2007 Energy Plan for Connecticut

Prepared by the
Connecticut Energy Advisory Board
Approved February 6, 2007

By

CEAB
Connecticut Energy Advisory Board

www.ctenergy.org

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2007 Connecticut Energy Plan
Executive Summary

Background

Pursuant to Public Act 03-140*, the Connecticut Energy Advisory Board (CEAB) will submit a comprehensive energy plan each year to the joint standing committees of the Connecticut General Assembly having cognizance of matters relating to energy, environment and transportation. CEAB's goal is to outline for Connecticut's state policymakers the initiatives that will be key to achieving the state's long-term visionary goals and that will help the state to create a successful energy policy.*

The 2007 Connecticut Energy Plan is a restating of and a recommitment to many of the initiatives developed for the 2006 Connecticut Energy Plan. The structure of the 2007 plan is significantly more comprehensive in order to address energy supply and demand issues and mitigating strategies responsive to the current and forecasted energy environment in the state and region.

In 2005 and 2006, Connecticut energy users experienced the impact of world and national events that may have signaled the end of a period of abundant, moderately priced energy. It became clear that a change in supply and demand anywhere in the world affects the price everywhere, including here in Connecticut. This issue presents circumstances that threaten the state's economy, the reliability of its energy supply and the overall quality of life for Connecticut residents.

- During 2006, oil prices stabilized on the world markets at $60 to $70 per barrel.
- Connecticut gasoline prices averaged $2.50 to $3.00 a gallon.
- Electric rates for Connecticut Light and Power Company (CL&P) customers increased over 22% and similarly substantial increases are expected for The United Illuminating Company (UI) customers.
- Home heating costs for last winter increased 50% for oil and 60% for natural gas.

2005 and 2006 have also been landmark years in Connecticut for initiating forward thinking energy policies. During the past two years Connecticut has faced large increases in the price of all energy sources. The Governor, the Connecticut State Legislature, State agencies and the public clearly recognizing the gravity of these issues, have underwritten the following initiatives addressing energy pricing, reliability and environmental issues in Connecticut:

1. Approval of the 2005 Climate Change Action Plan, June 2005
2. Adoption of the Conservation and Development Plan 2005-2010, June 2005
3. Passage of PA 05-204: *An Act Establishing a Low-Income Energy Assistance Advisory Board*, July 2005
4. Passage of PA 05-1: *An Act Concerning Energy Independence* (EIA), July 2005
5. Passage of PA 05-2 Special Session: *An Act Concerning Home Heating Assistance*, October 2005

6. Development of CEAB's Near Term and Long Term Final Report on Requirements for Reliability and Mitigation of Federally Mandated Congestion Charges[1] (FMCC) September 2005 and November 2006
7. Finalization of the ISO-NE capacity market Settlement March 2006 (approved June 2006)
8. On-going construction of Phase 2 of the transmission improvement project connecting Middletown to Norwalk at 345 KV and completion of Phase I Transmission Line Upgrade from Norwalk to Bethel in the third quarter of 2006
9. Passage of Public Act No. 06-136: *An Act Concerning the Roadmap for Connecticut's Economic Future*, June 2006, addressing transportation issues
10. Passage of PA 06-161: *An Act Concerning Clean Cars*, June 2006
11. Issuance of Long Range RFP by the DPUC, September 2006
12. Issuance of Governor Rell's CT's Energy Vision for a Cleaner, Greener State, September 2006

Having the responsibility to provide the Connecticut State Legislature with an annual energy plan, the CEAB has developed the 2007 plan with a focus on assuring an adequate and reliable energy supply, and mitigating adverse monetary impacts to Connecticut's energy users for each of the major energy sources. In addition, the plan provides information on the impact of rising energy costs on low-income residents and the progress made in promoting sustainable development. The CEAB continues to recommend the adoption of a statewide goal to **reduce peak electric demand by 10%** and **reduce the use of fossil fuels by 10%**. This **10% by 2010** goal is in line with the goals of the New England Governors/Eastern Canadian Premiers Climate Change Action Plan, the Connecticut Climate Change Action Plan, the recently adopted Environmental Protection Agency's 10% challenge and the request by Governor M. Jodi Rell to all State agencies to reduce consumption in State facilities by 10%.

The CEAB's statutory responsibilities also include, establishing criteria for evaluating energy proposals; participating in various Connecticut Siting Council proceedings; implementing and conducting requests for proposals (RFPs) to solicit energy projects; and representing the State in regional energy system planning processes conducted by New England's Independent System Operator, ISO-NE. Together, these functions enable Connecticut to facilitate energy solutions that further the state's energy, environmental and economic development objectives and Connecticut consumers' interests. In response to the requirements of Public Act 03-140, the 2007 Energy Plan includes:

1. **The assessment of the current energy supplies, demand and cost** found within the first five sections devoted to specific fuels and in Part 3 - Connecticut's Energy Profile.

[1] **Federally-Mandated Congestion Costs**
Effective January 1, 2004, federal law requires that two line item charges for congestion costs, energy-related and/or reliability-related costs be added to customer bills. They are defined as charges to the consumer resulting from deficiencies in the electricity transportation system. Congestion costs occur when a more costly generator is dispatched before a less costly one because there isn't adequate transmission capacity to get the generation from the less costly plant to the load center that needs it.
Source: WattsNewCT.com

2. **An identification and evaluation of the factors likely to affect future energy supplies, demand and costs** found in Appendix C links to the following reports: Near Term Requirements Report; Phase II Final Report on Requirements for Reliability and Mitigation of FMCCs; Forecast Report of Capacity, Energy, Loads, and Transmission 2004 - 2013; and Review of the Ten Year Forecast of Connecticut Electric Loads and Resources 2005-2014.
3. **A statement of progress made toward long-term goals set in the previous reports** found in Part 1 - Progress on 2006 Goals.
4. **Recommendations for decreasing dependency on fossil fuels by promoting energy conservation, solar and other alternative energy sources***;* found throughout the plan but specifically in Part 2, Section 3 - Petroleum and Part 2, Section 4 - Renewable Energy and Alternate Fuels.
5. **An assessment of the infrastructure of the state for natural gas and electric systems** found in Part 2, Section 1 - Electricity and Section 2 - Natural Gas and in the Appendix links to Near Term Requirements Report; Phase II Final Report on Requirements for Reliability and Mitigation of FMCCs; Forecast Report of Capacity, Energy, Loads, and Transmission 2004 - 2013; and Review of the Ten Year Forecast of Connecticut Electric Loads and Resources 2005-2014.
6. **An evaluation of the impact of regional transmission infrastructure planning processes conducted by the regional independent system operator, as defined in section 16-1 of the general statutes, on the state's environment, on energy market design, and economic development in the state** found in Part 2, Section 1 - Electricity and in Appendix C links to Near Term Requirements Report; Forecast Report of Capacity, Energy, Loads, and Transmission 2004 - 2013; and Review of the Ten Year Forecast of Connecticut Electric Loads and Resources 2005-2014.
7. **The consideration of alternative energy planning mechanisms and targets as an alternative to integrated resource planning** found in the CEAB Preferential Criteria and links to the Connecticut Conservation and Development Plan 2005-2010.
8. **A statement of energy policies and long-range energy planning objectives and strategies appropriate to achieve, among other things, the least-cost mix of energy supply sources and measures that reduce demand for energy, giving due regard to such factors as ratepayer impacts, security and diversity of fuel supplies and energy generating methods, protection of public health and safety, adverse or beneficial environmental impacts, conservation of energy and energy resources and the ability of the state to compete economically** found in recommendations throughout the 2007 Connecticut Energy Plan.
9. **Recommendations for administrative and legislative actions to implement such policies, objectives and strategies** found in recommendations throughout the 2007 Connecticut Energy Plan.

Part 1 – Progress on 2006 Goals

The long-term goals of the CEAB are to secure a sustainable supply of energy at the best possible cost and to continue to promote its efficient and environmentally responsible use. In the short term the goals are to ensure adequate resources are in place to provide for a reliable energy infrastructure and to mitigate adverse monetary impacts from market fluctuation or market rules that place unfair financial burdens on Connecticut consumers.

Section 1 - Overarching State Goal: Reduce 10% by 2010

There remain two central issues facing Connecticut energy consumers and policy makers that could have significant economic impact in the state's immediate future: shortage of electrical capacity and dependence on foreign and domestic fossil fuels. These issues create the potential for staggering price increases in both fossil fuels and electricity.

In response to potential energy and economic crises, the CEAB has recommended that Connecticut aggressively pursue a goal of both reducing consumption of fossil fuels and reducing peak electric load, both by 10% by 2010. The CEAB continues to believe that achieving this goal will have a stabilizing effect on both the adequacy of supply and cost of electricity and fuels for heating, transportation and generation.

The current growth in the state's peak demand for electricity has long-term economic and environmental consequences for Connecticut. In August of 2006, Connecticut set an all-time record electric peak, using more than 7,700 megawatts of electricity. Fossil fuel consumption for home heating, transportation and electricity generation has also dramatically increased. The shortage of supply of all energy sources this past year has resulted in an increase in oil prices by 60%, natural gas prices by 50% and electric prices that could increase for many consumers by 22%. In transportation, 2005 marked an all-time high for gasoline prices selling for more than $3.00 per gallon and diesel fuels sold for more than $2.50 per gallon. These high prices lasted through the summer travel period and began to fall back somewhat in the autumn. In Connecticut, like other areas in the country, energy consumption patterns continue to grow, while reliance on resources from other parts of the country and the world to feed the growing appetite continues.

Reduce Connecticut's Electric Peak by 10% by 2010

In the summer of 2006, Connecticut consumers established a new net peak demand on the electric system of 7,400 megawatts after deducting a very aggressive demand response effort. To meet the state goal, energy efficiency efforts must be expanded and on-peak electric demand reduced by roughly 900 megawatts to a peak demand of roughly 6,500 megawatts. If Connecticut does not reduce the peak by 2009, the state could be subject to hundreds of millions of dollars of federally mandated congestion charges (FMCC) that could increase electric rates for all Connecticut consumers by 20% to 40%. Setting new peak demands also stresses an already overloaded transmission system and forces the operation of outdated, inefficient and expensive fossil fuel power plants in southwestern Connecticut that contribute significantly to the air pollution problems experienced in Connecticut throughout the summer.

Reduce Dependence on Fossil Fuels by 10% by 2010

Connecticut currently does not produce any of the fossil fuels it consumes within the state and as a result is vulnerable to price fluctuations and supply interruptions based on supply shortage and

increased world demand. The major uses of fossil fuel include: transportation; home and business heating; industrial processes; and power generation. These energy uses can be substantially decreased by making improvements in efficiency, or by switching to renewable and alternative energy sources. The pricing of fuels in the retail market is very sensitive to supply and demand. The selection of fuel sources is flexible for large consumers, who have the choice to diversify their fuel use through buying equipment that is able to use multiple fuels, limiting energy use or using more efficient equipment. More efficient equipment exists in the market, including highly efficient boilers and furnaces, hybrid and energy efficient automobiles, and dual-fuel generators. Today Connecticut uses over 600 trillion BTUs of fossil fuel. Scientific proof exists that burning of fossil fuels contributes to numerous health illnesses, air pollution and climate change. Reducing the use of fossil fuels provides additional health and societal benefits in addition to the economic benefits. The Connecticut Energy Profile in Part 3 of this report includes tables showing the types of fossil fuels and quantity of fuel in units by sector.

Section 2 - Strategies to Achieve Overarching Goal

Public Education

The CEAB recommended that programs be developed to educate all Connecticut energy users on the cost and environmental impacts of uncontrolled energy use, including the impact of the growth in peak electric demand. This initiative should promote participation in efficiency and demand response programs. The educational goal should focus on:

1. Promoting an energy efficiency campaign and raising public awareness about energy efficiency programs available. The message should include specific advice to users on the efficient and timely use of electricity and the cost impacts of FMCC.
2. Promoting general awareness of energy issues using www.ct-energyinfo.com as the central resource for energy efficiency information, clean energy and energy assistance to energy consumers. CEAB has also recommended creating an Energy Efficiency Resource Center that consolidates all existing energy efficiency related resources and information.
3. Continuing the special emphasis of the Small Business Energy Advantage Program including incentives, such as low-interest loans, and the electric utilities' promotion of the "Wait 'til 8" program general awareness campaign with a statewide emphasis.
4. Educating customers on the availability, advantages and benefits of time-of-use rates, advanced metering and web-based communication technology to control energy use and demand and better understand their energy costs.

Multi-Fuel Programs

The CEAB has encouraged the implementation of multi-fuel efficiency programs through the Connecticut Energy Efficiency Fund (CEEF). Public Act 05-01 calls for the Energy Conservation Management Board (ECMB) to support natural gas utilities in developing comprehensive energy efficiency programs. As part of its review, the ECMB is to examine opportunities to offer joint programs providing similar efficiency measures that save more than one fuel resource, or to otherwise coordinate programs targeted at saving more than one fuel resource. In addition, the CEEF programs and the Connecticut Clean Energy Fund (CCEF) programs should develop joint marketing and implementation strategies.

Section 3 - 2006 Progress

Overview of 2006 State Initiatives

In 2005, through Public Act 05-01: *An Act Concerning Energy Independence* (EIA), the State took additional steps to foster the development of a variety of solutions to the critical electric system needs and mitigate the high costs associated with congestion in the state's electric system. The EIA was intended to stimulate the development of a broad array of resources to mitigate FMCC, including transmission improvements, central station generation, distributed generation, energy efficiency and demand response. The EIA makes provisions for the State and its utilities to provide incentives and capacity contracts paid for by ratepayers for distributed resources and conventional supply resources that can effectively mitigate the cost and reliability problems caused by congestion within the state's transmission system.

In February 2006, the Governor's Steering Committee on Climate Change submitted their report Taking Action in Connecticut to Address Climate Change: Progress Made in 2005 in follow-up to the adoption of the Connecticut Climate Change Action Plan 2005 by the General Assembly, fulfilling the requirements of PA 04-252.

In 2006, the leadership of the General Assembly convened four energy summits to gather information from energy and environmental experts, the business community and the public at large on Connecticut's current energy situation. Based on discussion during the 2006 legislative session and the testimony received during the four summits, a draft bill is being developed for consideration in the 2007 legislative session.

In September 2006, Governor Rell launched CT's Vision for a Cleaner Greener State. This plan outlines her vision and action steps that need to be taken to lower prices to consumers and have the state become less reliant on foreign energy. Her plan has a focus on environmentally sound technologies and envisons the state becoming a center for economic development and technological innovation in the energy sector.

Progress on 2006 Initiatives

Pursuant to accomplishing this overriding statewide 10% by 2010 goal, the CEAB had suggested eight initiatives in 2006.

Promote Energy Efficiency and Conservation

The CEAB recommended restoring full funding to the Connecticut Energy Efficiency Fund and targeting efficiency programs toward slowing electric load growth. Further, the CEAB recommended that programs be effective at making energy bills more affordable to residential and commercial consumers, especially where they reduce the impact on low-income households or reduce the competitive disadvantage being placed on the Connecticut business community. Progress on this initiative includes:

1. The projected lifetime energy savings for those energy efficiency measures installed in 2005 total approximately $550 million. These same measures have also resulted in the reduction of pollutant emissions including sulfuric oxide (SO_2) and nitrogen oxide (NOx) by 456 tons per year. Savings in power production that resulted from conservation programs reduced carbon dioxide emissions in 2005 by nearly 200,000 tons.
2. Governor Rell directed the Department of Public Utility Control (DPUC), Office of Consumer Counsel (OCC) and the Energy Conservation Management Board (ECMB) to create a working group to identify and implement opportunities to reduce electric consumption at State facilities toward reducing the impact of electricity price increases on the State's budget.

Manage the State's Electric Use and Peak Demand to Reduce FMCC

This initiative seeks in part to improve system reliability by aligning the percent growth in the electric peak demand with the state's economic growth and corresponding energy use. The intent is to make consumers aware of the cost impact of uncontrolled growth through appropriate pricing signals and public awareness. Activities related to this initiative include:

1. In response to concern over the growing peak demand in the summer, the state was successful in signing up over 300 megawatts of load management under the demand response and price response programs available through ISO New England. This was more load control than the rest of New England combined.
2. Despite efforts to reduce the coincident peak demand in the summer, Connecticut set a new peak record, using 7,700 megawatts in August 2006. This peak is 7% higher than the prior year's record peak.
3. EIA and the subsequent dockets at the DPUC established incentive levels aimed at encouraging the use of distributed resources, including demand management, as a mechanism to further reduce peak load.
4. The utilities continued to provide public information advertisements to encourage load reduction through the "Wait 'til 8" campaign.

Promote Distributed Generation and Combined Heat and Power

This intitiative is a viable tool for lowering customer energy cost, improving power quality and reliability, reducing air emissions and mitigating FMCC. It promotes removing barriers and providing incentives to promote cost-effective distributed resources. Progress on this intiative includes:

1. EIA encourages the use of distributed resources to address Connecticut's energy reliability and cost issues, especially to reduce the impact of FMCC on all Connecticut ratepayers. Specifically, EIA introduced three distributed generation applications: combined heat and power systems, grid-side distributed resources, and Class III renewable energy sources.
2. A DPUC decision established a program to award monetary grants for capital costs of customer-side distributed resources. These capital grants provide incentives of $200/kW for new emergency generators, and base load distributed generation grants of $450/kW

for combined heat and power installations. Generation projects located in southwest Connecticut (SWCT) that come online prior to April 30, 2008, are eligible to receive an additional $50/kW. Emergency generators must also participate in an ISO-NE load response program.

3. EIA also directed the DPUC to remove common barriers to distributed generations including: exempting projects from mandatory back-up and stand-by rates; removing the ratchet penalty; and exempting distributed generation projects from natural gas transportation charges. It also encouraged the electric utilities to provide technical and customer support to customers who choose to self generate.
4. In late summer 2006, the DPUC issued a proactive RFP for long-term capacity solutions. The solicitation has netted 80 project proposals totaling 2,200 megawatts of capacity.

Promote Clean, Renewable Energy Technologies

This initiative recommended restoring full funding to the Connecticut Clean Energy Fund (CCEF) and expanding programs that improve the reliability of the state's energy infrastructure by mitigating FMCC, reducing air emissions, providing economic development and jobs, and enhancing energy security. Recent activities supporting this initiative include:

1. In February 2006, the Governor's Steering Committee on Climate Change submitted their report Taking Action in Connecticut to Address Climate Change: Progress Made in 2005 in follow-up to the adoption of the Connecticut Climate Change Action Plan 2005 by the General Assembly, fulfilling the requirements of PA 04-252.
2. Through the Project 100 program, the DPUC and CCEF have a joint role in implementing a program that requires the state's electric distribution companies (UI & CL&P) to enter into long-term power contracts (minimum of 10 years) with renewable energy generating facilities for the purchase of 100 megawatts of electricity. These contracts, that will be supported by Connecticut electric ratepayers, will provide eligible renewable generating facilities with a price subsidy and a long-term financial commitment that will enable these projects to be built.
3. Customers of CL&P or UI now have the ability to choose clean energy by purchasing power through the CTCleanEnergyOptions program. Under this program customers can elect to pay for electric generation produced from cleaner sources such as wind and small, low-impact hydro power. In addition, communities can join the Connecticut Clean Energy Communities program funded by the CCEF. Participating communities can qualify for a free solar electric system for a public building through effort. The program has engaged 28 communities to become Clean Energy Communities. Over 10,000 individual customers have elected to make the clean energy choice.

Create Fuel Diversity and Reduce Dependence on Fossil Fuel

This initiative seeks to monitor fuel consumption in the state and use a competitive selection process in response to an identified energy-related need. This selection process would assess opportunities for new energy sources using the CEAB's preferential criteria evaluation process. This initiative also seeks to investigate the benefits of the expanded use of biofuel in the state. Recent progress on the initiative includes:

1. Yellow grease from food processing within the state provides a potential source of materials to produce biofuels. Currently this by-product is being treated as a hazardous material and trucked out of state. Students at both the University of Connecticut (UCONN) and Yale University are processing their universities' cooking oil into fuel for powering shuttle buses on their campuses. This past winter, Eastern Connecticut State University used a B20 (20%) blend of biodiesel fuel to heat two campus facilities.
2. The leadership of the State House of Representatives recently convened a task force to look into the domestic production of biofuels in Connecticut. The Governor also established a working group on biofuels among State agencies.

Develop Transportation and Land Use Policies that Reduce Energy Use and Demand

This initiative supports implementing energy-related initiatives from the *Conservation and Development Plan 2005- 2010*. Actions should include revitalization of regional centers with under-utilized existing energy infrastructure and development of public transportation nodes. Also efforts should be undertaken to protect the environment by adopting high-performance building and appliance standards. Recent progress includes:

1. Public Act 05-4, *An Act Concerning the Authorization of Special Tax Obligation Bonds of the State for Certain Transportation Purposes* represents the largest capital investment in two decades in Connecticut's transportation system. The act requires the Department of Transportation (DOT) to: acquire at least 342 new rail cars for use on the New Haven line ($667 million); design and construct rail maintenance facilities to support the rail cars ($300 million); design and construct operation improvements to I-95 between Greenwich and North Stonington ($187 million); evaluate, design and construct transportation system improvements other than projects on I-95 ($150 million); and purchase 25 transit buses ($7.5 million).
2. The legislature also approved and the Governor signed into law PA 06-161: *An Act Concerning Clean Cars* that establishes a greenhouse gas (GHG) labeling program for new motor vehicles sold or leased in Connecticut beginning with the 2009 model year.
3. The State has adopted high-performance building standards for State of Connecticut projects. High-performance public buildings are built using an integrated design process that provides a productive, healthy environment for the occupants and an energy efficient structure that provides long-term benefits for the community. High performance buildings use approximately 20% to 40% less energy than code-built structures and cost approximately 2% more to build.

