Introduction

Connecticut's electric system is the lifeblood for all 1.3 million households, 78 thousand businesses, and, more generally, every aspect of personal or economic life in the state. The system's infrastructure includes 92 generators whose output is dispatched onto the regional supply grid, 1,818 circuit-miles of high-voltage conductors that form the transmission portion of the grid, and 130 substations and/or switching stations that finally direct electricity to individual users via the distribution system.

This network of electric connections must be highly reliable, reflecting its importance not only for our state, but for our region. Reliability is a special challenge, given current global circumstances, with its volatile fuel prices, new energy technologies, and climate change concerns. Daily operations of the grid, including both power flows and transactions within the wholesale market for electricity, are managed by the Independent Systems Operator for New England, ISO New England Inc. (ISO-NE), a private, not-for-profit corporation. ISO-NE is independent of the companies operating in the wholesale electricity market and is governed by an independent board of directors. ISO-NE is regulated by the Federal Energy Regulatory Commission (FERC). As part of a federally-approved tariff, ISO-NE conducts an open and ongoing stakeholder process to develop market rules and conduct regional system planning for the six-state region, and all of the New England states are actively involved in this process. New England Power Pool (NEPOOL) Market Participants and other stakeholders provide advisory input to the ISO-NE through the stakeholder process. Market Participants include representatives from six sectors: Generation, Transmission, Suppliers, Alternative Resources, Publicly Owned Entities, and End Users.

Reliability standards set or approved by the FERC are carried out by ISO-NE. This centralized regional authority for management helps to ensure that the system functions reliably and efficiently. With the same aim, ISO-NE also directs annual forward planning for electric transmission needs in our region. Nonetheless, since each state regulates the power facilities within its borders, and affects future electric reliability by establishing energy policies and electric rates for in-state businesses and citizens, the wise state must carefully review forecasts of anticipated electric supply and demand within its borders.

Since 1972, the Connecticut General Assembly has mandated the Connecticut Siting Council (Council) to provide an annual overview of our state's electricity needs and resources, looking ahead ten years. Other agencies, such as the Connecticut Energy Advisory Board (CEAB), the Energy Conservation Management Board (ECMB), the Connecticut Clean Energy Fund (CCEF), and energy experts within the Office of Planning and Management, not only contribute to the annual Council forecast, but regulate, coordinate and conduct certain planning processes of their own, each addressed to particular aspects of the electric system. As is to be expected, the energy companies themselves provide projections. Most of Connecticut's electric system data is used in common by all the state and regional planners and is supplied by Connecticut generators and by our state's two largest transmission and distribution companies, The Connecticut Light and Power Company (CL&P) and The United Illuminating (UI). These data have been developed for their own corporate planning. Other planning groups model these data to emphasize fuel characteristics, cost issues, efficiency, and so forth. As more and more forecasting has been undertaken by different parties to make sure, in different ways, that the electric system will remain reliable, the more the Council has tried, in its annual forecast review, to emphasize openness, to clarify differences in approach, and to assess consistency.

This year, for the first time, CL&P and UI were mandated (by Public Act 07-242) to create an Integrated Resource Plan (IRP) that they could agree to jointly present as a new kind of planning tool for the state. The IRP focuses on resource procurement. Its most important features, to be discussed later in more detail, are its coordinated approach to procurement and its emphasis on energy efficiency. In the end, all of Connecticut's and New England's plans for the future of the electric system are designed to make changes in the system happen more smoothly, so electric service will not be disrupted, and more efficiently, so the service will be worth its price.

November 21, 2008

Friends:

It is with great pleasure that the Connecticut Siting Council (Council) provides you with the 2008 Review of the Ten Year Forecast of Electric Loads and Resources.

This report of the status of the electric system in Connecticut, particularly with respect to projected supply versus demand, results from an extensive review by Council members and staff, and greatly assisted by the comments made by the general public, the utility companies, The Connecticut Energy Advisory Board, and ISO New England Inc., at and following our public hearing held in Stamford on July 15, 2008.

