stat. Sec. 16a-7c. As modified by Section 54 of Public Act 07-242, the CEAB may exempt a project from this requirement by a two-thirds vote of its members. CL&P did not request and CEAB did not issue an exemption for the GSRP.

In response to its RFP, the CEAB received three (3) proposals. The CEAB's role is to evaluate these proposals against the CEAB's Preferential Criteria and prepare a report to the CSC for its consideration.

In the limited time it had to review the proposals, the CEAB sought to:

- Assess whether any of the proposed projects was a potentially viable market alternative.
- Evaluate all project proposals⁷ for conformance with the infrastructure criteria guidelines ("Preferential Criteria").⁸
- Identify essential issues or questions that the CSC may decide to explore during its consideration of the issues.

This report also provides further detail regarding the CEAB's RFP process, the evaluation criteria, and the framework for and results of the CEAB's analysis of the three proposals, as well as the GSPR and MMP projects.

⁷ Please note that this evaluation uses the terms "project," "project proposal," or similar words to refer to all types of energy demand and supply resources.

⁸ Conn. Gen. Stat. Sec. 6a-7b The Preferential Criteria are posted at the following address:
http://www.ctenergy.org/pdf/pc_12_01_04.pdf

III. SUMMARY OF THE TRANSMISSION PROJECT APPLICATION

The two separate, but related, projects proposed by CL&P in its October 20, 2008 Application to the CSC is:

Greater Springfield Reliability Project (“GSRP”)

The GSRP includes the construction of a new 345 kV line along approximately 35 miles of overhead line right-of-way (“ROW”), 23 miles in Massachusetts and 12 miles in Connecticut; the construction, reconstruction, and upgrade of 115 kV lines along approximately 27 miles of existing and new overhead line ROW in Massachusetts; and related substation improvements in both Massachusetts and Connecticut. In Connecticut, the required substation improvements associated with the new 345 kV line would consist of a 345 kV switchyard and a 345 kV to 115 kV, 600 MVA, autotransformer in the North Bloomfield Substation. The Connecticut portion of this project is the subject of the application to the CSC.

Manchester to Meekville Junction Circuit Separation Project (“MMP”)

The MMP includes the separation of a 345 kV circuit and a 115 kV circuit between Manchester Substation and Meekville Junction, Manchester, Connecticut over a distance of approximately 2.2 miles.

According to CL&P, the existing transmission system serving the Greater Springfield area does not meet current mandatory national and regional reliability criteria. The stated purpose of the GSRP is to provide safe, reliable, and economic transmission service throughout the Greater Springfield, Massachusetts geographic area and in north-central Connecticut, and to assure that these portions of the transmission grid will comply with

mandatory federal and regional reliability standards. The GSRP will directly address overloading events experienced under normal conditions as well as extensive overloading and voltage problems experienced during unscheduled outages of system elements.

CL&P indicates that the objective of the MMP, which involves the modification of approximately 2.2 miles of existing transmission lines in Manchester, Connecticut, is to accommodate the higher power flows associated with the GSRP on the transmission system in north-central Connecticut.

CL&P currently estimates the capital cost of the GSRP to be \$714 million and of the MMP to be \$14 million. The Company's cost estimate for the Connecticut portion of these projects is \$147 million. The cost estimates will increase slightly if the CSC accepts CL&P's alternate line designs for MMP and a small portion of GSRP; and could increase significantly if portions of the line are required to be constructed underground. One portion of the Connecticut segment may be subject to requirements to construct underground facilities. If that requirement is imposed, the costs of the project are estimated to be \$154M to \$322M higher, depending on the underground solution required. The GSRP's construction is proposed to be completed in Quarter 1 of 2013; and the MMP's construction completion is slated for Quarter 2 of 2011.

For a detailed description of the GSRP, the MMP, and NEEWS, please refer to the CL&P Application.

IV. CEAB RFP PROCESS

A. Overview

This section (IV) of the Report describes the Reactive RFP⁹ process used by the CEAB in response to CL&P's Application filed with the CSC on October 20, 2008. Since the inception of the Reactive RFP requirement in 2003, the CEAB has issued four RFPs. However, this is the first RFP that has produced responsive proposals.

Consistent with statute¹⁰, the RFP solicited proposals for any projects that might be alternative resources for some or all of the needs identified in the CL&P Application. These resources could include alternative transmission options, additional local supply sources, or reductions of summer peak load within the targeted geographic area of the CL&P or the WMECO service territories.¹¹ For the complete description of the types of proposals sought, see the RFP document.¹²

The balance of section IV -- subsections B through F -- provide a more detailed description of the RFP Process conducted for this project and responses. Subsection B outlines the key RFP requirements and dates, consistent with the statutory requirements for the timing of this process. Subsection C describes the steps the CEAB took to notify parties of the issuance of the RFP. Subsection D summarizes the Notice of Intent requirement. Subsection E summarizes the information provided to and obtained from the market participants that participated in the process. Subsection F contains CEAB's overall assessment of the RFP process and results.

⁹ "Reactive RFP" refers to the requirement for the CEAB to issue an RFP in response to a project application at the CSC. The CEAB is also authorized to conduct "Proactive RFP" in advance of any application with the CSC.

¹⁰ Conn. Gen. Stat. Sec. 16a-7c (b).

¹¹ However, the CEAB's RFP stated that if proposed alternatives addressing the local system requirements for which the CL&P projects are proposed also provide additional benefits to the system or the electric consumers in Connecticut, the CEAB would consider those additional benefits in its analysis.

¹² See Appendix B.

B. Schedule

By statute, CEAB must issue an RFP within 15 days of a filed Application, receive proposals within 60 days of the issuance of the RFP, and provide an evaluation report to the CSC within 45 days of receipt of proposals. The following summarizes the milestones for this RFP process which comports with the statutory requirements.

<i>DATE</i>	<i>ACTION</i>	<i>RESPONSE</i>
Monday, October 20, 2008:	CL&P filed application with CSC.	
Tuesday, November 4, 2008:	CEAB issued the RFP for alternative projects.	
Friday, November 21, 2008:	Bidders' Conference held.	Seven entities represented
Tuesday, December 2, 2008:	Due date for mandatory Notice of Intent ("NOI") to respond to RFP. Due date for comments.	Seven NOIs received Three sets of written comments received.
Tuesday, December 9, 2008:	Deadline for pre-bid questions submitted to the CEAB.	
Thursday, December 18, 2008:	CEAB posted the questions received from all prospective bidders, CEAB's responses, pursuant to the communications protocols set forth in the RFP, and transcripts from the Bidders' Conference.	
Friday, January 2, 2009:	Deadline for proposals submitted to the CEAB.	Three proposals received.
Tuesday, February 17, 2009:	The CEAB issues its final report to the CSC, with the CEAB's evaluation of all proposals received, as well as CL&P's proposed GSRP and MMP.	

C. Announcing the RFP

On November 5, 2008, the CEAB sent an e-mail to the 800+ names on its stakeholder list and posted a notice on its website regarding the RFP. The following day public notices were printed in two newspapers and the notice appeared on the Connecticut Public Notes website. The CEAB also sent a media release to its standard list of media outlets across the state.

D. Notices of Intent

The CEAB elected to include a mandatory Notice of Intent to Bid requirement in its RFP. Any entity intending to have a project considered in this process was required to submit a notice by December 2, 2008. The submission of a Notice of Intent to bid did not bind an entity to submit a proposal. In light of CEAB's past experience, in which its RFPs did not result in responsive proposals, the Notice of Intent requirement was included so as to avoid the possibility of a delay in the CSC's proceedings. That is, if no Notices were filed, the CEAB could have decided to terminate its RFP process as of December 2, 2008, the date the Notices of Intent were due.

However, seven entities submitted the required Notices of Intent by December 2, 2008, as follows:

1. BG Americas & Global LNG
2. Comverge
3. EnerNOC, Inc.
4. Ice Energy, Inc.
5. NRG Energy
6. PER Development (Pure Energy Resources/ArcLight Capital joint venture)
7. Towantic Energy LLC (GE Energy Financial Services)

E. Interaction with Potential Bidders during RFP Process

The RFP process offered opportunities for market participants to make comments and pose questions to the CEAB. Those activities are summarized in this section of the report.

1. Bidder's Conference

The CEAB conducted a bidders' conference on November 21, 2008 and provided a process to allow potential bidders to submit questions and receive answers posted to CEAB's website. The participants included four CEAB members or their designees, the CEAB's technical consultants, and the following market participants:

- NRG Energy
- BG Americas & Global LNG
- Source One
- Pinpoint Power
- Comverge
- C Power
- GE Energy Financial Services
- Northeast Utilities

The bidders' conference was transcribed. The transcript of the bidders' conference was posted on the CEAB website on December 18, 2008 for use by potential bidders and will remain available on the CEAB website for the CSC and other interested parties. The CEAB also received a number of written questions from prospective bidders. Responses to those questions were posted on the CEAB's website on December 18, 2008 and remain available on the website for the CSC and other interested parties.

2. Written Comments from Market Participants

In conjunction with the RFP, the CEAB invited market participants to provide written comments on the RFP Process by December 2, 2008. The CEAB received written comments from three entities. The comments and questions received are briefly summarized below.

The following is a list of many, but not all, of the issues raised by interested parties prior to the submission of bids. The summary of comments included here is intended to provide a sense of the types of issues that were communicated; it is not an exhaustive description. It should be noted that some of the issues raised by the parties could not be discussed with them because of confidentiality requirements.

- **Project Location:** Will projects outside of Connecticut be considered? Can projects located in southwest Connecticut contribute to solving reliability problems?
- **Costs:** By what methodology will costs be analyzed? Will the costs and benefits of NEEWS in its totality be assessed?
- **RFP Process:** Could CEAB change the timing and other features of the RFP process? The process is limited by not offering contracts. Can CEAB recommend that the DPUC initiate a contracting process?
- **Technical Matters:** What is the duration of projected benefits from the transmission project? By how much does the project increase Connecticut's import capability?

The full set of comments is posted on the CEAB website for the CSC and other interested parties.¹³

3. Response to the RFP

The following Companies submitted proposals on January 2, 2009:

- Ice Energy, Inc
- GE Energy Financial Services
- NRG Energy, Inc.

F. Observations about the Process

This RFP was the fifth issued by the CEAB in reaction to applications before the CSC. However, as we noted earlier, it is the first such RFP that has received a market response. The CEAB offers the following observations about the process:

¹³ See Appendix B.3. for a link to the comments.

- The marketplace was well informed about the process. The level of participation in the bidder's conference and the Notice of Intent response indicate that there was broad awareness in the market of this RFP.
- Market participants were largely unfamiliar with the details of the CEAB RFP process. The CEAB RFP process is quite different in purpose from RFP processes most familiar to market participants. Unlike RFPs conducted to award contracts for power, such as those conducted by the DPUC and ISO-NE, the CEAB process solicits alternatives to be considered by the CSC. Even though the CEAB has issued other RFPs (albeit for substation alternatives), there was limited familiarity with the details of the CEAB process.
- The response from new projects was limited. While a number of market participants participated in the bidder's conference and provided Notices of Intent to bid, the proposals received were from entities with ongoing projects under development.

The CEAB will, at a later date, conduct a further review of this process and the feedback received from interested parties.

V. PREFERENTIAL CRITERIA EVALUATION PROCESS

As part of a process for the development and siting of certain energy facilities established pursuant to section 18 of Public Act 03-140, the CEAB developed preferential standards or criteria that will support and balance energy reliability, environmental and natural resource protection, cost effectiveness and quality of life goals. The Preferential Criteria¹⁴ are to be used in a resource selection process in response to an identified energy-related need or problem.

The following is an overview of the Criteria that the CEAB deemed to be most relevant to the three projects proposed in this RFP. The CEAB has considered each of the three projects, along with CL&P's transmission proposal, with respect to these criteria in preparing this evaluation.

A. ENERGY

ENERGY is the first category in the Preferential Criteria. This criterion broadly addresses supply, reliability, diversity, use of existing infrastructure, and consistency with State and regional energy policies.

The first components of this Preferential Criteria, Meet Identified Energy Needs and Enhance System Reliability, are central to this evaluation. ISO-NE's Needs Assessment findings on reliability needs in Connecticut, Western Massachusetts, and Rhode Island initiated Northeast Utilities' ("NU") planning for the proposed transmission facilities. The suitability of the alternatives proposed, individually and in combination, to provide a solution to the reliability issues raised in the CL&P Application should be assessed.

¹⁴ The detailed Preferential Criteria document may be found in Appendix C.

In addition, while each of these projects was considered with respect to the ability to address identified reliability issues, they each also impact energy markets. Connecticut's Integrated Resource Planning process identifies additional areas of interest or concern that should also be considered in the full evaluation of these projects.

In the CEAB's evaluation, the focus was on the Need issue, primarily from the perspective of reliability. In addition, the evaluation considered Energy and Other Benefits, as each proposal was reviewed for the potential for added energy benefits to Connecticut, including the following:

1. Change in energy costs
2. Fuel diversity and energy mix
3. Access to rest of New England market
4. Implications for other NEEWS projects
5. Energy Security

B. ECONOMICS

ECONOMICS is the second category in the Preferential Criteria. This criterion broadly addresses competitive markets, benefits to Connecticut consumers, economic competitiveness and economic development, and state and local tax implications.

This evaluation considered both the cost of the project proposals and the benefits that could accrue to Connecticut's consumers and the economy of the State, issues of paramount importance at this time.

C. ENERGY EFFICIENCY & DEMAND RESPONSE

ENERGY EFFICIENCY & DEMAND RESPONSE is the third category in the Preferential Criteria. This category focuses on demand-side strategies that reduce need for supply infrastructure, enhance the utilization of existing supply infrastructure, and gain efficiency in the use of energy.

This RFP evaluation had limited focus on this criterion, as only one proposal addresses this criterion. Responses from providers of demand-side resources were limited relative to the scale of the need.

D. ENVIRONMENT

ENVIRONMENT is the fourth category in the Preferential Criteria. This criterion focuses on a broad range of environmental issues and a general assessment of the projects' ability to avoid, minimize or mitigate impacts (in that order).

The GSRP and MMP and each proposal was reviewed for an assessment of the relative environmental impacts consistent with the environmental criteria in the Preferential Criteria. The environmental assessment considered total project impacts and impacts in Connecticut air emissions and land use.

E. QUALITY OF LIFE/COMMUNITY

QUALITY OF LIFE is the fifth criteria category in the Preferential Criteria. This criterion focuses on local quality of life values and concerns not otherwise addressed.

This RFP evaluation has limited focus on this criterion. The local issues not otherwise addressed were limited.

VI. PROPOSAL EVALUATION PROCESS

In this section, the evaluation process is described. The sequence of the evaluation was:

1. Review of the Need
2. Review of Project Proposals against Threshold Requirements
3. Screening of Projects Against the Preferential Criteria
4. Portfolio Considerations
5. Identification of Key Issues.

Each of these steps is described further in this section.

A. Evaluation of Need

In order to assess the proposed projects' ability to satisfy or mitigate the defined need for which the transmission solution was proposed, the CEAB first examined the need to enhance reliability. The CEAB began this review in advance of its issuance of the RFP. Section VII of this Report provides a discussion of this assessment. The CEAB reviewed the Application and the associated studies including the ISO-NE Needs Assessment for NEEWS, the NEEWS Options Assessment, as well as the added power flow studies conducted by NU, and the Non-Transmission Alternatives study conducted for NU by ICF Resources LLC ("ICF"). NU provided responses to information requests issued by the CEAB. All of this information was reviewed in advance of the Bidder's Conference and all prospective bidders were informed of this information and the process by which they could access that information.

B. Proposal Completeness and Threshold Requirements

The CEAB reviewed each proposal received in response to the RFP to determine whether all information requested had been provided. All projects deemed to have complete proposals were then examined to assess whether they met certain threshold requirements, including:

1. Does the proposed project have the potential, individually or in some combination with other projects, to reduce in a timely manner the effective demands on the CL&P or WMECO transmission system?
2. Are the technologies proposed known to be feasible and reliable?
3. Do the sponsors appear to have the potential to implement the proposal?
4. Are there any obvious financial, technological or environmental issues that would eliminate the project from further consideration?

At this point in the process, the CEAB did not undertake any further assessment of the sponsor's various claims or technical and economic feasibility.

The cost for each proposal is reviewed for reasonableness. Alternatives passing the threshold criteria (or combinations of such alternatives) are compared to the proposed cost of the GSRP on a total cost basis and on a cost to Connecticut ratepayers basis, considering any net energy cost benefits.

C. Preferential Criteria

The CEAB performed a screening evaluation of each proposed projects based on the information provided. Where the information was incomplete, required verification or raised other questions or issues, the CEAB's Report so indicates. In each category, the three proposals were considered alongside the CL&P Application. A screening matrix against each of the Preferential Criteria categories and subcategories is included in Appendix C.

The CEAB is providing a mix of quantitative information and qualitative assessments in its report to the CSC regarding the conformance of each proposal with the Preferential Criteria.

D. Portfolio Considerations

As contemplated in the RFP, projects were solicited to address the needs in whole or in part, as it is possible that combinations of two or more projects could, together, provide an effective solution.

The CEAB considered whether the project proposals, taken individually or as a group, might sufficiently add local supply or reduce load in the targeted area to meet the need that necessitated the transmission solution. The CEAB wanted to consider a portfolio including not only combinations of the three proposals, but also other resources to which Connecticut or ISO-NE have made contractual commitments but which were not included in the needs assessment conducted for NEEWS and GSRP (See discussion in Section VII).

An assessment of the individual or collective ability of the proposed projects to address the needs was not feasible in this evaluation due to the fact that the Needs Assessment is now dated and did not include consideration of these proposal or many other projects now under development in Connecticut. As is described in Section VII E, a power flow case provided by NU at CEAB's request, provides an indication that a portfolio evaluation of this type would provide beneficial added information.

E. Identification of Key Issues

In the final step, the CEAB highlighted key issues, concerns or questions its analysis raised about the viability or impact of these projects in the context of the current situation in Connecticut and State energy and environmental policies. In this Report, the key issues are summarized in the Executive Summary.

VII. EVALUATION OF NEED

A. CL&P's Application

CL&P has proposed the GSRP and the MMP to “provide safe, reliable, and economic transmission service throughout the Greater Springfield, Massachusetts geographic area and in north-central Connecticut, and to assure that these portions of the transmission system grid will comply with mandatory federal and regional reliability standards.” The GSRP and MMP are separate, but related, projects. The MMP is proposed to accommodate higher power flows associated with the GSRP on the transmission system in north-central Connecticut. (Application at A-1)

As stated earlier, the RFP issued by the CEAB sought proposals from energy resource alternatives that could address part or all of the claimed needs identified in the CL&P filing. The CEAB has evaluated the needs identified by CL&P, the transmission solution offered by CL&P to meet those needs, and the energy resource solutions proposed to the CEAB in response to this RFP. The CEAB's evaluation will be reported to, and considered by, the CSC in its assessment of the merits of CL&P's proposed transmission and the proposed alternative projects.