4. In December 2005, Governor Rell signed a multi-state memorandum of understanding (MOU) committing Connecticut to participate in a Regional Greenhouse Gas Initiative (RGGI). Nine northeastern states signed the MOU and committed to participate in this regional program to cap carbon emissions from the power generating sector. The RGGI program, in addition to limiting green house gas emissions, will provide financial incentives to electric generators to produce power more efficiently and thus, more cost-effectively.

Launch a Public Education Program and Guide Legislative Efforts

Education programs should expand public awareness programs concerning the economic and environmental impact of uncontrolled energy growth in the state. The programs should also increase awareness of the economic and environmental benefits provided through participation in the CEEF and CCEF programs. Progress in the past year included:

1. In 2006, the leadership of the legislature convened four energy summits to gather information from energy and environmental experts, the business community and the public at large on Connecticut's current energy situation. Based on discussion during the 2006 Legislative Session and the testimony received during the four summits, a draft bill is being developed for consideration during the upcoming legislative session
2. In September 2006, Governor Rell launched CT's Vision for a Cleaner Greener State. This plan outlines her vision and the steps that need to be taken to lower prices to energy consumers and have the state become less reliant on foreign energy. The plan includes a focus on environmentally sound technologies and positions the state to become a center for economic development and technological innovation in the energy sector.

Explore Creating an Energy Supply and Demand-Side Technology Business Cluster

This initiative seeks to engage business, government and energy experts in the task of developing practical solutions to Connecticut's energy problems and reposition Connecticut as a leader in energy technology and energy market development. Activity on this initiative during the year was limited to the fuel cell industry.

Public Act 06-187: *An Act Concerning General Budget and Revenue Implementation Provisions* included sections that require the Department of Economic and Community Development (DECD) in consultation with the Connecticut Center for Advanced Technology (CCAT) to establish a Connecticut Hydrogen-Fuel Cell Coalition. Plans related to developing the coalition include a strategy to: facilitate the commercialization of hydrogen-based technologies and fuel cells; enhance energy reliability and security; promote the improved efficiency and environmental performance of transportation and electric generation with reduced emissions, reduced greenhouse gases, more efficient use of nonrenewable fuels, and increased use of renewable and sustainable fuels; facilitate the installation of infrastructure for hydrogen production, storage, transportation and fueling capability; disseminate information regarding the benefits of hydrogen-based technologies; develop strategies to retain and expand hydrogen and fuel cell industries in Connecticut; in consultation with DOT, identify areas within the state transportation system that would benefit from the integration of potential mass transit and fleet transit locations with hydrogen or natural gas and hydrogen mixture refueling stations; and in

consultation with electric and natural gas service providers, identify areas in the electric and natural gas distribution system of the state that would benefit from the development of distributed generation through hydrogen or fuel cell technology as a reliability asset necessary for voltage control, grid security, system reliability, or the provision of required uninterruptible service at customer sites.

Part 2 – 2007 Connecticut Energy Plan

Section 1 - Electricity

Overview of Current Situation - Electricity

Connecticut consumers have experienced significant increases in electric generation prices in recent years. These price increases have, in large measure, been driven by two primary forces: the dramatic escalation in fuel prices in the global marketplace and the inefficiency of the state's electricity generation and transmission infrastructure. Based on current fossil fuel commodity price trends, it is anticipated that the electricity prices will continue to increase as reflected in consumer billing starting January 1, 2007. In addition, inadequate transmission infrastructure in Connecticut interferes with the state's ability to import less expensive power from outside the state. Other factors that contribute to Connecticut's electricity price increases include the continued growth in electricity use or "demand", the existing wholesale market design, and the restructuring of the electric industry.

Growth in electricity demand in the state and region, especially during the peak (the time of greatest electricity use - typically on hot summer days), requires that the state's electricity infrastructure continue to be upgraded to keep pace. The need for more infrastructure investements to keep up with record demand levels that only occur a few hours of the year will continue to drive up the cost of electricity. There are a variety of alternatives to manage consumption for many consumers including conservation and energy efficiency improvements, load management, time-of-use rates, and the addition of distributed generation. Connecticut must continue to explore and invest in these demand management tools as a means to controlling costs moving forward.

The CEAB realizes the vital importance of a reliable transmission grid to ensure the health of Connecticut's economy and its people. Investments in Connecticut's transmission system, especially in the southwestern portion of the state, are moving forward. While infrastructure investments cost Connecticut's consumers money, these system upgrades will allow for more efficient management of generating facilities, provide consumers access to cheaper supplies of power across the system, and generally ensure the efficient operation of the power markets. In short, the out-of-market costs (FMCCs) borne by Connecticut's consumers as a result of its aging and stressed infrastructure will be lessened significantly through the completion of these ongoing transmission investment projects.

Electricity Supply

Federal and Regional

Forward Capacity Market (FCM)

In March 2004, ISO-NE filed a proposal with the Federal Energy Regulatory Commission (FERC) calling for the creation of a new capacity market in the region, comprised of four pricing zones: Maine, Connecticut, Eastern Massachusetts, and the remainder of New England. Under

the proposal, *the Locational Installed Capacity (LICAP)* charges would vary by zone, depending on the relationship between the amount of capacity needed and the amount actually in place. Generally, higher prices would occur in areas where capacity was needed. It was anticipated that the largest charges under LICAP would be paid by consumers in Connecticut and eastern Massachusetts. In June 2004 FERC postponed the implementation date to January 1, 2006. It also directed ISO-NE to submit a filing addressing whether FERC should create a separate pricing zone for southwest Connecticut. In the meantime widespread objections to the LICAP proposal triggered calls for a new capacity market model.

In March 2006, a number of Connecticut parties, including the Department of Public Utility Control (DPUC) and the Office of Consumer Counsel (OCC), signed a comprehensive agreement to establish a new forward auction market (Forward Capacity Market or FCM) system for electric capacity, replacing LICAP. The FCM settlement agreement was negotiated over four months among approximately 100 parties under the auspices of a federal administrative law judge and received FERC's final approval on June 15, 2006. The settlement agreement was joined by a large majority of the parties, including four out of six New England states, regional consumer representatives, electric utilities, power plant owners and ISO-NE. It is believed that FCM is a cheaper, more reliable alternative to LICAP.

The FCM settlement agreement includes measures to ensure that electric generating plants will be available when they are most needed, in part by levying heavily penalties for failure to show up in accordance with their bid. This new capacity market is designed to meet New England's needs for reliable electric power at the lowest reasonable price. The settlement resolved a four-year dispute over how best to ensure that power plant owners will build enough new plants to meet peak power requirements and replace old, inefficient plants that cannot respond quickly or run efficiently at times of peak demand for power.

FCM will use a competitive descending clock auction that will compensate power plants only when they meet their commitment to be available three years in the future. This auction will allow new plants and demand reduction measures to compete with older plants in the auction. LICAP, by contrast, used a non-competitive price-setting mechanism that some argued did not set a realistic market-based price for generating capacity.

Key Elements of New Forward Capacity Market (FCM):

1. Net cost to Connecticut consumers over four years is estimated at approximately $800 million, one half of the incremental cost of the original LICAP proposal. Ratepayers will not be obligated to buy as much capacity as they may have under the original proposal. In addition, only the electric capacity that is needed will be purchased. Estimates suggest that the original LICAP proposal would have required approximately 15% more capacity to be purchased than needed.
2. There will be only one price zone for all of New England during the Transition Period (until the end of 2009), with the likelihood of two price zones in Connecticut diminished. Thus, in the near term, capacity prices will be the same for all six New England states.

3. Electric generators will be compensated in part based on their availability, especially during peak demand periods. Poorly performing power plants that are unavailable to run will be excluded from the auction, providing incentives for building new power plants or retrofitting old existing plants, where the need is greatest.
4. A competitive auction process will determine prices with power plants bidding against each other to provide power.

Some of the details of the Forward Capacity Market are still being worked out, and there is a continuing need for the State of Connecticut to monitor these details and consider other measures to ensure that the Forward Capacity Market works well for this state's customers.

New England State Committee on Electricity (NESCOE)

The State of Connecticut is currently actively engaged in a process that would create a new regional organization called the New England States Committee on Electricity (NESCOE). NESCOE's mission will be to represent the interests of the citizens of the New England region by advancing policies that will provide electricity at the lowest possible price over the long term, consistent with maintaining reliable service and environmental quality. Through collaboration with stakeholders and presentation of its views to regulators, NESCOE will advance policies that seek to facilitate the efficient development of power generation, demand management and transmission resources needed to reliably serve the electricity requirements of consumers. It will seek to accomplish its objectives in the context of a wholesale electricity market that is primarily characterized by competitive market mechanisms, subject to the constraints and directions of law, regulation and public policy.

As currently proposed, NESCOE will be active and express its views in two areas: resource adequacy and system planning and expansion. The new organization will be directed by a committee representing the six New England states, with one or more representatives appointed by each governor to represent each state. It is expected that it will have a staff sufficient to undertake the research, analysis, communication, consultation and advocacy necessary to achieve its mission. Currently it is anticipated that the NESCOE proposal will be filed with the Federal Energy Regulatory Commission (FERC) in the coming months for review and approval.

U.S. Department of Energy August 2006 National Electric Transmission Congestion Study

The Federal Energy Policy Act of 2005 directed the U.S. Secretary of Energy to conduct a nationwide study of electric transmission congestion by August 2006. The report on the study examined transmission congestion and constraints and identified constrained transmission paths across the country. The study identified three types of congestion areas that merit further attention. The first were categorized as the most severely congested areas, called "Critical Congestion Areas." Only two such areas were identified: Southern California and the Atlantic coastal area from the New York City area to northern Virginia.

The second category, called "Congestion Areas of Concern," describes areas in the country that need close watching and further study to determine the magnitude of their congestion problems.

Four such areas were identified: New England; the Phoenix-Tucson area; the Seattle-Portland area; and the San Francisco Bay Area.

The third type, "Conditional Congestion Areas," describes areas where congestion is not presently acute but could become so if considerable new electric generation were to be built without associated transmission capacity. These areas included: Montana-Wyoming; Dakotas-Minnesota; Kansas-Oklahoma; Illinois, Indiana, and Upper Appalachia; and the Southeast.

CEAB submitted comments on the study in response to a request to interested parties from DOE. The CEAB comments concluded that the study's characterization of the New England situation was reasonable. As noted above, congestion issues remain a serious concern, particularly for Connecticut. However CEAB's comments went on to point out that there is substantial state and regional planning and implementation underway to address the congestion issues that remain in New England. Furthermore, CEAB noted that it is troubled by the fact that it did not have an opportunity to obtain and review the background information that was used to develop the study, nor did it have an opportunity to provide input to DOE prior to the study being released.

ISO New England Ten-Year Outlook

Each year, ISO New England (ISO) produces its Regional System Plan (RSP), which is a ten-year analysis of the New England electric system that includes forecasts of future load and how the system as planned can meet demand by adding generating resources, demand-side resources and transmission improvements. Major findings of RSP06 include the need for generating capacity in New England, and in Connecticut specifically, by 2009 to assure that the regional and state electric systems continue to meet resource adequacy standards. RSP06 also emphasized the need for increased diversity in the fuels used to generate electricity, especially in southwest Connecticut.

RSP06 identifies greater Connecticut and southwest Connecticut as major load pockets in New England and, furthermore, RSP06 identifies Connecticut as the most critical area in the region in terms of the need for increased supply-side resources to meet its long-term needs. Without the timely addition of new resources, ISO warns that the state and the region will fail to meet established reliability criteria and increase the need to enact emergency procedures to operate the system during peak periods as well as the possibility of needing to disconnect customers at peak times.

RSP06 also emphasizes the critical importance of modifying the electricity generating resource mix in New England to reduce the region's heavy dependence on natural gas, which has both reliability and price implications. In the winter for example, over reliance on gas-fired generating units can pose reliability problems when heating customers compete with electricity generators for natural gas supply. Tight supply often leads to price increases across the natural gas market. To address reliability concerns, ISO recommends that natural gas-fired generating units either procure firm gas contracts and/or take steps to become dual-fuel capable by modifying generating units to be able to burn oil to produce electricity under certain circumstances. Having additional gas-fired generating units with either of these two "reliability-based" capabilities would dramatically assist ISO in reliably operating the bulk power system during periods of extreme winter weather and/or abnormal conditions of the natural gas supply or

delivery systems. Connecticut currently has 14 natural gas-fired generating units that are capable of producing approximately 1,300 megawatts of electricity, or approximately 20% of the state's generating capacity.[2] Eight of these plants (approximately 700 megawatts of generating capacity) are dual-fuel capable.

Longer-term issues relate to the high and increasing reliance on natural gas for producing electric power in New England and neighboring regions, suggesting the need for greater electric supply-side fuel diversity in the region. Given the need to diversify the state's and region's mixes of fuels to enhance regional reliability, RSP06 encourages state and regional energy officials to support initiatives to bring other non-gas energy sources on line.

Connecticut

Federally Mandated Congestion Charges (FMCC)

Federally Mandated Congestion Charges or "FMCCs" are costs paid by all ratepayers for electrical energy or capacity, pursuant to markets designed by ISO-New England and approved by FERC, that seek to build electrical infrastructure, particularly in southwest Connecticut. The state regulatory authorities do not have control over FMCCs. However, FMCCs also include the costs of some state grants to businesses for enhanced conservation and demand response programs, distributed generation, new time-of-use/seasonal rates to reduce peak demand and initiatives that seek to spur development of new electrical infrastructure, including generation plants.

Transmission Infrastructure Improvements

The continued growth in electric demand and the absence of infrastructure improvements creates upward pressure on electric rates. The timely completion of transmission upgrades in Connecticut and, in particular, southwestern Connecticut will provide significant improvement to the transmission grid, permitting a more efficient importing of power from outside of the state as well as moving power within the state more readily and reliably. The transmission enhancements also provide connections for moving power within the state to meet capacity requirements identified by the ISO. In addition, these projects will foster the efficient operation of the region's power markets with greater access to more efficient and cheaper generation resources.

Specifically the following transmission upgrades in southwest Connecticut (SWCT) are underway:

1. SWCT Bethel-Norwalk 345-kV line (Phase 1) – This line, recently put into service, improves the reliability of the SWCT area including the Norwalk-Stamford area. The project increases the transfer capability into SWCT by approximately 275 megawatts and Norwalk-Stamford by 200 megawatts.

[2] Siting Council Draft 10-Year Forecast of Connecticut Electric Loads and Resources; October 27, 2006; PP 14-15

2. SWCT Middletown-Norwalk 345-kV line (Phase 2) – This line, currently in final design stages, improves the reliability of the SWCT area including the Norwalk-Stamford area. The project increases the transfer capability into SWCT by approximately 825 megawatts and Norwalk-Stamford by 350 megawatts. The projected in-service date is December 2009.
3. SWCT Glenbrook 115-kV Cable Project – The two planned 115-kV cables, currently in final design stages, may improve the reliability of the Norwalk-Stamford area. The project increases the power transfer capability from the Norwalk substation hub to the lower Norwalk-Stamford area. The projected in-service date is December 2009.

DPUC RFP for Long-Term Resources

Pursuant to the EIA, the DPUC has launched a long-term resource procurement process by issuing a Request for Proposals (RFP) to acquire additional new megawatts from generation, demand-side reduction, conservation, and energy efficiency projects to reduce the impact of FMCCs to Connecticut ratepayers. The RFP, that was approved by the DPUC on September 13, 2006, includes an energy hedge mechanism to mitigate increasing electricity prices that would serve as an effective price cap on wholesale electricity prices in Connecticut. The RFP invites bids from new resources or existing resources willing to make additions or refurbishments. The resulting contracts from the RFP will be for up to 15 years.

The objective of the RFP is to motivate the development of new supply and demand resources in the state in order to proactively hedge rising electricity costs resulting from expected regional and state-wide shortages in electric generation capacity in the longer term. It also seeks to reduce pollution from older, less efficient plants and diversify the resources that Connecticut relies upon to meet its electricity needs in the future.

Proposed projects will be evaluated on a cost-benefit basis to ensure that the portfolio of projects selected by the DPUC results in positive anticipated net benefits to Connecticut ratepayers over the term of the contracts. At the same time, 15% of the total bid score will be judged based on policy priorities, such as improving the quality of Connecticut's environment, diversifying the fuel used in electricity generation in the state, improving the reliability of the electricity delivery system, and making effective use of existing generation, transmission, and fuel supply infrastructure.

Based on its current regulatory schedule, the DPUC expects to announce winning projects no later than spring of 2007.

Generation

Electricity generating resources located in Connecticut are capable of producing approximately 6,770 megawatts of electricity during the summer peak period. This figure does not include transmission import capabilities that serve to bring power in from other areas to help Connecticut meet its peak demand.

There are six general categories of fuels used to produce electricity at generating facilities located in Connecticut. They are coal, natural gas, hydro, oil, solid waste, and nuclear. Each type of fuel has benefits and burdens associated with its use, such as environmental or cost implications. Over the long term, it is better from a reliability and cost perspective to have a diverse portfolio of resources for producing electricity versus over reliance on any one fuel. From a statewide perspective, Connecticut does have a diverse portfolio of electricity generating resources, although certain areas, namely the southwestern portion of the state are highly reliant on natural gas and oil. Connecticut's generating portfolio includes:

1. Two nuclear electric generating units, totaling 2,035 megawatts, or approximately 30% of the state's summer generating capacity;
2. Two coal-fired electric generating facilities contributing 553 megawatts, or 8.2% of the state's summer generating capacity;
3. Twenty-six oil-fired electric generating units totaling approximately 2,487 megawatts, or 36.8% of the state's total summer generating capacity;
4. Fourteen natural gas-fired generating units totaling approximately 1,363 megawatts, or 20.2% of the state's summer generating capacity;
5. Twenty-eight hydroelectric facilities totaling approximately 149 megawatts, or 2.2% of the state's summer generating capacity;
6. Multiple solid waste-fueled facilities totaling approximately 184 megawatts, or 2.7% of the state's summer generating capacity.

Distributed Generation and Combined Heat and Power Systems

Distributed resources installed and operational within Connecticut can play an important role in reshaping the load factor and pricing structure of electricity in the state by providing incremental capacity to the electric grid, thereby avoiding or reducing the cost of system upgrades that would otherwise be required to meet consumer demand. Strategic increases in supply can be secured through distributed resources, including: grid-side distributed generation; customer-side combined heat and power systems; renewable energy technology; waste heat recovery and thermal storage systems; and natural gas and steam driven air conditioning. All of these are effective in reducing on-peak electric demand. In addition, distributed resources located in congested areas, such as southwest Connecticut, can significantly assist in mitigating FMCCs for all ratepayers in Connecticut.

PA 05-1: *An Act Concerning Energy Independence* (EIA) encourages the use of distributed resources in order to address some of Connecticut's energy reliability and cost issues, especially reducing the impact of FMCC on all Connecticut ratepayers. The EIA empowers the DPUC to award monetary grants and low-interest loans for the capital cost of customer-side distributed resources in recognition of the cost and reliability benefits of these resources to the state's consumers. The DPUC through the EIA RFP sought proposals for long-term resources that included consideration of the installation of clean distributed resources aimed at ensuring adequate resources are in place for reliability and mitigating FMCCs.

Centralized electric power plants have been and remain the major sources of electric power supply in the region. Distributed generation (DG), especially combined heat and power systems

(CHP), can improve the reliability of the electric system by providing incremental capacity to the utility grid or to an end user. Installing DG at or near the end user can also benefit the electric utility by avoiding or reducing the cost of some system upgrades. Distributed generation located in congested areas, such as southwestern Connecticut, can reduce the amount of power needed to be imported into the area, thereby mitigating FMCCs for all ratepayers in Connecticut. CHP is viewed as a cost effective method by which to implement DG since these systems produce, from a single source, both electric power and thermal energy, which can result in an aggregate reduction in electricity use, fossil fuel use and air emissions. Currently there are about 500 megawatts of CHP in Connecticut as compared to over 9,000 megawatts in the entire northeast region.

PA 05-1: *An Act Concerning Energy Independence* introduces and encourages three applications:

- The use of combined heat and power systems on customer sites that produce, from a single source, both electric power and thermal energy used in any process that results in an aggregate reduction in electricity use;
- The use of grid-side distributed resources generating electricity from a unit with a rating of not more than 65 megawatts that is connected to the transmission or distribution system. These units may include but are not limited to units used primarily to generate electricity to meet peak demand; and
- The use of Class III renewable energy sources at customer sites, including the electricity output from combined heat and power systems with waste heat recovery systems with an operating efficiency level of no less than 50% or thermal storage systems that are part of customer-side distributed resources developed at commercial and industrial facilities. The Class III renewable option provides the customer the economic values of the Renewable Energy Credit through the energy supplier.

Promoting DG with Incentives, Loans and Rate Concessions

The Department of Public Utility Control established a series of programs to fulfill the directives of Section 8(a) of Public Act 05-01: *An Act Concerning Energy Independence*. Specifically, the DPUC decision establishes a program to award monetary grants for capital costs of customer-side distributed resources as designed pursuant to the decision. These capital grants provide incentives of $200/kW for new emergency generators and base load distributed generation grants of $450/kW for combined heat and power installations. Generation projects located in SWCT that come online prior to April 30, 2008 are eligible to receive an additional $50/kW. Emergency generators must participate in an ISO-NE load response program. Base load generators must be expected to operate at an 85% load factor or greater from 12:00 p.m. to 8:00 p.m. weekdays in the months of January and February and June through September. If the project is not expected to meet this requirement, the grant will be prorated accordingly. Grants are available for customer-side projects up to 65 megawatts prorated accordingly. There is no minimum size.

In addition the DPUC established a low-interest loan program available for customer-side distributed resource projects of 50 kW or greater. The interest rate will be 1% lower than the customer's applicable rate or no more than the prime rate. The DPUC approved a program to grant awards to electric distribution companies to encourage them to educate, assist and promote

investments in customer-side distributed resources. The program also established a rebate program for certain gas charges for customer-side distributed resources and addressed the waiver of back-up power rates for certain customer-side distributed resources. It is important to understand that these programs receive these incentives in order to reduce FMCCs and provide system-wide benefits in Connecticut and the region.