Pursuant to Connecticut General Statutes § 16-50r (a), we have reviewed the following analyses:

- A tabulation of estimated peak loads, resources and margins for each year;
- data on energy use and peak loads for the five preceding calendar years;
- a list of existing generating facilities in service;
- a list of scheduled generating facilities for which property has been acquired, for which certificates have been issued and for which certificate applications have been filed;
- a list of planned generating units at plant locations for which property has been acquired, or at plant locations not yet acquired, that will be needed to provide estimated additional electrical requirements, and the location of such facilities;
- a list of planned transmission lines on which proposed route reviews are being undertaken or for which certificate applications have already been filed;
- a description of the steps taken to upgrade existing facilities and to eliminate overhead transmission and distribution lines in accordance with the regulations of standards described in section 16-50t; and
- for each private power producer having a facility generating more than one megawatt and from whom the person furnishing the report has purchased electricity during the preceding calendar year, a statement including the name, location, size and type of generating facility, the fuel consumed by the facility and the by-product of the consumption.

These subjects have been fully examined by the Council with full opportunity for public participation. The results of this process have been summarized in this report, which we hope you will find useful and informative.

I invite you to review this public report and comment on the analyses contained herein. With your help, I am confident that Connecticut can accurately determine its energy future while safeguarding the environment and ensuring the health and well-being of its citizens, all at a reasonable cost to the consumers.

Please feel free to contact the Council's staff or me if you seek additional information. Thank you.

Very truly yours,

Daniel F. Caruso
Chairman

The principal term for describing electric load is "demand," which can be thought of as the rate at which electric energy is consumed. The most familiar unit of load is a "Watt;" however, since utility companies serve loads on a much larger scale, forecasts typically use the unit of a megawatt (MW), or one million watts[1]. One MW of electricity can serve approximately 500 homes.

Loads increase with any increase in the number of electrical devices being used at the same time. Generally, the higher the loads, the more the stress on the electrical infrastructure. Higher loads result in more generators having to run, and run at higher outputs. Transmission lines must carry more current to transformers located at the various substations. The transformers in turn must carry more load, and supply it to the distribution feeders, which must carry more current to feed the end users. In order to maintain reliability and predict when infrastructure must be added, upgraded, and replaced to serve customers adequately, utilities must have a meaningful and reasonably accurate estimate of future loads. The process of calculating future loads is called "load forecasting."

Load forecasting by Connecticut utilities is broken down by service area. Each of the three transmission/distribution companies in Connecticut has a particular service area. The United Illuminating Company (UI) serves 17 municipalities in the New Haven area near the coast from Fairfield to North Branford and north to Hamden. The Connecticut Municipal Electric Energy Cooperative (CMEEC) collectively serves all of the municipal utilities in Connecticut, namely the cities of Groton and Norwich; the Borough of Jewett City; the Second (South Norwalk) and Third (East Norwalk) Taxing Districts of the City of Norwalk; the towns of Wallingford and Bozrah; and the Mohegan Tribal Utility Authority. The largest transmission/distribution company is The Connecticut Light and Power Company (CL&P). CL&P serves all of the remaining municipalities in Connecticut. Collectively, the sum of CL&P, UI, and CMEEC loads is equal to the Connecticut load. The Council is mandated by statute to review the three forecasts for the Connecticut load.

Loads increase with any increase in the number of electrical devices being used at the same time. Generally, the higher the loads, the more the stress on the electrical infrastructure.

ISO-New England Inc. (ISO-NE) is charged by the federal government with operating the grid in New England and overseeing the wholesale electric market and planning in this region. ISO-NE produces a regional forecast for New England, as well as individual forecasts for each of the New England states, including Connecticut. In order to provide a thorough review and analysis, even though it is not specifically required by statute to do so, the Council also reviews the load forecast of ISO-NE because this is the tool now used for planning regional electric facilities, not the individual company forecasts. Therefore, ISO-NE's forecast is reviewed in parallel with the sum of the CL&P, UI, and CMEEC forecasts.

PEAK LOAD FORECASTING

In utility forecasting, it is the peak load or highest load experienced during the year that is the most important to consider because it usually represents a clearly defined worst-case stress on the electric system. Connecticut experiences its peak load during a summer day. This is because air conditioning generally creates one of the largest components of demand for power.