CL&P's Application for the GSRP provides three sets of analyses supporting the need for the project. In addition, at CEAB's request, CL&P conducted an additional analysis and provided the results to CEAB for review. Much of the information contained in each of these assessments is considered to be Critical Energy Infrastructure Information (“CEII”) and is not available for review without prior agreement with CL&P and ISO-NE. Some CEAB members and some of its consultants executed agreements to review the CEII materials contained in these studies. This evaluation report does not contain CEII information.

This section of the report reviews the needs assessments offered by CL&P and assesses the potential for the proposed alternatives to satisfy or mitigate the need for the transmission solution.

B. Southern New England Transmission Reliability Report – Needs Analysis

ISO New England (ISO-NE) published a report entitled “Southern New England Transmission Reliability, Report 1, Needs Analysis” in January 2008 (Needs Analysis). This report describes the results of studies — conducted jointly by ISO-NE, National Grid, and NU — of the transmission systems in Western Massachusetts, Rhode Island and Connecticut. CL&P has included this report in its Application as Exhibit 1 in Volume 5: Planning.

The studies included in the ISO-NE Needs Analysis were completed in 2006. The input assumptions were based on ISO-NE’s 2005 Capacity, Energy, Load and Transmission (CELT) Report, which includes the 2005 forecast of peak loads and existing capacity in the market as of December 31, 2004. The Needs Analysis also assumed that 500 MW of new generation would be added in Connecticut and that there would be no power plant retirements. (Needs Analysis at 10.). Given the foregoing, and the further assumption that there would be no major transmission upgrades beyond those already planned, the transmission systems in Connecticut, Western Massachusetts and Rhode Island were tested at projected 2009 and 2016 peak loads (90/10). (Needs Analysis at 9)

From this assessment, ISO-NE, National Grid and NU concluded that:

- At 2009 peak loads for the Connecticut area, there is a need for improvements to the area’s import capability, generating resources, or a combination of both. (Needs Analysis at 14)
- The Springfield area faces a number of local reliability concerns. (Needs Analysis at 23)
- The Springfield 115 kV system is one of the paths for transporting power into Connecticut. Increased Connecticut imports aggravate the thermal loadings in Springfield. (Needs Analysis at 23)

The reliability of a high voltage transmission system is assessed by evaluating how well the system responds to outages of key facilities or contingencies when placed under stressed conditions. Stressed system conditions generally include high peak loads due to extreme weather and dispatch conditions that assume that certain generating units are off-line at the time of the peak. Contingencies are outages of key transmission system elements, such as line and transformers. Software simulations called load flows or power flows are run to determine how the system will respond when each of the specified contingencies is assumed to occur. Each element of the system is then monitored to determine if any thermal overloads or excessively high or low voltages would occur. Any overload or out-of-range voltage is referred to as a criteria violation. A large number of criteria violations indicate that the system does not pass industry mandated

reliability criteria, and solutions to eliminate or mitigate the identified reliability concerns are developed.

Analyses similar to those described above have been performed during the ISO-NE planning process by working groups including personnel from CL&P and ISO-NE. These analyses form the basis of, and are described in, the needs assessment report referenced above. CEAB has not performed an independent evaluation of the needs analysis, but instead has reviewed the assessments performed by CL&P and ISO-NE. Based upon that review, the CEAB concludes that the identified reliability concerns do demonstrate the need for mitigation measures.

C. Transmission Solutions – Options Analysis

In light of the foregoing conclusions -- which are documented in the ISO-NE Needs Analysis -- ISO-NE, NU and National Grid conducted studies to identify transmission solutions to address the perceived problems. These types of studies – called Transmission Solutions Studies – are also part of ISO-NE’s planning process, which places an obligation on transmission owners to develop a backstop transmission plan to address the need. (Application at F-15)

The Application includes two Transmission Solution Studies (Application, Volume 5: Planning), as follows:

1. The April 23, 2008 “Springfield Solution Report” describes the design process for the selection of the Greater Springfield Reliability Project components.
2. The June 2008 “New England East-West Solutions Report 2, Options Analysis” (Options Analysis) describes the transmission solutions for each of the components of NEEWS, including the solutions proposed by CL&P in its filing. This study looks at NEEWS as one project with four components: the Rhode Island Reliability Project, the Greater Springfield Reliability Project, the Interstate Project, and the Central Connecticut Reliability Project.

Both of the foregoing solutions studies rely on the ISO-NE Needs Analysis as the basis for the analysis of the alternative transmission solutions considered. Neither solution study updates or revisits the data and assumptions included in the Needs Analysis.

In September 2008, ISO-NE completed its review of CL&P’s proposed transmission plan and made a determination that the plan has no material adverse impact on the reliability

or operating characteristics of the system. With this determination, ISO-NE included the GSRP in its Regional System Plan as part of its overall coordinated transmission plan.¹⁵

D. Updated Power-Flow Studies of the GSRP

The CL&P Application seeks approval of the GSRP as a stand-alone project. In 2008, NU and ISO-NE conducted another power flow study that focused on the GSRP as a stand-alone project.¹⁶ This study included updated information. Unlike the ISO-NE Options Analysis, which considered NEEWS as one integrated project, the 2008 updated analysis focused only on the GSRP. The results were provided to the CEAB in September 2008. A second study performed for NU by ICF Consulting was provided to the CEAB in October 2008 (discussed below).¹⁷ The CEAB reviewed the results of both studies under protective agreements to protect the CEII contained in those studies. See Appendix B for a description of what was received and where that information can be obtained.

The GSRP is proposed in advance of the Interstate and the Central Connecticut components of NEEWS. The foregoing analysis by ISO-NE and NU was needed to assess the need for GSRP on a stand-alone basis and to demonstrate its performance on a stand-alone basis.¹⁸ The Options Analysis referenced above evaluated all elements of NEEWS together as a single project and, therefore, did not provide the GSRP-specific analysis needed for the application. CL&P indicates that GSRP, while designed to work together with the other components of NEEWS, is needed regardless of whether the other components of NEEWS are built (Application at F-15).

As noted earlier, the prior Needs Analysis and the Options Analysis power flow studies were prepared using 2005 data on loads and resources. The updated power flow studies of the GSRP include ISO-NE's 2008 load forecast and forecast of demand-side management. The study also updated the generation resources to include the Energy

¹⁵ The ISO-NE coordinated plan is updated as market responses to identified problems are developed. In January, ISO-NE announced plans to review the needs assessment for NEEWS and other planned transmission in New England due to the market response in the most recent Forward Capacity Market auction and a new ISO-NE load forecast.

¹⁶ Northeast Utilities. Solution Report for the Springfield Area: The Greater Springfield Reliability Project including the Springfield 115-kv Upgrades, As Submitted to ISO New England April 23, 2008.

¹⁷ ICF International, *Assessment of Non-Transmission Alternatives to the NEEWS Transmission Projects: Greater Springfield Reliability Project*. Prepared for Northeast Utilities Service Company, September 2008.

¹⁸ In this updated analysis, the Rhode Island Reliability Project (RIRP) was assumed to be in service for scenarios with and without the GSRP. The Interstate and Central Connecticut Reliability Project were not assumed in any of the scenarios studied by these updated load flow studies. National Grid filed an application for siting approval of the RIRP with Rhode Island Energy Facility Siting Board on September 8, 2008.

Independence Act projects, an 81 MW uprate at Millstone 3 and the 100 MW Pierce Station project. However, the Cost of Service Peaking units were not included.

Under these assumptions, the GSRP power flow studies demonstrate the dual problems in the Springfield area of overloads due to local conditions and overloads due to power flows across the Springfield area system into Connecticut. With respect to the implications for Connecticut, CL&P states that:

Although the GSRP bears the name of “Greater Springfield,” it necessarily addresses reliability issues in Connecticut. The flow of electricity does not respect state borders. Since key transmission lines in the system serving Greater Springfield terminate at substations in Connecticut, the resolution of the Springfield area problems necessarily involves improvements to portions of the electric grid in Connecticut as well. At the same time, the necessity of resolving these Springfield area problems offers an opportunity for reinforcing the reliability of the electric supply to north-central Connecticut and to provide needed improvement to the power-transfer capacity between Massachusetts and Connecticut. (Application at F-20, 21)

CL&P maintains that the studies also demonstrate that the proposed GSRP and MMP address and resolve the identified problems.

CEAB has not independently developed transmission solutions to address the reliability concerns identified by the needs assessment. The transmission options and preferred solutions developed and vetted during the ISO-NE planning process have been reviewed by the CEAB, which found the process and the proposed transmission solutions to be reasonable, assuming no market responses to the need.

E. Assessment of Non-Transmission Alternatives

In addition to the updated power flow studies conducted by NU, the applicant also retained ICF to prepare an analysis considering the potential for alternative resources, on the supply and demand side, to displace or defer the need for the Project. That study is included in the Application in Volume 5: Planning as Exhibit 3. The assumptions in the ICF study differed slightly from the updated power flow studies conducted by NU (see above), as the input data files were developed at slightly different times. Overall however, we found the two analyses to be relatively consistent with each other.

The ICF analysis included an additional set of power flow studies focused on the GSRP for the year 2013, testing some supply and demand resource scenarios to determine their

impact on criteria violations identified by the needs assessment of the transmission system.

The ICF Reference Case included the following assumptions:

- ISO-NE peak load forecast for 2013
- The “DSM Focus” case from the 2008 CL&P/United Illuminating (“UI”) Resource Plan
 - 315 MW in excess of reference case DSM
- Generation Retirements totaling 1,112 MW:
 - 460 MW of Connecticut Generation
 - 445 MW of Springfield Area Generation
 - 207 MW of Generation in the rest of New England
- All other existing generation, plus 1,184 MW of new Generation in Connecticut, including:

○ Project 150	150 MW
○ Energy Independence Act Contracts	912 MW
○ Millstone Uprate	81 MW
○ Other	41 MW
- Addition of 642 MW of proxy renewable sources in Western Massachusetts to comply with renewable portfolio standards requirements.

In addition to this reference case, ICF tested 6 other cases:

1. Reduce Connecticut Load by 1000 MW
2. Reduce Western Massachusetts load by 1000 MW
3. Activate 304 MW¹⁹ Springfield area generation (retired in Reference case) and add a 400 MW unit at the Berkshire site
4. Activate 304 MW Springfield area generation (retired in Reference case) and add two 200 MW units (Berkshire and Mt. Tom)
5. Activate 304 MW Springfield area generation (retired in Reference case) and add a 400 MW unit at the Berkshire site and a 200 MW unit at Mt. Tom.
6. Activate 304 MW Springfield area generation (retired in Reference case), reduce Connecticut load 500 MW, curtail loads in Springfield Area.
7. Reduce Connecticut load 500 MW, curtail 273 MW of load in Springfield Area.

The results of ICF's power flow studies of these cases indicate that none of the cases tested fully resolve the overload problems on the transmission facilities in the Springfield area. ICF concluded that:

1. Non-transmission sources alone are not sufficient to resolve the problems in this area, and
2. The GSRP, coupled with the expected non-transmission resources (the Reference Case), will sufficiently resolve the overloads and violations and provide reserve transmission capacity for emergencies and future growth.

F. Additional Case Requested by CEAB

The CEAB reviewed the ICF study. Several observations resulted from that review.

1. The ICF study did not include the peaking generation projects selected by the Department of Public Utility Control (DPUC) in its June 25, 2008 order in Docket

¹⁹ Summer rating is shown here.

No. 08-01-01. These projects now represent 506 MW²⁰ of committed capacity that, in the CEAB's opinion, should be included in a reference case analysis.

2. All of the ICF cases assume that 350 MW exports to New York are maintained on the Cross Sound Cable at all times under all contingencies studied. However, according to ISO-NE rules and operating practice, these exports from Connecticut to Long Island, which exacerbate criteria violations in Connecticut and Western Massachusetts, can be interrupted when the kinds of system events that constitute contingencies (as they were defined in the GSRP needs assessment) in fact occur.
3. Attachment I to ISO-NE ICAP Manual M-20 defines the principles under which such transfers can be curtailed.

“Curtailed Principles

1. When a sink Operating Jurisdiction has exercised its rights to the capacity and energy associated with an ICAP transaction, the transaction can only be curtailed for the following conditions on the source and external intervening systems:
 - a. *To correct or prevent a violation of voltage, stability, or thermal transmission limits / criteria in accordance with transmission tariffs for the level of transmission service associated with the ICAP contract.*
 - b. *For an ICAP contract that is resource specific, temporary unavailability of the resource on which the contract is based.*
 - c. *For a system contract (as allowed under Scheduling Principle IIIb), which is backed by all the resources in the source system, the capacity and energy may be curtailed by the source Operating Jurisdiction for capacity and energy shortage conditions on a pro-rata basis and concurrent with the shedding of source systems firm load.*

The CEAB has verified with ISO-NE that it has been customary operating practice to curtail flows on the Cross Sound Cable in the event of problems or criteria violations on the transmission system.²¹ The CEAB believes that the need for the GSRP should be assessed assuming that this export can be curtailed.

²⁰ The DPUC June 25, 2008 Decision in Docket No. 08-01-01 approved three projects totaling 678 MW. Subsequently, one of the three projects withdrew and a smaller project was added, reducing the total capacity to 506 MW.

²¹ E-mail Correspondence with Richard Kowalski, Director of Transmission Planning at ISO-NE, September 25, 2008.

2. ICF's Cases 3, 4, and 5 add new generation immediately south of the Springfield area, significantly mitigating the overload conditions in that area, but not the overloads on lines south of that point. No cases were tested which assumed added generation in Connecticut. However, ICF Case 1 did examine a reduction in Connecticut load of 1,000 MW.
3. None of the Cases analyzed are representative of the combined addition of the Cost of Service Peaking Generation and the Connecticut generation proposed in response to the CEAB RFP.

In ICF Case 1, with reduced Connecticut loads, reliability criteria violations in Connecticut seemed to be eliminated, but violations remained in Western Massachusetts. In ICF Case 5, with additional generation in Western Massachusetts, criteria violations in Western Massachusetts were mostly eliminated, with overloads remaining on a small number of low capacity 115 KV transmission lines in Western Massachusetts.

Based on this review, CEAB requested one additional power flow case with the following characteristics:

- a. Begin with ICF Case 5:
- b. This case assumes the activation of 304 MW of Springfield area generation (retired in Reference case) and the addition of a 400 MW unit at the Berkshire site and a 200 MW unit at Mt. Tom.
- c. Add 1,500 MW of Generation at Connecticut
- d. This would add the amounts of all proposals (at the proposed locations) received by the DPUC in the Cost of Service Peaking Generation case.
- e. Curtail the 350 MW export to Long Island on the Cross Sound Cable.

ICF informed the CEAB that the results of this case showed that virtually all of the overloads in Connecticut and Massachusetts were mitigated. The only criteria violations that appeared to remain were on the small number of low capacity 115 KV transmission lines in Western Massachusetts.

It should be noted that CEAB's request was limited to this one test case and, hence, does not represent a complete and thorough reliability assessment of this system configuration or of the proposals provided in response to the RFP. This one analysis appeared to mitigate most if not all of the reliability concerns identified in the GSRP needs assessment. Further analysis would be required to determine if lesser amounts of generation and/or load reduction could effectively address these reliability concerns or if

configurations that include any of the projects proposed to the CEAB would effectively address the reliability concerns. It is the CEAB's opinion that this test case indicates that further evaluation of Connecticut generation scenarios of this type would have significant merit.

G. Import Capacity into Connecticut

In addition to the reliability concerns addressed in the power flows studies, limitations on capacity imports into Connecticut are another consideration. CL&P's Application states:

“Power transfers into Connecticut are limited and will eventually result in the inability to serve load under many contingencies that the system must withstand in order to comply with national and regional reliability standards. The construction of additional 345-kV ties to Rhode Island and Massachusetts will greatly improve the system's ability to serve the load by providing additional paths on which power may flow in the event of a planned or unplanned loss of a system element, such as a transmission line or generating unit, and thus significantly increase power transfer limits into and out of Connecticut. In addition to improving security of supply, this increase in import capacity will also yield economic benefits to Connecticut consumers by providing access to lower cost remote sources of power to the north; and is likely to provide environmental and statutory compliance benefits by enabling access to remote renewable and/or low emission power-supply sources.” (Application at F-12)

CL&P also states that the GSRP will relieve congestion on the 115-kV transmission system, increase normal and emergency power transfer capabilities between Massachusetts and Connecticut, and increase Connecticut's import capabilities. (Application at F-28)

The transfer capacity into Connecticut is currently 2,500 MW under normal conditions and 1,700 MW under emergency conditions, reflecting the aggregate capability of all transmission connections across the Connecticut border to New England. Under typical conditions, the 345 kV line from Ludlow may supply as much as 30 percent of that total. (Application at F-23, Needs Analysis at 12) The transfer capacity is the amount of peak capacity that can be reliably imported to serve Connecticut's peak demand. The transfer capacity requirements identified in the Needs Analysis call for an increase to 3,600 MW under normal conditions and 2,400 MW under emergency conditions. (Needs Analysis at v)

The company has not provided an analysis of the amount of transfer capability that is expected to result from the addition of GRSP alone. In the Options Analysis, the assessment of increased transfer capability focused on the Interstate component of NEEWS. (Options Analysis at 24)

H. Summary of Evaluation of Need

Based on the information available from the power flow cases provided by NU and ICF, the CEAB makes the following observations with respect to the potential for the proposals submitted in response to its RFP to address the need identified by ISO-NE and NU:

1. The need to have additional supply in Connecticut or imported into Connecticut is a key component of the identified problems in the Springfield Area.
2. The power flows across the 115 kV system in the Springfield area into Connecticut are high when the combined effect of high power import requirements and unavailability of the 345 kV path which transfers power from Springfield (Ludlow) into Connecticut.
3. Added supply, reduced demand, or a combination of the two in Connecticut, particularly western Connecticut, does appear to reduce the potential exposure to overloads in the Springfield area transmission system.
4. Reliability assessments have not been conducted to determine the effect that the State's recent commitment to the Cost of Service Peaking Generation units would have on the identified reliability needs.
5. Power flow studies conducted to date presume maximum exports across the Cross Sound Cable during system emergencies, a condition that is not required in current practice. Further information is needed on the implications of relaxing that assumption so as to comport with ISO-NE rules.
6. Power flow studies have not been conducted to determine the effect that any of the three RFP proposals, or a combination of the three proposals, would have on the identified reliability needs over and above the existing commitments the State has made to the Cost of Service Peaking Generation.
7. The single test case power flow analysis conducted for CEAB, at its request, indicates that additional power flow studies, which consider the proposals and the Cost of Service Peaking generation units, would provide important information to

assess the effect that these market developments would have on the Needs Analysis and the Options Analysis.

8. There is no quantitative assessment of the GSRP's impact on the power transfer limits into Connecticut. Analysis of this impact is needed to compare that effect to the proposals submitted to the CEAB.

ISO-NE's regional system planning process includes provisions for incorporating or updating Needs Assessments for market resources that have cleared a Forward Capacity Auction or have been selected in a state-sponsored Request for Proposal. (Springfield Solution Study at 1-7 referring to Section 4.2(a), Attachment K, ISO-NE's OATT) It is apparent that both the Forward Capacity Auctions and the state-sponsored contract activity have produced a considerable market response during the development of the GSRP project application. As noted elsewhere, ISO-NE has recently announced that it will be conducting this updating process for NEEWS projects in the near future. Among the considerations will be the impact of the current recession on the load forecast.