Electricity Supply Recommendations

Generation Recommendations

1. The CEAB recommends that Connecticut support the installation of clean and efficient dual-fuel, fast-start generation resources that will satisfy both the system-wide requirements and the load-pocket needs, make more efficient use of existing transmission and generation infrastructure and save consumer capacity and congestion costs.
2. The CEAB recommends that Connecticut encourage the investment in new base load generation resources to meet long-term needs and provide overall benefit to the state and New England as a whole for meeting load and established reliability criteria.
3. Evaluate the rebuilding and re-powering of existing obsolete base-load units or installing high efficient new units capable of providing steam and hot water to neighbors.

Transmission Recommendations

1. Have the DPUC and the CEAB continue to explore and evaluate additional transmission upgrading opportunities that enhance the reliability of the system and lower costs to consumers such as the Southern New England Transmission Reliability (SNETR) proposal in northeast Connecticut.
2. Encourage the interconnection of resources in the northern and western parts of southwest Connecticut, as well as improve infrastructure to move power throughout the state, and improve the major ties between Connecticut and Massachusetts and Rhode Island. Also, improve the interconnection effectiveness of the Lake Road plant in Connecticut to serve Connecticut load.
3. Encourage the investment in new transmission resources to meet long-term needs and provide overall benefit to the state and New England as a whole for meeting load and established reliability criteria.

Distributed Generation Recommendations

1. Adopt uniform interconnection standards as developed by the Institute of Electrical and Electronics Engineers (IEEE) for DG units up to 5 megawatts; and adopt emission and efficiency standards that encourage the development of clean and efficient distributed generation in Connecticut.
2. Encourage consumers to utilize life-cycle cost analysis that includes lifetime energy and maintenance cost, security consideration and power reliability costs and not just first cost or low bid when selecting energy system and distributed generation equipment.
3. Encourage load serving entities to consider installing grid-side distributed generation to improve system reliability and reduce FMCC.

4. Evaluate the rebuilding and re-powering of existing obsolete base-load units or installing high efficiency CHP units capable of providing steam and hot water to neighboring enterprise zones for economic development. Consider developing CHP installations on existing brownfield sites that have adequate access to existing utility infrastructure and where the opportunity exists for redevelopment.
5. Utilize incentives, loans and the RFP process to encourage the installation of distributed generation in southwestern Connecticut which could be available on call with "quick start" capability to offset summer of 2007 peak demand as well as peak demand thereafter to reduce the impact of FMCC on ratepayers.

Electricity Demand

Energy Efficiency

Energy efficiency remains the most cost effective means for reducing the demand for electricity. The cost of avoiding a kilowatt hour from being used is valued at $.02 to $.04, while purchasing that same kilowatt hour can cost anywhere from four to seven times that amount. The Connecticut Energy Efficiency Fund (CEEF) programs have validated that one dollar spent on efficiency brings back four dollars in savings. In addition, the Department of Environmental Protection (DEP) contends that the same dollar saved brings the state another $4 from reduced air pollution creating health and environmental benefits with cleaner air. CEEF programs in 2005 provided annual energy savings of approximately 318 million kWh. This equates to annual savings of approximately $40 million, assuming an average price of $0.125 per kWh. CEEF programs are designed to reduce overall energy demand during critical peak periods. In 2005, CEEF programs helped alleviate potential electricity shortages and reduced stress on Connecticut's transmission lines, especially in the congested area of southwestern Connecticut. No other option offers a reliable alternative at a lower price.

Success of the Connecticut Energy Efficiency Fund (PA 98-28)

The current Connecticut Energy Efficiency Fund was created under the Electric Restructuring Act that was passed in 1998. The CEEF is supported by a surcharge on electric ratepayers' utility bills. The fund is an initiative to assist residential, commercial, and industrial customers in making changes to how they consume energy and making investments that result in more efficient use of electricity resources.

The CEAB recognizes that energy efficiency provides the most cost effective strategy for controlling electric system growth and managing electric supply needs. Efficiency has been the cornerstone of past and present state energy policies. Support for a conservation ethic emphasizing increased energy efficiency will bring the state closer to meeting its energy needs and is central to the intent of the PA 05-1: *An Act Concerning Energy Independence* and the goals of the 2005 Climate Change Action Plan. CEAB recognizes that impressive progress has been made by the CEEF in recent years toward meeting energy efficiency goals. Through the efforts of the DPUC and the Energy Conservation Management Board (ECMB), Connecticut's investor-owned electric utilities have delivered consistent, effective electric efficiency and conservation programs to their customers.

Energy Efficiency Portfolio Standards (PA 05-01, June Special Session)

New portfolio standards have been approved to provide an additional financial incentive to those businesses that invest in energy efficiency and conservation measures and/or install new highly efficient distributed generation units that are operated on waste heat that is recovered from other commercial or industrial processes. The new law mandates that a certain percentage of electricity supplied to end-use electric customers by the electric distribution companies (CL&P & UI) and electric suppliers in the state be procured from Class III resources. Class III resources are defined to include: 1) electricity savings from conservation and energy efficiency measures implemented by businesses operating in the state, and 2) electricity produced from the waste heat produced by CHP systems that are deployed with customer-side distributed generation units. The standards are set to increase from a level of 1% of the state's electric load in 2007, increasing by 1% annually to a level that represents 4% of the state's electric load by 2010.

Demand Management

In 2005 and 2006, the consumption of electricity increased by approximately 2% annually. However, electric coincident demand for electricity on the hottest day of the year increased by 7%. The CEAB recommends a number of strategies intended to reduce the coincident demand in the summer of 2007 and beyond. This reduction in demand will help mitigate FMCCs imposed on all Connecticut rate payers. These strategies include but are not limited to: participating in the ISO-NE Demand Response Program; encouraging participation in targeted conservation and load management programs; implementing time-of-use and seasonal rate structures; encouraging clean and efficient "quick start" distributed generation; and increasing public education regarding the benefits associated with more efficient and timely use of electricity. It should be noted that the peak demand, stresses the electric system approximately 130 hours per year. Connecticut ratepayers could benefit by controlling peak usage to save hundreds of thousands of dollars annually by mitigating FMCCs.

An Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and the Southwest Connecticut Region (June 2004) was prepared for the ECMB by GDS Associates, Inc. This study finds that substantial cost-effective energy efficiency potential remains untapped in Connecticut. Capturing the maximum achievable cost-effective potential for energy efficiency in the state would reduce coincident peak demand by 908 megawatts by 2012, or 13 % from the base case. This strategy would reduce the average peak electric demand growth for the state to 1.5 % per year in the base case scenario down from 10% per year by implementing the maximum achievable cost-effective potential scenario with aggressive energy efficiency programs. CEAB's Phase II - Requirements for Reliability and Mitigation of FMCC report revealed that relatively modest amounts of peak load reductions at peak times can have a substantial impact on reducing FMCCs.

Time-of-use rates provide customers with more accurate price signals that reflect the true cost of generating and delivering electricity at the time the customer demands electricity. Implementing time-of-use rates in Connecticut will help reduce discretionary electric consumption and shift some electric loads to less expensive off-peak periods, reducing FMCCs for all Connecticut ratepayers. Time-of-use rates also give customers more control over their own energy bills.

Demand response (DR) programs provide significant electric reliability benefits as well as having the ability to mitigate electricity market volatility, dampen market power, promote greater economic efficiency, and potentially provide a means for environmental improvement. Therefore, the CEAB recommends that the state promote the increased development of DR, along with ongoing energy conservation and efficiency programs. In 2005, Connecticut customers provided ISO-NE with 300 megawatts of DR.

Electricity Demand Recommendations

Energy Efficiency Recommendations

1. Reducing the projected level of electrical consumption in 2010 by 7% through energy efficiency and conservation, as recommended by the Energy Conservation Management Board (ECMB).
2. Having programs and marketing efforts target reducing the FMCCs that impact all Connecticut energy users. As recommended in the EIA, programs should be evaluated for how cost effective they are in reducing kilowatt peak load in southwestern Connecticut coincident with peak system loads in that region and in the state.
3. Restorating full CEEF funding as well as applying some portion of EIA funding to these efforts and slowing load growth in peak demand in Connecticut by at least 75 megawatts annually with energy efficiency programs.
4. Having the ECMB identify opportunities to offer joint programs providing efficiency measures that save more than one fuel resource, or to direct the coordination of programs targeted at saving more than one fuel resource. In addition the ECMB and the Connecticut Clean Energy Fund (CCEF) should examine opportunities to coordinate those programs and activities funded to reduce the long-term cost, environmental impacts, and security risks of energy in the state. Any costs for joint programs should be allocated equitably among the programs.
5. Ensuring that information on managing energy costs, energy assistance programs and energy efficiency improvements is readily available to all customer classes. Programs should be available to assist all Connecticut energy users to cope with the rising costs of energy and reduce the impact of energy use on air quality. Extending the state sales tax exemption for the purchase and installation of energy efficient products is also recommended.
6. Providing public education programs that emphasize the benefits associated with the more efficient and timely use of electricity to reduce individual bills and the impact of FMCC on all rate payers.
7. Adopting high-performance building standards for all State projects and municipal projects that receive at least 25% State funding and mandate the purchase of Energy Star appliances and equipment for all State facilities. Participating in regional efforts to improve the State building code and adopt more efficient standards for household appliances.
8. Evaluating all programs to meet a Total Resource Cost Test, considering cost effectiveness including costs and benefits to the customer and all ratepayers, that capture benefits in all fuels in addition to electric savings.

9. Encouraging consumers and decision makers to utilize a life-cycle cost analysis that includes lifetime energy and maintenance cost and not just first cost or low bid when selecting energy systems and equipment.
10. Having the ECMB target conservation and load management (C&LM) and focus significant resources through conservation and load management programs on customers in southwestern Connecticut and target the installation of technologies which control equipment that would normally contribute to the coincident peak demand, and thus mitigate FMCCs to all ratepayers; aggressively targeting all customers in the Norwalk-Stamford area for increased conservation measures; targeting commercial, industrial and municipal electric customers with load factors lower than 50%.
11. Designing CEEF programs to capture the maximum achievable cost-effective potential from energy efficiency in Connecticut that would reduce peak demand by 13% (908 megawatts) by 2012 statewide, resulting in zero growth in electric load through 2012. Maximum achievable cost-effective potential for peak demand reduction in southwestern Connecticut is 188 megawatts or 13%.
12. Evaluating CEEF programs for cost effectiveness related to installing equipment and technology that reduce kilowatt peak load in SWCT coincident with peak system loads in that region and their impact on reducing FMCCs for all Connecticut ratepayers. Although summer air conditioning is typically considered the incremental load that drives the high summer peak demand, the efficiency and demand created by other energy consuming equipment that also contributes to the peak demand should be addressed.

Demand Management Recommendations

1. Encouraging participation in ISO-NE's Real-Time Demand Response Program. This program is available to businesses capable of reducing a minimum of 100 kilowatts of demand pursuant to the ISO-NE's Load Response Programs. The Real-Time Demand Response Program (mandatory response) is separated into two programs that require the customer to commit to mandatory load reductions and be able to interrupt load either within thirty minutes, or two hours following notice via an Internet Based Communication System (IBCS) message from ISO-NE.
2. Encouraging participation in ISO-NE's Real-Time Price Response Program. Near real-time metering customers must be capable of reducing a minimum of 100 kilowatts of demand, while those who choose a next-day metering option must be capable of reducing a minimum of 50 kilowatts of demand pursuant to the ISO-NE's Load Response Programs.
3. Having Connecticut's electric distribution companies continue to target commercial, industrial and municipal customers for the load response programs in the 54 towns in southwest Connecticut (SWCT), with particular emphasis on the 16 priority towns in the Norwalk-Stamford sub-area. Particular attention should be paid to customers with a seasonal load factor under 50%.
4. Encouraging the formation of independent load response pools that aggregate multiple customers capable of providing a significant demand reduction response to market signals.
5. Developing and implementing peak, shoulder and off-peak time-of-use rates by electric distribution companies for business customers who have a maximum demand of more

than 350 kilowatts. Developing and offering time-of-use rates to all residential customers to encourage load shifting of energy use to off-peak periods and conservation.

6. Providing and offering, by the electric distribution companies, seasonal rates to all customers, and providing customers with comparative analysis that demonstrates the effect of seasonal rates at current levels of consumption as prescribed in the PA 05-1 sec13 (c) (d).
7. Availing all customers with peak demand of 350 kW or larger access to the output from advanced metering and load management equipment for managing their electric use and demand. Encouraging the installation of advanced metering, load shedding and load reduction technologies, and energy management systems capable of reducing peak demand and assisting customers in responding to market-based pricing signals.
8. Supporting the installation of clean and efficient demand response resources that will satisfy both the system-wide requirements and the load-pocket needs, making more efficient use of existing transmission and generation infrastructure and saving consumer capacity and congestion costs.

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Department of Public Utility Control (DPUC)
Connecticut Siting Council (CSC)
Office of the Consumer Counsel (OCC)
Energy Conservation Management Board (ECMB)
ISO New England (ISO-NE)
Public Utilities

Section 2 - Natural Gas

Overview of Current Situation - Natural Gas

Connecticut consumers have experienced significant increases in natural gas prices over the past several years. Since 2003 natural gas prices have increased by approximately 60%. These higher prices led to an increased cost of heating homes and businesses and higher costs to manufacturers for those industries that rely on natural gas for processes. The key variables in the price of natural gas include demand growth, the state of the economy, production levels, storage levels, weather or mean temperature, and alternate fuel prices (primarily oil). Although natural gas supplies and prices are typically stable over longer periods of time, an increase or decrease in supply, or an increase or decrease in demand, even as little as 10%, can dramatically impact the price of the product in the wholesale market. Recent experience with Hurricanes Katrina and Rita have demonstrated that low probability events, such as storms or political turmoil, can dramatically affect both supply and price of fuel. The growth in natural gas use in the region will most likely keep upward pressure on prices.

Natural Gas Supply

Natural Gas Supply Issues

Natural gas supply consists of two elements: the units of fuel called the commodity, and the delivery of natural gas. Both elements are necessary to ensure adequate gas supply in the state. Connecticut has no in-state natural gas resources. Natural gas is delivered here from Canada and the Gulf of Mexico regions through interstate pipelines that terminate in New York or Boston. Gas is also supplied to New England by liquid natural gas (LNG) tanker ships principally through a terminal located in Boston. Connecticut is at or near the end of all of these pipelines. This tends to impact customer prices in two ways. First, since Connecticut's natural gas has to be transported the greatest distance, the state's transportation cost is among the highest in the nation. Second, over time as demand for natural gas grows to fill the capacity of pipelines, the state's gas local distribution companies (Connecticut Natural Gas, Yankee Gas, and Southern Connecticut Gas) have to outbid other potential buyers that are closer to the gas wellhead for pipeline capacity rights. Both delivery issues raise customer costs.

In order to meet their reliability obligations, the DPUC requires each gas local distribution company (LDC) to secure enough natural gas supply to meet firm sales customer requirements based on the coldest day in the last 30 years. This is the maximum amount of gas their distribution systems would need to supply customer requirements on peak demand days. This level of supply ensures that customers with firm service are guaranteed gas even during prolonged cold spells. The LDCs must pay a premium to reserve interstate pipeline capacity and supply that will only be needed on the coldest winter day. To offset some of this price impact, the LDCs sell their unused gas to customers who have the ability to choose gas when it is available or switch to an alternate fuel source when it is not. These interruptible customers may not receive natural gas supply during the coldest part of the winter when committed capacity is needed for firm residential and business customers.

In Connecticut, there is an infrastructure that can provide adequate natural gas supply, both in terms of commodity and capacity, to meet the DPUC's standard for firm residential, commercial and industrial customers. However, projected growth in demand in these sectors will strain the ability of the LDCs to meet the capacity needs of their firm customers. To address the growing demand for natural gas in the future, new capacity and infrastructure will need to be constructed to serve the state. There may also be a need for more local storage capacity to assist in meeting peak loads.

Natural Gas Supply Recommendations

The CEAB believes that an effective long-term state energy policy will require the State's policymakers to take action to address both the supply and demand elements of the state's natural gas equation. On the supply side, the state must encourage the expansion of both natural gas supply and pipeline/storage capacity. In terms of increasing transportation capacity, this includes building new pipelines, developing new LNG import terminal facilities, or a combination of these options. In terms of expanding natural gas storage capacity, this will likely mean developing additional LNG peak storage facilities similar to the Yankee LNG facility now currently under construction in Waterbury.

As a result, the CEAB recommends Connecticut take the following steps:

1. Provide financial and non-financial mechanisms to encourage the investment in new or enhanced infrastructure that will provide additional natural gas delivery and storage capacity for the state, including new LNG facilities.
2. Develop environmentally and socially acceptable ways to increase Connecticut’s natural gas supply.
3. Encourage natural gas-fired electric generating facilities to have dual-fuel capabilities and to have appropriate measures in place for alternative fuel supply during winter peak demand periods.

Natural Gas Demand

Natural Gas Demand Issues

Since consumers have demonstrated a preference for natural gas over other forms of energy, demand for natural gas is growing in both the commercial and residential sectors. Demand for natural gas threatens to outpace the ability of the existing natural gas supply infrastructure to meet the state’s needs in the coming years. There are limited alternatives to increasing the supply of natural gas, especially if natural gas provides a good short-term approach for meeting air quality requirements. Typically natural gas has two major end uses competing for a limited supply - heating and electric generation. In addition to expanding supply, the state could modify demand through aggressive conservation and energy efficiency initiatives.

Increased Demand for Electricity Means Increased Demand for Natural Gas

The longer-term issues related to the increasing reliance on natural gas for producing electric power in New England and neighboring regions suggest the need for greater electric supply-side fuel diversity in the region. A large portion of the gas-fired electric generating units in the state lack either firm gas contracts or dual-fuel capability. This issue could dramatically impact ISO's ability to reliably operate the bulk power system during periods of extreme winter weather when the natural gas supply or delivery systems are at capacity.

According to ISO New England's Regional System Plan 2006, the emergence of natural gas as the premier fuel for electrical generation is an issue of concern. It is important to note that Connecticut arguably has the most stringent electric power plant air emissions standards in the nation. As a result, natural gas has emerged as the fuel of choice because of its clean-burning attributes for use by electric generators to meet the region's increasingly stringent air emissions standards. Availability of natural gas during hot summer periods may also become a reliability issue, depending on the number of new natural gas-fired generators that will be built within the region. Construction of new natural gas-fired generation within the region without corresponding natural gas supply infrastructure improvements will foster price competition for a limited natural gas supply in the inadequate delivery systems, driving both natural gas and electric costs upward.

Need for Conservation and Efficiency

Much like electric demand, the most cost efficient way to ensure adequate natural gas supply is to reduce demand through efficiency improvements and conservation. The EIA requires the expansion of natural gas conservation and efficiency programs. The installation of insulation, energy efficient windows, efficient heating equipment and building controls can dramatically reduce the demand for natural gas. The DPUC has consistently supported and encouraged conservation by energy users through the implementation of specific conservation programs and allows conservation expenses to be recovered through firm natural gas rates. The natural gas utility ratepayers through their LDCs currently fund state mandated programs such as the Energy Conservation Loan Program and the Residential Energy Conservation Service Program to provide residential energy audits. Conservation programs assist customers in controlling their monthly heating bills, conserving energy, and reducing peak day usage. The DPUC in its dockets has elicited additional natural gas conservation information and proposals as well as approved increased funding to improve the energy efficiency programs offered to natural gas consumers.

Natural Gas Demand Recommendations

The CEAB recommends Connecticut take the following steps:

1. Expand low-income conservation programs to include heating system upgrades that encompass Energy Star-rated furnaces and boilers. The LDCs should not restrict low-income program eligibility to owner-occupied structures, but include the many low-income customers who rent.

2. Develop and fund a broad array of conservation and efficiency programs comparable to those offered to electric consumers; for example, incentives program to pay the incremental cost when consumers purchase Energy Star-rated natural gas appliances could be implemented.
3. Develop a portfolio approach to reducing energy usage in multifamily dwellings by engaging both the tenants and building owners, and utilizing all available energy efficiency incentives and loan mechanisms to maximize the potential energy and cost reductions. Structure new construction programs to target multifamily housing so they may share in the benefits of the Connecticut Energy Efficiency Fund and coordinate with the Connecticut Clean Energy Fund to provide renewable energy sources for multifamily housing.
4. Continue to promote energy efficient combined heat and power (CHP) applications throughout Connecticut. Develop a technical resource and target-marketing initiative that will educate owners and operators of potential CHP sites on the advantages of CHP. Encourage companies to convert unused and underutilized buildings and brownfield sites in urban areas into productive properties utilizing new high efficiency CHP.
5. Promote natural gas efficiency education through the Connecticut Energy Efficiency Fund (CEEF).

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Department of Public Utility Control (DPUC)
Office of Policy and Management (OPM)
Energy Conservation Management Board (ECMB)
Independent System Operator – New England (ISO)
Local Gas Distribution Companies (LDCs)
Office of Consumer Counsel (OCC)
Institute for Sustainable Energy (ISE)

Section 3 - Petroleum

Overview of Current Situation - Petroleum

Connecticut consumers have experienced unprecedented increases in heating oil and gasoline prices over the past two years. The volatile prices due to interruptions in supply and an increase in demand for petroleum worldwide have increased the cost of heating homes and businesses and the cost of manufacturing for those industries that rely on petroleum for process applications. The average price per gallon of unleaded gasoline exceeded $3.25 in September 2005 and August 2006, according to the Department of Energy's Energy Information Administration. The key variables in petroleum price include demand, production levels, storage levels, weather or mean temperature, and alternate fuel prices (primarily natural gas prices). Although oil supplies and prices normally are stable, recent experiences with Hurricanes Katrina and Rita make evident that low probability events, such as storms or political turmoil, can dramatically affect both the supply and price of fuel.