While winter months in Connecticut do have periods of significant peak loads, these are generally less than summer peaks because the significant air conditioning load is not present. Furthermore, many residents and businesses use natural gas or oil rather than electricity for heat. (Natural gas or oil furnaces typically require electricity for fans, pumps and control systems, as applicable, but that electric load is small compared with the load from air conditioning.) Conversely, in areas heavily dependent on electric heat and with little air conditioning, such as the Canadian province of Quebec, a winter peak load can result.

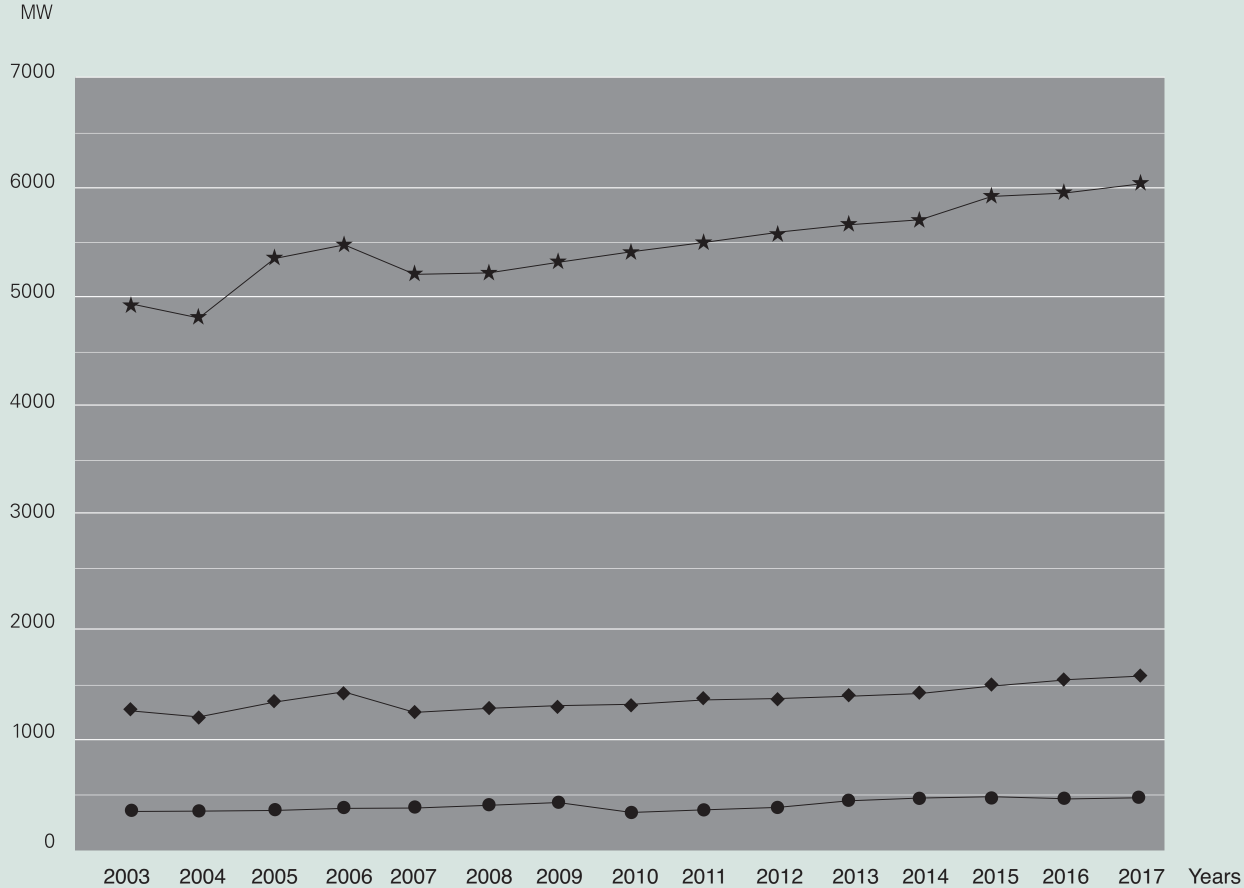
While a detailed discussion of peak loads would have to include additional factors such as customer usage, demographics, conservation efforts, economic conditions, and others, the most important factor is weather—specifically the temperature and humidity. Higher temperatures result in more frequent use of air conditioning, and the units work harder, consuming more electricity. Also, higher humidity can exacerbate the situation, as it can make the temperature feel hotter than it actually is (raising what is sometimes called the "heat index") and further encourage air conditioning use.