The proposals received by the CEAB, while not meeting the ISO-NE contractual threshold at this point, might be in a position to do so in the near future. Any judgment about this would require additional information and analysis. Given the cost implications of each of the proposals and the critical need to reduce Connecticut's cost of electricity, additional power flow studies that specifically address the combinations of transmission solutions and supply and demand market alternatives would help assure that the most cost effective and reliable solutions are implemented.

VIII. NEW GENERATION PROJECTS

As noted in the prior Section, recent developments in the Connecticut power supplies have resulted in commitments by the state to new generation resources and other new capacity, totaling nearly 1,700 MW. This Section provides some added information on these projects. CEAB believes these supply sources to which the electric consumers in Connecticut have already made commitments should be included in the base line for any assessment of additional resource commitments. These recent supply commitments include:

Four projects totaling 790 MW which were selected by the DPUC for contracts in the Energy Independence Act Phase II procurement (CT DPUC Docket 07-04-24);

- Three Cost of Service Peaking Generation totaling 506 MW²² which were selected by the DPUC in June 2008 under Public Act 07-242 (CT DPUC 08-01-01);
- Renewable resources contracting with the DPUC through the Clean Energy Fund's Project 150 – eight projects have been selected so far; and
- Two distributed generation projects totaling 77 MW awarded grants by the DPUC.

In addition, three other projects totaling 220 MW came online in 2007 or 2008 in the state. As noted above, the Needs Analysis published by ISO-NE did not include any of this new capacity. However, 1,436.8 MW of this capacity has now cleared the ISO-NE Forward Capacity Market auction. The new or planned generation resources are detailed in Appendix D.

As discussed earlier, the Needs Analysis and Options Analysis power flow studies were based on the 2005 ISO-NE CELT report generation capacity plus an assumed 500 MW for the planned Kleen facility. This means that the ISO-NE's original Needs Analysis did

²² The DPUC June 25, 2008 Decision in Docket No. 08-01-01 approved three projects totaling 678 MW. Subsequently, one of the three projects withdrew and a smaller project was added, reducing the total capacity to 506 MW.

not include over 1000 MW of Connecticut generation to which the state has since committed or which has been brought online by other parties.

As part of its application to the Connecticut Siting Council, CL&P submitted two more recent analyses, a non transmission alternatives analysis by ICF and additional load flow studies conducted by NU and ISO-NE. This ICF study captures some of this planned generation projects, but does not include the 506 MW of cost of service peaking contracts selected by the DPUC in June 2008. The analysis by ISO-NE and NU appears to include the Energy Independence Act projects, the Millstone 3 uprate and the Pierce Station project. However, it is CEAB's understanding that these studies do not include the cost of service peaking units (506 MW), Project 150 (150 MW), or the expansion at Cos Cob (40 MW).

The CEAB notes that none of the ISO-NE or NU power flow studies assessing GSRP or NEEWS provided in the Application have included the proposed Towantic, Meriden or Ice Energy projects.

IX. THRESHOLD ANALYSIS

The first step of the CEAB evaluation was to determine if the responses to the RFP were complete and if there were any factors that would require that a proposal be disqualified. This section provides a summary of the initial findings. The GSRP/MMP Projects were not considered at this point because that proposal is before the CSC and is assumed by the CEAB to meet the threshold considerations.

A. Ice Energy Inc

Ice Energy, Inc. and its financing partner, Energy Capital Partners LLP, submitted a proposal for a project that would deliver 100 MW per year of source equivalent peak capacity and 100 GWh of annual scheduled energy delivery, with added potential to firm intermittent renewable resources, including wind and solar. This project, its proponents claim, is designed to be scalable to 1000 MW. The system, called Ice Bear, is eligible for recognition as a Class III Renewable Portfolio Resource in Connecticut

Ice-based thermal storage devices are cooling systems that utilize an ice storage thermal unit to make ice during off-peak hours, and use it as a cooling source during on-peak hours to reduce electric demand. The Ice Bear distributed energy storage resource is approved by DPUC in the Electric Efficiency Partners (“EEP”) Program for use in managing peak load and has been used in other states.

The resource is able to store and deliver energy at the point of use without an increase in site consumption. The Ice Bear technology delivers its stored energy during summer peak-demand periods. Each unit will use 300 watts of electrical energy regardless of the outdoor temperature, creating a low, even load shape; and it will be able to deliver its stored energy during summer peak-demand periods.

Each unit is connected to a central control unit via the Internet for centralized control and scheduling. Under normal conditions, the units would be scheduled to reduce demand and shift load between noon and 6 pm. In addition, one may implement load shifting modes

of demand for unplanned system events, hourly regulation, and load balancing. Each thermal storage unit, characterized by Ice Energy as a “permanent load shifting device,” has the capacity to reduce 7.2 KW of source equivalent peak demand on average for six hours daily, and shifting 36 KWH (6 KW times 6 hours) of on-peak electricity consumption to off-peak hours.

The proposed technology is considered to be a reliable and persistent distributed energy resource that can reshape the summer peak demand load profiles on transmission and distribution circuits; and it does not rely on changes in customer behavior in order to do so. It is a physical energy resource that consumes low-cost off-peak energy at the point of use and delivers cooling during the on-peak period. It can be utilized in both residential and commercial settings. The project’s success, however, is dependent upon the sponsor’s success in installing the required number of units, and being able to provide sufficient cooling to extend during the full number of peak load hours on hot summer days in the region.

Energy Capital Partners, LLP appears to have deep capital resources and a high quality, diversified investor base of over 120 limited partners. California State Teachers’ Retirement System is the largest limited partner. The company has previously funded large scale projects.

The only permits required are standard over-the-counter permits for HVAC replacements, although the CEAB notes that many will be required if the project is fully implemented. The CEAB has no reason, at this level of threshold review, to question the bidder’s confidence regarding its ability to receive necessary permits, though noted that it has some questions regarding market penetration. In response to questions from the CEAB, Ice Energy provided additional information that shows that the planned 13,900 unit installations is approximately 5.5% of the total number of applicable light commercial roof-top air conditioning units in the relevant service areas near Springfield, Massachusetts and the entire State of Connecticut. Thus the small market share indicates that the target could be attained over a two-year period.

The project proforma makes allowances for an annual maintenance plan that funds locally licensed service providers to maintain the Ice Bear units. The 20 year maintenance agreements include unlimited replacement parts and labor. Because of the reliability of the product, it is expected that typical maintenance, which is not the customer’s responsibility, would be limited to annual inspections and cleaning. Each unit would be connected to a webserver via sensors and a datalogger that reports individual unit health. Ice Energy’s proposed verification procedure was developed and is being implemented for projects administered by Honeywell for SCE and Trane, and Cypress Energy for PG&E.

Based upon a careful review of the proposal, the CEAB found no obvious signs at this juncture that the project could not be further developed because of technological, financial, or environmental reasons. The CEAB determined the Ice Energy proposal merits consideration.

B. Meriden Project NRG Energy Inc.

The Meriden Combined Cycle Project is, as the name suggests, a combined cycle generating plant rated at an annual average of 540 MW (511 MW, Summer) proposed by NRG Energy, Inc (“NRG”). According to NRG, the facility “has been permitted for the installation of chillers, which will increase the summer output of the facility further.” The proposed plant is comprised of two GE Frame 7FA gas turbines, heat recovery steam generators, and a steam turbine.

On April 27, 1999, the CSC granted Certificate of Environmental Compatibility and Public Need (Certificate) for construction, maintenance, and operation of a 544 MW electric generating facility located in Meriden (375 acres) and Berlin (446 acres). The proposed site is a 36 acre parcel north of Sam’s Road in Meriden. The facility footprint measures approximately 11 acres. The proposed site is zoned as a Planned Development District, which contemplates primarily residential development. The proposed site is within the Quinnipiac River Basin system and includes traprock ridges designed by the state as Conservation Areas. The proposed site has been previously developed, but the larger parcel includes undeveloped and pristine forest land.

The CSC Certificate conditioned commencement of construction on CSC approval of a Development and Management Plan (D & M Plan). The D&M Plan was not provided with the Proposal and has presumably not been approved by the CSC. NRG was contacted to obtain a copy of the D&M plan but it has not been provided as of this writing. The CSC Certificate also conditioned commencement of facility operations on CSC approval of an Operations Plan. Based on the information provided, no Operations Plan has been approved by the CSC.

On March 7, 2006, the CSC approved a NRG request to extend the CSC Certificate for an additional five years, conditioned upon compliance with a Stipulated Judgment issued by the Connecticut Superior Court and agreed to by Meriden on January 13, 2006. The CSC extension became effective on April 21, 2006 as the result of Meriden’s agreement to comply with the Stipulated Judgment. A copy of the Judgment was not provided with the Proposal.

The project location is “in the southwestern corner of an area of heavy load concentration in north-central Connecticut.” The site, according to NRG, has suitable access to natural gas and water supply, as well as to the electric transmission system. NRG maintains that, “based upon the original land purchase arrangements, [it] has the right to obtain additional rights-of-way for gas and water pipelines, as needed.” NRG is currently working with local authorities to acquire the necessary permits for routing and processing

water and wastewater. NRG also stated that the “completion of the Meriden Project will build upon substantial, existing infrastructure. Construction of the Meriden Project began in October 2001 and ceased in late 2004.”

The primary fuel for the plant will be natural gas, with Ultra Low Sulfur Distillate as a backup. The project will, according to NRG, meet the Lowest Achievable Emission Rate (“LAER”) for NO_x emissions and Best Available Controls Technology (“BACT”) for SO₂, CO and particulate emissions. A modeling assessment was submitted to DEP in October 2008 to recertify the BACT analysis but there is no information in the proposal as to the current status. NRG also represented that it is presently seeking to develop and permit an arrangement to utilize municipal waste water or “grey” water from the Mattabassett Water District for the project’s wet cooling towers.

While the project’s environmental impacts and the permitting status need further updating and possible analysis, the project has received some permitting and there is no reason, at this juncture, to think that other necessary approvals cannot be obtained. The DEP has indicated that the project has a current valid air permit and therefore did not need to conduct additional analysis other than recertifying the BACT analysis and has required no additional analysis regarding PM_{2.5} impacts. However, EPA has not provided any input on this matter in light of the designation of New Haven County as a nonattainment area for PM_{2.5}.

The Meriden Project uses technology that is well known and the gas turbines have extensive in-field experience in which they have proven to be efficient and reliable. The proposed location of the facility is appropriate to allow it to be considered as a possible alternative to the transmission project. The sponsor appears to have substantial experience with projects of this type and magnitude. Nonetheless, it is not possible to conclude, at this level of review, whether the project can be financed, particularly on a non-recourse basis, in this economic environment. NRG maintains that, in order to complete non-recourse financing, it will be necessary to have a long-term off-take agreement in place with a creditworthy party. To that end, it proposes a 15 (or more) year Contract for Differences (“CfD”).

Based upon a careful review of the proposal, the CEAB found no obvious signs at this juncture that the project could not be further developed because of technological, financial, or environmental reasons. The CEAB determined that the Meriden Project merits further consideration.

C. Towantic Energy Center - GE Energy Financial Services

The Towantic Energy Center is a combined cycle generating plant rated at an annual average of 500 MW (460 MW, summer) proposed by GE Energy Financial Services (“GE EFS”). The proposed plant is comprised of two GE 7FA gas turbines, two heat

recovery steam generators and a GE steam turbine. The project is to be located in the Town of Oxford's Woodruff Hill Industrial Park, which is within ISO-NE's "southwest Connecticut" zone. The site, according to the sponsor, has suitable access to natural gas and water supply, as well as to the electric transmission system.

On June 23, 1999, the CSC granted Certificate of Environmental Compatibility and Public Need to Towantic (then Calpine) for construction, maintenance, and operation of a 512 MW electric generating facility located in Oxford, CT, approximately 4,000 feet north of Prokop Road and Towantic Hill Road intersection.

On March 1, 2001, the CSC approved a Development and Management Plan for construction within 4 years from completion of all appeals of the CSC decision, or completion by May 29, 2005. The CSC extended the deadline for construction, first on March 4, 2004 and again on January 4, 2007 for an additional four years.

GE EFS claims to have control of the site (ownership in fee simple) and to have all "material" easements necessary for "construction" of the facility. In its proposal, GE EFS states that the plant is air-cooled and permitted to run as a baseload unit using natural gas. It is also permitted to use Ultra Low Sulfur Distillate for up to 720 hours/year. In addition, the facility will be required by the DEP to meet BACT standards for emissions limits as required by New Source Review permit numbers 144-0010 and 144-0011 (BACT Recertification, January 21, 2009, DEP). While the project's environmental impacts and the permitting status need further study and possible additional analysis, there is no reason to think that other necessary approvals cannot be obtained. DEP has indicated that the project has a current valid air permit and therefore did not need to conduct additional analysis regarding PM_{2.5} impacts. However, EPA has not provided any input on this matter in light of the designation of New Haven County as a nonattainment area for PM_{2.5}.

The Towantic project uses technology that is well known and the gas turbines have extensive in-field experience in which they have proven to be efficient and reliable. The proposed location of the facility is appropriate to allow it to be considered as a possible alternative to the transmission project. Further assessments of physical configuration will need to be approved by the Federal Aviation Administration in order to overcome a June 2008 "Hazard Determination," but there is no reason to think that this issue will not be satisfactorily resolved. The sponsor appears to have substantial experience with projects of this type and magnitude. Nonetheless, it is not possible to conclude, at this level of review, whether the project can be financed, particularly on a non-recourse basis, in this economic environment. The sponsor, however, believes that it can, as a subsidiary of GE, access equity capital and that a "reasonable level of financing is available for high quality projects with "contract-based revenues."

Based upon a careful review of the proposal, the CEAB found no obvious signs at this juncture that the project could not be further developed because of technological, financial, or environmental reasons. The CEAB determined that the Towantic Project merits further consideration.

D. Summary of Conclusions

Based upon a careful review of the three proposals, the CEAB found no obvious signs at this juncture that the projects could not be further developed because of technological, financial, or environmental reasons. While a number of factors were identified as needing further evaluation or inquiry, the CEAB determined all three proposals merit consideration.

X. PREFERENTIAL CRITERIA EVALUATION OF PROPOSALS

This section of the Report describes the CEAB’s assessment of how the four proposals rate with regard to the Preferential Criteria. In addition to the descriptions in this section, Appendix E contains a matrix scoring the projects based on the Preferential Criteria.

A. ENERGY Criteria Findings

1. Enhance System Reliability

The GSRP and each of the three proposals, if implemented, would enhance system reliability. However, as is described in Section VII, the CEAB does not have sufficient information to make a definitive assessment of how the three proposed projects, individually or in combination, might meet the need that gave rise to CL&P’s Transmission proposal.

The power flow studies provided (as described in Section VII) support the conclusion that the GSRP improves reliability in Connecticut and western Massachusetts and that the Meriden, Towantic, and Ice Energy proposals are in locations that would mitigate the exposure to north to south power flow requirements that contribute to the problems in the Greater Springfield area. In those studies, Connecticut is assumed to be importing significant amounts of power. These imports place demands on the transmission system, which is then evaluated against a host of contingencies. Any generating capacity added in Connecticut, (particularly western Connecticut), that was not assumed on-line in the Company’s needs assessment, could reduce the demands on the transmission system and might mitigate or even eliminate the reliability concerns identified.

The CEAB observes that any of the following factors could impact the reliability needs and issues:

- The Cost of Service Peaking generation (506 MW) was not included in the Company's most recent analysis
- More than 1,000 MW of generation, which is now contracted for development, was not included in the ISO-NE Needs Analysis.
- The RFP Bids represent the potential for an additional 1,100 MW.

Additional, updated studies, including cases testing the impacts if any or all of the three proposals are implemented would help determine whether any components of the GSRP problems could be solved by these RFP Bids, in conjunction with the other generation identified. However, until such studies are done, the CEAB is unable to determine whether any combination of the three proposals would alter the need, the timing, or the design configuration of the GSRP.

While CL&P has not yet filed its applications with the CSC for the Interstate Project or the Central Connecticut Project, two additional components of the NEEWS program, the Company has initiated the municipal consultation process for the Interstate Project. The ISO-NE Needs Analysis and Options Assessment studies evaluated all of the NEEWS projects as one integrated transmission solution. Thus, it is possible that the additional generation projects, not previously included in the Company analysis of the GSRP, and the RFP Bid project could have a mitigating impact on the Interstate and Central Connecticut Projects as well.

If these projects were to mitigate or eliminate portions of any of these three Connecticut transmission projects, there might be a greater justification for selecting the RFP Bid projects now. These additional generating facilities should be evaluated within the needs assessment of the entire NEEWS project, in order to arrive at the best outcome for Connecticut ratepayers. ISO-NE's planned review of its needs assessment in the coming weeks should provide at least some of this needed information. Refer to Section VII H for a complete summary of the CEAB findings with respect to the reliability-based need assessments.

2. Promote diversity of fuel supply

a. Enhance State's Ability to meet RPS

The fuel diversity and energy mix of a region is also an important consideration for reliability of a power system, the security of energy supplies, and the stability of energy prices. The region's power markets are highly dependent on fossil fuels, particularly natural gas, both in terms of the amount of fuels consumed and the dominant role that generating facilities using natural gas have in setting market prices for electricity. ISO-NE reported that natural gas was used to produce 42.2% of New England's electricity supply in 2007²³ and natural gas fired generation determined the market prices in 2006 73 percent of the time.²⁴

Ice Energy is the only proposal that qualifies as a renewable resource under the Renewable Portfolio Standards (RPS) and, if implemented, would enhance the State's ability to meet the RPS standards.

The 2008 Integrated Resource Planning process reviewed the potential renewable resources available to meet Connecticut's RPS requirements in the future. Based on this review, the CEAB concluded that there is limited potential for further renewable energy development within the state of Connecticut. Connecticut will have to rely on renewable resources in Northern New England, New York, or Canada to meet its RPS requirements. It should be noted that the Connecticut RPS requires delivery of renewable energy into New England but not specifically to Connecticut consumers. Compliance with the Connecticut RPS can be accomplished through the purchase of renewable energy credits ("RECs") from qualifying renewable delivered to New England. New transmission into Connecticut is not required for the purchase of RECs. Physical delivery of renewable energy into the state, though not required to meet RPS, may require added transmission capability.

b. Fuel Diversity Considerations

The GSRP would have some effects on generation dispatch. In particular, the project is expected to reduce or eliminate the requirements for must-run dispatch of fossil-fired generation for reliability purpose in the Springfield area. On its own, GSRP does not appear to increase materially the transfer capability into Connecticut; however, it is possible that other improvements in system dispatch could result from the implementation of the GSRP.

²³ 2008 Regional System Plan, ISO New England, October 16, 2008.

²⁴ 2006 Annual Markets Report, ISO New England, June 11, 2007.

Ice Energy's load shifting technology would have the effect of reducing load during high cost hours and increasing load during other hours. Due to the predominant role that natural gas and oil have in the market, this load shifting is most likely to have the effect of reducing usage from higher cost, less efficient generation using these fuels and increasing usage from lower cost, more efficient generation using these same fuels.