Petroleum Supply

Petroleum Supply Issues

The petroleum industry distributes multiple products to five sectors: residential, commercial, industrial, power generation, and transportation. These products include residual fuel, distillate fuel, and motor gasoline. Residual fuel is commonly used by the commercial and industrial sectors for boiler fuel. Distillate fuels include a number of products such as #2 heating oil, diesel fuel, liquid petroleum gas (LPG), and propane. Distillate fuels are used for a variety of purposes, including transportation, marine operation, and in general space heating equipment. Gasoline is used primarily as a transportation motor fuel, and in small generators and power equipment. Sixty percent of all petroleum in Connecticut is used by the transportation sector.

The primary concerns with using petroleum products are price volatility, dependence on foreign energy sources, supply interruption, air pollution and greenhouse gas emissions. Since the mid-seventies, Connecticut policy has been aimed at reducing dependence on foreign petroleum supplies because more than 80% of the state's oil comes from foreign sources. This situation leaves Connecticut vulnerable to a supply interruption.

Emissions from the combustion of petroleum have been a concern since the passage of the 1990 Clean Air Act. New burner technology and automotive fuel system designs have reduced certain emissions significantly, although petroleum still emits significantly more air pollutants than comparable natural gas equipment. More recently, greenhouse gas emissions (GHG) have become a source of concern for Connecticut. The need to control GHG emissions has implications on choices of fuels that heat homes and power vehicles in the state.

Alternative fuels offer great promise in mitigating some of the issues associated with traditional petroleum products. Whether used as an outright replacement for petroleum products or as a component to be blended with petroleum products, alternative fuels face supply issues as well. The production of biofuels (ethanol, biodiesel, and bioheat) is currently limited, placing some

restriction on how quickly these alternatives can become a significant resource. Compressed natural gas (CNG) is also an alternative transportation fuel, but from a supply perspective has the same concerns as natural gas. It is estimated that the current alternative fuel vehicles (AFV) programs in the state are responsible for displacing approximately 75,000 gallons of petroleum fuel annually[3].

Petroleum Supply Recommendations

The CEAB recommends Connecticut take the following steps:

1. Commercialize the manufacturing of biofuel in the state.
2. Encourage the continuation of the use of ethanol in gasoline to reduce the need for fossil fuels.
3. Encourage the promotion and distribution of biofuel blends for heating and transportation fuels.
4. Support the use of clean fuel created from the waste products of the manufacturing and food service sectors.
5. Develop a Connecticut Agriculture Business cluster to identify opportunities to assist in reducing the need for fossil fuel by encouraging the preservation and use of Connecticut farmland for the production of biofuels. This initiative will create jobs and revenue for farmers while reducing dependence on foreign oil.

Petroleum Demand

Petroleum Demand Issues

Despite recent increases in the cost of using petroleum products, consumption of petroleum products continues to increase. This is particularly true within the transportation sector, where alternatives to petroleum products are few. Alternatives to heating fuels exist and are widely available to consumers. Heating oil is in direct competition with natural gas as a major source of heating homes and businesses. This competition has led to increases in efficiency levels for both technologies. Even with these increases in efficiency levels, the overall level of petroleum usage has continued to grow. Energy efficiency can continue to play an important role in decreasing the use of petroleum products in all sectors. With the advent of biofuels, further alternatives to traditional petroleum products will become available in the near future.

The transportation sector represents the single largest consuming sector of petroleum products. Although alternative fuels to gasoline and diesel exist, the fact that these alternatives are not widely available continues to be a significant challenge to reducing petroleum usage.

Hybrid electric vehicles use a combination of fuels, such as gasoline, diesel, biodiesel, or CNG, together with an electric power system, to propel the vehicle. These vehicles are becoming more popular as the technology expands into a greater share of the current automobile market. Displacement of petroleum is accomplished through greater efficiency of the system. Hybrid

[3] Note: figure does not include displacement from gasoline powered vehicles. Comparison with gasoline not available.

vehicles are increasing in number because they can use the current fuel infrastructure. In Connecticut, the Clean Cities Program has a strong history of encouraging alternative fuel vehicles (AFV) throughout the state using a variety of resources from the private sector and local, state and federal governments. The increased use of AFVs will help the state reduce the health risks from pollution and meet federal air quality standards for particulate matter.

Petroleum Demand Recommendations

The CEAB recommends Connecticut take the following steps:

1. Create and fund energy conservation and efficiency programs to assist oil heating customers improve the efficiency of their equipment and weatherize their homes, and ensure that information on managing energy costs, energy assistance programs and energy efficiency improvements is readily available to all customer classes.
2. Extend the State sales tax exemption for the purchase and installation of energy efficient products including high efficiency oil boilers and furnaces and water heaters beyond April 1, 2007.
3. Encourage state government and CT Transit to purchase environmentally-friendly vehicles including hybrid vehicles, alternative fuel or dual fuel vehicles whenever possible.
4. Encourage private fleet conversion to natural gas, hybrid technology and alternate fuels such as biofuel, and support the development of appropriate refueling infrastructure.
5. Promote and expand the existing State vanpool programs, carpooling, express bus**,** telecommuting, deduct-a-ride, Nu-Ride, park and ride, and other innovative strategies to reduce the number of vehicles on the road and the amount such vehicles are driven each year.
6. Support the restoration of full commuter rail service on the New Haven-Hartford-Springfield line, and support initiatives for new and additional commuter rail parking.
7. Improve intermodal connections at key transportation hubs and urban centers to more effectively serve major markets and activity centers and support overall marketing of all intermodal transportation services
8. Support Transit Oriented Development (TOD) initiatives that promote the development of residential, commercial, and employment centers within walking distance to public transportation facilities and services in order to facilitate and encourage use of those services.
9. Develop and implement projects that modify the state highway infrastructure to improve traffic operations and manage congestion.
10. Provide State tax incentives for businesses that locate in areas accessible to public transportation facilities. Support initiatives to encourage increased ridership on buses and commuter train lines and the use of intermodal connections throughout the state.

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Office of Policy and Management (OPM)
Department of Environmental Protection (DEP)
Department of Economic & Community Development (DECD)
Department of Transportation (DOT)
Independent Connecticut Petroleum Association (ICPA)

Section 4 - Renewable Energy

Overview of Current Renewable Energy Situation – Renewable Energy

Renewable energy sources are energy generation technologies that produce electric and thermal energy using resources that can be renewed or replaced such as wind, hydro, solar, geothermal and bio-derived fuels. Renewable energy sources provide electric capacity diversity, improve economic development, reduce or eliminate air emissions, enhance energy security and reduce reliance on foreign sources of fossil fuel.

Many renewable technologies that could support Connecticut's and New England's energy needs are not cost competitive with traditional fossil fuel fired technologies. As a result, all New England states encourage the development of renewable energy supply options through state incentives, tax exemptions and other program requirements. There are two major initiatives in Connecticut that promote renewable energy: the Renewable Portfolio Standard (RPS) and the Connecticut Clean Energy Fund (CCEF). The RPS requires that the state's electric generation providers obtain a part of their supply from renewable resources, with the proportion increasing over time. The CCEF, administered by Connecticut Innovations, Inc. (CI), invests in various renewable and clean energy resources including solar and fuel cells.

Renewable Energy Supply

Renewable Energy Supply Side Issues

There are inadequate quantities of renewable energy to significantly impact energy reliability, cost or security in Connecticut due to the following supply side issues:

1. Inconsistent state policies for renewable energy, such as fluctuating amount and timing of renewable energy procurement requirements, send the inappropriate market signals to renewable energy developers thereby contributing to inadequate supply.
2. Administrative barriers to developing renewable energy sources, including State citing, approval and permitting requirements, add additional cost to developing renewable energy projects that are not yet cost competitive with traditional generation sources.
3. Current State incentive programs and tax exemptions do not offer sufficient funding to attract greater interest from renewable energy developers.
4. Technical barriers still exist that inhibit the commercial development of emerging renewable energy technologies.

Renewable Energy Supply Side Recommendations

To reduce the cost and improve the availability of renewable energy options in Connecticut, CEAB recommends the following supply side actions:

1. Promote regional standardization of renewable energy definitions and Renewable Portfolio Standards (RPS).

2. Work to reduce or remove the administrative barriers to developing renewable energy projects in Connecticut that support the clean energy initiatives of the New England Governors/Eastern Canadian Premiers Climate Action Plan and the Connecticut Climate Change Action Plan.
3. Work to reduce the technical barriers to developing renewable energy projects by supporting emerging renewable energy technologies through the development of new policy goals and financial assistance programs, as well as through further assessment and evolution of existing goals and programs.
4. Lower the cost differential of renewable energy projects by first supporting projects with customers who already experience high costs due to their critical power needs, such as 24/7 operations with high system reliability requirements.
5. Take additional steps to lower the cost differential associated with renewable energy by supporting the use of net metering up to 1 megawatt and reducing or eliminating taxes on renewable energy equipment and projects.

Renewable Energy Demand

Renewable Energy Demand Side Issues

The following demand side issues will impact both the availability and the cost of renewable energy in Connecticut.

1. The Connecticut Clean Energy Fund (CCEF) has not yet developed sufficient clean/renewable energy technologies or supplies for Connecticut through the Project 100 process.
2. Renewable energy pricing is either too high to invite wide spread consumer participation in the Connecticut Clean Energy Options program, or the program marketing needs to further penetrate the electric consumer population to move consumers to renewable energy.
3. Renewable energy pricing is too high to invite large-scale user investment in renewable energy technologies.
4. The reliability of certain renewable energy technologies may not adequately meet customer needs.

Renewable Energy Demand Side Recommendations

To reduce the cost and improve the availability of renewable energy options in Connecticut, CEAB recommends the following demand side actions:

1. Pursuant to Governor Rell's Executive Order 32, establish a base use of renewable energy by State agencies and have each agency commit to annual tracking of the progress towards the goal of 20% renewable energy use.
2. Develop a program to provide subsidies for public schools that meet high performance or Energy Star efficiency standards to acquire and install photovoltaic panels for supplemental power.

3. Encourage state consumers, through marketing or other incentives, to use clean and renewable energy technologies as the source of electricity for their homes, businesses and municipalities, and encourage biofuel blends as the preferred fuel source for transportation and home heating.

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Connecticut Clean Energy Fund (CCEF)
Department of Environmental Protection (CT DEP)
Department of Public Utility Control (DPUC)
Smart Power
Office of Policy and Management (OPM)
Connecticut Energy Efficiency Fund (CEEF)
Office of Consumer Counsel (OCC)

Section 5 - Low-Income Energy Affordability

Overview of Current Situation – Low-Income Energy Affordability

Increasing energy costs have a significant impact on the well being and living standards of Connecticut's low-income population. With the instability of fuel prices and recent increases in electric generation rates, the low-income population is unable to absorb these increases into their already constrained and depleted household finances. The caseload estimates for the 2006/2007 Connecticut Energy Assistance Program indicate that out of the 82,863 households eligible for benefits, 76% are households with elderly, disabled or young individuals.

Particularly for the low-income population, Connecticut has increasingly become an energy-unaffordable state. Home energy affordability can be analyzed as a percentage of household income that can reasonably be afforded to pay for home energy. The affordable home energy burden is generally considered to be 6% of gross household income. The home energy affordability gap has been defined as the difference between the affordable home energy burden and the actual cost of energy. The annual shortfall between actual and affordable home energy bills for households in Connecticut at or below 185% of the federal poverty level (FPL)[4] now reaches over $1,100 per household[5]. That ranks Connecticut as the third highest in the nation. When the household income level is below 50% of the FPL, the home energy burden is 62% of household income. Again that ranks Connecticut as having the third highest energy burden nationally[6]. The aggregate home energy affordability gap in Connecticut for 2005 reached nearly $255 million statewide.

This energy burden forces the state's low-income population to make difficult economic choices. According to the recent National Energy Assistance survey published by the National Energy Assistance Directors Association (NEADA), "despite…significant residential energy expenses, most low-income households pay their energy bills regularly. But at what cost?" Payment of home energy bills is often at the expense of food, medicine, clothing and education. Seventy-three percent of energy assistance recipients reported that they reduced expenses for household necessities because they did not have enough money to pay their energy bills[7]. Home energy costs can be the determining factor in a household's ability to continue to afford to live in their home. The ability of organizations creating affordable housing for the low-income population in the state is also undermined by the home energy burden and the ability for designated housing to remain affordable.

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[4] The FPL is a national figure, updated annually near the beginning of each year by the US Department of Health and Human Services (http://aspe.os.dhhs.gov/poverty/poverty.htm), and used to determine eligibility for various programs by the states.

[5] "HOME ENERGY AFFORDABILITY GAP: Connecticut (2006)", published in September 2006 by Fisher, Sheehan, & Colton, Public Finance and General Economics, Belmont, MA.

[6] "Home Energy Affordability Gap", published in April 2006 by Fisher, Sheehan, & Colton, Public Finance and General Economics, Belmont, MA.

[7] "2005 National Energy Assistance Survey Report", published by Mark Wolfe, Executive Director, National Energy Assistance Directors Association.

Section 16-262c(b) of the Connecticut General Statutes, prohibits public service and municipal utilities from terminating or refusing to reinstate gas heat and electricity customers during the winter moratorium period. The moratorium runs from November 1st to April 15th, after which a household is subject to termination of service for utility expenses that could not be afforded during the winter. All customers are entitled to payment agreements for arrearages owed to the utility that take into account affordability for monthly debt payments, but require that current bills be paid in addition. The current bills may well be unaffordable to a low-income household, even when energy assistance for heating expenses is included, as mandated by this statute. Public service gas and electric utilities (not municipal utilities) are required to offer their primary heat customers the opportunity to participate in an arrearage forgiveness program each November, provided the customer receives energy assistance for that utility's bill. Depending on the level of energy assistance available, many low-income households are unable to afford the required monthly payments to receive arrearage forgiveness. These protections leave gaps resulting in significant numbers of terminations of service during the non-moratorium period.

Energy assistance benefits available to assist the low-income population meet their energy burden has not substantially decreased the energy affordability gap. The Department of Social Services (DSS) develops and administers the Connecticut Energy Assistance Plan (CEAP) pursuant to the federal Low-Income Home Energy Assistance Program (LIHEAP). DSS contracts with local community action agencies (CAAs) for outreach and administration of CEAP during the heating season. Assistance is limited to the primary heat source for the household. While this assistance program offers basic benefits, and limited additional crisis assistance benefits for households heating with deliverable fuels, many households still cannot manage the increasing home heating costs. The home energy affordability gap increased by more than $111 million in Connecticut from 2002 to 2005, while Connecticut's LIHEAP allocation increased by only $3.9 million[8]. Private sector operated fuel banks face a similar scenario, as they are capable of offering only minimal emergency relief. Funding for Operation Fuel's administrative office is limited and assistance is delivered through a system of volunteer fuel banks that are not compensated for their administration or staff.

DSS also administers the federal Department of Energy weatherization funds through the CAAs. The Connecticut Energy Efficiency Fund also offers programs designed to support home energy conservation for low-income households, sometimes coordinated with the federal weatherization dollars. Without assistance, low-income households are generally unable to make the improvements needed to reduce energy consumption. While single family homes are generally targeted by these programs, those living in apartments may receive limited services. Low-income renters lack both the means and the legal authority to make improvements without the landlord's consent, including conservation improvements. Many landlords do not provide such consent. Additionally, properties improved through these programs may not remain low-income housing stock. While those units improved with the federal weatherization dollars require that landlords not increase rent in the short term based on these improvements, there is limited auditing or enforcement of this requirement.

[8] "HOME ENERGY AFFORDABILITY GAP: Connecticut (2006)", published in September 2006 by Fisher, Sheehan, & Colton, Public Finance and General Economics, Belmont, MA.

Establishment of the Low-Income Energy Advisory Board

On July 6, 2005 Governor Rell signed PA 05-204: *An Act Establishing a Low-Income Energy Advisory Board (LIEAB).* LIEAB is charged with:

1. Advising and assisting the Office of Policy and Management (OPM) and the Department of Social Services (DSS) in planning, developing, implementing and coordinating energy assistance related programs and policies and low-income weatherization assistance programs and policies;
2. Advising the Department of Public Utility Control (DPUC) on the impact of utility rates and policies; and
3. Making recommendations to the General Assembly about legislation and plans subject to legislative approval to ensure affordable access to residential energy services for low-income state residents.

In 2006, the Low-Income Energy Advisory Board made significant progress in identifying opportunities to expedite the processing of low-income energy assistance programs. The LIEAB has successfully recommended revisions to the Connecticut Energy Assistance Program (CEAP) including extending the program and application period for energy assistance, developing a reporting protocol tracking CEAP applications and expenditures on a monthly basis during the winter, and developing a uniform system for determining payment levels in the public service utility arrearage forgiveness programs.

Low-Income Energy Affordability Recommendations

CEAB supports the following recommendations of LIEAB identified as being critical to ongoing efforts to provide adequate resources (programs and benefits) to the low-income consumer.

1. Appropriate funding levels for low-income programs need to be identified. Establishing both the need for and the resultant benefits from additional funding for programs will greatly assist in efforts to secure such funding. LIEAB believes that a broader array of funding (private and public) resources will ultimately bring greater stability to the programs available to low-income consumers.
2. Comprehensively reexamine conservation and weatherization programs currently in place. Promotion of these programs to save energy is lost by the structure and/or timeliness of the programs currently in place. This review and any recommendations developed must take into account not just the services being offered, but the manner and timing of such services being available. Specific conservation and weatherization programs need to be developed for the low-income consumer, as this population has potentially different needs than the general residential consumer.
3. Improve communication tools between all the various providers of programs targeting the low-income consumer. Such improvement is essential to the success of the programs. Opportunities to share information across providers need to be explored and identified. The ability to share information in a timely and effective manner can have a significant impact on the customer's ability to receive program benefits in a timely manner. There is also a need for better coordination between the various utility companies so that there is a consistency of programs and benefits available to low-income consumers.

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Department of Social Services (DSS)
Office of Policy and Management (OPM)
Connecticut Energy Efficiency Fund (CEEF)
Connecticut Association for Community Action (CAFCA)
Local Community Action Agencies (CCAs)
Private Sector Fuel Banks
Office of Consumer Counsel (OCC)

Section 6 - Sustainable Development

Overview of Current Situation – Sustainable Development

In accordance with Sections 16a-24 through 16a-33 of the Connecticut General Statutes, OPM has the responsibility to prepare and promote a state plan of conservation and development on a recurring five-year cycle. The plan serves as a statement of the guidelines for development, resource management and public investment policies for the State. The plan is also used as a framework for evaluating plans and proposals submitted to OPM as part of its mandated review processes. In the spring of 2005 the Connecticut General Assembly adopted the recommended plan, in accordance with Section 12 of Public Act No. 05-205: *The Conservation and Development Policies Plan for Connecticut 2005-2010.* That plan is now in effect for the second year. The plan also supports the efforts of the Transportation Strategy Board and the State of Connecticut Long-Range Transportation Plans in the area of reducing energy use through effective transportation and land-use planning.

The Conservation and Development Policies Plan for Connecticut 2005-2010 (C&D plan) provides the framework for administrative and programmatic actions and both capital and operational investment decisions of the State government. It focuses on utilizing and improving existing infrastructure to support redevelopment and infill, and on discouraging intensive development in rural areas, especially farm land and open space, not already supported by utility and transportation infrastructure. Using the plan, OPM supports regional planning and the work of the regional planning organizations (RPOs).

The Conservation and Development Plan introduces six growth management principles, three of which clearly support the policy recommendations of the CEAB. These principles include:

1. Redevelop and revitalize regional centers and areas with existing or currently planned physical infrastructure;
2. Concentrate development around transportation nodes and along major transportation corridors to support the viability of public and mass transportation options; and
3. Protect and ensure the integrity of environmental assets critical to the public health and safety of Connecticut citizens.

Impact of High Energy Costs

Energy reliability, adequacy of supply and energy cost have a substantial influence on economic growth within Connecticut, particularly in the commercial and industrial sectors. Energy prices in the state are much higher than prices in most of the United States, and represent a competitive disadvantage to business development. Competition in the business world has affected business retention and has motivated some companies to relocate out of Connecticut.

The state's ability to attract and retain businesses can be enhanced by redeveloping Connecticut's regional centers. The C&D plan states that "…a strategy to maintain and update existing infrastructure should encourage both economical and compact urban development. This holds true and is particularly relevant regarding the reliability of electric capacity and delivery systems. Concentrated development in Connecticut's regional centers requires appropriate

energy capacity and distribution infrastructure, this type of compact growth can help reduce the need for multiple delivery systems across dispersed areas. This becomes increasingly more important as issues relating to the state's aging power grid and increasing energy demands are addressed."

The development and utilization of existing facilities located in the established regional centers of southwestern Connecticut, especially aging generation plants and buildings that once housed manufacturing industries, are especially suitable for siting incremental clean generation. Commonly known as distributed generation (DG), these generators could be configured as combined heat and power units (CHP) to utilize both their power and thermal output by providing steam or hot water to neighboring businesses. Some high tech businesses have a need for high reliability and power quality that can be provided by DG. Clean, efficient DG installed at these sites can be helpful in reducing energy costs by mitigating FMCCs. By displacing existing high polluting boilers, DG can also improve the overall air quality of the region and state.

Brownfield Redevelopment

Because of Connecticut's historically industrial economy, and the number of brownfield sites existing in the state's development areas, brownfield redevelopment is a key element in urban revitalization efforts. Brownfields are properties that have real or perceived environmental contamination that adds additional risk to the redevelopment process. There are several benefits to redeveloping brownfields in urban areas into enterprise zone-centered distributed generation sites. These benefits include reducing public health and safety risks, promoting urban economic development, increased municipal tax revenue, and encouraging development in areas with existing energy infrastructure.

To address these issues and to stimulate the redevelopment of brownfield sites, Connecticut has implemented a number of incentive programs to assist in the assessment, remediation and development of brownfields. Programs administered by DECD and DEP as well as the Connecticut Brownfields Redevelopment Authority (CBRA) offer tax incentives, up-front grants, tax-incremental financing, low-interest loans, direct financial assistance, and technical assistance. Combining these efforts with funding available to minimize FMCCs could begin to break down both real and perceived barriers to the remediation and development of brownfield sites.