In consideration of these weather effects, the Connecticut transmission/distribution companies provide a forecast based on "normal weather" or assumed temperatures consistent with approximately the past 30 years of meteorological data. This is also referred to as the "50/50" forecast, which means that, in a given year, the probability of the projected peak load being exceeded is 50 percent, while the probability that the actual peak load would be less than predicted is also 50 percent. Another way of considering this 50/50 forecast would be to say that it has the probability of being exceeded, on average, once every two years.

In its normal weather (50/50) forecast, CL&P predicts a peak load of 5,345 MW for its service area during 2008. This load is expected to grow during the forecast period at an annual compound growth rate (ACGR) of 1.34 percent, reaching 6,026 MW in 2017. UI predicts, in its normal weather (50/50) forecast, a peak load of 1,335 MW for its service area during 2008. This load is expected to grow during the forecast period at an ACGR of 1.55 percent, reaching 1,533 MW in 2017. CMEEC predicts, in its normal weather (50/50) forecast, a peak load of 379 MW for its service area during 2008. This load is expected to grow during the forecast period at an ACGR of 1.23 percent, reaching 423 MW in 2017[2]. All three of the state utilities' 50/50 summer peak loads are depicted in Figure 1a.

While winter months in Connecticut do have periods of significant peak loads, these are generally less than summer peaks because the significant air conditioning load is not present. Furthermore, many residents and businesses use natural gas or oil rather than electricity for heat.