The Meriden and Towantic combined cycle generation proposals are natural gas units with oil back up capability. The addition of these units would add to the large fleet of generation that utilizes these same fuels. Thus, these proposals do not introduce a source of generation that is diversifying the fuel mix. However, through displacement of production from less efficient generating units, they may reduce overall consumption of the fuel.

The results of the market simulation test case were reviewed for the aggregate impacts of these proposals on natural gas usage in the Connecticut and the regional market. In 2013, the initial year of operation assumed for the proposal facilities, the test case results indicated:

- Net reduction in fuel burned by the other less efficient natural gas and oil Connecticut units of over 5.5 million mmBtu.
- Net reduction in fuel burned by less efficient natural gas and oil units in the New York and New England markets is of approximately 25 million mmBtu;
- Connecticut generating units where the oil and natural gas burn reductions occurred are approximately 30% less efficient than the proposed combined cycle units;
- Throughout the New York and New England markets, the generating units, where the oil and natural gas burn reductions occurred, were approximately 19% less efficient than the proposed combined cycle units;

Overall, this test case illustrated the potential for the proposals to displace production at other less efficient facilities throughout the region, including in Connecticut. Due to the limited period for review, a complete assessment of this effect was not possible. Thus this test case should be considered as an indicator of potential benefits and not a definitive conclusion by the CEAB. In addition, this does not take into account potential long-term benefits as the region considers carbon-free technologies such as nuclear and renewables.

3. Energy Security

Ice Energy offers a distributed resource that would provide some benefits from a security perspective. The generation proposals would provide more of Connecticut's needed capacity locally. However, the projects' dependence on natural gas would make Connecticut increasingly vulnerable to gas supply disruptions. The GSRP and the NEEWS projects increase Connecticut's reliance on transmission for imports of reliable capacity.

B. ENERGY EFFICIENCY Criteria Findings

Ice Energy is the only one of the four projects that meets any of the Energy Efficiency Preferential Criteria. Ice Energy is a demand-side energy storage program. Thus, Ice Energy reduces peak demand, but not necessarily energy. The project would reduce the amount of generating capacity required and would offer increased flexibility in the operation of the local distribution system and enhance the use of more efficient generation, rather than the less efficient peak period generation.

C. ECONOMICS Criteria Findings

This section describes the methodology used to perform an initial economic screening of the GSRP and the three proposals received and provides a summary of the results. The CEAB's role is to conduct the RFP process to solicit proposals for further consideration by the CSC and to conduct initial assessments. The statutory 45 day evaluation process affords the CEAB limited opportunity for due diligence on the proposals, for comprehensive economic modeling of the benefits, or for a deep assessment of other related benefits.

The cost information provided by the proponents is indicative rather than final. Nonetheless, the CEAB is able to assess whether the costs are within a reasonably expected range. The CEAB assumes that a substantial level of review would be undertaken for those proposals that make it through the initial assessment.

1. Economic Evaluation Methodology

The general approach in performing this economic analysis of the GSRP and the three proposals received is to estimate the net costs or benefits that Connecticut ratepayers

would realize for each alternative. The following is a list of cost components that are included in the analysis:

- Fixed costs associated with each alternative.
- A credit for any energy markets revenues produced by each alternative.
- A credit for any forward capacity markets revenues produced by each alternative.
- The impact, either positive or negative, of each alternative on LMPs in Connecticut.

In estimating the fixed costs associated with each alternative, cost of service treatment was assumed.²⁵ By projecting each of these quantities over the 2012 to 2030 planning horizon and calculating their NPV, these alternatives can be compared on a common basis.

2. Cost of the GSRP

CL&P's estimated cost of the GSRP is \$714 million (2013\$, Application at ES-31), excluding the Manchester – Meekville Project. The MMP was excluded from this analysis because of its relatively small capital costs (\$14 million) and lack of viable alternatives. The portion of the GSRP facilities built in Connecticut is \$133 million (2013\$, Application at H-49). The Company's filing includes underground alternatives for a portion of the Connecticut segment of the project. If underground construction is required in this segment, the options considered are estimated to increase the cost of the Connecticut segment by \$287 million to \$455 million (Application at H-49), depending on the configuration required. These underground options would raise the total estimated cost of the GSRP, ranging from \$868 million to \$1,036 million depending on the configuration required. Exhibit B provides the estimated annual fixed costs or revenue requirements for the GSRP from 2012 to 2030 for the GSRP as proposed. The NPV in 2012\$ of these cost of service based revenues requirements is \$1,379 million. Exhibit A provides a summary of the costing assumptions made for the GSRP and each alternative proposed.

The portion of the GSRP costs that Connecticut consumers will bear depends on the amount included in the regional transmission tariff. Transmission investments in New England that are classified as Pool Transmission Facilities ("PTF") are socialized across all New England states, and are recovered via FERC-approved cost of service formula

²⁵ The cost of service analysis conducted in this evaluation is analogous to the analysis utilized by the Department of Public Utility Control in its evaluation of the Cost of Service Peaking Generation in Docket No. 08-01-01. In that proceeding, the projects costs were evaluated on a cost of service basis and the project benefits included revenues that the projects would receive from ISO-NE markets and the impact that the projects would have in lowering market prices to Connecticut consumers. The CEAB evaluation is limited to the energy and capacity markets, whereas the DPUC's analysis specifically addressed impacts on the Locational Forward Reserve Market in addition to energy and capacity benefits.

rates. Since Connecticut's load is approximately 27% of the New England total, Connecticut ratepayers pay about 27% of all PTF transmission assets. Connecticut's share of the cost of the GSRP, assuming all costs are regionalized, would be 27% of the estimated \$1,379 million NPV cost, or \$372 million NPV. If any of the undergrounding options are developed, ISO-NE's Transmission Cost Allocation process would make a determination whether some portion of those added costs would be regionalized.

3. Cost of the Proposed Alternative Projects

GE EFS and NRG have proposed essentially the same type and size of generating unit, each a 500 MW class combined cycle generation facility. The installed cost of each of these units is assumed to be \$750 million (in 2012\$ or \$767.25 million in 2013\$) for the purposes of this screening analysis. For the GE and NRG projects, similar estimates were made of the cost of service based fixed costs. These are provided in Exhibits C and D respectively.

The Ice Energy bid was estimated at \$210 million for 13,889 units. Ice Energy indicated that it has received a Connecticut EEP grant for approximately \$80 million. Thus, the net capital cost used for this analysis was \$130million. This was modeled in the economic evaluation as a one-time, lump sum expenditure.

The economic analysis of these options assumes that all of the costs are borne by Connecticut consumers. If generation or energy efficiency were to be deployed in lieu of transmission, those projects would not be regionalized.

4. Project Revenue and Benefits Estimates

If the transmission solutions and the supply and demand-side proposals addressed only reliability concerns and had no other impacts on power systems, the comparative evaluation of these options could be done on a cost comparison basis. However, the GSRP and the three project proposals can have benefits beyond the resolution of reliability concerns. For example, CL&P has stated that the NEEWS projects will increase transfer capability into Connecticut and allow greater transfers of more economic power or renewable power from sources to the north; most of this benefit is associated with the completion of the Interstate Project (NEEWS Solutions Report at 22). Similarly, deploying energy efficiency, which saves energy and eliminates the need to generate power throughout the year, or new generation projects, which can displace higher cost power throughout the year, can produce savings all year round, not just at the time of the highest demand on the transmission system.

When comparing generation, energy efficiency, and transmission projects, the first consideration is the difference in the energy production or energy savings among alternatives. In addition to being available to provide power during times of peak system requirements, generating facilities, such as the combined cycle units proposed here,

produce energy throughout the year. As the facilities operate, revenue from the ISO-NE markets (energy, capacity, ancillary services) will be generated. The economic analysis conducted here estimates the revenues that the proposals might receive from the energy and capacity market to determine the net cost of the facility, by combining the fixed costs with an estimate of the revenues from the energy and capacity markets.

The estimated capacity revenues utilize a forecast of Forward Capacity Market (“FCM”) clearing prices developed by the Brattle Group for CL&P and UI as part of Connecticut 2008 Integrated Resource Planning (“IRP”) process. These prices were multiplied by the summer capacity value for each alternative to arrive at an estimate of annual FCM revenues.

The next step in the economic evaluation process was to estimate the energy market revenues associated with each alternative. ISO-NE energy markets were simulated for this analysis using a commercial software package, the AURORA model. This analysis utilized two cases:

- 4.1 A reference case that included the GSRP and no other new projects in Connecticut. The long-term supply case build necessary to maintain resource adequacy through 2030 was assumed to occur outside of Connecticut; and
- 4.2 An alternatives case where all three proposals were included without the GSRP. The long-terms build-out to maintain resources adequacy is assumed to be the same as the GSRP reference case.

The reference case assumed a generic renewable energy build-out in New England. The renewable build-out is based on a proprietary La Capra model that is designed to meet regional RPS targets from a generic pool of regional renewable supply potential. The result of this analysis is the amount of annual renewable resources needed by type and by geographic area. Only renewable resources located within ISO-NE and New York ISO are included in the build-out.

Because the analysis extended to the year 2030, it was also assumed that additional capacity and energy sources would be needed in New England. AURORAxmp, software, which performs optimized long term system expansion, installs generic supply-side resources to meet user specified planning reserve margin targets to determine the build-out. A 15% planning reserve margin was used in this study for the New England pool. Resources were allowed to be built in all New England zones, except for the three modeled Connecticut zones, while retirements were allowed for all ISO-NE zones. The pool and zonal reserve margins were met with different resource options (combined cycle, simple cycle combustion turbine, wind turbine generators) based on new entry economics.

All capacity committed under contract to Connecticut, including the COS peaking units, were assumed to be built in both cases. No non-renewable capacity was assumed to be built in Connecticut in the reference case scenario with the GSRP, in order to maximize

Connecticut imports. Connecticut was modeled as three separate zones; Norwalk, Southwest Connecticut, and Central Connecticut.

The reference case simulation yielded estimates of Locational Marginal Prices (“LMP”) for all zones in New England, including Connecticut, for the scenario where the GSRP was built. A second simulation with all three RFP proposals included, but without the GSRP, was also run. In this second simulation, the GE EFS and NRG projects were modeled as fully dispatchable combined cycle plants. The Ice Energy bid was modeled as an off-peak load and an on-peak load reduction to represent the process of making ice in the off-peak hours, when LMPs are lower, and using that ice to displace conventional air conditioning systems during on-peak load periods, when LMPs are higher. The Ice Energy project was modeled in the four summer months. This second simulation provided LMPs, generator MWH output, energy market revenues and generator fuel and variable O&M (“VOM”) costs. This second simulation allowed for an estimate of the net energy market revenues for each of the three RFP projects and ultimately the total net costs for these resources. Exhibit F provides the calculations of the total net costs for each bid.

As shown in Exhibit F, the fixed costs for the GE, NRG, and Ice Energy projects exceed the estimate of capacity and energy market revenues, based upon the assumptions used in this analysis. On a real levelized \$ per KW-month basis, the net cost of these three projects were approximately \$4.42 for GE, \$3.75 for NRG, and \$2.22 for Ice Energy.

In comparing the two simulations described above, the LMPs in Connecticut are lower with the three RFP projects than with the GSRP. Exhibit G provides a summary of the LMPs for each Connecticut zone. The reductions in LMPs for the scenario with the three RFP projects ranged from 2% in the early years to 6% in the later years. Exhibit G provides a summary of the LMPs between the two scenarios run. By multiplying the difference in LMPs by the Connecticut MWH load, the annual and NPV savings to Connecticut ratepayers due to the lower LMPs produced by the three projects can be estimated. Due to the locational nature of the energy pricing in New England, adding generation locally will lower local prices more than similar generation operating at a distance.

CL&P provided no estimates of any increase in Connecticut import capability or in loss reductions due to the GSRP. Thus, it was assumed that there are none in this analysis. To the extent that new information becomes available that estimates these impacts, they can be included in any future assessments.

All of the above information can be combined to create an overall economic evaluation of the alternatives, as shown in Exhibit H, and summarized in the following table.

Summary of Economic Evaluation

GSRP Costs to Connecticut Ratepayers²⁶

	Capacity (MW)	Cost Allocation	NPV (2012\$000)
Cost of GSRP ^[1]			
GSRP - Total Project	n/a	100%	\$1,378,629
GSRP/State Specific - CT	n/a	27%	\$372,230

[1] Cost of the all overhead proposal. If it is determined that portions of the CT line should be underground, the overall costs will increase and the portion of those costs borne by CT consumers may be higher.

Costs / (Benefits) to Connecticut Ratepayers of Three Non Transmission Proposals

CEAB GSRP Non Transmission Alternatives Evaluation:

	Capacity (MW)	NPV (2012\$000)
Cost of Alternatives: net of market revenues ^[1]		
1. GE-Towantic	460	\$260,590
2. NRG-Meriden	460	\$221,278
3. Ice Energy	124.2	\$35,360
		\$517,228
Less savings due to lower LMPs ^[1]		(\$1,711,700)
Net Impact of RFP Projects on Connecticut ^[1]		(\$1,194,472)

^[1] Note: A negative number indicates positive net benefits or savings to Connecticut ratepayers

²⁶ The CL&P Application cites benefits in addition to reliability, such as improved access to power supply. However, no quantification of such benefits was provided.

Assuming a cost of service construct, the three projects show a net benefit to Connecticut consumers in this one test case. The NPV in 2012\$ of the total net costs (project costs less project revenues received from energy and capacity markets) for all three projects is \$517 million. However, the bid projects are projected to result in lower market prices (LMPs) in Connecticut, compared to the scenario with the GSRP. The NPV in 2012\$ of the savings associated with lower LMPs due to the three RFP projects is \$1,711 million or a net benefit (subtracting the net cost of \$517 million) \$1,194 million. Thus, in this one case, the three RFP Bid projects are estimated to save Connecticut ratepayers over \$1,194 million in NPV savings in 2012\$ between 2012 and 2030. This result illustrates the ways in which benefits and costs to Connecticut consumers can be estimated and, with the assumptions used in this case, lead to net benefits.

The combined cycle projects from GE EFS and NRG contained various net energy revenue assertions that were tested using the dispatch modeling analysis. GE EFS claimed a savings of \$2.24/MWh in 2013 from the addition of the Towantic facility and a reduction in energy costs of \$40 Million to Connecticut consumers, while NRG claimed to be able to lower energy prices by reducing uplift in Connecticut. The alternatives dispatch case, which included all three RFP projects, showed a savings in energy prices attributable to the bidders' projects to be \$2.24/MWh in SWCT, \$2.17. The assertions by GE EFS and NRG seem reasonable and are confirmed by the modeling study. The Connecticut uplift would also likely be reduced, given the advanced technology combined cycle, which would be installed in the two Connecticut locations.

5. Cost Effectiveness of Ice Energy Proposal

Ice Energy, Inc. is proposing to install the Ice Bear units on an "early replacement" of equipment basis. Based on this implementation approach and given the total cost proposed by Ice Energy, this technology is not cost effective according to our initial calculations of the Total Resource Cost Test ("TRC").²⁷ With the "early replacement" approach proposed by Ice Bear, the relevant measure is the full cost of the technology, which is \$22,953. When this full cost is used in the calculation of the TRC the TRC benefit/cost ratio is estimated to be .82. A TRC benefit/cost ratio equal to or greater than 1.0 is needed to qualify the technology cost-effective as an energy efficiency program. Added benefits could be considered if it is part of a portfolio that defers transmission costs.

Ice Energy has indicated that it will be targeting buildings with 4 or more existing air conditioning systems that are greater than 7 years old, as each unit will displace a greater amount of kW and kW-hours on peak if older units are targeted for replacement. This would have to be factored into a more detailed evaluation. In addition, the TRC is just

²⁷ The Total Resource Cost Test is one of several tests used to evaluate the cost effectiveness of energy efficient and demand programs and measures. The Total Resource Cost Test measures the net costs of a demand-side program as a resource option based on the total costs of the program, including both the participants' and program administrators' costs.

one test and more work needs to be done on the cost effectiveness analysis for this technology before a more definitive determination of its cost effectiveness can be made.

6. Change in energy costs

The proposed projects will likely cause market energy price (LMP) reductions in the New England region and Connecticut as they displace older, less efficient gas and oil fired units in New England and adjacent regions. CEAB tested this effect with a simulation of the ISO-NE energy markets, as discussed in Section X.B.4. That test case indicated that the addition of 1100 MW from the three new projects lowered market energy prices in Connecticut by 2.5% in the early study years (2012-2015) and over 6% in the later years (2024-2030). The savings associated with these LMP reductions are detailed in section X.B.4.

Due to the limited period for review, a complete assessment of this effect was not possible, thus this test case should be considered an indicator of potential benefits and not a definitive conclusion by the CEAB. Further, it is possible that the GSRP may enable changes in market prices. However, the Application does not address or quantify such benefits.

7. Impact on the State Economy

For the projects that included economic impact analyses, economic impacts were limited to analysis of job creation and changes in tax payments. Generally speaking, job creation consists of short-term construction impacts and long-term impacts through operations and maintenance (“O&M”) staff. In addition, there may be job and economic impacts due to improved reliability and lower costs, but no project provided a discussion of or estimate for these types of impacts.

a. GSRP

The CEAB was unable to locate an economic impact analysis for the GSRP proposal. However, because a significant portion of the project spending will occur outside of Connecticut, a majority of the construction-related impacts, such as direct job creation, will likewise be found outside of Connecticut and thus will be lower than similar-sized in-region projects. Of the total \$714 million project cost, only \$147 million is to be expended in Connecticut, although, like in-region projects, a good portion of these funds will be exported outside of the state to pay for components located elsewhere.

Local property taxes will also be lower, since the valuation of the transmission plan will be lower than a generation plant located in the state. Finally, depending on how the companies allocate their transmission revenues from the

project, state income taxes may be relatively lower for the GSRP. It is important to note that there will be indirect economic benefits, in terms of jobs and productivity improvements, due to increased reliability and lower electricity prices for GSRP and other projects; but it is not possible to quantify these with the data provided.

b. Ice Energy

The Ice Energy Storage project included qualitative mention of “the creation of locally sourced jobs for HVAC technicians, landscape contractors, electricians, and the like,” but provided no estimate of job impacts. Tax impacts were neither mentioned nor quantified. There were a number of economic benefits to the project discussed, such as reduction in peak energy costs, but no specific analyses of economic impacts. The project sponsors do indicate that “The economic impact to the local economy in Connecticut could nearly off-set the entire cost of the asset,” but given the lack of explanation of what is included in terms of “economic impact,” it is difficult to analyze this statement.

c. Meriden

The Meriden project envisions the creation of 950 job years (475 jobs over a 2-year construction period) as a direct result of construction activity. There will also be indirect and inducted job impacts from this job creation, but NRG did not provide an estimate for these impacts. NRG also estimates that 25 jobs would be added on a more permanent basis over the life of the facility for operations, maintenance, and general and administrative duties. NRG estimates that the total all-in labor costs for these positions will average \$160,000 per person for a total of \$4 million per year in impacts. It then applies a multiplier of 2.5 to calculate an “overall local economic impact” of \$10 million.