Promote Transit Oriented Development

The C&D Plan promotes reducing vehicle miles traveled, land-use policies to curtail sprawl, and reductions in greenhouse gas emissions as set forth in the Connecticut Climate Change Action Plan (CCAP). Growth in the single-family housing market in suburban and rural areas has promoted migration from urban areas and has raised issues related to sprawl and its cost to the environment and Connecticut taxpayers. Issues include the need to expand utilities into underdeveloped areas and an increase in the dependence on automobiles. Commuting time for the average worker in Connecticut has increased significantly as housing preferences have

moved from urban work areas to suburbs and rural areas. This has dramatically increased commuter-related fuel consumption and polluting air emissions from automobiles. It has been determined that approximately 40% of Connecticut's annual CO_2 emissions are attributable to transportation. Traffic congestion necessitates the spending of significant state resources to repair and upgrade the road system. To address many of these issues, Connecticut has adopted strategies to shift commuters into trains, buses and van pools. This has been accomplished in other regions of the country by encouraging transit-oriented development (TOD). Through tax and financial incentives, development could be encouraged around transportation nodes and along transportation corridors offering residents an alternative to driving their cars. The C&D plan requires that municipalities, RPOs and the State identify areas where it is feasible and prudent to encourage TOD and transit-accessible, pedestrian-oriented, and mixed-use development patterns.

Protect and Ensure the Integrity of Environmental Assets

Connecticut has seen significant improvement in air quality over the past twenty years. However there continue to be periods when air is unhealthy, especially in summer. Periodically portions of the state have been unable to meet ozone standards and have reached levels considered to be serious or severe. In addition, there is mounting concern over increases in greenhouse gases, believed to contribute to climate change and global warming. Many of the strategies and actions to minimize the impact on the environment in the C&D plan are identical to those in the Connecticut Energy Efficiency Fund programs.

Sustainable Development Recommendations

The CEAB support the state's efforts to promote responsible development and sustainable growth through the following recommendations:

1. Resolve conflicts between the mission of DECD and the C&D Plan's mission to promote land use policies that preserve open space and farmable land to encourage development in regional urban centers and in TODs.
2. Encourage more urban-centered land-use patterns to utilize existing utility infrastructure. Create incentive-based priming of urban and mixed-use real estate markets that encourages the development of new and existing industry in enterprise zones and provides mass transit for the workforce.
3. Develop enterprise zones clustered around the refurbishing, upgrading and redeployment of outdated existing power plants in southwestern Connecticut while avoiding consolidation of power plant ownership. These enterprise zones should utilize highly efficient generation technology, combined heat and power (CHP), district heating and cooling, and if possible, renewable energy sources such as fuel cell and biofuel technology.
4. Encourage companies to convert unused and underutilized buildings in urban areas and brownfield sites into productive properties, utilizing new high efficient distributed generation, CHP and renewable energy technology.

5. Encourage municipalities, RPOs, and the State to identify areas where it is feasible and prudent to encourage transit oriented development and transit-accessible, pedestrian-oriented, mixed-use development patterns, especially when developing State subsidized, affordable, energy efficient housing.

The CEAB supports the state's transportation and transit oriented development initiatives through the following recommendations:

1. Consider providing incentives to developers to invest in projects that complement the local community development goals and the state's goal to develop within transportation corridors, and support operating transit systems, such as pre-approved development areas and density bonuses for protecting open spaces.
2. Provide State tax incentives for businesses that locate in areas accessible to public transportation facilities.
3. Improve intermodal connections at key transportation hubs and urban centers to more effectively serve major markets and activity centers.
4. Encourage communities to promote energy-efficient patterns of development such as revitalized regional centers, higher-density zoning around public transportation nodes and along corridors, and planned mixed-use development that provides citizens with convenient access to transit and more opportunities for bicycling and walking.
5. Promote travel reduction programs that reduce the rate of growth of annual vehicle miles traveled to a level that will contribute to the achievement of attainment of ambient air quality standards for ozone, a reduction in carbon-dioxide emissions, energy intensity improvements and reduced petroleum reliance including expansion of the existing State vanpool programs.
6. Encourage the purchase of alternative fuel vehicles including hybrid vehicles, and biodiesel, for public agencies, private companies and individuals. Encourage fleet conversion to hybrid technology and alternate fuels such as biofuels, and support the development of appropriate refueling infrastructure.

The CEAB supports the C&D Plan on protecting the integrity of environmental assets through the following recommendations:

1. Continue to provide State resources to implement the recommendations included in the Conservation and Development Policies Plan for Connecticut 2005-2010 and the 2005 Connecticut Climate Change Action Plan.
2. Support legislation that requires that all building projects (over $2,000,000) receiving at least 25% State funding will be designed to high-performance building standards. Acceptable high-performance building standards require an integrated design approach maximizing the use of natural lighting, providing excellent indoor air quality, and requiring the building system to be commissioned. The final design and the building once constructed must be at least 20% more efficient than the current building code.
3. Encourage the annual review and update to the State building code and appliance standards.
4. Encourage the users of the DAS to always purchase "green" environmentally-friendly products, Energy Star-rated products, and alternative fuel energy-conserving vehicles whenever possible.

5. Adopt a state-wide waste management plan that preserves natural resources and recycles materials that can be used as a substitute for new materials in manufacturing.
6. Encourage the development of local tax structures that encourage the use of growth management principles, the construction of energy efficient buildings, the installation of renewable energy, the reuse of sites with existing infrastructure and that discourage overbuilding and construction in open space and farm land areas.

Supporting Organizations

The CEAB recommends that agencies and organizations that should have a supportive roll in achieving the recommendations in this section include but not be limited to those listed below:

Office of Policy and Management (OPM)
Regional Planning Organizations (RPOs)
Department of Environmental Protection (DEP)
Department of Transportation (DOT)
Department of Economic & Community Development (DECD)
Connecticut Brownfields Redevelopment Authority (CBRA)
Department of Public Utility Control (DPUC)
Office of Consumer Counsel (OCC)

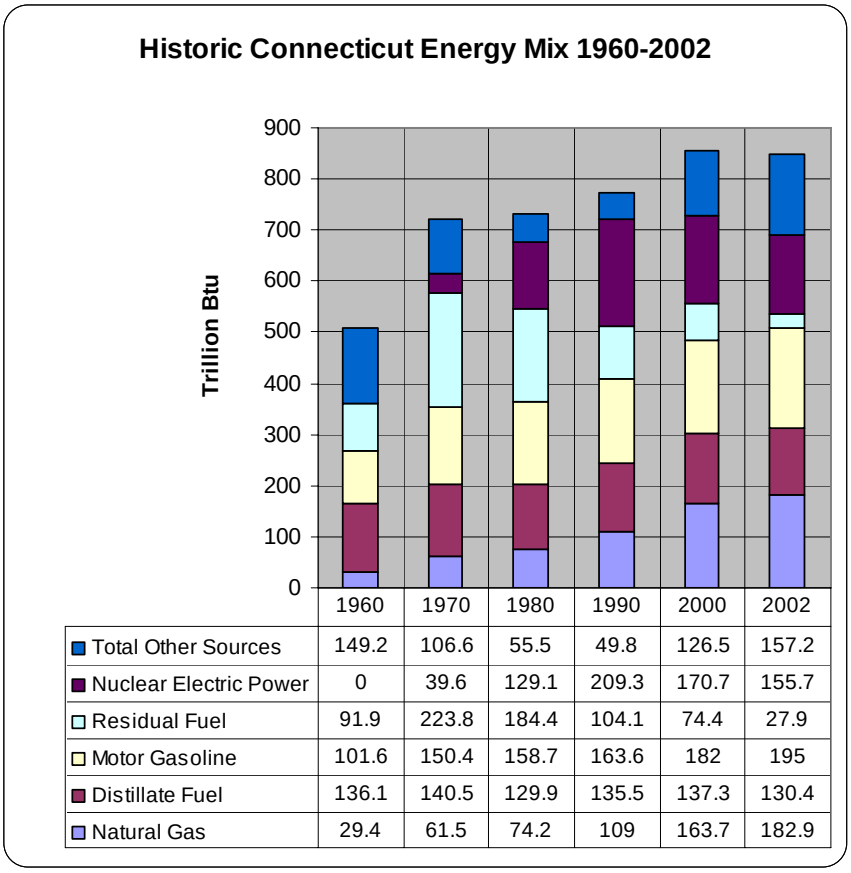
Part 3
Connecticut's Energy Profile

Supplement to the 2007
Connecticut State Energy Plan

Prepared by the Institute for Sustainable Energy
at Eastern Connecticut State University
September 2006

Overview of Energy in Connecticut

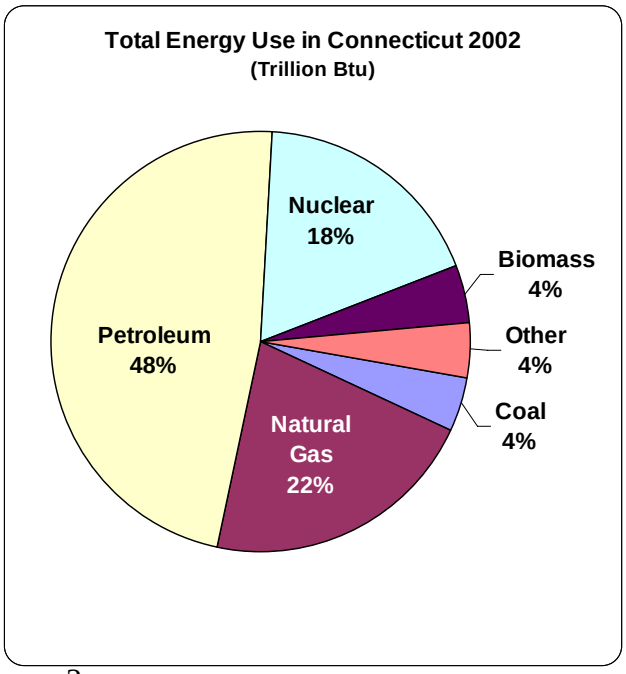
Below is an overview of energy consumption in Connecticut. Data was made available through the Department of Energy through 2002.



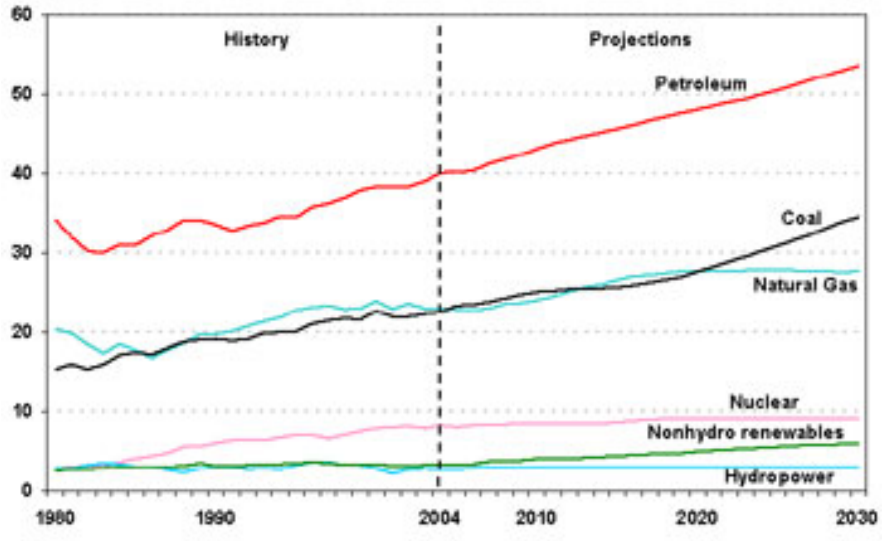
	1960	1970	1980	1990	2000	2002
Total Other Sources	149.2	106.6	55.5	49.8	126.5	157.2
Nuclear Electric Power	0	39.6	129.1	209.3	170.7	155.7
Residual Fuel	91.9	223.8	184.4	104.1	74.4	27.9
Motor Gasoline	101.6	150.4	158.7	163.6	182	195
Distillate Fuel	136.1	140.5	129.9	135.5	137.3	130.4
Natural Gas	29.4	61.5	74.2	109	163.7	182.9

Figure—1- Energy use in Connecticut has significantly increased since 1960. The largest growth area continues to be natural gas.[1]

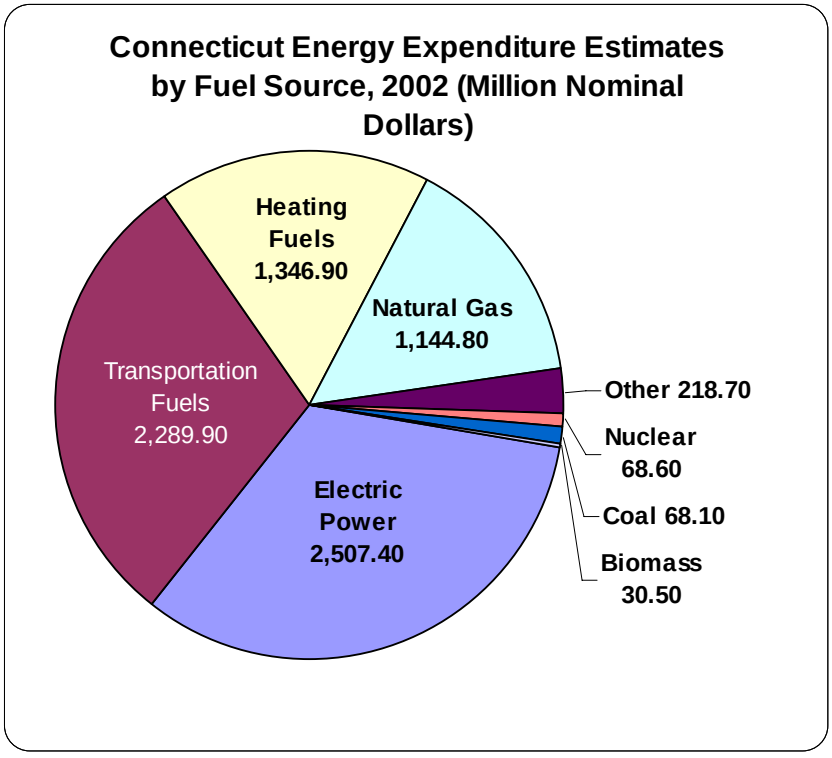
Figure—2- Total energy use in Connecticut shows a marked reliance on petroleum fuels (including heating fuels and motor gasoline).[2]



U.S. Energy Consumption by Fuel (1980-2030)



Figure—3- National fuel use consumption trends indicate expected growth in petroleum, coal and natural gas fuels.[3]



Figure— 4- 2002 estimated total expenditures in Connecticut were $7,674,900,000, with the greater portion spent on electric power, transportation fuels and heating fuels.[4]

Electric Consumption and Sources in Connecticut

Connecticut Electricity Profile

	Value	U.S.Rank
Net Summer Capability (megawatts)	7,929	35
Electric Utilities	174	46
Independent Power Producers & Combined Heat and Power	7,756	14
Net Generation (megawatthours)	32,633,408	38
Electric Utilities	45,095	46
Independent Power Producers & Combined Heat and Power	32,588,313	10
Emissions (thousand metric tons) / Sulfur Dioxide	7	47
Nitrogen Oxide	10	46
Carbon Dioxide	10,262	40
Sulfur Dioxide (lbs/MWh)	0.4	47
Nitrogen Oxide (lbs/MWh)	0.7	45
Carbon Dioxide (lbs/MWh)	693	46
Total Retail Sales (megawatthours)	32,214,610	33
Full Service Provider Sales (megawatthours)	31,470,175	33
Deregulated Sales (megawatthours)	744,435	16
Direct Use (megawatthours)	1,540,638	24
Average Retail Price (cents/kWh)	10.26	10

Table—1- Connecticut Energy Profile. US rankings are from #1 as highest.[5]

Connecticut's Ten Largest Plants by Generating Capability, 2004

Plant	Energy Sources	Operating Company	Net Summer Capability (MW)
1. Millstone	Nuclear	Dominion Nuclear Conn Inc	2,037
2. Middletown	Other, Gas, Petroleum	Middletown Power LLC	837
3. Lake Road Generating Plant	Gas	Lake Road Generating Co LP	729
4. Bridgeport Station	Other, Petroleum, Coal	PSEG Power Connecticut LLC	513
5. Montville Station	Gas, Petroleum	NRG Montville Operations Inc	496
6. Milford Power Project	Petroleum, Gas	Milford Power Co LLC	464
7. Bridgeport Energy Project	Gas	Bridgeport Energy LLC	454
8. New Haven Harbor	Petroleum	PSEG Power Connecticut LLC	448
9. Devon Station	Gas, Petroleum	NRG Devon Operations Inc	354
10. NRG Norwalk Harbor	Petroleum	NRG Norwalk Harbor Ops Inc	342

Table—2- Connecticut's Ten Largest Plants by Generating Capability, 2004[6]

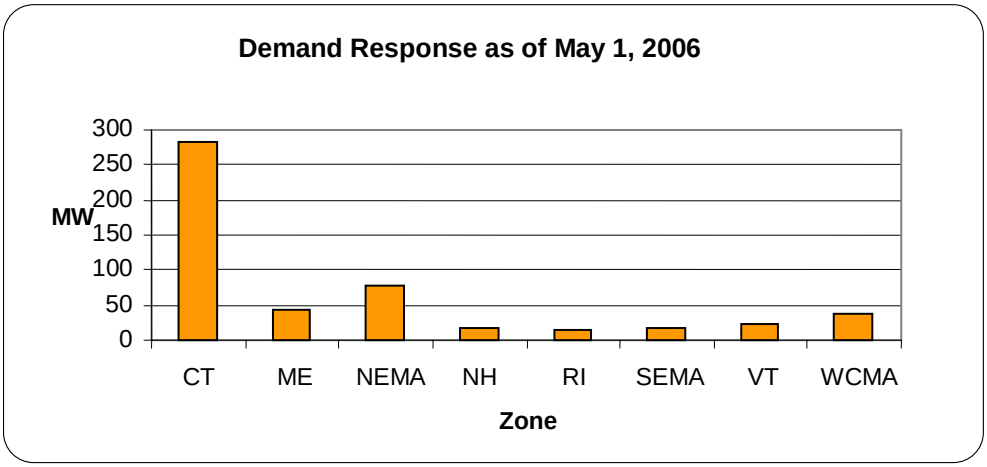
Connecticut's Top Five Providers of Retail Electricity, 2004
(Megawatthours)

Entity	Ownership Type	All Sectors	Residential	Commercial	Industrial	Transport-ation
1. Connecticut Light & Power Co	Investor-Owned	23,404,183	10,039,484	9,707,644	3,466,987	190,068
2. United Illuminating Co	Investor-Owned	5,952,000	2,347,000	2,648,000	957,000	0
3. Wallingford Town	Public	635,990	216,216	241,741	178,033	0
4. Groton Dept of Utilities	Public	600,165	113,987	132,161	354,017	0
5. Norwich City of	Public	347,626	125,508	164,487	57,631	0
Total Sales, Top Five Providers		30,939,964	12,842,195	12,894,033	5,013,668	190,068
Percent of Total State Sales		96	97	96	94	100

Table—3- Connecticut's Top Five Providers of Retail Electricity, 2004[7]

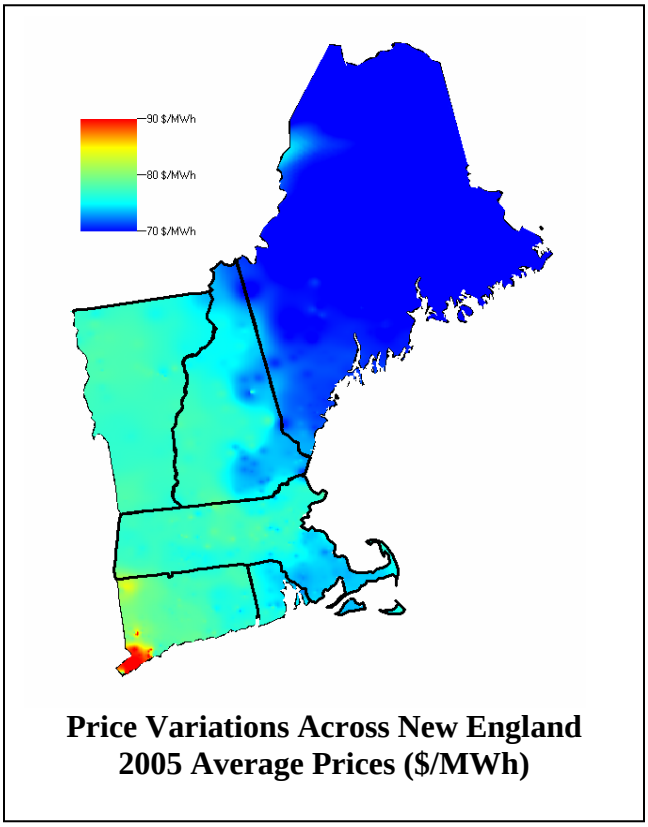
Connecticut Electric Power Industry Capability by Primary Energy Source, 1990 Through 2004 (Megawatts)						
Energy Source	**1990**	**1995**	**2000**	**2004**	**Percentage Share**	
					1990	**2004**
Electric Utilities	**7,141**	**6,722**	**2,204**	**174**	**92.9**	**2.2**
Coal	385	385	0	0	5.0	0.0
Petroleum	2,807	2,200	176	165	36.5	2.1
Natural Gas	0	214	0	0	0.0	0.0
Dual Fired	528	528	0	0	6.9	0.0
Nuclear	3,217	3,194	2,017	0	41.9	0.0
Hydroelectric	108	131	10	9	1.4	0.1
Other Renewables	64	64	0	0	0.8	0.0
Pumped Storage	32	6	0	0	0.4	0.0
Independent Power Producers and Combined Heat and Power	**546**	**674**	**4,243**	**7,756**	**7.1**	**97.8**
Coal	200	200	547	553	2.6	7.0
Petroleum	10	0	1,154	2,035	0.1	25.7
Natural Gas	17	95	743	646	0.2	8.1
Dual Fired	208	117	1,416	2,149	2.7	27.1
Nuclear	0	0	0	2,037	0.0	25.7
Hydroelectric	21	21	132	137	0.3	1.7
Other Renewables	89	241	244	192	1.2	2.4
Pumped Storage	0	0	7	4	0.0	0.1
Other	0	0	0	1	0.0	0.0
Total Electric Industry	**7,687**	**7,397**	**6,447**	**7,929**	**100.0**	**100.0**
Coal	585	585	548	553	7.6	7.0
Petroleum	2,817	2,200	1,330	2,200	36.6	27.7
Natural Gas	17	309	743	646	0.2	8.1
Dual Fired	736	645	1,416	2,149	9.6	27.1
Nuclear	3,217	3,194	2,017	2,037	41.9	25.7
Hydroelectric	129	151	142	146	1.7	1.8
Other Renewables	154	305	244	192	2.0	2.4
Pumped Storage	32	6	7	4	0.4	0.1
Other	0	0	0	1	0.0	0.0