Figure 1a: Utility Peak Loads in MW

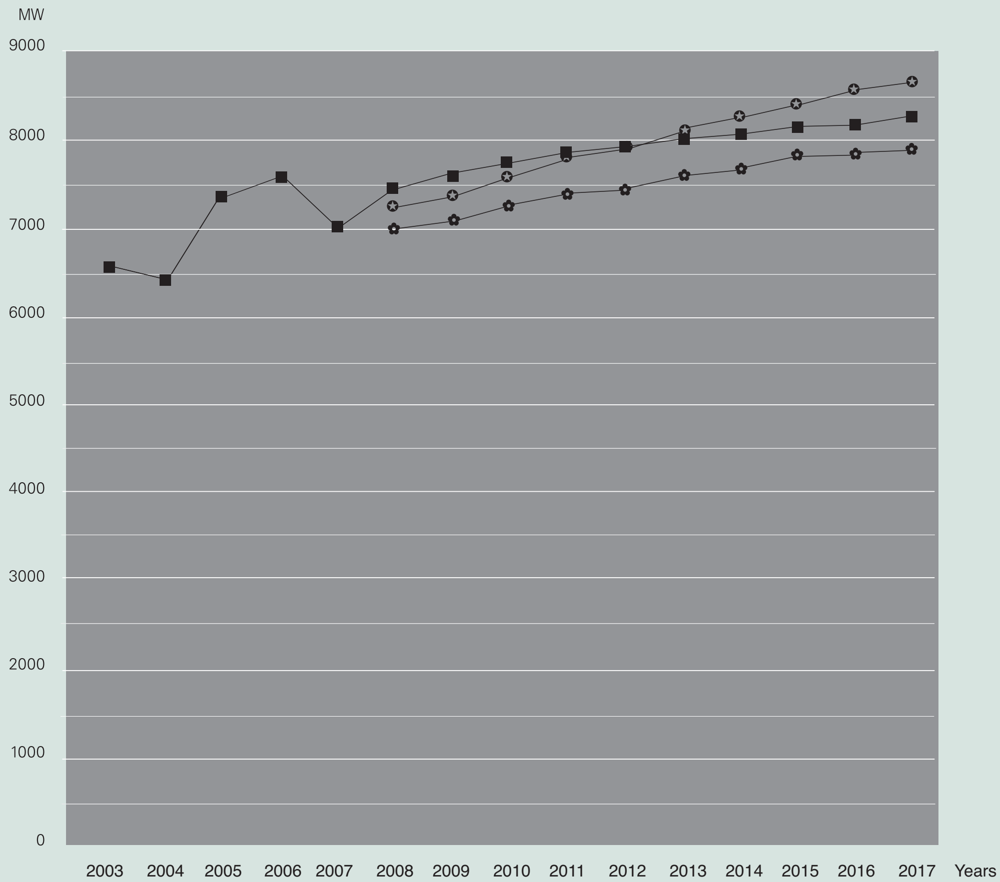


★ CL&P Peak	4980	4818	5402	5512	5209	5345	5384	5479	5557	5626	5714	5782	5905	5955	6026
◆ UI Peak	1274	1201	1346	1456	1298	1335	1335	1372	1415	1438	1460	1481	1501	1523	1533
● CMEEC Peak	350	345	372	398	367	379	382	394	400	408	410	413	417	420	423

The sum of the three utilities' forecasts results in an approximate statewide peak load of 7,059 MW during 2008. This load is expected to grow at an ACGR of 1.37 percent and reach 7,982 MW by year 2017. The statewide ACGR is a weighed average of three utilities' ACGRs. Since CL&P has the largest service area in Connecticut, and its customers are the dominant source of load in the state, it is not surprising that the statewide ACGR of 1.37 percent is comparable to CL&P's ACGR of 1.34 percent. (See Figure 1b.) However, the Council notes that the sum of three utilities' forecasts can only approximate the Connecticut peak load. Because temperatures and customer usage patterns vary across the state, the three utilities do not necessarily experience their peaks on the same hour and/or same day. Indeed, adding the three utilities' forecasts may slightly overstate the peak load in the state, but the error is generally considered quite small.

ISO-NE predicts, in its 50/50 forecast for Connecticut, a peak load of 7,455 MW during 2008. This peak load is expected to grow at an ACGR of 1.25 percent and reach 8,335 MW by year 2017. Note that the ISO-NE 50/50 forecast exceeds the sum of the utilities' forecasts each year by an average of 429 MW. This is due to a difference in how conservation and load management (C&LM) and distributed generation (DG) are treated. (These topics will be discussed in later sections.) Generally, ISO-NE considers C&LM and DG to be capacity resources (i.e. sources similar to generation) while the Connecticut utilities consider them to be reductions in load. Thus, the forecasts differ by approximately the sum of the C&LM and DG effects. See ISO-NE and the state utilities' forecasts in Figure 1b.

Figure 1b: 50/50 Forecasts of Load in MW



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
✪ CT Utilities Peak w/o Projected Conservation						7294	7386	7627	7810	7968	8133	8273	8455	8570	8695
■ ISO-NE 50/50 Forecast Peak	6685	6444	7350	7678	7014	7455	7580	7705	7830	7940	8040	8130	8210	8275	8335
✿ CT Utilities Peak w/Conservation						7059	7101	7245	7372	7472	7584	7676	7823	7898	7982