Finally, in terms of tax impacts, NRG estimates that there will be \$85 million in tax payments to the City of Meriden over a 25-year time period but provided no information concerning tax payments received at the state or federal level.

d. Towantic

The Towantic project also provided an estimate of tax and job impacts. GE EFS estimates that \$2-4 million per year will be paid to the Town of Oxford, which is similar in size to the estimates provided for the Meriden project. Equipment purchases related to the Towantic project are also expected to generate \$20 million in sales tax to the state of Connecticut. Finally, there is mention, but no estimate, of additional taxes in the form of income taxes from revenues to the owners of the project.

Like the Meriden project, only direct job impacts of the initial construction investment and ongoing project operations are mentioned. For the Towantic project, GE EFS estimates that on average, 200-250 jobs will be generated during the construction period with 400-450 jobs generated during peak periods, but there was no estimate provided concerning the length of these “peak periods.” Assuming that the construction period is less than 4 years implies that less job creation is expected with the Towantic project than with the Meriden project. In terms of longer-term job impacts, GE EFS estimates that 18-25 (depending on the need for O&M) permanent jobs will be created, which is comparable to the permanent job impact of the Meriden project.

8. ECONOMIC Criteria Findings

With respect to the economic criteria, the CEAB makes the following findings:

The cost estimates available to CEAB for each of projects are preliminary, with uncertainties associated with the cost of each project:

- a. The GSRP estimate is still an estimate, with the potential for undergrounding to add significant cost to the project and, potentially, to Connecticut ratepayers;
- b. Each of the proposals has provided only indicative cost information and, further, the commercial arrangement for the projects is not established at this time.

8.2 Based on the indicative costs and assuming a cost of service model (such as recently used by the DPUC in 08-01-01), the project proposals received appear to have the potential to provide net benefits to Connecticut consumers, as the project market revenues and the reduction in market prices in Connecticut combine to more than offset the estimated project costs. The CEAB’s assessment of this is preliminary in nature.

8.3 The Ice Energy proposal appears to be marginally uneconomic when measured against a standard Total Resource Cost test measure. This preliminary analysis does not include benefits that might be realized if this were part of an alternative solution to the reliability needs.

- 8.4 Each of the proposals, if implemented, would have positive implications for the Connecticut economy in terms of construction jobs, tax revenues, and indirect economic impacts.
- 8.5 The CEAB found no economic basis to eliminate the three proposals from further consideration.

D. ENVIRONMENTAL Criteria Findings

1. GSRP

CL&P's Application for the GSRP and MMP will require authorizations from the CSC and the Massachusetts Energy Facilities Siting Board for both the preferred and the alternative routes.

Environmental impacts (with the exception of avoidance of Long Island Sound impacts), including avoidance, minimization, and mitigation actions, cannot be conclusively determined until a Development and Management Plan is prepared and approved. The Plan would detail the following issues:

- Watercourse and wetland crossings
- Configurations addressing undeveloped forest habitat
- Circumstances under which alternative overhead and underground routing requirements and construction impacts
- Easement agreements
- State highway diversions

Based on the information provided by the Project sponsor, GSRP and MMP have incorporated and are likely to satisfy the environmental hierarchy of avoidance, minimization, and mitigation as set forth in the Preferential Criteria. To the extent possible, at this stage of project development, both have proposed extensive use of existing electric Rights of Way.

In its Application CL&P indicates it has devoted significant analysis to electromagnetic fields ("EMF") impacts and alternatives, as prescribed by the Preferential Criteria (Quality of Life/Local Concerns). The Project could benefit from an update on the status of interstate coordination (CSC and Energy Facilities Siting Board) mechanisms, additional permitting and approval requirements, status of easement agreements, status of

coordinative efforts with the Connecticut DOT, and status of requirements concerning overhead and underground alternatives.

2. Ice Energy

The Ice Energy Project, which has been reviewed and approved for use by the DPUC under the Electric Efficiency Partners Program (Final Decision, June 4, 2008, Docket No. 07-06-59 DPUC Review of the Connecticut Electric Efficiency Partners Program, 1. Standard Grants for Eligible Technologies) is eligible for recognition as a Class III Renewable Portfolio Resource in Connecticut.

Based on the information provided, the Ice Energy Project, being a distributed energy storage resource, meets the Preferential Criteria and does not require additional permits or approvals, although confirmation of this status should be obtained.

3. Meriden

The CSC granted the Meriden Project a Certificate of Environmental Compatibility and Public Need in 1999 and, in April 2006, extended the Certificate for an additional five years, based on the Project's agreement to comply with a Stipulated Judgment issued by the Connecticut Superior Court which was not available for review. This document should be reviewed to understand the nature of any commitments and the compliance status.

The CSC Certificate to Meriden was also conditioned upon the CSC approval of a Development and Management Plan ("D&M Plans") addressing issues including water diversion, rights-of-way and easement agreements for water and natural gas pipelines from Meriden and Berlin, final site plans, project schedules, oil storage, unloading, and pumping facilities, construction blasting plan (if necessary), and final site plan for electrical interconnection. The D&M Plan was not provided in the Proposal and was requested of NRG on 1/12/09. NRG had obtained a New Source Review ("NSR") permit from the DEP in 2000. The permit was revised in 2001 and a BACT review and revision is currently pending. It has not been made available for review as of this writing.

Based on the information provided, the Meriden Project is likely to meet the Preferential Criteria, but an update on the status of the Development and Management Plan, as well as the status of any remaining, outstanding permits or approvals needs to be acquired prior to final conclusions concerning the Project's consistency with the Preferential Criteria.

4. Towantic

In 1999, the CSC granted a Certificate of Environmental Compatibility and Public Need to the Towantic Project. That Certificate was extended in 2007 for an additional five

years, conditioned on approval of the Project's BACT Recertification by Connecticut DEP, which was received on January 21, 2009.

Based on the information provided, the Towantic Project meets the CEAB Preferential Criteria. Consideration of the Towantic Project could benefit from an update on the status of any remaining, outstanding permits or approvals, including modifications incorporating the BACT Recertification and the status of the proceeding before the FAA, which GE EFS commenced in December 2008.

5. State Environmental Goals

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards ("NAAQS") for six identified criteria pollutants. Five of these pollutants (particulate matter, lead, nitrogen dioxide, ozone, and sulfur dioxide) are commonly associated with electric generating units ("EGUs"). The Clean Air Act established two types of national air quality standards: primary standards to protect public health and secondary standards to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings.

When an area does not meet an air quality standard, it is designated as a "nonattainment area." Each state that includes a nonattainment area must develop a plan for attaining the standards, called a State Implementation Plan ("SIP"). For the areas in New England that are classified as nonattainment, the states will implement (or in some cases have implemented) regulations to control and reduce emissions from many sources including electric generating units. The stringency of the standards depends on the emissions reductions needed to meet the NAAQS.

In 2008, EPA promulgated a more stringent ozone health standard. Prior to its 2008 review, EPA had reviewed and revised the NAAQS for ozone in 1997. With each EPA review, the ozone NAAQS continue to become more stringent. EPA also strengthened the secondary ozone standard to provide increased protection against adverse public welfare effects including impacts on vegetation and forested ecosystems. Connecticut had been designated as nonattainment for the 1997 standard and is in the designation process for the 2008 standard. States are required to provide designation recommendations to EPA by March 12, 2009 for the revised ozone NAAQS.

EPA promulgated NAAQS for fine particulate matter, on July 18, 1997. In December of 2006, the fine particulate standard was revised and the 24-hour average NAAQS was reduced. In January 2005, EPA designated both Fairfield and New Haven Counties as nonattainment for PM_{2.5}. In November of 2008, Connecticut submitted to EPA a State Implementation Plan to demonstrate compliance with the 1997 standard. DEP will be preparing a SIP to address the 2006 PM_{2.5} standard, which is expected to be due in 2011.

Connecticut has been working with other states regionally in the development of tighter emission standards for electric generating units. States from Virginia to Maine are

members of the Ozone Transport Commission (“OTC”). Through the OTC discussions have been occurring in a regional context to assure consistency among state efforts.

The August 2008 IRP Supplemental Report assessed the likely impacts of environmental regulations on generation plant retirements and operations in New England. The CEAB notes that, to the extent new resources displace the need to run older, dirtier plants, the transmission and non-transmission alternatives have the potential to help the state reach its environmental goals. The impact of the proposals before the CEAB is not known but should be studied and considered in any decision.

Further analysis is required to determine the expected operational impacts on the older generation units in Southwest Connecticut as a result of adding the Meriden or Towantic generation units or the GSRP.

E. QUALITY OF LIFE/COMMUNITY Criteria Findings

The Preferential Criteria include a section intended to address qualitative issues that are not addressed elsewhere.²⁸ The CEAB examined the four projects being evaluated in this report and conducted an initial screening for the issues that are considered in the Quality of Life/Community Interests category. The CEAB concluded that, while there may be local concerns that need to be addressed and considered as these projects are evaluated, no issues were apparent, on the review that was possible, that would disqualify any of the projects.

F. Preferential Criteria Findings

The CEAB’s evaluation of the proposed projects based on the Preferential Criteria raised some questions and outlined some choices to be balanced, but did not disqualify any of the projects. Although there is a need to weigh a range of considerations, the key underlying determinant will be a full, updated assessment of the reliability needs, as described in Section VII. Once the needs assessment is up-to-date, a full evaluation will determine which of the transmission, supply, and demand-side option will best meet the reliability need. In addition, an assessment will be important to determine the ability of these same proposals to address the needs identified for the Interstate and Central Connecticut Components.

²⁸ See Preferential Criteria in Appendix C for more description of the kinds of issues considered in the Quality of Life section.

XI. APPENDICES

A. Statute

B. Bibliography

1. CL&P Filing
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STATUTE: CHAPTER 295 ENERGY PLANNING

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Sec. 16a-3. Connecticut Energy Advisory Board.

Sec. 16a-3a. Comprehensive plan for energy resource procurement.

Sec. 16a-3b. Implementation of the procurement plan.

Sec. 16a-3c. Electric distribution companies' plans to build electric generation facilities.

Sec. 16a-7a. Annual comprehensive energy plan.

Sec. 16a-7b. Infrastructure criteria guidelines.

Sec. 16a-7c. Request for proposal: Solicitation, submission, evaluation, report, net energy analysis.

Sec. 16a-14. General powers and duties of the secretary re energy matters.

Sec. 16a-15. Display of signs on fuel pumps. Display of signs posting gas price for public and members of retail membership organization. Regulations. Penalty.

Sec. 16a-7b. Infrastructure criteria guidelines.

- (a) Not later than December 1, 2004, the Connecticut Energy Advisory Board shall develop infrastructure criteria guidelines for the evaluation process under subsection (f) of section 16a-7c, which guidelines shall be consistent with state environmental policy, state economic development policy, and the state's policy regarding the restructuring of the electric industry, as set forth in section 16-244, and shall include, but not be limited to, the following: (1) Environmental preference standards; (2) efficiency standards, including, but not limited to, efficiency standards for transmission, generation and demand-side management; (3) generation preference standards; (4) electric capacity, use trends and forecasted resource needs; (5) natural gas capacity, use trends and forecasted resource needs; and (6) national and regional reliability criteria applicable to the regional bulk power grid, as determined in consultation with the regional independent system operator, as defined in section 16-1. In developing environmental preference standards, the board shall consider the recommendations and findings of the task force established pursuant to section 25-157a and Executive Order Number 26 of Governor John G. Rowland.
- (b) No municipality other than a municipality operating a plant pursuant to chapter 101 or any special act and acting for purposes thereto may take an action to condemn, in whole or in part, or restrict the operation of

any existing and currently operating energy facility, if such facility is first determined by the Department of Public Utility Control, following a contested case proceeding, held in accordance with the provisions of chapter 54, to comprise a critical, unique and unmovable component of the state's energy infrastructure, unless the municipality first receives written approval from the department, the Office of Policy and Management, the Connecticut Energy Advisory Board and the Connecticut Siting Council that such taking would not have a detrimental impact on the state's or region's ability to provide a particular energy resource to its citizens.

(P.A. 03-140, S. 18; P.A. 04-191, S. 1; P.A. 07-242, S. 77, 110.)

History: P.A. 03-140 effective July 1, 2003; P.A. 04-191 added provision re consideration of recommendations and findings of task force in developing environmental preference standards, effective July 1, 2004; P.A. 07-242 designated existing provisions as Subsec. (a) and added Subsec. (b) re limitation on ability of municipality to condemn or restrict operation of existing and operating energy facility, effective June 4, 2007, and deleted reference to the comprehensive energy plan prepared pursuant to Sec. 16a-7a, effective July 1, 2007.

Sec. 16a-7c. Request for proposal: Solicitation, submission, evaluation, report, net energy analysis.

- (a) Not later than fifteen days after receiving information pursuant to subsection (e) of section 16-50l, the Connecticut Energy Advisory Board shall publish such information in one or more newspapers or periodicals, as selected by the board.
- (b) On or after December 1, 2004, not later than fifteen days after the filing of an application pursuant to subdivision (1) of subsection (a) of section 16-50i, except for an application for a facility described in subdivision (5) or (6) of subsection (a) of section 16-50i, the Connecticut Energy Advisory Board shall issue a request for proposal to seek alternative solutions to the need that will be addressed by the proposed facility in such application. Such request for proposal shall, where relevant, solicit proposals that include distributed generation or energy efficiency measures. The board shall publish such request for proposal in one or more newspapers or periodicals, as selected by the board. Any facility generating not more than five megawatts and any electric transmission line, electric generation facility or electric substation otherwise constituting a facility as described in subsection (a) of section 16-50i that, as part of the proceeding conducted pursuant to section 8 of public act 07-242* and in accordance with this subsection, shall be determined by the Connecticut Siting Council and the Department of Public Utility Control to be required for the

reliability of electric supply to critical national defense and homeland security infrastructure shall be exempt from the request for proposal process described in this subsection and exempt from the municipal participation fee requirements of subdivision (1) of subsection (a) of section 16-50l. Such determination shall be made on or before December 31, 2007. Notwithstanding the provisions of this subsection, the board, by a vote of two-thirds of the members present and voting, may determine that a request for proposal is unnecessary for a specific application because the process is not likely to result in a reasonable alternative to the proposed facility. On or before December 1, 2007, after seeking public comment, the board shall approve additional criteria for considering whether a request for proposal process should not be required for a specific application. Any determination that a request for proposal is not required shall include the board's reasons for such determination.

- (c) The board may issue a request for proposal for solutions to a need for new energy resources, new energy transmission facilities in the state, and new energy conservation initiatives in the state identified in regional energy system planning processes conducted by the regional independent system operator, as defined in section 16-1. Such request for proposal shall, where relevant, solicit proposals that include distributed generation or energy efficiency measures. The board shall publish such request for proposal in one or more newspapers or periodicals, as selected by the board.
- (d) Not later than sixty days after the first date of publication of a request for proposal, a person or any legal entity may submit a proposal by filing with the board information as such person or entity may consider relevant to such proposal. The board may request further information from the person or entity that it deems necessary to evaluate the proposal pursuant to subsection (f) of this section.
- (e) Upon the submission of a proposal pursuant to a request for proposal, the person or entity submitting the proposal shall consult with the municipality in which the facility may be located and with any other municipality that would be required to be served with a copy of an application for such proposal under subdivision (1) of subsection (b) of section 16-50l concerning the proposed and alternative sites of the facility. Such consultation with the municipality shall include, but not be limited to, good faith efforts to meet with the chief elected official of the municipality. At the time of the consultation, the person or entity submitting the proposal shall provide the chief elected official with any technical reports concerning the public need, the site selection process and the environmental effects of the proposed facility. The municipality may conduct public hearings and meetings as it deems necessary for it to advise the person or entity submitting the proposal of its recommendations concerning the proposed facility. Within sixty days of the initial consultation, the municipality shall issue its recommendations to the person or entity submitting the proposal. If a person or entity chooses to file an application pursuant to subdivision

(3) of subsection (a) of section 16-50*l*, then such person or entity shall provide to the Connecticut Siting Council a summary of the consultations with the municipality, including all recommendations issued by the municipality. A person or entity that has complied with this subsection shall be exempt from the provisions of subsection (e) of section 16-50*l*.

- (f) Not later than forty-five days after the deadline for submissions in response to a request for proposal, the board shall issue a report that evaluates each proposal received, including any proposal contained in an application to the council that initiated a request for proposal, based on the materials received pursuant to subsection (d) of this section, or information contained in the application, as required by section 16-50*l*, for conformance with the infrastructure criteria guidelines created pursuant to section 6a-7b. The board shall forward the results of such evaluation process to the Connecticut Siting Council.
- (g) When evaluating submissions pursuant to subsection (f) of this section for a generation facility described in subdivision (3) of subsection (a) of section 16-50*i* that are in excess of sixty-five megawatts, the board shall perform a net energy analysis for each proposal. Such analysis shall include calculations of all embodied energy requirements used in the materials for initial construction of the facility over its projected useful lifetime. The analysis shall be expressed in a dimensionless unit as an energy profit ratio of energy generated by the facility to the calculated net energy expended in plant construction, maintenance and total fuel cycle energy requirements over the projected useful lifetime of the facility. The boundary for both the net energy calculations of the fuel cycle and materials for the facility construction and maintenance shall both be at the point of primary material extraction and include the energy consumed through the entire supply chain to final, but not be limited to, such subsequent steps as transportation, refinement and energy for delivery to the end consumer. The results of said net energy analysis shall be included in the results forwarded to the Connecticut Siting Council pursuant to subsection (f) of this section. For purposes of this subsection, "facility net energy" means the heat energy delivered by the facility contained in a fuel minus the life cycle energy used to produce the facility. "Fuel net energy" means the heat energy contained in a fuel minus the energy used to extract the fuel from the environment, refine it to a socially useful state and deliver it to consumers, and "embodied energy" means the total energy used to build and maintain a process, expressed in calorie equivalents of one type of energy.

(P.A. 03-140, S. 19; P.A. 07-242, S. 54; June Sp. Sess. P.A. 07-4, S. 117.)

*Note: Section 8 of public act 07-242 is special in nature and therefore has not been codified but remains in full force and effect according to its terms.

History: P.A. 03-140 effective October 1, 2004; P.A. 07-242 amended Subsec. (b) to exempt certain facilities deemed required for reliability of electric supply

to critical national defense and homeland security infrastructure from request for proposal process and from municipal participation fee requirements of Sec. 16-501(a)(1), deleted reference to comprehensive energy report in Subsec. (c) and added Subsec. (g) re performing net energy analysis for facilities in excess of 65 megawatts, effective July 1, 2007; June Sp. Sess. P.A. 07-4 amended Subsec. (g) to specify applicability to "generation" facilities, effective July 1, 2007.

BIBLIOGRAPHY

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1. CL& P Filing

CL&P's application to the Connecticut Siting Council ("CSC") for approval to construct two related projects: the Connecticut portion of the Greater Springfield Reliability Project ("GSRP") and the Manchester to Meekville Junction Circuit Separation Project ("MMP").