Table—4-Connecticut Electric Power Industry Capability by Primary Energy Source, 1990 -2004. Since electric deregulation, generation has shifted from utility generation to independent generators. Percentage share of fuel source generation has decreased for petroleum, and shown marked growth in dual fired plants. Nuclear power generation has decreased in the state since 1990. Renewable power generation remains a very small fraction of the state's generation. [8]



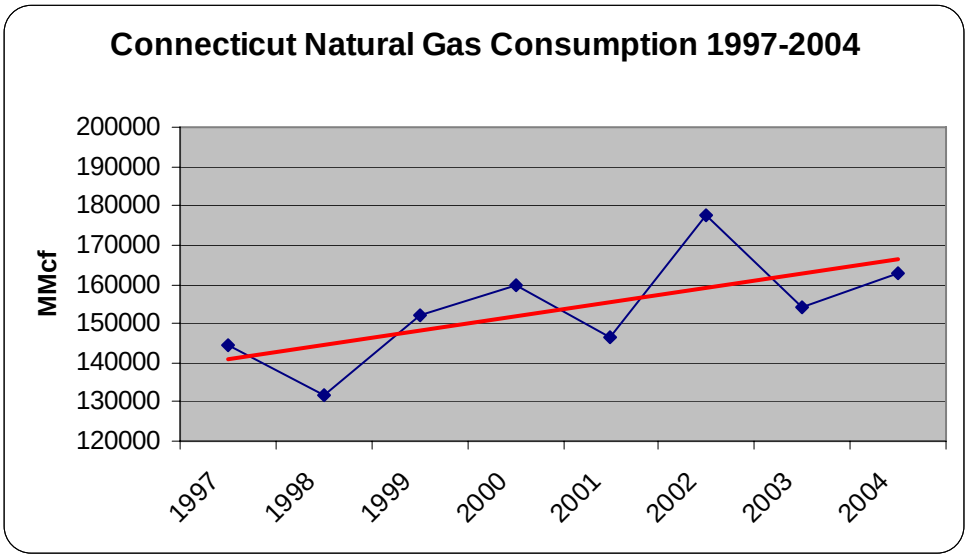
Figure—5- Demand Response for Electric Generation as of May 1, 2006[9]

Figure—6- Price Variation Across New England 2005 average prices were highest in southwestern Connecticut.[10]

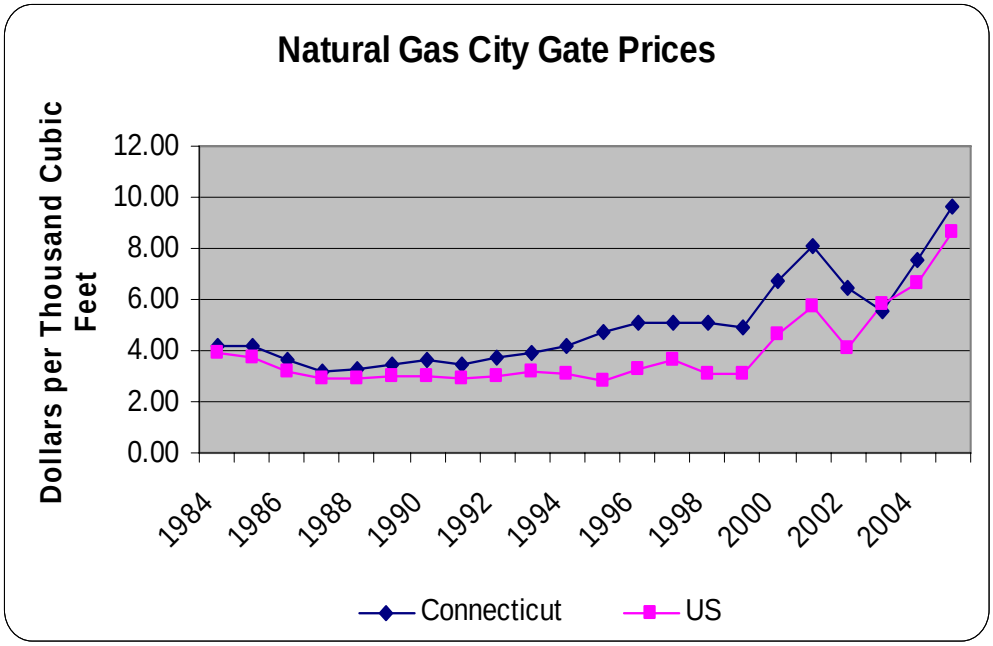


Natural Gas Consumption in Connecticut

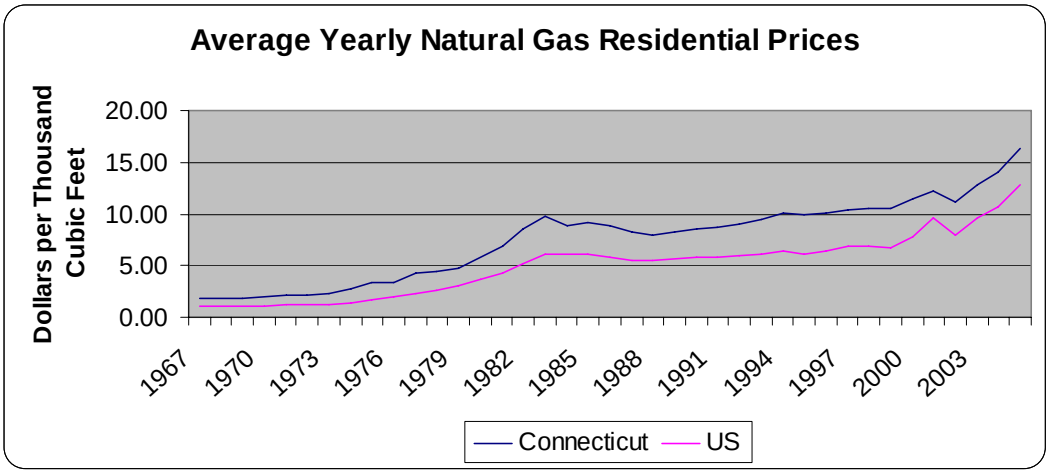
Figure—7- Connecticut Natural Gas Consumption 1997-2004[11]

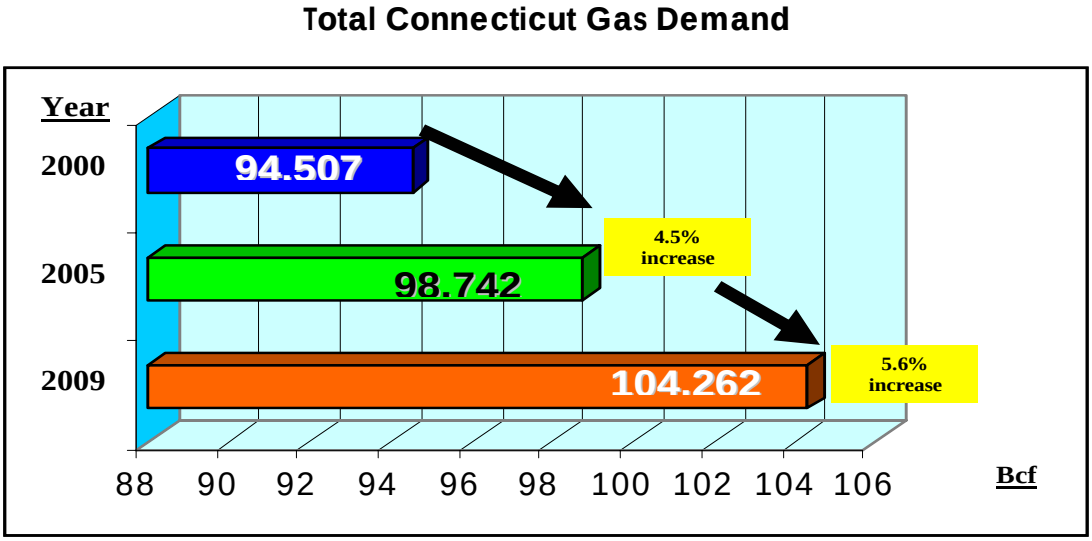


Figure—8- Natural Gas City Gate[12] Prices



Figure—9- Average Yearly Natural Gas Residential Prices[13] both show sharp increases in recent years.





Figure—10- Total Connecticut gas demand has risen since 2000 by 4.5% and is projected to continue increasing. [14]

Petroleum Use in Connecticut

Connecticut is home to two of the four Northeast Heating Oil Reserve sites established by Congress in 2000 to help cushion the risks presented by home heating oil shortages. The combined reserve capacities of the two New Haven sites total 750 thousand barrels. Connecticut is one of five states that require reformulated gasoline statewide. Beginning January 1, 2004, both New York and Connecticut banned the use of methyl tertiary butyl ether (MTBE) as a smog reducing gasoline additive. Connecticut's ports provide an important point of supply for petroleum products, particularly for distillate fuel oil during the winter heating season. Heating oil is the dominant fuel used for home heating in Connecticut with about 52% of all homes in the state using heating oil as their primary heating fuel. Natural gas accounts for the second largest share of the home heating fuels market with a 29% share. Connecticut is required to use reformulated gasoline for the entire state.[15]

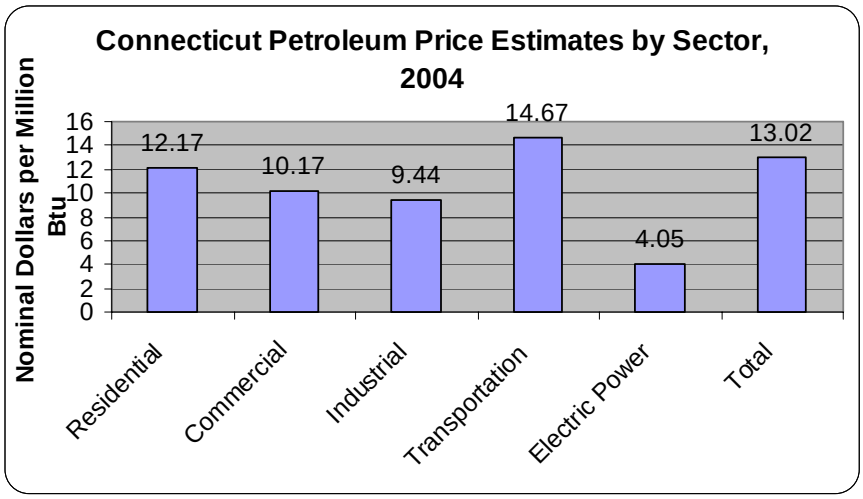
General Overview

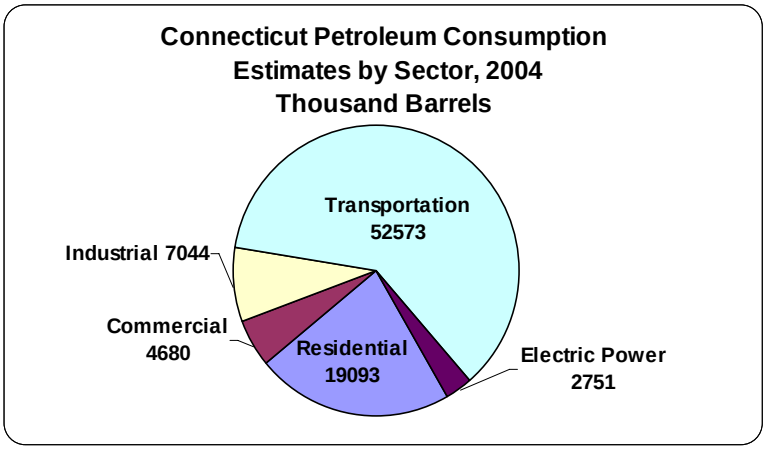
Population: 3,503,604 (2004) ranked 29th
Per Capita Income: $45,398 (2004) ranked 2nd
Total Energy Consumption: 0.9 quadrillion Btu (2001), ranked 33rd
Per Capita Energy Consumption: 249 million Btu (2001), ranked 46th
Total Petroleum Consumption: 8.5 million gallons per day (2002), ranked 30th
Gasoline Consumption: 4.3 million gallons per day (2002), ranked 30th
Distillate Fuel Consumption: 2.6 million gallons per day (2002), ranked 24th
Liquefied Petroleum Gas Consumption: 0.2 million gallons per day (2002), ranked 37th
Jet Fuel Consumption: 0.3 million gallons per day (2002), ranked 33rd

Refining & Marketing (Downstream)

Refineries: There are no refineries located in this state.
Gasoline Stations: 1,524 outlets (2005), or about 0.9 % of U.S. total.

Figure—10- Connecticut Petroleum Price Estimates by Sector
The highest petroleum prices in the state are noted in the transportation and residential sectors.





Figure—11- Connecticut Petroleum Consumption by Sector[16]
Transportation accounts for most of the petroleum used in the state, and the largest portion of expenditures.

Figure—12- Connecticut Petroleum Expenditures by Sector[17]

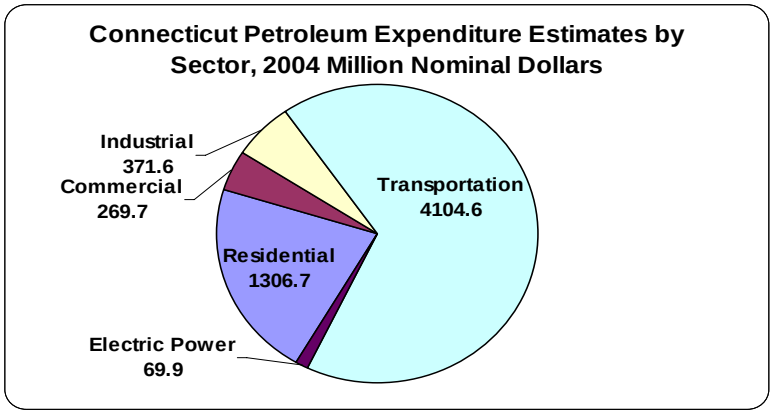


Figure-13 Regional Regular Gasoline Prices[18]

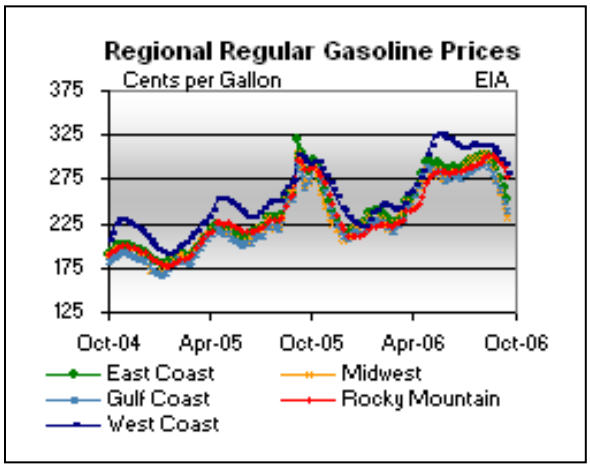
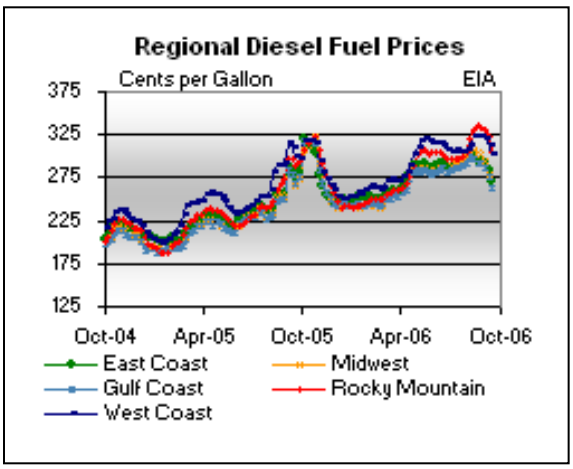


Figure-14 Regional Diesel Fuel Prices[19]



Renewable Energy in Connecticut

Connecticut. The state of deregulation is that phasing in of retail competition began in January 1, 2000. The law also includes a 7% renewable portfolio standard to be met by 2009 and a provision for establishing a system benefits charge rising to 0.1 cents per kilowatthour (kWh) to support renewable technologies. Fourteen million dollars was budgeted for the fund in 2000. Connecticut has net metering for renewable facilities under 100 kW. Connecticut has no wind facilities and none were planned for 2000, although Connecticut entities may invest in out-of-state wind projects, power from which would be eligible for complying with the State RPS.[20]

Table—5- Connecticut's Total Renewable Electric Generation[21]

Connecticut's Total Renewable Net Generation (Thousand Kilowatthours)								
	Geothermal	Hydroelectric Conventional	MSW/ Landfill Gas	Other Biomass[a]	Solar	Wind	Wood/ Wood Waste	Total
2001		286,373	1,566,661	211,403				2,064,436
2002		335,088	1,437,402	188,266				1,960,756

Table—6- Connecticut's Renewable Market Share[22]

Connecticut's Renewable Market Share of Net Generation (Thousand Kilowatthours)			
	Total State Generation	Percent Renewable	Percent Nonhydro Renewable
2001	30,490,640	6.8	5.8
2002	31,311,220	6.3	5.2

Table—7- Connecticut Renewable Portfolio Standards Annual Requirements[23]

Year	Class I	Class II	Class III
2005	1.5%	3.0%	
2006	2.0%	3.0%	
2007	3.5%	3.0%	1%
2008	5.0%	3.0%	2%
2009	6.0%	3.0%	3%
2010	7.0%	3.0%	4%

Class I Renewables

As defined in C.G.S. § 16-1(a)(26), Class I renewable energy source means (A) energy derived from solar power, wind power, a fuel cell, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, a run-of-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation after July 1, 2003, or a biomass facility, including, but not limited to, a biomass gasification plant that utilizes land clearing debris, tree stumps, or other biomass that regenerates or the use of which will not result in a depletion of resources, provided such biomass is cultivated and harvested in a sustainable manner and the average emission rater for such facility is equal to or less than .075 pounds of nitrogen oxides per million BTU of heat input for the previous calendar quarter, except that energy derived from a biomass facility with a capacity of less than five hundred kilowatts that began construction before July 1, 2003, may be considered a Class I renewable energy source, provided such biomass is cultivated and harvested in a sustainable manner, or (B) any electrical generation, including distributed generation, generated from a Class I renewable energy source.

Class II Renewables

As defined in C.G.S. § 16-1(a)(27), Class II renewable energy source means energy derived from a trash-to-energy facility, a biomass facility that began operation before July 1, 1998, provided the average emission rate for such facility is equal to or less than .2 pounds of nitrogen oxides per million BTU of heat input for the previous calendar quarter, or a run-of-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation prior to July 1, 2003.

Class III Renewables

During the June 2005 Special Session of the Connecticut Legislature, Public Act No. 05-01 was passed and in part created a Class III within the RPS. A Class III

renewable energy source is defined as electricity output from combined heat and power systems with an operating efficiency level of no less than 50% that is part of customer-side distributed resources developed at commercial and industrial facilities in this state on or after January 1, 2006, or the electricity savings created at commercial and industrial facilities in this state from conservation and load management programs begun on or after January 1, 2006. The Department of Public Utility Control (DPUC) has established Docket No. 05-07-19 to address and consider the policies and creation of the Class III RPS.

Table—8- Renewable Portfolio Standards Compliance for 2004[24]

Company	% Class I Procured	% Class II Procured
CL&P	1%	5.5%
UI	1%	3%
Dominion Retail, Inc.	1.1%	7.2%
Select Energy	1%	3%
Constellation New Energy	1%	3.1%
Trans Canada Power Marketing	1%	3.1%

Table—9- Percentage of overall Renewable Portfolio Standards Renewable Energy Credits procured by Electric Suppliers and Electric Distribution Companies in 2004[25]

Resource	Class I	Class II
Run of the River Hydro	1.3%	10.9%
Biomass	18.2%	13.5%
Wind	4.0%	n/a
Landfill Gas	74.6%	n/a
Fuel Cell	2.0%	n/a
Trash-to Energy	n/a	75.6%
Total	**100%**	**100%**

Table—10- Suppliers Resource Portfolio Used To Comply With the Class I and Class II RPS Requirements[26]

Suppliers use a variety of resources to meet the portfolio standards, including Landfill Gas (LFG), Run of the River Hydro (R-O-R Hydro)

Supplier	Class I	Class II
Connecticut Light & Power	75% LFG 20% Biomass 3% Fuel Cell 2% R-O-R Hydro	80% Trash-to-Energy 10% Biomass 10% R-O-R Hydro
United Illuminating	79% LFG 21% Wind	58% Trash-to-Energy 33% Biomass 9% R-O-R Hydro
Dominion Retail	79% LFG 21% Biomass	100% R-O-R Hydro
TransCanada	100% LFG	100% Trash-to-Energy
Select Energy	75% Biomass 25% LFG	100% Trash-to-Energy
Constellation New Energy	67% R-O-R Hydro 33% LFG	67% R-O-R Hydro 33% Trash-to-Energy

Photovoltaics in Connecticut. The growth of on-site photovoltaics in Connecticut has been significant in recent years and is anticipated to continue to grow.