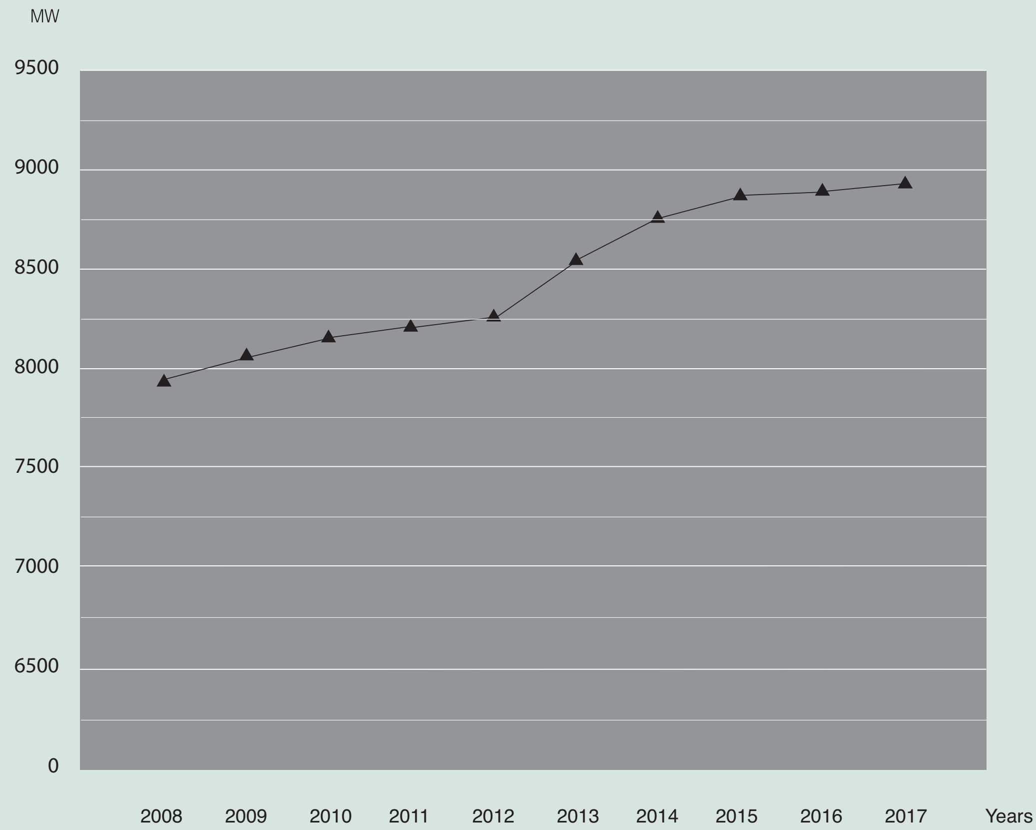
The more important forecast to be discussed in this review is the one produced by ISO-NE. Called the "90/10" forecast, it is separate from the normal weather (50/50) forecasts offered by the Connecticut utilities. However, it is the one used by both ISO-NE and by the Connecticut utilities for utility infrastructure planning, including transmission and generation.

A 90/10 forecast is a plausible worst-case hot weather scenario. It means there is only a 10 percent chance that the projected peak load would be exceeded in a given year, while the odds are 90 percent that it would not be exceeded in a given year. Put another way, the forecast would be exceeded, on average, only once every ten years. While this projection is extremely conservative, it is reasonable for facility planning because of the potentially severe disruptive consequences of inadequate facilities: brownouts, blackouts, damage to equipment, and other failures.

State utility planners must be conservative in estimating risk because they cannot afford the alternative. Just as bank planners should ensure the health of the financial system by maintaining sufficient collateral to meet worst-case liquidity risks, so load forecasters must ensure the reliability of the electric system by maintaining adequate facilities to meet peak loads in worst-case weather conditions. While over-forecasting can have economic penalties due to excessive and/or unnecessary expenditures on infrastructure, the consequences of under-forecasting can be much more serious. Accordingly, the Council will base its analysis in this review on the ISO-NE 90/10 forecast.

Specifically, ISO-NE's 90/10 forecast has a projected (worst-case) peak load of 7,960 MW in 2008. This load is expected to grow at an ACGR of 1.32 percent and reach 8,955 MW by 2017. See Figure 1c.

Figure 1c: ISO-NE 90/10 Forecast of Load in MW



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
▲ ISO-NE 90/10 Forecast Peak	7960	8105	8250	8390	8515	8630	8730	8815	8890	8955

FORECASTING ELECTRIC ENERGY CONSUMPTION

Another term for describing electric use is "energy consumption." Electric energy consumption is average load multiplied by time. Accordingly, energy consumption is represented in Watt-hours. On a household scale, a unit of kilowatt-hours is used (kWh, or one thousand watt-hours). On a statewide scale, the units used are megawatt-hours (MWh or one million watt-hours), or gigawatt-hours (GWh, or one billion watt-hours).