Link: <http://www.ct.gov/csc/cwp/view.asp?a=962&Q=425498&PM=1>

2. RFP

Link: <http://www.ctenergy.org/pdf/GSRPRFP.pdf>

3. Comments on RFP

Comverge:

Link: <http://www.ctenergy.org/pdf/ComvergeComms.pdf>

CPower:

Link: <http://www.ctenergy.org/pdf/CPowerComms.pdf>

NRG:

Link: <http://www.ctenergy.org/pdf/NRGComms.pdf>

4. Transcript of Bidders' Conference

Link: <http://www.ctenergy.org/pdf/1121BidConf.pdf>

5. Q&A from RFP Process

Link: <http://www.ctenergy.org/pdf/QAs.pdf>

6. Proposals Received

Link: <http://www.ctenergy.org/NEEWSRFP.html>

7. Information Received from CL&P

Inventory of Material Received from CL&P

The following is a list of documents received by CEAB consultants from CL&P regarding the GSRP. Documents labeled as CONFIDENTIAL can be obtained from Mr. Robert Carberry {phone: (860) 665-6774; email carbere@nu.com} of CL&P, pending the execution of a confidentiality agreement. Documents labeled as public are posted on the CEAB web site at the following link:

<http://www.ctenergy.org/NEEWSRFP.html>

Material Received July 24, 2008, July 31, 2008, and August 13, 2008 in response to 16 questions submitted by the CEAB to CL&P

- Public
 - Responses to questions 1 through 10, and 16 received July 24, 2008
- Confidential
 - Responses to questions 13 and 14 received July 31, 2008
 - Responses to questions 11, 12, and 15 received August 13, 2008

Material Received September 2, 2008

- Public
 - None
- Confidential
 - Copy of Springfield Solutions Report

Material Received September 15, 2008

- Public
 - None
- Confidential
 - Load flow data files

Material Received October 10, 2008

- Public
 - Responses to questions 1 through 24
- Confidential
 - Load flow data files

Material Received October 28, 2008

- Public
 - None
- Confidential
 - Response to questions 1 through 4

PREFERENTIAL CRITERIA

Preferential Criteria for Evaluation of Energy Proposals

Effective December 1, 2004

Purpose:

As part of a new process for the development and siting of certain energy facilities established pursuant to Public Act 03-140, the Connecticut Energy Advisory Board (CEAB) must develop preferential criteria (Criteria) that will support and balance energy reliability, environmental and natural resource protection, cost effectiveness and quality of life goals.

CEAB Review Process:

The CEAB's process of issuing an RFP(s) and its subsequent review of proposals will be triggered by two different events. 1) The process will be activated reactively when a proposal is forwarded to the CEAB after an entity has filed an application with the CT Siting Council (CSC). The CEAB is then required to issue a RFP seeking an alternative solution(s). 2) The process will also be activated proactively if the CEAB determines that an energy-related need or problem exists in the state for which it would like to encourage a possible solution(s). The CEAB will then issue a RFP requesting that parties respond with a possible solution(s).

In both cases the range of solutions may include transmission, electric generation, demand-side changes and any other strategy or combination of strategies. Multiple responses to a RFP will be examined simultaneously and reviewed at a macro-level against the Criteria. Different strategies or combinations of strategies will be considered relative to each other. In both cases the CEAB is likely to perform a threshold screening to determine whether a proposal proponent is viable and financially stable and its proposal is reasonably likely to be financed and constructed before moving into the balance of the CEAB evaluation phase.

CEAB Report:

Following its review, the CEAB will submit to the CSC a written report containing the CEAB's commentary on the manner in which the proposal(s) achieves Connecticut's energy policy goals as reflected in the Criteria. The CEAB's commentary will include any information that the CEAB obtained

through the conduct of its required RFP process(s) and may identify issues where the CEAB does not have sufficient information to provide commentary. The CEAB report is an advisory document which will be incorporated into the CSC record to provide information to the CSC to consider in its review of energy projects as well as to inform other state agencies of cognizance. As is presently the case, any energy project that receives the CSC's approval will also be required to receive approval by the appropriate state regulatory agencies to ensure that all applicable statutory and regulatory requirements are satisfied.

Preferential Criteria:

Upon submittal to the CEAB, the proposal(s) must at a macro-level identify and purport at a minimum to meet statutory and regulatory standards applicable to such proposals. As is presently the case, through subsequent regulatory proceedings with the appropriate regulatory agencies, the proposal(s) will also be required to receive the applicable statutory and regulatory approvals. The CEAB review process is not a replacement for or otherwise in lieu of the applicable statutory and regulatory approval processes.

I. Energy

CEAB prefers proposal(s) that:

A. Meet identified energy needs.

The CEAB will evaluate the consistency of a proposal with forecasted resource needs as identified by the Regional System Operator, the Connecticut Siting Council, the State Energy Plan and other resources that it deems to be relevant and appropriate.

B. Enhance system reliability.

1. Promote reasonable levels of self-sufficiency that is sufficiently independent of or not wholly dependent upon exterior fuel sources to the extent feasible given regional considerations.
2. Engage in the deployment of proven technologies & engineering and design techniques to minimize risks of failure or unsatisfactory performance.
3. Maximize the level of protection of facilities from direct physical risk (includes whether the risk is accidental or intentional; and natural or man made).
4. Develop portions of state's electric system with high quality uninterrupted power (reliability attribute) through use of strategies such as distributed generation.

5. Ensure appropriate diversity of system types (transmission, generation and conservation and load management).

C. Promote diversity of fuel supply (oil, natural gas, nuclear, renewable etc.).

1. Enhance state's ability to meet statutory Renewable Portfolio Standards, Section 16-245a of the Connecticut General Statutes (CGS), (encourage use of "clean energy resources").
2. Electric generation facilities should, if technologically feasible, utilize dual fuel capability and have all required authorizations necessary to operate on short notice.

D. Capitalize on use of existing infrastructure (generation or transmission/distribution) including substitution of newer, more efficient technologies for older systems.

E. Provide a long-term system benefit (minimize use of short-term/ stop gap measures except for emergencies).

F. Ensure consistency with the State Energy Plan.

G. Address consistency with policies of relevant regional entities such as Regional System Operator, Regional State Committee and Regional Transmission Organization among others.

II. Economics

CEAB prefers proposals that:

- A. Encourage competitive energy market development (including investment in identified short-term needs of the market).**
- B. Provide cost effective benefits to state's energy consumers (short-term and long-term evaluation- including examination of life-cycle cost).**
- C. Seek to lower or at least minimize the increase in energy costs to the state's energy consumers thereby enhancing the state's economic competitiveness.**
- D. Develop portions of state's electric system with high quality uninterrupted power (economic development tool) through the use of strategies such as distributed generation.**
- E. Serve to enhance government revenues (local and/or state tax impacts).**

III. Energy Efficiency & Demand and Load Management Response

CEAB prefers proposals that:

- A. Implement demand-side strategies that reduce electric generation/gas delivery capacity requirements by implementing programs to encourage customers to reduce their energy consumption.**
- B. Implement the management of energy load patterns to better utilize system facilities by shifting load from peak use periods to other periods of the day or year.**
- C. Implement demand-side strategies that result in the more efficient use of energy resources to perform tasks.**

Note: C&LM efforts being proposed should present information that demonstrates the legitimacy and independence of energy savings that are being proposed.

IV. Environment

Upon submittal to the CEAB, the proposal(s) must at a macro-level identify and purport at a minimum to meet statutory and regulatory environmental standards applicable to such proposals. As is presently the case, through subsequent regulatory proceedings before the Department of Environmental Protection (DEP), the proposal(s) will be required to receive the applicable statutory and regulatory approvals. The CEAB review process is not a replacement for or otherwise in lieu of the applicable statutory and regulatory approval process.

The evaluation of the proposals utilizing the criteria listed below shall be conducted according to the concepts of **avoidance, minimization and mitigation in that respective order**. First, either an identified area or environmental impact should be avoided. Then, where a reasonable and sensible alternative that would avoid the environmental impacts does not exist, impacts should be minimized. Finally, any adverse environmental impacts that cannot be minimized should be mitigated. CEAB prefers proposals that:

Ensure that the natural resource/land-use management impacts allow for protecting and sustaining the health of people, communities and ecosystems. Includes specific guidance provided for both A) Long Island Sound and other Estuarine Waters and Submerged Lands of the State; and B) Upland and Freshwater.

A. Long Island Sound and other Estuarine Waters and Submerged Lands of the State

Avoid:

1. Impacting Long Island Sound¹ when a reasonable and sensible alternative exists.
2. If a reasonable and sensible alternative does not exist, locate, design, construct, operate and maintain facilities and infrastructure in a manner that protects living marine resources and coastal resources as defined in Section 22a-93(7) of the CGS and protects water quality and designated uses consistent with Section 22a-426 and Connecticut's Water Quality Standards.
3. More specifically, if Long Island Sound cannot be avoided then:

¹ Hereinafter the reference to Long Island Sound shall include Long Island Sound and other estuarine waters and submerged lands of the state.

- a. the following areas should be avoided:
- sensitive coastal resources and habitats (i.e., beaches and dunes, intertidal flats, tidal wetlands, bluffs and escarpments, submerged aquatic vegetation², and other sensitive habitat once classified or determined.³);
 - habitats of federal and state threatened or endangered species;
 - critical habitats and natural area preserves;
 - designated recreational, commercial, and natural shellfish beds;
 - significant geological or archaeological sites;
 - significant long-term research areas; and
 - waterfront parcels unless the proposal is a water-dependent use (CGS Section 22a-93(16)).
 - adverse impacts that have the following effect should be avoided: significant degradation of water quality; wind patterns as needed to sustain existing recreational uses; sediment quality; wildlife, finfish or shellfish habitat; existing circulation patterns of coastal waters; natural patterns of erosion and sedimentation; and drainage patterns;
 - increasing the hazard of coastal flooding;
 - siting a non-water dependent use on a site suited for a water-dependent use (CGS Section 22a-93(16));
 - siting a non-water dependent use on the waterfront that would reduce or inhibit access to the shore or coastal waters; and
 - reducing navigational opportunities, recreation activities and commercial fishing activities.

Minimize:

1. Adverse environmental impacts attributable to size, length, number, installation method and timing of construction of energy infrastructure.
2. Adverse environmental impacts to near shore environments by using less impacting techniques or technology such as horizontal drilling.
3. Installation in areas where geologic or other subsurface constraints would result in adverse environmental impacts associated with either larger energy infrastructure or more intrusive installation techniques.
4. Adverse environmental impacts of proposals by giving careful consideration to utilization of/upgrades to existing energy infrastructure as an alternative to totally new construction.
5. To the extent consistent with surroundings, minimize impacts on shoreline through reuse of already developed areas, such as brownfields, existing generating or substation sites and existing rights-of-way, particularly where doing so enables the reuse, conversion and upgrading of existing facilities.

² Submerged aquatic vegetation means rooted vascular plants such as eelgrass (*Zostera marina* in LIS), kelp beds and approximately 25 species such as pondweeds and tapegrass of brackish and tidal freshwaters.

³ As highlighted at the Long Island Sound Bottomlands Symposium, it is possible to develop a classification of LIS habitats, their distribution and abundance. Funding is required for such efforts that could identify an expanded list of sensitive/important submerged habitat types.

6. Support of development inconsistent with the State Plan of Conservation and Development and the Coastal Management Act
7. Establishment and spread of plant species identified by the Connecticut Invasive Plant Council as non-native invasive plants.

Mitigate:

Any adverse environmental impact that cannot be minimized should be mitigated. Impact should be mitigated to the extent practicable to replace lost resource functions and values impacted.

B. Upland and Freshwater

Avoid:

1. Locating, designing, constructing, operating and maintaining facilities and infrastructure in a manner that adversely impacts natural resources (fish, wildlife, wetlands, surface waters, groundwater, soil, agricultural lands, forests and other wildlife habitats and endangered-threatened-special concern species), notable archeological and historic sites and areas recognized as significant natural communities by the Connecticut Geologic and Natural History Survey, Natural Diversity Database when a reasonable and sensible alternative exists.
2. Fragmenting of existing blocks of habitat and other undeveloped lands.
3. Direct impacts to wetlands and watercourses.
4. Impacts to the quality and quantity of surface and ground waters, public water supply sources and aquifer protection areas; protect the designated uses of these waters as required under Connecticut Water Quality Standards. More specifically, reduce demand or consumption of potable water supply and encourage the use of technologies that maximize opportunity to recycle water to minimize demands on water resources.
5. Diversions or withdrawals from surface waters or ground waters from over-allocated basins or that are identified in Connecticut's List of Impaired Waters.
6. Activities that individually or cumulatively will cause unacceptable alteration to stream flows or impede movement of aquatic life.
7. Degradation of the riparian buffer zone along each side of perennial and intermittent watercourses in accordance with the DEP Riparian Corridor Protection Policy.
8. Impacts affecting floodplains, flood flows, flood storage or flood velocities.

9. Except for facilities following existing utility or road corridors, avoid adversely impacting any area designated as a Natural Area Preserve or the Appalachian National Scenic Trail.
10. Hydroelectric generation facilities that do not operate in run-of-river mode (instantaneous, real-time). Avoid block loading modes of reservoir operation except in instances where DEP determines that the block loading is appropriate.

Minimize:

1. Impacts to the resources identified in subsection 1. above.
2. Soil erosion and control sedimentation.
3. Impacts to the visual, biological, geological and recreational qualities of ridgelines and summits.
4. Adverse environmental impacts of proposals by carefully considering the utilization of/upgrades to existing infrastructure as an alternative to new construction.
5. To the extent consistent with surroundings, minimize sprawl as well as impacts on areas through reuse of already developed areas, such as brownfields, existing generating or substation sites, already impacted shorefronts or riparian areas, and existing rights-of-way, particularly where doing so enables the reuse, conversion or upgrading of existing facilities.
6. Creation of field conditions conducive to the establishment and spread of plant species identified by the Connecticut Invasive Plant Council as non-native invasive plants.
7. Adverse impacts upon and actively manage lands, wetland and aquatic habitats within rights-of-ways to maximize their value to fish and wildlife, to prevent the establishment and spread of non-native and invasive plant species, and to reduce or eliminate established populations of non-native and invasive plant species.
8. Disruption of the operation of the State's transportation system, (i.e. highway, lane closures, transit, rail, etc.). If disruption is necessary, provide mitigation plan to address transportation impacts. Any disruption shall be minimized by coordinating planning and construction in existing rights-of-way in a joint-use fashion where practicable in accordance with the policies of the Department of Transportation as well as the policies of other agencies of cognizance.

Mitigate:

Proposal(s) should mitigate any adverse environmental impact that cannot be minimized. Impact should be mitigated to the extent practicable to replace lost resource functions and values impacts.

V. Quality of Life/Community Interests

The listing below outlines local quality of life values and concerns that are not otherwise the primary focus of state statutes and regulations. As part of its review process, the CEAB will give preference to proposals that avoid or minimize (in that respective order) adverse impacts on the following types of community interests:

- Local public health concerns (e.g. exposure to electro-magnetic fields)
- Property values
- Operation of electronic devices
- Economically disadvantaged populations
- Traffic and transportation systems
- Local land use standards
- Aesthetic and visual concerns
- Sensitive public facilities (schools, hospitals, nursing homes, daycare centers, playgrounds)
- Levels of ambient noise or light trespass

<i>Project Name</i>	<i>Capacity (MW)</i>	<i>Forward Capacity Auction Status</i>	<i>Facility Description</i>	<i>Location</i>	<i>Expected Online Date</i>	<i>Notes</i>
ENERGY INDEPENDENCE ACT CAPACITY CONTRACTS (CT DPUC DOCKET 07-04-24)						
Kleen Energy Project	620	Cleared FCA2	Combined cycle, natural gas	Middletown	2011	
Waterside Power	69	Cleared FCA1	Peaking unit	Stamford	2004	Already online.
Waterbury Generation	96	Cleared FCA1	Peaking unit	Waterbury	2010	
Ameresco	5	Cleared FCA2	Energy Efficiency Program	Statewide	2010-2011	
COST OF SERVICE PEAKERS SELECTED BY DPUC (CT DPUC DOCKET 08-01-01)						
GenConn - Middletown	188	Cleared FCA2 (Middletown 12-15)	NG Peaking Unit	Middletown	2011	GenConn is a joint venture between UI and NRG.
GenConn- Devon	188	Cleared FCA2 (Devon 15-18)	Peaking unit	Milford	2010	
PSEG Power	130		Natural gas peaking unit	New Haven	2012	
DISTRIBUTED GENERATION GRANT RECIPIENTS						
Kimberly Clark	17	Cleared FCA2 (as 14 MW)	Natural gas generation facility	New Milford	2008	Total facility size is 34 MW, 17 MW to be used on-site.
Ansonia	60	Cleared FCA1	Natural Gas CHP	Ansonia	2010	

<i>Project Name</i>	<i>Capacity (MW)</i>	<i>Forward Capacity Auction Status</i>	<i>Facility Description</i>	<i>Location</i>	<i>Expected Online Date</i>	<i>Notes</i>
PROJECT 150						
Watertown Renewable Power	30	Qualified for FCA2, but did not clear or withdrew	Biomass	Watertown	2011	Contract is for 15 MW
DFC-ERG Milford Project	9	Cleared FCA1 (@7.8 MW)	Fuel Cell	Milford	2008	
South Norwalk Renewable Generation	32.5	Qualified for FCA1 and FCA2 but did not clear or withdrew	Pipeline Landfill Gas	South Norwalk	2010	Contract is for 30 MW
Plainfield Renewable Energy	37.5		Biomass	Plainfield	2010	Contract is for 30 MW
Clearview Renewable Energy	30		Wood Biomass/Chicken Litter	Bozrah	2011	Project applied to DPUC to cancel contract. DPUC denied the request.
Stamford Hospital Fuel Cell	4.8		Fuel Cell	Stamford	2009	
Clearview East Canaan Energy	3		Anaerobic Digester	East Canaan	2010	
Waterbury Hospital Fuel Cell	2.4		Fuel Cell	Waterbury	2009	
OTHER GENERATION PROJECTS						
Cos Cob	40	Cleared FCA1 (Cos Cob 13&14 @34 MW)	Oil fired CT	Greenwich	2008	Expansion of existing facility
Pierce Station	100	Cleared FCA2 (@ 75 MW)		Wallingford	2007	Developed by CMEEC
Millstone 3 Uprate	80	Cleared FCA1	Nuclear	Waterford	2008	

PREFERENTIAL CRITERIA¹	GSRP & MMP	GE ENERGY - TOWANTIC	NRG ENERGY - MERIDEN	ICE ENERGY	COMMENTS
I. ENERGY					
A. MEETS ENERGY NEEDS	See comment	See comment	See comment	See comment	GSRP & MMP were offered primarily as reliability projects. The 3 projects proposed in the RFP would each enhance reliability. However, since the required reliability studies have not been conducted, it is not known if, individually or in combination, they solve the overall problem.
B. ENHANCES SYSTEM RELIABILITY²	Yes	Yes	Yes	Yes	
C. 1. HELPS MEET RPS REQUIREMENTS 2. DUAL FUEL CAPABILITY	No ³ N/A	No Yes	No Yes	Yes N/A	
D. CAPITALIZES ON EXISTING INFRASTRUCTURE	Yes	Yes	Yes	Yes	
E. LONG-TERM SYSTEM BENEFITS	Yes	Yes	Yes	Yes	
F. CONSISTENT WITH STATE ENERGY PLAN	N/A	N/A	N/A	N/A	When the Preferential Criteria were established, Connecticut had a State Energy Plan. Consistent with Public Act 07-242, the Energy Plan was discontinued. None of these projects was considered in the 2008 Integrated Resource Plan, which replaced the State Energy Plan.
G. CONSISTENT WITH REGIONAL POLICIES⁴	Yes	Partial ⁵	Partial	Yes	

¹ The descriptions of the criteria are abbreviated. See the Preferential Criteria document for the detailed description.