Table 11 – Residential PV Systems[27]

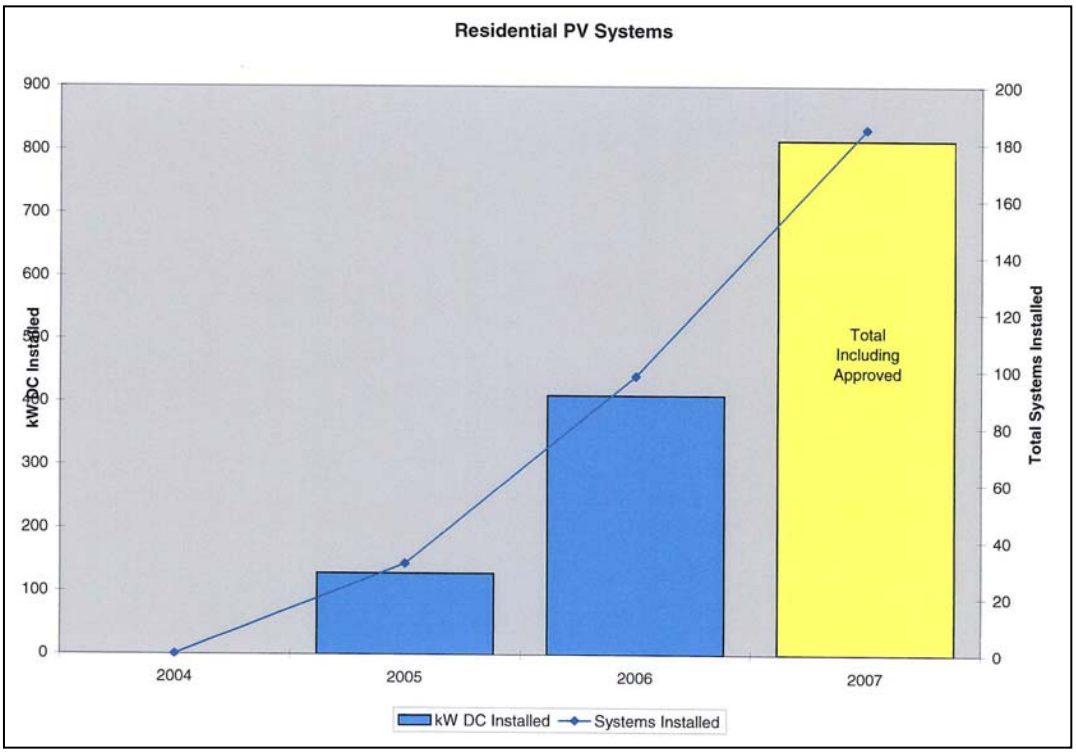
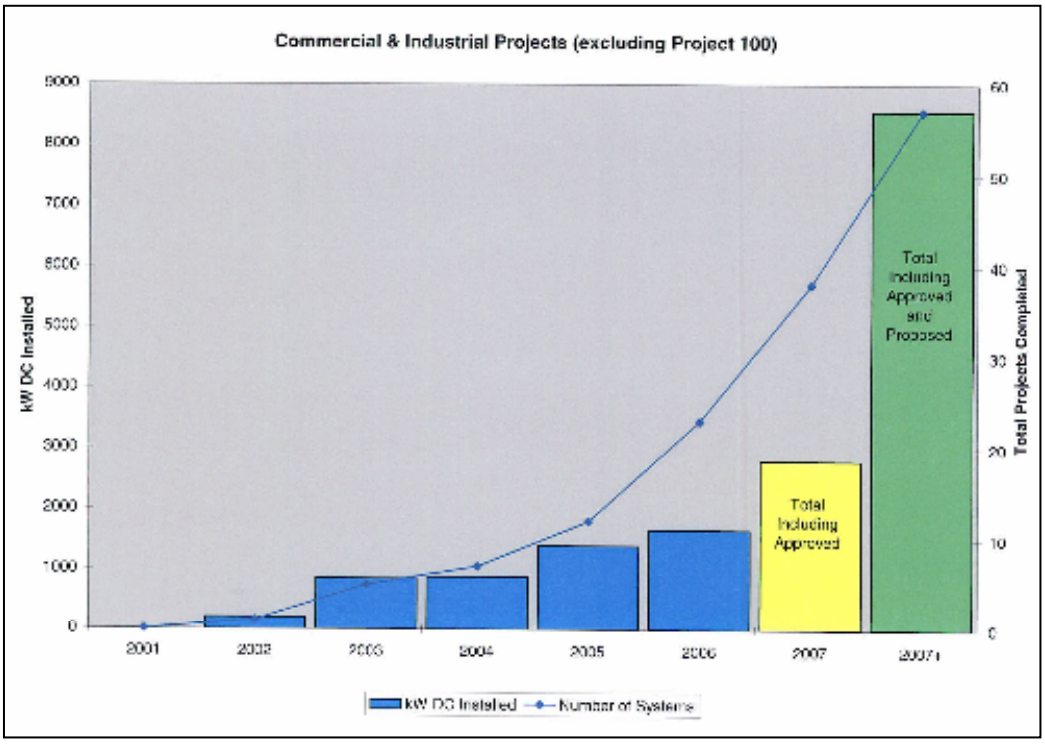


Table 12 – Commercial and Industrial PV Systems[27]



Endnotes

[1] Historic Connecticut Energy Mix 1960-2002
Source: http://www.eia.doe.gov/emeu/states/sep_use/total/pdf/use_ct/pdf

[2] Total Energy Use in Connecticut 2002
Source: http://www.eia.doe.gov/emeu/states/sep_use/total/use_tot_ct.html

[3] US Energy Consumption by Fuel 1980-2030
Source: http://www.eia.doe.gov/oiaf/forecasting.html

[4] Connecticut Energy Expenditure Estimates by Fuel Source 2002
Source: http://www.eia.doe.gov/emeu/states/sep_sum/html/sum_ex_tot.html

[5] Connecticut Electricity Profile
Source: http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept02ct.xls

[6] Connecticut's Ten Largest Plants by Generating Capability, 2004
Source: http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept02ct.xls

[7] Connecticut's Top Five Providers of Retail Electricity, 2004
Source: http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept03ct.xls

[8] Connecticut Electric Power Industry Capability by Primary Energy Source, 1990 Through 2004
Source: http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept04ct.xls

[9] Demand Response for Electric Generation, May 1, 2006
Source: ISO-New England Power Point Presentation, Ellen Foley, May 17 2006, Foundation for American Communications, Hartford, CT

[10] Price Variations Across New England, 2005 Average Prices
Source: ISO-New England Power Point Presentation

[11] Connecticut Natural Gas Consumption 1997-2004
Source: http://tonto.eia.doe.gov/dnav/ng/hist/na1490_sct_2a.htm

[12] Natural Gas City Gate Prices
Source: http://tonto.eia.doe.gov/oog/ftparea/wogirs/xls/ngm20vmall.xls

[13] Average Yearly Natural Gas Residential Prices
Source: http://tonto.eia.doe.gov/oog/ftparea/wogirs/xls/ngm21vmall.xls#'2-Annual Average Price of NG Delivered to Residential Consumers'!A1

[14] Total Connecticut Gas Demand
Source: Dec 15 2005 DPUC Testimony and LNG Taskforce

[15] Connecticut Petroleum Overview
Source: http://tonto.eia.doe.gov/oog/info/state/ct.html

[16] Connecticut Petroleum Consumption by Sector, 2004
Source: http://www.eia.doe.gov/emeu/states.sep_fuel/html/pdf/fuel_pr_pa.pdf

[17] Connecticut Petroleum Expenditure Estimates by Sector, 2004
Source: http://www.eia.doe.gov/emeu/states.sep_fuel/html/pdf/fuel_pr_pa.pdf

[18] Regional Regular Gas Prices
Source: http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp

[19] Regional Diesel Fuel Prices
Source: http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp

[20] Renewable Energy Overview
Source: http://www.eia.doe.gov/cneaf/solar.renewables/rea_issues/windappa.html#ct

[21] Connecticut's Total Renewable Electric Generation, 2001-2002
Source: http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/tablec3.html and http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/tablec6.html

[22] Connecticut's Renewable Market Share of Net Generation
Source: http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/tablec13.html

[23] Connecticut Renewable Portfolio Standards Annual Requirements
Source:http://www.dpuc.state.ct.us/dockcurr.nsf/6eaf6cab79ae2d4885256b040067883b/70df0239d40276fe8525712b005e4589/$FILE/051101-030806.doc

[24] Renewable Portfolio Standards Compliance, 2004
Source:http://www.dpuc.state.ct.us/dockcurr.nsf/6eaf6cab79ae2d4885256b040067883b/70df0239d40276fe8525712b005e4589/$FILE/051101-030806.doc

[25] Percentage of overall Renewable Portfolio Standards Renewable Energy Credits procured by Electric Suppliers and Electric Distribution Companies in 2004
Source:http://www.dpuc.state.ct.us/dockcurr.nsf/6eaf6cab79ae2d4885256b040067883b/70df0239d40276fe8525712b005e4589/$FILE/051101-030806.doc

[26] Suppliers Resource Portfolio Used To Comply With the Class I and Class II RPS Requirements
Source:http://www.dpuc.state.ct.us/dockcurr.nsf/6eaf6cab79ae2d4885256b040067883b/70df0239d40276fe8525712b005e4589/$FILE/051101-030806.doc

[27] The Connecticut Clean Energy Fund

Appendix A

CONNECTICUT ENERGY ADVISORY BOARD MEMBERS

As of January 2007

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Appendix B

Acknowledgements and Resources

On behalf of the Connecticut Energy Advisory Board (CEAB), great appreciation is extended to the committed individuals, organizations, and institutions that helped the CEAB develop this document. The CEAB would like to extend its gratitude to the following for their assistance in creating the 2007 Connecticut Energy Plan:

Agencies:

- Connecticut Clean Energy Fund (CCEF)http://www.ctcleanenergy.com
- Connecticut Department of Environmental Protection (CT DEP)
- Connecticut Energy Efficiency Fund (CEEF) represented by Connecticut's Energy Conservation Management Board (ECMB)
- Connecticut Siting Council (CSC)
- Connecticut's Department of Economic and Community Development (DECD)
- Connecticut's Department of Public Utility Control (DPUC)
- Connecticut's Low-Income Energy Advisory Board
- Connecticut's Office of Consumer Council (OCC)
- Connecticut's Office of Policy and Management (OPM)
- Connecticut's Transportation Strategy Board (CTSB)
- Institute for Sustainable Energy (ISE) at Eastern Connecticut State University
- LaCapra Associates
- New England Independent System Operator (ISO-New England)
- SmartPower
- U.S. Department of Energy's (DOE) Energy Information Administration (EIA)

The 2007 Connecticut Energy Plan was compiled for the Connecticut Energy Advisory Board by the Institute for Sustainable Energy at Eastern Connecticut State University (www.sustainenergy.org).

Appendix C

List of Print and Electronic Resources

- Biodiesel: Fuel forThought,Fuel forConnecticut's Future, CCEA, UCONN, March 2005
- Connecticut Clean Energy Fund (CCEF) Strategic Focus 2004 – 2007
- Connecticut Climate Change Action Plan 2005 (CCAP)
- Connecticut Siting Council's 2005 Report
- Conservation and Development Policies Plan for Connecticut 2005-2010
- Energy Efficiency, Investing in Connecticut's Future, 2005 ECMB
- Forecast Report of Capacity, Energy, Loads and Transmission 2004 – 2013 *(CELT Report)*, New England Power Pool (NEPOOL)
- Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and the Southwest Connecticut Region**,** FINAL REPORT, June 2004 prepared for the ECMB by GDS Associates
- Regional System Plan 2005 by ISO-NE ("RSP05"*)*
- Northeast Regional CHP Roadmap, US Combined Heat and Power Association, DOE, EPA, September 2003
- Near Term Requirements for Reliability and Mitigation of Federally Mandated Congestion Charges (FMCC), Connecticut Energy Advisory Board, September 2, 2005
- Phase II Requirements for Reliability and Mitigation of Federally Mandated Congestion Charges (FMCC), Connecticut Energy Advisory Board, November 2, 2005
- New England Governors /Eastern Canadian Premiers' Climate Action Plan
- Preferential Criteria for Evaluation of Energy Proposals, Connecticut Energy Advisory Board, December 2004
- State of Connecticut Executive Order 26, Governor John G. Rowland, April 12, 2002
- State of Connecticut Executive Order 32, Governor John G. Rowland, April 22, 2004
- State of Connecticut Long-Range Transportation Plan, July 2004
- State of Connecticut Public Act 03-140: *An Act Concerning Long-term Planning for Energy Facilities*
- State of Connecticut Public Act 04-252: *An Act Concerning Climate Change*
- State of Connecticut Public Act 05-1: *An Act Concerning Energy Independence*
- State of Connecticut Public Act PA 05-204: *An Act Establishing a Low-Income Energy Assistance Advisory Board.*
- State of Connecticut Public Act 05-205: *An Act Concerning Plans of Conservation and Development*
- Senate Bill 2100: *An Act Concerning Heating Assistance*

Appendix D

DPUC Dockets related to EIA

A. Docket 05-07-14Ph1 – DPUC Investigation of Measures to Reduce Federally Mandated Congestion Charges (Short-Term Measures) effective final decision issued 12/28/05

B. Docket 05-07-14Ph2 — DPUC Investigation of Measures to Reduce Federally Mandated Congestion Charges (Long Term Measures) RFP issued September 2006

C. Docket 05-06-16 — DPUC Review of the Development of a Program to Provide Various Incentives for Customer-Side Distributed Generation (gas rebate; back-up rates)

D. Docket 05-07-17 — DPUC Review of The Development of a Program to Provide Monetary Grants for Capital Costs of Customer-Side Distributed Resources (capital grants)

E. Docket 05-07-21 — Development of Program to Provide Long-Term Financing for Customer-Side Distribution Resources

F. Docket 05-07-19 — DPUC Proceeding to Develop a New Distributed Resources Portfolio Standard (Class III) (CHP/C&I EE)

G. Docket 05-07-20 — Development of a Process and Standards for Competitive Solicitation of Long-Term Projects to Reduce Federally Mandated Congestion Costs, final decision issued 12/28/05

H. Docket 05-07-18 — DPUC Investigation into the Financial Impact of Long-Term Contracts on Electric Distribution Companies, final decision issued 12/28/05

I. Docket 05-09-09 – DPUC Investigation into Decoupling Energy Distribution Company Earnings From Sales, final decision issued 1-18-06

Appendix E
Summary of Public Comment on CEAB 2007 Draft Energy Plan

The Connecticut Energy Advisory Board (CEAB) appreciates all of the comments submitted by the diverse groups of respondents. CEAB recognizes the importance of the participation of the public, businesses and interested parties in the formulation of this plan. As the Executive Summary indicates, the purpose of CEAB's 2007 Connecticut Energy Plan is to identify issues related to the reliability of Connecticut's energy supply, develop recommendations and report on progress for achieving goals set in the previous reports relating to energy, transportation, the environment and sustainable development. The objective of the plan is to outline for Connecticut's state policymakers the initiatives that the CEAB believes are key to achieving long-term energy goals and that will help create successful state energy policy. This section summarizes the comments received, and describes CEAB's response to these suggestions.

Public Hearings on the 2007 Energy Plan were held on at the City Hall in Norwalk on January 9, 2007, at the Legislative Office Building in Hartford on January 10, 2007 and at Three Rivers Community College in Norwich on January 11, 2007. In addition, testimony could be submitted to the CEAB in writing. Testimony was received from the following:

Name	Representing
Gerald Chase	New Castle Hotels and Resorts
David Bauer	City of Middletown
Harry Cullinane	Clover Corporation
Robert Fromer	Self
Paul Michaud	Connecticut Clean Energy Fund
Henry Link	Enviro Energy Connection
Joel Gordes	Environmental Energy Solutions
David & Joyce Jackson	Selves
Bernie Cohen	EMCO Energy
Rodney Bowie	Self
Diba Khan-Bureau	Self
Philip C. Armetta	Dainty Rubbish Service, Inc
Jack Solomon	Self
Donna Alpert Hamblet	Self
James O'Reilly	Northeast Energy Partnerships, Inc
Jonathan A Gordon	NRG Energy, Inc.
Ruth Ann Wiesenthal-Gold	Woodlands Coalition
Reed Hayes	DG Power Systems LLC
Christina Lumbreras	Self
Gail V. Bennett	Self
Marianne Stieglitz	Self
Lynne Borsa	Self
Richard Stanley	Self
M. Renee Taylor	Self
Sally Morrison	Self

Name	Gerald Chase	**Oral Comments**
	President and CEO	**Norwalk**
Company	New Castle Hotel & Resorts	
Town	Shelton	

Summary of Comments:

- Mr. Chase manages four hotels in Connecticut, with two in Shelton just receiving a 78% increase in electric cost.
- Asked, with an impact of nearly $1 million per hotel, shouldn't there be more than a 15 day notice.
- Recommended that rate increases be phased in over 6 months; it takes at least that long to prepare alternatives.
- Supported recent "Greening" efforts and conservation program, and would consider cogeneration.

Board Response:

The board sympathizes with Connecticut business and the difficulties that rising utility rates have on their competitive position. Rising fuel costs and uncontrolled growth in electric demand in the state have dramatically raised electric rates. Discussions concerning rate increase phase-in have taken place at the highest levels of government, but the reality is that postponing the increase would only further increase the cost in the long term.

The board encourages businesses, like New Castle Hotels and Resorts, to take full advantage of the effective energy efficiency, and demand response programs available through the electric utilities as a way to mitigate the cost of energy. Hotels should also explore the option to install combined heat and power distributed generation. This technology is well suited for the hospitality business sector with its constant need for both electricity and thermal energy. The Department of Public Utility Control has incentives and below interest loans to encourage distributed generation.

Name	Mr. David Bauer	**Oral and Written Comments**
Company	City of Middletown	**LOB Hartford**
Town	Middletown	

Summary of Comments:

- Recommended reducing base load energy use 10% rather than focusing on reducing peak load.
- Recommended conservation over transmission expansion.
- Recommended the installation of backup generators in emergency shelters for homeland security that could also be used for providing power during high peak loads.
- Recommended the use of time-of-use rates to encourage shifting of loads to low use times.
- Encouraged the state to look into wind farms on Long Island Sound.

Board Response:

The energy plan encourages the use of conservation to reduce growth in base load as well as growth in peak demand. It will not, however, negate the need to have an adequate transmission system to move less expensive power to where it is needed. The board supports your recommendation to install renewable energy, such as wind energy; however, there are currently no plans for the state to take on building a wind farm projects. A recent docket at the Department of Public Utility Control mandated the implementation of Time-of-Use rates. The board agrees that these rates will send appropriate price signals that will reduce the growth in peak and shift electric load to off-peak periods. The board also agrees with your suggestion that installing low emission emergency generators able to run during peak load conditions is a good idea, and has recommended that strategy the past two years. Last spring the DPUC approved incentives for anyone who would install a generator for this purpose. Also, ISO New England offers two incentive programs for those who make generators available during emergency peak load conditions.

Name	Harry Cullinane	**Oral Comments**
Company	Clover Corporation	**LOB Hartford**
Town	East Hartford	

Summary of Comments:

- Supported the use of energy efficient natural gas engine-driven air conditioning as an electric demand reduction strategy and a waste heat recovery strategy for meeting thermal loads.
- Requested correction of inequity between the incentives that are available for electric chiller replacements and natural gas engine chiller systems.
- Suggested using Total Resource Test and life-cycle cost analysis, and not just an electric resource test, for identifying efficiency application that reduce electric demand and use, especially in state buildings.
- Recommended consideration be given to natural gas residential heat-pumps as an efficient replacement for obsolete natural gas equipment, electric air conditioning and electric heating systems, both resistance and heat-pumps.
- Suggested adding recommendations for propane conservation, similar to those recommended for natural gas.

Board Response:

The board supports your suggestion to use a Total Resource Test for evaluating energy efficiency equipment and programs. The recommendation to consider residential natural gas or propane heat pumps is a strategy that may show real promise for lowering the residential air conditioning peak and replacing obsolete electric systems. We understand the request to evaluate the effectiveness of natural gas engine driven air conditioning is being evaluated by the Energy Conservation Management Board.

Name Robert Fromer
Company Self
Town Windsor

Oral and Written Comments
LOB Hartford

Summary of Comments:

- Recommended the use of "Life Cycle Net Energy Analysis" in making energy related decision instead of simple payback and lifecycle analysis.
- Suggested developing a "Road Map" and a strategic long range plan to deal with reducing the state's dependence on oil, especially in light of the global peak oil situation.
- Recommended making sure the energy plan is consistent with the Connecticut Plan for Conservation and Development.
- Suggested expanding public education and outreach to include more than just reducing electric consumption, but also address fossil fuel use, recycling and preservation of natural resources.
- Recommended the formation of a Blue Ribbon Panel or a single agency responsible for creating energy policy, planning and programs.
- Encouraged the developing joint marketing plans for programs offered through CEEF and CCEF.
- Recommended that the state motto be changed to "Connecticut, a state where energy waste is our most important and prolific product."
- Claimed that the current steady-state economics model is unsustainable and should be replaced with one that recognizes the scarcity of resources.
- Encouraged a strategy to discourage the development of agricultural land and recommends a set-a-side of agricultural land to create open space and future farming.
- Proposed changing state building code to include a provision so older buildings cannot be taken down without an alternate lifecycle net energy analysis for refurbishing the building.