While demand represents a snapshot of time (usually recorded hourly by utilities) and provides an instantaneous measurement of electric load, energy is the total work done by the electricity over time. For example, a 100-Watt light bulb consumes electricity at a rate of 100 Watts. If the bulb were on for ten hours, the total energy consumed would be 1,000 Watt-hours or 1 kWh. A larger load, for example, a 1,500 Watt electric heater, would only have to run for 40 minutes (2/3 of an hour) to consume 1 kWh of energy. A household or business electric meter essentially records the sum of the kilowatt-hours of all loads that have operated on the premises during the billing period. For larger accounts, meters also record the instantaneous load (i.e. demand).

The three transmission/distribution utilities maintain records of total energy consumption in their service area. Total consumption is generally the sum of the customers' consumption, the utilities' internal consumption, and losses in the system. The sum of the three utilities' energy consumption, like the sum of their loads, approximates the electric energy consumption in Connecticut.

CL&P predicts that the total electric energy consumption[3] in its service area will be 25,171 GWh during 2008. This number is expected to grow at an ACGR of 0.3 percent and reach 25,860 GWh by 2017.

UI predicts that the total electric energy consumption in its service area will be 6,192 GWh during 2008. UI's projections result in an ACGR of -1.1 percent. That is, UI's electric energy consumption is expected to decline at an ACGR of 1.1 percent and reach 5,582 GWh by 2017.

CMEEC predicts that the total electric energy consumption in its service area will be 2,028 GWh during 2008. This number is expected to grow at an ACGR of 0.76 percent and reach 2,171 GWh by 2017.

Taken together, these data result in a statewide electric energy consumption of approximately 33,391 GWh in 2008. This number is expected to grow at a (weighted) ACGR of 0.074 percent and reach 33,613 GWh by 2017.

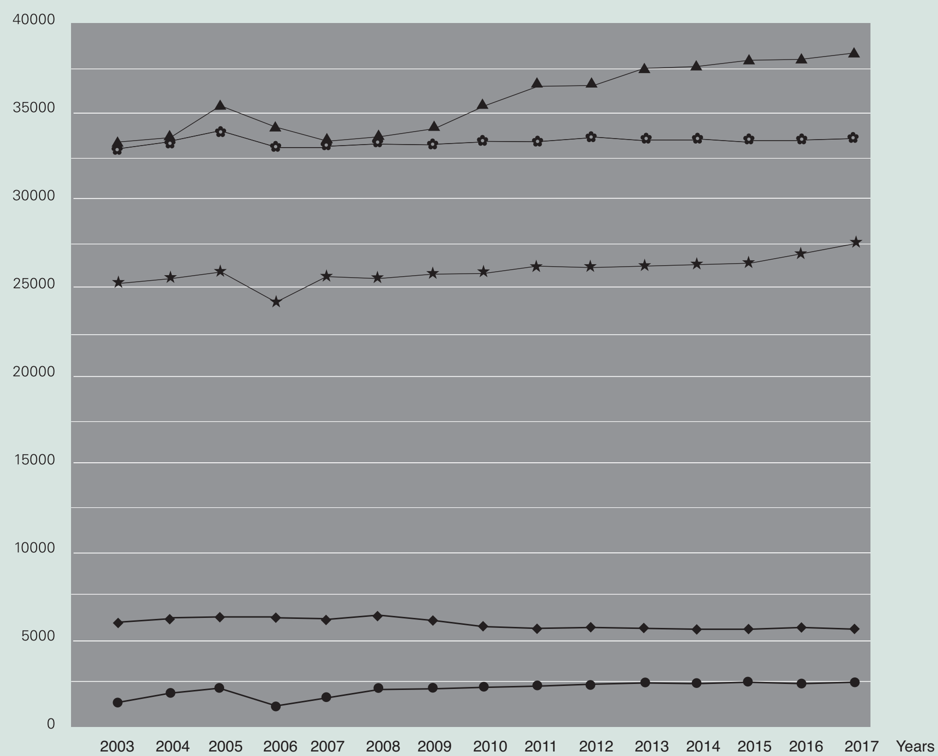
On the surface, this essentially flat growth in energy consumption may seem counterintuitive and even inconsistent, given the 1.37 percent ACGR of peak electric load growth in the state. Actually, it is not. It is the result of changing customer behavior in response to higher electric rates, to technological change, and to various efficiency efforts encouraged by the utilities and the state.