² Each project would improve the reliability of the state's infrastructure. Other energy related benefits, such as impact on cost, energy security, access to renewables, fuel diversity, vary from project to project.

³ It is the CEAB's understanding that GSRP as a stand-alone project does not expand Connecticut's transfer capability.

⁴ Such as Regional System Operator, Regional State Committee and Regional Transmission Organization.

⁵ Transmission, generation and demand/energy efficiency resources are all consistent with state and regional policies. The CEAB notes that the ISO has approved Towantic and it is in the RSO

PREFERENTIAL CRITERIA	GSRP & MMP	GE ENERGY - TOWANTIC	NRG ENERGY - MERIDEN	ICE ENERGY	COMMENTS
II. ECONOMICS					
A. ENCOURAGES COMPETITIVE ENERGY MARKET	Yes	Yes	Yes	Yes	
B. COST EFFECTIVE	TBD	TBD	TBD	TBD	Complete cost benefit analyses have not been conducted.
C. LOWER OR LESSEN INCREASE IN ENERGY COSTS	TBD	TBD	TBD	TBD	
D. ECONOMIC DEVELOPMENT – POWER QUALITY ZONES	No	No	No	No	
E. ENHANCES GOVERNMENT REVENUES	Yes	Yes	Yes	Yes	

PREFERENTIAL CRITERIA	GSRP & MMP	GE ENERGY - TOWANTIC	NRG ENERGY - MERIDEN	ICE ENERGY	COMMENTS
III. ENERGY EFFICIENCY AND DEMAND RESPONSE					
A. REDUCES CAPACITY REQUIREMENTS	N/A	N/A	N/A	Yes	
B. ENHANCE SYSTEM FACILITIES	N/A	N/A	N/A	Yes	
C. MORE EFFICIENT USE OF ENERGY RESOURCES	N/A	N/A	N/A	Yes	

KEY: AVD = Avoids; MIN = Minimizes; MIT = Mitigates

PREFERENTIAL CRITERIA	LS&P GSRP & MMP PRIMARY OVERHEAD ROUTE			LS&P GSRP & MMP PRIMARY UNDERGROUND ROUTE ⁶			COMMENTS
	AVD	MIN ⁷	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL							
A. LONG ISLAND SOUND	X			X			
B. UPLAND AND FRESHWATER							
<i>Avoids</i> ⁸							
B.1. Locating, designing, etc. adversely impacts natural resources...	i			i			i See B.1. "Minimize"
B.2. Habitat fragmentation/Undeveloped lands		X	X		X	X	

⁶ The proposal lays out "typical" avoidance, minimization, and mitigation measures for underground route, not project-specific impacts as geotechnical work has not been performed.

⁷ Significant aspects of proposed mitigation actions have been reserved to the Development and Management Plan, following consultation with agencies.

⁸ B. Upland and Freshwater references Criterion 1. under both "Avoids" and "Minimizes," as follows:

B. Upland and Freshwater – Avoids:

1. Locating, designing constructing, operating and maintaining facilities and infrastructure in a manner that adversely impacts natural resources (fish, wildlife, wetlands, surface waters, groundwater, soil, agricultural lands, forests and other wildlife habitats and endangered-threatened-special concern species), notable archeological and historic sites and areas recognized as significant natural communities by the Connecticut Geologic and Natural History Survey, Natural Diversity Database when a reasonable and sensible alternative exists.

B. Upland and Freshwater – Minimize:

1. Impacts to the resources identified in subsection 1 above.



PREFERENTIAL CRITERIA	LS&P GSRP & MMP PRIMARY OVERHEAD ROUTE			LS&P GSRP & MMP PRIMARY UNDERGROUND ROUTE ⁶			COMMENTS
	AVD	MIN ⁷	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL							
B.3. wetlands and watercourses		X			X		
B.4. Surface and groundwater, public water supply sources, aquifer protection areas, reduces potable water supply demand or consumption; encourages water recycling technology		X			X		
B.5. Diversions-withdrawals from surface or ground waters from over-allocated basins or impaired waters		X			X		
B.6. Alteration to stream flows, movement of aquatic life		X			X	X	
B.7. Degradation of riparian buffer zone		X			X		
B.8. Floodplains, flood flows, storage, velocity		X			X	X	
B.9. Natural Area Preserve, Appalachian Trail		X			X	X	
B.10. Hydroelectric generation	N/A	N/A	N/A	N/A	N/A	N/A	
Minimize							
B.1. Impacts identified in subsection 1 above		ii	X		iii		ii Wetlands, surface waters, groundwater, agricultural land, special interest species iii Wetlands, surface waters, groundwater, agricultural land

PREFERENTIAL CRITERIA	LS&P GSRP & MMP PRIMARY OVERHEAD ROUTE			LS&P GSRP & MMP PRIMARY UNDERGROUND ROUTE ⁶			COMMENTS
	AVD	MIN ⁷	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL							
B.2. Soil erosion, control sedimentation		X			X		
B.3. Visual, biological, geological, recreational qualities of ridgelines and summits.	X			X			
B.4. Utilization of/upgrade to existing infrastructure		X			X		
B.5. Minimize sprawl/impacts through reuse of developed areas		X			X		
B.6. Field conditions conducive to invasive species.		X			X		
B.7. Manage lands, wetlands, habitats within ROWs to maximize natural resource values		X			X	X	
B.8. Disruption of state transportation system		X			X		

KEY: AVD = Avoids; MIN = Minimizes; MIT = Mitigates

PREFERENTIAL CRITERIA	GE ENERGY - TOWANTIC			NRG ENERGY - MERIDEN			ICE ENERGY			COMMENTS
	AVD	MIN	MIT	AVD	MIN	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL										
A. LONG ISLAND SOUND	X						X			
B. UPLAND AND FRESHWATER										
<i>Avoids</i> ⁹										
B.1. Locating, designing, etc. adversely impacts natural resources...	i			ii			X			i. GE Energy — Towantic: Fish, wildlife, soil, forests, other wildlife habitat, endanger-threatened-special concern species, archeological/ historic areas ii. Fish, wildlife, soil, forests, other wildlife habitat, endanger-threatened-special concern species, archeological/historic areas
B.2. Habitat fragmentation/Undeveloped lands	X			X			X			
B.3. wetlands and watercourses	X			X			X			

⁹ B. Upland and Freshwater references Criterion 1. under both “Avoids” and “Minimizes,” as follows:

B. Upland and Freshwater – Avoids:

1. Locating, designing constructing, operating and maintaining facilities and infrastructure in a manner that adversely impacts natural resources (fish, wildlife, wetlands, surface waters, groundwater, soil, agricultural lands, forests and other wildlife habitats and endangered-threatened-special concern species), notable archeological and historic sites and areas recognized as significant natural communities by the Connecticut Geologic and Natural History Survey, Natural Diversity Database when a reasonable and sensible alternative exists.

B. Upland and Freshwater – Minimize:

1. Impacts to the resources identified in subsection 1. above.

PREFERENTIAL CRITERIA	GE ENERGY - TOWANTIC			NRG ENERGY - MERIDEN			ICE ENERGY			COMMENTS
	AVD	MIN	MIT	AVD	MIN	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL										
B.4. Surface and groundwater, public water supply sources, aquifer protection areas, reduces potable water supply demand or consumption; encourages water recycling technology		X			X			X		
B.5. Diversions-withdrawals from surface or ground waters from over-allocated basins or impaired waters		X			X			X		
B.6. Alteration to stream flows, movement of aquatic life	X			X			X			
B.7. Degradation of riparian buffer zone		X			X		X			
B.8. Floodplains, flood flows, storage, velocity	X			X			X			
B.9. Natural Area Preserve, Appalachian Trail	X			X			X			
B.10. Hydroelectric generation				N/A	N/A	N/A	N/A	N/A	N/A	
Minimize										
B.1. Impacts identified in subsection 1. above		iii								iii Wetlands, surface waters, groundwater, agricultural land
B.2. Soil erosion, control sedimentation		X			X		X			

PREFERENTIAL CRITERIA	GE ENERGY - TOWANTIC			NRG ENERGY - MERIDEN			ICE ENERGY			COMMENTS
	AVD	MIN	MIT	AVD	MIN	MIT	AVD	MIN	MIT	
IV. ENVIRONMENTAL										
B.3. Visual, biological, geological, recreational qualities of ridgelines and summits.	X			X			X			
B.4. Utilization of/upgrade to existing infrastructure		X ¹⁰			X		X			
B.5. Minimize sprawl/impacts through reuse of developed areas		X ¹¹			X		X			
B.6. Field conditions conducive to invasive species.	X			X			X			
B.7. Manage lands, wetlands, habitats within ROWs to maximize natural resource values		X			X		X			
B.8. Disruption of state transportation system		X			X		X			

¹⁰ Generation is a Greenfield project. Meets B 4 for transmission and natural gas pipeline interconnection.

¹¹ Generation is a Greenfield project. Meets B.4 for transmission and natural gas pipeline interconnection.

PREFERENTIAL CRITERIA	GSRP & MMP	GE ENERGY - TOWANTIC	NRG ENERGY - MERIDEN	ICE ENERGY	COMMENTS
V. QUALITY OF LIFE					
SEE SECTION X.E OF THE EVALUATION REPORT.					

Exhibit A

GSRP ECONOMIC EVALUATION OF RFP BIDS
ASSUMPTIONS SUMMARY

	<u>GSRP</u>	<u>GE-Towantic</u>	<u>NRG-Meriden</u>	<u>Ice Energy</u>
financial assumptions				
capital costs=	\$756.84	\$750.00	\$750.00	\$130 million (\$210 million less \$80 million in CT EEP grants)
salv=	\$0.00	\$0.00	\$0.00	n/a
tax life=	20	20	20	n/a
book life=	50	25	25	n/a
tx deprec factor=	150%	150%	150%	n/a
no switch?=	FALSE	FALSE	FALSE	n/a
eff inc tx rt=	40.0%	40.0%	40.0%	n/a
debt portion=	47%	70%	70%	n/a
debt rate=	8.00%	8.50%	8.50%	n/a
equity portion=	53%	30%	30%	n/a
return on equity=	13.14%	12.00%	12.00%	n/a
ret on rate base=	15.30%	11.95%	11.95%	n/a
o&m-a&g % plt=	4.32%	2.00%	2.00%	n/a
prop tx rt=	1.09%	1.50%	1.50%	n/a
escalation rate	2.30%	2.30%	2.30%	n/a
nominal disc rate	10.00%	10.00%	10.00%	10.00%
inflation rate	2.30%	2.30%	2.30%	2.30%
real disc rate=	7.53%	7.53%	7.53%	7.53%
methodology	COS Rev Req	COS Rev Req less market revenues	COS Rev Req less market revenues	one-time expenditure less market revenues
operating assumptions				
capacity value	n/a	460 mw summer, 540 mw winter	460 mw summer, 540 mw winter	100 mw plus 15% reserve margin, plus 8% loss adj
heat rate	n/a	7,000 btu/kwh	7,000 btu/kwh	n/a
impact on CT imports	none	n/a	n/a	n/a
impact on losses	none	n/a	n/a	n/a
location	as proposed	SWCT	CenCT	49% CenCT; 33% SWCT; 18% NOR
mode	n/a	fully dispatchable	fully dispatchable	dispatched four summer months, 30 days per month, six peak hours per day

Notes: Capital costs for GSRP include \$714 million (i.e., excluding the MMP) plus a 6% adder for general plant per RNS rate filing
Capital costs for GE and NRG based upon midpoint of \$700 million to \$800 million per GE bid

Exhibit B
Annual Fixed Costs for the GSRP

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
init inv=																				
salv=																				
tax life=																				
book life=																				
tx deprec factor=																				
eff inc tx rt=																				
debt portion=																				
debt rate=																				
equity portion=																				
return on equity=																				
ret on rate base=																				
o&m-a&g % plt=																				
prop tx rt=																				
esc																				
nom disc rate=																				
real disc rate=																				
inflation																				
tax deprec	\$56.76	\$52.51	\$48.57	\$44.93	\$41.56	\$38.44	\$35.56	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73	\$33.73
book deprec	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14
difference	\$41.63	\$37.37	\$33.43	\$29.79	\$26.42	\$23.30	\$20.42	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60	\$18.60
def tx	\$16.65	\$14.95	\$13.37	\$11.92	\$10.57	\$9.32	\$8.17	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44	\$7.44
o&m-a&g	\$32.70	\$33.45	\$34.22	\$35.00	\$35.81	\$36.63	\$37.47	\$38.34	\$39.22	\$40.12	\$41.04	\$41.99	\$42.95	\$43.94	\$44.95	\$45.99	\$47.04	\$48.13	\$49.23	\$49.23
prop tx	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25
<u>rate base</u>																				
acc book dep	\$15.14	\$30.27	\$45.41	\$60.55	\$75.68	\$90.82	\$105.96	\$121.09	\$136.23	\$151.37	\$166.50	\$181.64	\$196.78	\$211.92	\$227.05	\$242.19	\$257.33	\$272.46	\$287.60	\$287.60
acc def tx	\$16.65	\$31.60	\$44.97	\$56.89	\$67.45	\$76.77	\$84.94	\$92.38	\$99.82	\$107.26	\$114.70	\$122.13	\$129.57	\$137.01	\$144.45	\$151.89	\$159.33	\$166.76	\$174.20	\$174.20
end bal	\$725.05	\$694.97	\$666.46	\$639.41	\$613.70	\$589.24	\$565.94	\$543.36	\$520.79	\$498.21	\$475.64	\$453.06	\$430.49	\$407.91	\$385.34	\$362.76	\$340.19	\$317.61	\$295.04	\$295.04
avg bal	\$740.95	\$710.01	\$680.71	\$652.93	\$626.55	\$601.47	\$577.59	\$554.65	\$532.08	\$509.50	\$486.93	\$464.35	\$441.78	\$419.20	\$396.63	\$374.05	\$351.48	\$328.90	\$306.33	\$306.33
<u>rev req's (nominal)</u>	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2030
return avg RB	\$113.39	\$108.65	\$104.17	\$99.92	\$95.88	\$92.04	\$88.39	\$84.88	\$81.42	\$77.97	\$74.51	\$71.06	\$67.61	\$64.15	\$60.70	\$57.24	\$53.79	\$50.33	\$46.88	\$46.88
deprec	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14	\$15.14
o&m-a&g	\$32.70	\$33.45	\$34.22	\$35.00	\$35.81	\$36.63	\$37.47	\$38.34	\$39.22	\$40.12	\$41.04	\$41.99	\$42.95	\$43.94	\$44.95	\$45.99	\$47.04	\$48.13	\$49.23	\$49.23
prop tx	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25	\$8.25
total nominal \$	\$169.47	\$165.49	\$161.77	\$158.31	\$155.08	\$152.06	\$149.25	\$146.60	\$144.03	\$141.48	\$138.94	\$136.43	\$133.94	\$131.48	\$129.03	\$126.61	\$124.22	\$121.84	\$119.50	\$119.50

Exhibit D

Annual Fixed Costs for the NRG Meriden Project

init inv= \$750.00
 salv= \$0.00
 tax life= 20
 book life= 25
 tx deprec factor= 150.00% DB
 no switch?= FALSE
 eff inc tx rt= 40.00%
 debt portion= 70.00%
 debt rate= 8.50%
 equity portion= 30.00%
 return on equity= 12.00%
 ret on rate base= 11.95%
 o&m-a&g % plt= 2.00% yes
 prop tx rt= 1.50% no
 esc 2.30%
 nom disc rate 10.00%
 real disc rate= 7.53%

(\$millions)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
tax deprec	\$56.25	\$52.03	\$48.13	\$44.52	\$41.18	\$38.09	\$35.23	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43	\$33.43
book deprec	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
difference	\$26.25	\$22.03	\$18.13	\$14.52	\$11.18	\$8.09	\$5.23	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43	\$3.43
def tx	\$10.50	\$8.81	\$7.25	\$5.81	\$4.47	\$3.24	\$2.09	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37	\$1.37
o&m-a&g	\$15.00	\$15.35	\$15.70	\$16.06	\$16.43	\$16.81	\$17.19	\$17.59	\$17.99	\$18.41	\$18.83	\$19.26	\$19.71	\$20.16	\$20.62	\$21.10	\$21.58	\$22.08	\$22.59
prop tx	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25
<u>rate base</u>																			
acc book dep	\$30.00	\$60.00	\$90.00	\$120.00	\$150.00	\$180.00	\$210.00	\$240.00	\$270.00	\$300.00	\$330.00	\$360.00	\$390.00	\$420.00	\$450.00	\$480.00	\$510.00	\$540.00	\$570.00
acc def tx	\$10.50	\$19.31	\$26.56	\$32.37	\$36.84	\$40.08	\$42.17	\$43.55	\$44.92	\$46.29	\$47.66	\$49.03	\$50.40	\$51.77	\$53.14	\$54.52	\$55.89	\$57.26	\$58.63
end bal	\$709.50	\$670.69	\$633.44	\$597.63	\$563.16	\$529.92	\$497.83	\$466.45	\$435.08	\$403.71	\$372.34	\$340.97	\$309.60	\$278.23	\$246.86	\$215.48	\$184.11	\$152.74	\$121.37
avg bal	\$729.75	\$690.09	\$652.06	\$615.53	\$580.39	\$546.54	\$513.87	\$482.14	\$450.77	\$419.40	\$388.03	\$356.66	\$325.28	\$293.91	\$262.54	\$231.17	\$199.80	\$168.43	\$137.06
<u>rev req's (nominal)</u>																			
return avg RB	\$87.21	\$82.47	\$77.92	\$73.56	\$69.36	\$65.31	\$61.41	\$57.62	\$53.87	\$50.12	\$46.37	\$42.62	\$38.87	\$35.12	\$31.37	\$27.62	\$23.88	\$20.13	\$16.38
deprec	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
o&m-a&g	\$15.00	\$15.35	\$15.70	\$16.06	\$16.43	\$16.81	\$17.19	\$17.59	\$17.99	\$18.41	\$18.83	\$19.26	\$19.71	\$20.16	\$20.62	\$21.10	\$21.58	\$22.08	\$22.59
prop tx	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25	\$11.25
total nominal \$	\$143.46	\$139.06	\$134.87	\$130.87	\$127.04	\$123.37	\$119.85	\$116.45	\$113.11	\$109.77	\$106.45	\$103.13	\$99.83	\$96.53	\$93.25	\$89.97	\$86.71	\$83.46	\$80.21