Board Response:

The board is reviewing your recommendation to use "Life Cycle Net Energy Analysis" in making energy related decision instead of the current formula for economic and life cycle analysis. This represents a significant change from the current planning and evaluation process and would require further discussion. The current state energy plan, in conjunction with other initiatives, such as the Connecticut Plan for Conservation and Development and the Climate Change Action Plan, are viewed as Connecticut's "Road Map" and do provide the strategic long range direction for establishing public policy. The 2007 plan does include sections addressing fossil fuels with specific goals and recommendations for reducing the state's dependence on oil especially in light of the global peak oil situation.

The board agrees with your recommendation to expand public education and outreach to include more than just reducing electric consumption to include addressing fossil fuel use, renewable energy, the impact on low-income households and sustainable development. It also recommends joint advertising and a whole building approach that encourages projects with all fuels energy conservation integrated with renewable energy applications. Section 6 of the plan concurs with your recommendation to support activities that discourage unsustainable development and to encourage preservation of open space. The board is divided on the issue of recommending the formation of a central energy planning organization.

Name	Paul Michaud	**Oral and Written Comments**
Company	Connecticut Clean Energy Fund	**LOB Hartford**
Town	Rocky Hill	

Summary of Comments:

- Recommended adding "installing renewable energy has the potential to stabilize both electric and gas prices in the state." Claims renewable energy sources do this by impacting the price of electricity at the ISO level, reducing the demand for natural gas and by giving customers a hedge against future electric increases.
- Expressed concern over the comment in the report that "there is an inadequate quantity of renewable energy to significantly impact reliability cost and security" and asked to include information on the dramatic increase in renewable energy installations in recent years as the industry matures and ramps up, and a projection for industry growth in the future.
- Noted that CCEF supports the board's recommendation for a regional collaboration on RPS standards and also support the board recommendation to rise net metering to 1MW. CCEF would like to see reconciliation on an annual basis instead of monthly to take into account the seasonality of some renewable sources.
- Further noted that CCEF supports training and licensing of PV installers for quality assurance.

Board Response:

The enhancements, comments and corrections you recommended will be made in the final document. We will also include your graphics, concerning the rapid growth of renewable energy in Connecticut in the CT Energy Profile section of the report. The issue of certification of photovoltaic installers is within the responsibilities of the Department of Consumer Protection. The issue of monthly verses annual reconciliation for renewable net metered installation is the responsibility of the DPUC.

Name	Henry Link	**Oral and Written Comments**
Company	Enviro Energy Connections	**LOB Hartford**
Town	Hartford	

Summary of Comments:

- Expressed concern over Connecticut having to import 700 MW of electricity and supported allowing Connecticut distribution companies to generate electricity. Also recommended that all new generation in the state have duel fuel capability.
- Supported the CEAB recommendation to fully restore the Conservation and Load Management Fund
- Recommended expansion of Project 100 and the addition of solar thermal to the technologies supported by CCEF. Supported the recommendation to increase net metering to 1 MW and asked for annual not monthly reconciliation.
- Supported Time-of-Use rates for all rate classes,
- Supported the increase in on-site combined heat and power distributed generation.
- Supported upgrading to the CT Building Code and supports having all commercial buildings built to high performance Green standards.

- Recommended that the the DPUC reduce rates for customers who signed up for the state's Clean Energy Choice. Customers who opt for the 100% renewable Clean Energy Option should not have to pay the rate increase caused by rising natural gas and oil prices.

Board Response:

The board shares your concern over the need for additional resources to meet Connecticut power requirements and has supported several mechanisms to remedy this shortage over the next few years. Strategies include promoting efficiency, demand response, distributed generation and the RFP process for securing long-term resources. The board appreciates your support for the programs offered through CEEF, CCEF and the decision of the recent docket requiring "Time of Day rates." The board also agrees with your recommendation to strengthen Connecticut's building code and to promote high performance building standards. The issue of monthly verses annual reconciliation for renewable net metered installation is the responsibility of the DPUC. The editing changes you recommended for the report will also be considered.

Name	Joel Gordes	**Oral and Written Comments**
Company	Environmental Energy Solutions	**LOB Hartford**
Town	West Hartford	

Summary of Comments:

- Expressed concern over lack of progress on overarching goals established in 2006.
- Recommended a strategic study be conducted to identify the organizational best practices to managing energy policy, regulatory functions, and program implementation and to make recommendations for Connecticut. The state now have 14 separate organizations.
- Suggested the study look at NYSERDA as a model that separated line responsibility from planning and program administration.
- Expressed concerns over energy security, including; Connecticut's dependence on foreign oil, the vulnerability of its physical assets, and potential cyberattacks on controls and communications.
- Supported multiple strategies to make the state's energy systems more secure including fuel diversification and storage, decentralized use of distributed generation and also building the decentralized capability of the grid.

Board Response:

The CEAB, in concert with the actions of the Connecticut General Assembly and the Department of Public Utility Control, have been very proactive at putting in place the tools to achieve the 2006 goal of 10% reduction by 2010, however, achieving results may not be linear over the five years timeframe. One example is the incentive program to promote distributed generation (DG), created as a result of the 2005 Act for Energy Independence and structured last spring by a DPUC Docket. In the last eight months the DPUC has received applications for over 200MW of DG but it may take another year to construct the facilities and commence operation. As the state gains more experience with this process, it will become more efficient in predicting the load impact from each of these strategies.

The board has not taken a position and is divided on the formation of a centralized agency to manage energy policy, and program administration.

The CEAB has taken into account some of the concerns you raise over energy security, including efforts to diversify fuel supply, and to promote distributed resources including demand management and distributed generation. The security of the energy infrastructure is under the purview of state and federal homeland security agencies.

Name	David & Joyce Jackson	**Oral and Written Comments**
Company	Selves	**LOB Hartford**
Town	West Hartford	

Summary of Comments:

- Recommended establishing a licensing program for solar PV installers.
- Supported restoring and even increasing fhe funding to the Energy Efficiency and the Clean Energy Funds.
- Proposed developing residential rates with an increasing charge with the more electricity you use.
- Recommended increasing public awareness of the energy situation through education outreach programs.

Board Response:

The CEAB agrees with your recommendation to create training and certification programs for solar PV installers and will include that recommendation in the plan. We do agree with your recommendations to restore the energy efficieny and clean energy funds and have included them in the plan as well as a recommendation to increase educational awareness programs on energy issues and conservation strategies for all customers. The suggestion to institute increasing block rates for residential customers has been raised and discussed at the Department of Public Utility Control. No decision has been rendered.

Name	Bernie Cohen	**Oral Comments**
Company	EMCO Energy	**Norwich**
Town	Norwich	

Summary of Comments:

- Supported the use of combined heat and power, especially at state institutions.
- Supported the energy plan's goal to reduce the state's dependence on foreign oil.
- Supported the production and use of biofuels from agricultural crops and waste oil.
- Opposed the continued use of natural gas for generation unless the unit is also using the waste heat in a combined heat and power mode.

Board Response:

The board also supports the use of clean, high efficient combined heat and power (CHP) and has included it in the plan. The Department of Public Utility Control currently offers incentives for efficient CHP as a result of Public Act 05-1. The recommendation to reduce our dependence on foreign oil is included in the board's recommendation to reduce the use of all fossil fuels. With the projected growth in the use of natural gas, this will mean further reduction will be needed in the use of petroleum in order to achieve our goal. The CEAB also supports the use of biofuels, both for transportation applications and heating, especially if the feedstock and

production takes place in Connecticut. The board recognizes the state has a growing dependence on natural gas and that its use in generation may adversely effects fuel diversity at some point in the future. The use of natural gas for CHP, however, is both cost effective and one of the most environmentally sound supply options; therefore the board continues to support its use in this form of distributed generations.

Name	Rodney Bowie	**Oral Comments**
Company	Self	**Norwich**
Town	Norwich	

Summary of Comments:

- Recommended the development of steam loops from existing and new power plants to raise the efficiency of electric power plants by utilizing the waste heat.
- Supported the development of fuel cells, wind energy, solar energy and other forms of renewable energy, and the development of standards for interconnection to reduce engineering cost on the installation of smaller systems.
- Raised concerns over the ability to sustain the growth in power and service requirements with today's larger more energy intensive homes and businesses.
- Supported individual meters for electricity and heat for all apartment building tenants so that they can be responsible for what they use.
- Supported the expanded use of nuclear power in Connecticut.

Board Response:

The board agrees with your recommendation to better utilize waste energy from existing and new power plants, as well as requiring heat recovery in new combined heat and power projects. We also support your recommendation to promote the commercialization of fuel cells, wind energy, solar energy and other renewable sources such as biofuels. The recommendation to standardize interconnection for small renewable energy projects is a recommendation that we have supported for a number of years. The current plan recommends standardized interconnection standards for all units under 1MW. The board is concerned over the growing demands being put on our energy infrastructure and addresses some of our concerns in Section 6 Sustainable Development and through recommendations that improve appliance standards, building codes and energy efficiency programs. The board agrees that tenants should understand the cost of energy used in their units, and although the building code does require electricity be individually metered, it does not require metered heat. It is sometimes difficult to monitor tenant use of heat because of the characteristics of central heating systems. There is a moratorium on the siting and construction of new nuclear generating facilities until the issues concerning the disposal of high level nuclear waste have been resolved. Furthermore, CEAB supports the use of preferential criteria standards for selections energy projects based on least cost and least impact on the environment.

Name Diba Khan-Bureau **Oral Comments**
Company Self **Norwich**
Town Norwich

Summary of Comments:

- Supported the requirement to build all state buildings using "Green" buildings standards, and wants to know why the Department of Public Works is still building state facilities to the minimum requirements of the state building code, like the new facility at Three Rivers Community College.
- Supported the expanded use of renewable energy and does not support the expanded use of nuclear power.

Board Response:

The CEAB has recommended the use of high performance "Green" building standards in previous state plans. These standards will be phased in beginning with state funded buildings approved for construction after the regulations are approved in late 2007. The CEAB encourages the expanded use of renewable energy sources and supports the goals and programs of the Connecticut Clean Energy Fund. There is a moratorium on the siting and construction of new nuclear generating facilities until the issues concerning the disposal of high level nuclear waste have been resolved. Furthermore, CEAB supports the use of preferential criteria standards for selections energy projects based on least cost and least impact on the environment.

Name Philip C. Armetta **Written Comments**
Company Dainty Rubbish Service, Inc.
Town Middletown

Summary of Comments:

- Requested that the board acknowledge the significant contribution that the existing Waste-to-Energy plants make toward supporting Connecticut's power needs, environment needs (over landfills) and its economy.
- Supported the expansion of existing Waste-to-Energy facilities to handle the full volume of waste created by the residents and businesses of Connecticut.
- Recommended that Connecticut develop a "Zone System" so communities would haul their trash to the closest Waste-to-Energy facility in order to save trucking fuel, reduce emissions and lower costs.

Board Response:

Trash to energy provides over 75% of Connecticut's Class II renewable energy or approximately 184 megawatt or 2.7% of the total energy sold in Connecticut. In December 2006, the Connecticut Department of Environmental Protection adopted the State Solid Waste Management Plan (SWMP or Plan). This Plan will be the basis for Connecticut's solid waste management planning and decision-making now through the year 2024. The SWMP calls for reducing the amount of waste generated, in part by significantly increasing the rate of recycling and waste diversion to 58%. The Plan envisions that the State will first maximize efforts to reduce the amount of waste generated or needing disposal, in order to avoid, as much as possible, the need for new municipal solid waste (MSW) disposal facilities in Connecticut. By adopting

the 58% diversion disposal rate, the State continues its strong commitment to the environment and achieves self-sufficiency in managing the MSW that is generated within Connecticut. By achieving a higher recycling rate, the SWMP also supports the Connecticut Climate Change Action Plan 2005 that called for an increase in recycling and source reduction of MSW to achieve significant greenhouse gas reductions. If the State moves forward and dramatically increase the recycling rate, the State can avoid the need for additional disposal facilities. The CEAB recognizes that the energy generated by the in-state MSW resource recovery facilities helps to meet Connecticut's growing energy needs and that extracting this energy from waste material is consistent with the statutory solid waste management hierarchy. However, the hierarchy also recognizes that the most environmentally preferable means for dealing with MSW is not to produce it to begin with and the next best management method is recycling. Your recommendation to create a "Zone System" is an issue beyond the scope of this energy plan. A zone system could be interpreted as "flow control", a concept that is subject to strict constitutional scrutiny because of its potential impacts on interstate commerce.

The *State Solid Waste Management Plan: Amended December 2006* and the associated hearing report is available at www.ct.gov/dep.

Name Jack Solomon **Written Comments**
Company Self
Town East Hampton

Summary of Comments:

- Supported the use of wind power in Connecticut.
- Supported the use of natural gas combined cycle system supplied by liquefied natural gas depots.
- Supported investments in energy efficiency and alternative energy, but is concerned that these investments may not be cost effective if oil and natural gas prices drop.

Board Response:

The board supports the development of renewable energy projects including wind energy; however studies of the wind resources in Connecticut demonstrate that wind conditions are not capable of powering large wind farm turbines similar to those in upstate New York and Vermont. Properly planned smaller wind projects sited along the coast or in higher elevations may prove practical and are supported by incentives from the Connecticut Clean Energy Fund. The board does agree that the current supply of natural gas to the state is limited and new resources will continue to be needed as long as natural gas remains the fuel of choice for generation and heating. The exact nature of the new resources will be examined and evaluated by the appropriate agencies. The CEAB does recommend the expansion of programs that promote energy efficiency and alternative energy and supports the use of public funds to encourage customer investments in these technologies for raising the efficiency of the state, improving air quality and reducing Green House Gas (GHG) emissions.

Name Donna Alpert Hamblet **Written Comments**
Company Self
Town Danbury

Summary of Comments:

- Supported demand rates for residential customers especially for large homes.

Board Response:

There have been discussions at the Department of Public Utility Control concerning the use of residential rates that have increasing block pricing, although no conclusions have been reached. The board supports time-of-use rates that send customers appropriate signals as to the price of power in the market based on the time of day.

Name James O'Reilly, **Written Comments**
Director-Policy, Outreach and Communications
Company Northeast Energy Efficiency Partnerships (NEEP)

Summary of Comments:

- Supported the 10% by 2010 goals and the long-term RFP for the procurement of resources, especially demand side resources.
- Fully committed to the implementation and promotion of energy efficiency recommendations in this plan including restoring the CEEF.
- Advised that the utilities be consulted and fully included in the development of public education campaigns, because the utilities are the ones delivering the programs and it is important that the CEAB coordinate with them in order to ensure effective and efficient execution of the public education campaign.
- Recommended the board coordinate with Regional Greenhouse Gas Initiative (RGGI) stakeholder groups in order to utilize the allowance auction allocations for consumer benefit, including energy efficiency, thus further improving the environmental quality of the state as well as alleviating high energy costs and improving system reliability.
- Asked the CEAB to commit to holding the New England Independent System Operator (ISO-NE) fully accountable to viewing energy efficiency as a valuable resource that is forecasted and modeled equally to other traditional resources.
- Suggested monitoring the Forward Capacity Market (FCM) through the negotiations over operational details and consider measures to ensure that the FCM works to accommodate customers' needs in Connecticut.
- Encouraged the development of energy efficiency programs for natural gas and oil customers.
- Promoted the use of the Total Resource Cost test to measure energy efficiency program cost-effectiveness.

Board Response:

The development of the public education program will include the electric distribution companies, but will also involve other stakeholders in that the energy issues in Connecticut go beyond electric energy efficiency. The Board supports your recommendation to coordinate with RGGI and the development of the Forward Capacity Market. A number of members of the CEAB are currently fully engaged in the development process for these initiatives. Your concern over having demand side activities fully valued as resources is shared by the board, but carries with it the responsibility to develop these programs in a way that they can be held accountable for performance just like supply resources. Developing performance measures that demonstrate the reliability of demand side programs is an area where the experience of NEEP can play an important role. The CEAB agrees with your recommendation to have Connecticut develop natural gas and oil efficiency programs, and to use a Total Resource Cost/Benefit test. The CEAB endorses a comprehensive whole building approach to efficiency, which also includes consideration for integrating on-site renewable energy systems.

Name	Jonathan A Gordon, Manager, External Affairs	**Written Comments**
Company	NRG Energy Inc.	
Town	Middletown	

Summary of Comments:

- Expressed concern over the generic recommendation to reduce the use of fossil fuels, rather that addressing each fuel individually for it attributes and impacts.
- Suggested that increased usage of coal for electric generation in fact could be a key piece of the solution for increasing fuel diversity and stabilizing the cost of generating electricity and ultimately stabilizing energy prices to consumers in Connecticut. Suggestion includes the use of Integrated Gas Combined Cycle (IGCC) or "clean coal" generation technology
- Recommended further emphasis and strategic recommendations relative to achieving fuel diversity.
- Recommended including a proposal to update the aging energy infrastructure in Connecticut in the report.

Board Response:

In an effort to address fuels used in Connecticut, the CEAB structured the 2007 report into sections addressing issues related to each fuel. The board supports your recommendation to place emphasis and develop strategic recommendations relative to achieving fuel diversity and updating the aging energy infrastructure in Connecticut. The board agrees that repowering older inefficient facilities is a key element to Connecticut's achieving energy independence in the coming years as are efforts to diversify our fuel requirements. The environmental issues concerning waste streams from generating electricity using IGCC "clean coal" technology have yet to be resolved. CEAB supports the use of preferential criteria standards for the selections of energy projects based on least cost and least impact on the environment.

Name Ruth Ann Wiesenthal-Gold **Written Comments**
Company The Woodlands Coalition
Town Palm Bay, Florida

Summary of Comments:

- The Woodlands Coalition commended the board for a plan that is more professional, independent, and directed by setting priorities, with quantitative goals and timetables.
- Recommended a more adequate public education campaign to include outreach to the public, not just efforts by the state's energy bureaucracy. Programs should reach state and local environmental groups and their members as well as municipalities and their citizens.
- Proposed that outreach should educate the media; provide teacher education; publicize Clean Energy Communities and Clean Energy Options campaigns; and provide education for municipal public works officials and facilities planners.
- Recommended the development of public interest demand response resource aggregation programs for the residential market.

Board Response:

The board realizes that educational programs aimed at changing consumer behavior are in many ways more important than programs that install new technology. As you noted, in the strategy section of the report, the board sited the development of public education for all energy users as crucial to achieving our goal of a more sustainable energy future.

Name Reed Hayes **Written Comments**
Company DG Power Systems
Town Lewiston, PA

Summary of Comments:

- Recommended net metering for all CHP 100 KW or less to promote the installation of small packaged distributed generation.
- Suggested making interconnection easy by standardizing interconnection and pre-qualifying packaged technologies.
- Recommended increased subsidies for small power systems, especially in the transmission congested areas.

Board Response:

The CEAB agrees with your recommendation concerning net metering and has recommended increasing the net metering to 1 MW for renewable energy projects. CHP, with 50% seasonal efficiency, is considered a Class III renewable in Connecticut. Therefore, CHP would qualify if this recommendation is accepted. It is also recommending that all units up to 5 MW use uniform interconnection standards. At this point the board feels the incentive level for distributed resources is cost justified and adequate to influence the market.

Letters from a group of concerned individuals

The following individuals submitted identical letters encouraging specific strategies to improve and expand energy efficiency, demand reduction, renewable energy and distributed resources programs.

Name	Christina Lumbreras	**Written Comments**
Representing	Self	
Town	New Britain, CT	
Name	Gail V. Bennett	**Written Comments**
Representing	Self	
Town	Hartford	
Name	Marianne Stieglitz	**Written Comments**
Representing	Self	
Town	Newington	
Name	Lynne Borsa	**Written Comments**
Representing	Self	
Town	N. Hartford	
Name	Richard Stanley	**Written Comments**
Representing	Self	
Town	West Simsbury	
Name	M. Renee Taylor	**Written Comments**
Representing	Self	
Town	Windsor	
Name	Sally Morrison	**Written Comments**
Representing	Self	
Town	West Hartford	

Summary of Comments:

- Supported legislation to require utilities to achieve cost effective energy efficiency and demand reduction activities.
- Supported placing priority on distributed resources and renewable energy before investing in new power plants and natural gas infrastructure.
- Recommended implementing least-cost procurement standards for utilities to acquiring electric or gas supplies.
- Suggested providing performance incentive to encourage the utilities to minimize customer costs.
- Recommended restoring the Electric Efficiency Program Funds. Consumers save four dollars for every one-dollar invested in these programs.
- Supported expanding natural gas efficiency programs and establish heating oil efficiency programs. Provide information and financial assistance to consumers and businesses.
- Suggested the adoption of new energy efficiency standards for furnaces, boilers, etc.
- Recommended decoupling the energy-wasting link between profits and increased energy sales for electric and gas utilities.
- Supported mandating energy efficient Green building standards for new or renovated schools.

- Suggested that distributed power generation and renewable energy should also be included in procurement plans.
- Suggested that distributed generation can be sited precisely where the energy is needed, reducing strain on the electric grid during peak demands.
- Recommended that incentives should be provided especially for solar photovoltaic systems, which can be most beneficial during peak summer time periods.

Board Response:

The board supports recommendations to improve and increase programs that encourage energy efficiency, demand management, and the installation of renewable and distributed resources. The CEAB has developed a set of preferential criteria for encouraging proposals for meeting electric growth in a way that is both least cost and most favorable to the environment. Many of the initiatives you suggested have been included in the 2007 plan as strategies for mitigating the uncontrolled growth in electric demand and postponing the need for building new central power plants. These strategies include restoring the electric energy efficiency funds, initiating natural gas and heating oil conservation programs, improving appliance standards, expanding the use of renewable energy sources and promoting distributed generation, especially combined heat and power. The board also supports your recommendation to mandate Green, environmentally friendly, high performance school building standards. Renewable energy resources are currently required in the utilities procurement plans under the Renewable Portfolio Standards (RPS). The issue of decoupling of utility profits from electric sales is a topic that is being studied in depth at the Department of Public Utility Control. All regulated utilities in Connecticut are currently evaluated by the DPUC using a Performance Based Rate structure in order to encourage efficiencies that pass savings on to ratepayers.