Exhibit E

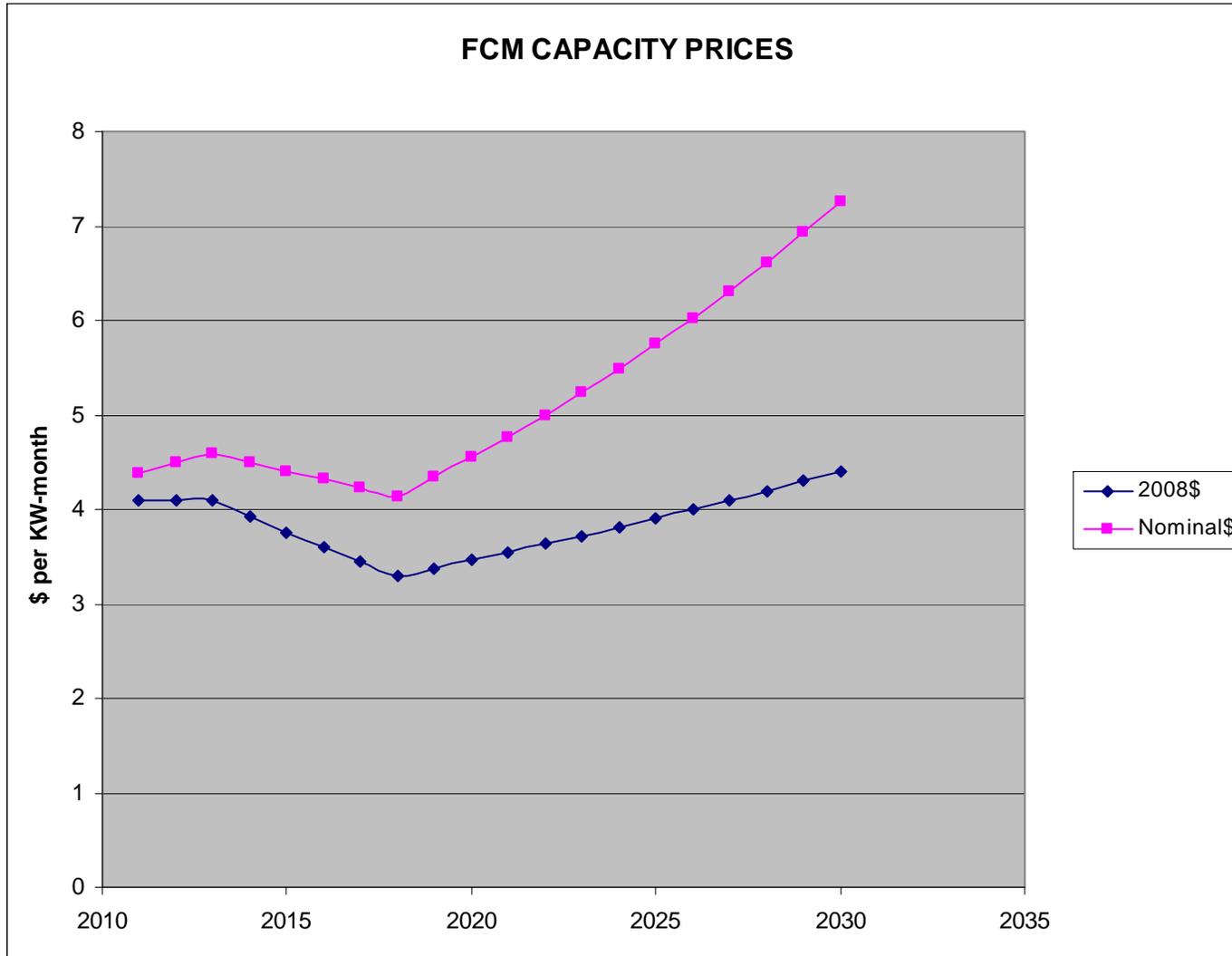


Exhibit F

Forecast of the Net Costs of each RFP Bid

GSRP RFP - ECONOMIC ANALYSIS OF BIDS																				
Note: Energy market revenues and fuel & VOM costs for 2012 to 2027 were taken from AURORA outputs. Values from 2028 to 2030 were extrapolated.																				
		disc_rate 10.00%																		
		inflation 2.30%																		
		real_disc 7.53%																		
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GE - Towantic																				
Summer MW	460																			
capital costs	\$143.46	\$139.06	\$134.87	\$130.87	\$127.04	\$123.37	\$119.85	\$116.45	\$113.11	\$109.77	\$106.45	\$103.13	\$99.83	\$96.53	\$93.25	\$89.97	\$86.71	\$83.46	\$80.21	
FCM revenues	\$24.79	\$25.36	\$24.84	\$24.33	\$23.83	\$23.34	\$22.87	\$23.96	\$25.11	\$26.31	\$27.57	\$28.88	\$30.26	\$31.71	\$33.23	\$34.82	\$36.48	\$38.23	\$40.05	
energy market revenues	\$203.74	\$205.49	\$206.46	\$224.69	\$196.17	\$200.18	\$217.50	\$249.58	\$241.97	\$266.21	\$291.38	\$284.27	\$300.61	\$303.69	\$314.24	\$350.11	\$369.33	\$388.55	\$407.76	
fuel & VOM costs	\$153.00	\$154.25	\$155.98	\$167.71	\$145.36	\$148.38	\$160.40	\$180.23	\$175.79	\$190.98	\$207.06	\$203.80	\$216.25	\$221.21	\$229.31	\$254.98	\$270.20	\$285.43	\$300.65	
net energy revenues	\$50.74	\$51.24	\$50.48	\$56.98	\$50.81	\$51.79	\$57.09	\$69.35	\$66.18	\$75.22	\$84.32	\$80.47	\$84.36	\$82.48	\$84.93	\$95.13	\$99.12	\$103.12	\$107.12	
net benefits / (costs)	(\$67.93)	(\$62.47)	(\$59.55)	(\$49.56)	(\$52.39)	(\$48.23)	(\$39.89)	(\$23.14)	(\$21.83)	(\$8.24)	\$5.44	\$6.22	\$14.80	\$17.66	\$24.92	\$39.97	\$48.90	\$57.89	\$66.96	
NPV 2012\$	(\$260.59)																			
real levelized \$/KW-month	(\$4.42)																			
NRG - Meriden																				
Summer MW	460																			
Note Capacity value grossed up for 15% reserve margin and 6% losses																				
capital costs	\$143.46	\$139.06	\$134.87	\$130.87	\$127.04	\$123.37	\$119.85	\$116.45	\$113.11	\$109.77	\$106.45	\$103.13	\$99.83	\$96.53	\$93.25	\$89.97	\$86.71	\$83.46	\$80.21	
FCM revenues	\$24.79	\$25.36	\$24.84	\$24.33	\$23.83	\$23.34	\$22.87	\$23.96	\$25.11	\$26.31	\$27.57	\$28.88	\$30.26	\$31.71	\$33.23	\$34.82	\$36.48	\$38.23	\$40.05	
energy market revenues	\$197.72	\$193.44	\$193.74	\$210.42	\$230.86	\$236.66	\$253.84	\$279.73	\$272.38	\$293.52	\$317.90	\$315.96	\$334.01	\$344.26	\$360.66	\$390.24	\$412.13	\$434.03	\$455.93	
fuel & VOM costs	\$149.34	\$145.95	\$146.65	\$157.50	\$170.82	\$175.50	\$187.58	\$202.19	\$197.68	\$211.32	\$227.39	\$227.54	\$241.61	\$251.18	\$263.85	\$285.62	\$302.97	\$320.31	\$337.66	
net energy revenues	\$48.39	\$47.49	\$47.09	\$52.92	\$60.04	\$61.16	\$66.26	\$77.54	\$74.70	\$82.20	\$90.51	\$88.41	\$92.40	\$93.08	\$96.81	\$104.61	\$109.17	\$113.72	\$118.27	
net benefits / (costs)	(\$70.28)	(\$66.22)	(\$62.94)	(\$53.62)	(\$43.16)	(\$38.86)	(\$30.72)	(\$14.95)	(\$13.30)	(\$1.27)	\$11.63	\$14.16	\$22.83	\$28.26	\$36.79	\$49.46	\$58.94	\$68.49	\$78.11	
NPV 2012\$	(\$221.28)																			
real levelized \$/KW-month	(\$3.75)																			
Ice Energy																				
Summer MW	124.2																			
capital costs	\$130.00																			
FCM revenues	\$6.69	\$6.85	\$6.71	\$6.57	\$6.43	\$6.30	\$6.17	\$6.47	\$6.78	\$7.10	\$7.44	\$7.80	\$8.17	\$8.56	\$8.97	\$9.40	\$9.85	\$10.32	\$10.81	
energy market revenues	\$1.90	\$2.00	\$2.04	\$2.23	\$2.73	\$2.88	\$3.07	\$3.43	\$3.44	\$3.60	\$3.89	\$4.01	\$4.16	\$4.34	\$4.57	\$4.95	\$5.26	\$5.57	\$5.88	
fuel & VOM costs	\$1.90	\$2.00	\$2.04	\$2.23	\$2.73	\$2.88	\$3.07	\$3.43	\$3.44	\$3.60	\$3.89	\$4.01	\$4.16	\$4.34	\$4.57	\$4.95	\$5.26	\$5.57	\$5.88	
net energy revenues	\$1.90	\$2.00	\$2.04	\$2.23	\$2.73	\$2.88	\$3.07	\$3.43	\$3.44	\$3.60	\$3.89	\$4.01	\$4.16	\$4.34	\$4.57	\$4.95	\$5.26	\$5.57	\$5.88	
net benefits / (costs)	(\$121.41)	\$8.85	\$8.74	\$8.80	\$9.16	\$9.18	\$9.24	\$9.90	\$10.22	\$10.70	\$11.33	\$11.81	\$12.34	\$12.90	\$13.54	\$14.35	\$15.11	\$15.89	\$16.69	
NPV 2012\$	(\$35.36)																			
real levelized \$/KW-month	(\$2.22)																			

Exhibit G

Differences in Connecticut LMPs Between Alternatives

LMPs with RFP Bids	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	\$ 75.85	\$ 76.69	\$ 78.25	\$ 81.58	\$ 89.04	\$ 92.60	\$ 97.95	\$ 104.74	\$ 105.22	\$ 107.47	\$ 113.63	\$ 115.86	\$ 122.62	\$ 128.45	\$ 136.15	\$ 145.89	\$ 155.12	\$ 164.35	\$ 173.58
SWCT	\$ 77.06	\$ 77.92	\$ 79.53	\$ 82.89	\$ 90.50	\$ 94.07	\$ 99.46	\$ 106.24	\$ 106.84	\$ 109.13	\$ 115.29	\$ 117.57	\$ 124.36	\$ 130.19	\$ 137.91	\$ 147.71	\$ 156.95	\$ 166.19	\$ 175.43
Norwalk	\$ 80.76	\$ 81.93	\$ 81.66	\$ 84.88	\$ 92.49	\$ 96.28	\$ 101.76	\$ 108.32	\$ 108.05	\$ 110.18	\$ 116.39	\$ 118.92	\$ 125.82	\$ 130.24	\$ 138.13	\$ 148.03	\$ 156.74	\$ 165.44	\$ 174.15
LMPs with GSRP	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	\$ 77.81	\$ 78.86	\$ 80.31	\$ 83.69	\$ 92.95	\$ 96.92	\$ 102.92	\$ 109.89	\$ 110.29	\$ 113.12	\$ 120.27	\$ 123.21	\$ 131.33	\$ 136.93	\$ 145.31	\$ 155.78	\$ 165.44	\$ 175.11	\$ 184.77
SWCT	\$ 79.02	\$ 80.16	\$ 81.65	\$ 85.11	\$ 94.46	\$ 98.46	\$ 104.44	\$ 111.43	\$ 111.97	\$ 114.78	\$ 121.90	\$ 124.92	\$ 133.10	\$ 138.64	\$ 147.05	\$ 157.60	\$ 167.27	\$ 176.94	\$ 186.60
Norwalk	\$ 81.53	\$ 82.86	\$ 82.82	\$ 86.18	\$ 95.17	\$ 99.17	\$ 105.12	\$ 111.88	\$ 111.80	\$ 114.59	\$ 121.67	\$ 124.76	\$ 132.98	\$ 137.98	\$ 146.63	\$ 157.31	\$ 166.90	\$ 176.49	\$ 186.08
LMP savings with bids	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	\$ 1.96	\$ 2.17	\$ 2.06	\$ 2.11	\$ 3.91	\$ 4.32	\$ 4.97	\$ 5.14	\$ 5.07	\$ 5.65	\$ 6.63	\$ 7.35	\$ 8.71	\$ 8.47	\$ 9.16	\$ 9.89	\$ 10.32	\$ 10.76	\$ 11.20
SWCT	\$ 1.96	\$ 2.24	\$ 2.11	\$ 2.22	\$ 3.96	\$ 4.39	\$ 4.97	\$ 5.19	\$ 5.14	\$ 5.64	\$ 6.61	\$ 7.35	\$ 8.74	\$ 8.44	\$ 9.14	\$ 9.89	\$ 10.32	\$ 10.74	\$ 11.17
Norwalk	\$ 0.77	\$ 0.93	\$ 1.16	\$ 1.30	\$ 2.68	\$ 2.89	\$ 3.36	\$ 3.56	\$ 3.75	\$ 4.40	\$ 5.29	\$ 5.84	\$ 7.16	\$ 7.74	\$ 8.49	\$ 9.28	\$ 10.16	\$ 11.05	\$ 11.93
% LMP savings with bids	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	2.5%	2.8%	2.6%	2.5%	4.2%	4.5%	4.8%	4.7%	4.6%	5.0%	5.5%	6.0%	6.6%	6.2%	6.3%	6.3%	6.2%	6.1%	6.1%
SWCT	2.5%	2.8%	2.6%	2.6%	4.2%	4.5%	4.8%	4.7%	4.6%	4.9%	5.4%	5.9%	6.6%	6.1%	6.2%	6.3%	6.2%	6.1%	6.0%
Norwalk	0.9%	1.1%	1.4%	1.5%	2.8%	2.9%	3.2%	3.2%	3.4%	3.8%	4.3%	4.7%	5.4%	5.6%	5.8%	5.9%	6.1%	6.3%	6.4%
CT Annual GWH	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	17,609	17,884	18,162	18,445	18,733	19,025	19,321	19,623	19,928	20,239	20,554	20,875	21,200	21,530	21,866	22,207	22,558	22,910	23,261
SWCT	6,403	6,503	6,604	6,707	6,811	6,918	7,025	7,135	7,246	7,359	7,474	7,590	7,708	7,829	7,951	8,075	8,202	8,330	8,458
Norwalk	11,933	12,119	12,307	12,499	12,694	12,892	13,093	13,297	13,504	13,715	13,928	14,145	14,366	14,590	14,817	15,048	15,286	15,524	15,763
total	35,945	36,505	37,074	37,652	38,238	38,834	39,440	40,054	40,678	41,312	41,956	42,610	43,274	43,949	44,634	45,329	46,047	46,764	47,482
CT Annual LMP Savings to Load (\$millions)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NPCC_isoNE_CentralCT	\$35	\$39	\$38	\$39	\$73	\$82	\$96	\$101	\$101	\$114	\$136	\$153	\$185	\$182	\$200	\$220	\$233	\$247	\$260
SWCT	\$13	\$15	\$14	\$15	\$27	\$30	\$35	\$37	\$37	\$42	\$49	\$56	\$67	\$66	\$73	\$80	\$85	\$89	\$94
Norwalk	\$9	\$11	\$14	\$16	\$34	\$37	\$44	\$47	\$51	\$60	\$74	\$83	\$103	\$113	\$126	\$140	\$155	\$171	\$188
total	\$56	\$65	\$66	\$70	\$134	\$150	\$175	\$185	\$189	\$216	\$259	\$292	\$355	\$361	\$399	\$439	\$473	\$507	\$543

Exhibit H

Economic Evaluation of GSRP and the RFP Bids

GSRP Cost Evaluation:

Cost of GSRP ^[1]	Capacity (MW)	Cost Allocation	NPV (2012\$000)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GSRP - total project	n/a	100%	\$1,378,629	\$169,469	\$165,487	\$161,773	\$158,309	\$155,077	\$152,063	\$149,251	\$146,602	\$144,029	\$141,476	\$138,945	\$136,434	\$133,945	\$131,478	\$129,034	\$126,613	\$124,216	\$121,844	\$119,496
GSRP/State Specific - CT	n/a	27%	\$372,230	\$45,757	\$44,682	\$43,679	\$42,743	\$41,871	\$41,057	\$40,298	\$39,583	\$38,888	\$38,199	\$37,515	\$36,837	\$36,165	\$35,499	\$34,839	\$34,186	\$33,538	\$32,898	\$32,264

CEAB Proposals Evaluation:

Cost of Alternatives: net of market revenues ^[2]

1. GE-Towantic	460		\$260,590	\$67,928	\$62,465	\$59,551	\$49,555	\$52,394	\$48,229	\$39,890	\$23,139	\$21,828	\$8,243	(\$5,439)	(\$6,218)	(\$14,795)	(\$17,659)	(\$24,916)	(\$39,975)	(\$48,899)	(\$57,891)	(\$66,956)
2. NRG-Meriden	460		\$221,278	\$70,280	\$66,215	\$62,938	\$53,615	\$43,164	\$38,860	\$30,725	\$14,950	\$13,300	\$1,267	(\$11,629)	(\$14,163)	(\$22,833)	(\$28,259)	(\$36,790)	(\$49,456)	(\$58,939)	(\$68,490)	(\$78,114)
3. Ice Energy	124.2		\$35,360	\$121,407	(\$8,849)	(\$8,744)	(\$8,796)	(\$9,161)	(\$9,179)	(\$9,241)	(\$9,899)	(\$10,221)	(\$10,703)	(\$11,328)	(\$11,808)	(\$12,336)	(\$12,903)	(\$13,538)	(\$14,347)	(\$15,107)	(\$15,888)	(\$16,691)
			\$517,228	\$259,615	\$119,831	\$113,746	\$94,375	\$86,397	\$77,910	\$61,373	\$28,190	\$24,907	(\$1,193)	(\$28,395)	(\$32,189)	(\$49,964)	(\$58,821)	(\$75,243)	(\$103,778)	(\$122,944)	(\$142,269)	(\$161,760)
less savings due to lower LMPs ^[2]			(\$1,711,700)	(\$56,216)	(\$64,737)	(\$65,704)	(\$70,050)	(\$134,320)	(\$149,915)	(\$174,918)	(\$185,360)	(\$188,825)	(\$216,334)	(\$259,356)	(\$291,881)	(\$354,940)	(\$361,442)	(\$398,827)	(\$439,073)	(\$472,858)	(\$507,480)	(\$542,939)
Net Impact of RFP Bids on Connecticut ^[2]			(\$1,194,472)	\$203,399	\$55,094	\$48,042	\$24,325	(\$47,923)	(\$72,005)	(\$113,544)	(\$157,170)	(\$163,919)	(\$217,527)	(\$287,751)	(\$324,070)	(\$404,904)	(\$420,263)	(\$474,070)	(\$542,851)	(\$595,803)	(\$649,749)	(\$704,699)

^[1] The CL&P Application cites benefits in addition to reliability, such as improved access to power supply. However, no quantification of such benefits was provided.

^[2] note: a negative number indicates positive net benefits or savings to Connecticut ratepayers

Note: No recommendation has been made that any or all of the bid projects would displace or alter the GSRP. Therefore, a comprehensive economic analysis has not been conducted.