It appears that customers are conserving electricity wherever possible to reduce their electric bills, resulting in essentially flat or even declining (in the case of UI's territory) electric energy consumption. On the other hand, demand for air conditioning during the hottest days (and hours) of the year appears to remain strong, and energy consumption during peak periods continues to grow. However, since the short peak periods, when people tend not to conserve, are offset by the much longer periods when people do conserve, the overall trend for electric energy consumption stays steady.

As is the case with electric load, ISO-NE also provides electric energy consumption data for Connecticut. ISO-NE's projections differ from the sum of the utilities' projections because of the different forecasting models used. Furthermore, the ISO-NE forecast differs from the sum of the utilities' forecasts because ISO-NE excludes the impact of post-2007 Conservation and Load Management (C&LM) spending and programs. Under the Forward Capacity Market (FCM), C&LM and other Demand Resources are counted as capacity resources. As such, these resources are not treated as reductions to the peak and energy forecasts.

Specifically, ISO-NE predicts electric energy consumption in Connecticut to be 34,050 GWh in 2008. This number is expected to grow at a ACGR of 0.85 percent and reach 36,755 GWh by 2017. Figure 2 depicts the energy requirement forecasts.

Figure 2: State and Utility Energy Requirements in GWh



▲ ISO-NE	33647	34171	35202	33656	33948	34050	34410	34760	35120	35450	35755	36030	36285	36525	36755
✿ CT Utilities	33217	33706	34519	33005	33314	33391	33342	33354	33380	33494	33404	33405	33410	33579	33613
★ CL&P	25190	25496	26119	24871	25185	25171	25215	25375	25434	25571	25544	25581	25617	25792	25860
◆ UI	6071	6205	6360	6149	6119	6192	6092	5921	5872	5825	5750	5699	5653	5631	5582
● CMEEC	1956	2005	2040	1985	2010	2028	2035	2058	2074	2098	2110	2125	2140	2156	2171

Energy conservation has largely been replaced in the common parlance by energy efficiency which is doing more with less. Energy efficiency has the advantage of being extraordinarily flexible: it can switch-hit. It can function either as a negative for demand, or as a positive for supply. Forecasters can and do account for energy efficiency differently, making it difficult to evaluate the results of efficiency on a consistent basis. At the same time, everyone involved in making energy projections for the future agrees that energy efficiency is either the key player on the team or the only game in town. As the section below and others in this review will show, consistent with history, energy-efficiency efforts significantly affect the growth of the Connecticut electric system, and will continue to do so.

The Connecticut Energy Conservation Management Board (ECMB) was created by the Legislature in 1998 to advise and assist the state's utility companies in developing and implementing cost-effective conservation programs to meet Connecticut's changing and growing energy needs. With the approval of the Department of Public Utility Control (DPUC), the ECMB also guides the distribution of the Connecticut Energy Efficiency Fund (CEEF). The CEEF is a fund that finances energy efficiency and load management programs and initiatives. Its funding comes from a surcharge on customer electric bills.

These programs are implemented and administered by CL&P and UI, who are also accountable for attaining performance goals approved by the DPUC and ECMB—goals that include reducing both energy consumption and peak load. CMEEC has a separate program for energy efficiency, but with the same goals.

The ECMB submits an annual report to the legislature regarding energy efficiency programs in Connecticut. In the ECMB report dated March 1, 2008, the ECMB notes that in 2007 the CEEF programs resulted in annual energy savings of 355 million kWh or 355 GWh. As a result of CEEF programs administered during the time period of 2000-2007, ECMB estimates that 3.1 billion kWh or 3,100 GWh will be saved over the lifetime of such efficiency measures.

Assuming an average electric price of 18.01 cents per kWh, this is equal to a savings of $63.9 million annually and a lifetime savings of $776.8 million for businesses and residences throughout Connecticut.

CL&P reports a projected load reduction of 223 MW in 2008 due to C&LM, including certain other legislated initiatives. This number is expected to grow to 532 MW by 2017. UI reports a projected load reduction of 10 MW in 2008. This number is expected to grow to 167 MW by 2017. CMEEC reports a projected load reduction of 1.8 MW in 2008. This number is expected to grow to 14.4 MW by 2017.

Collectively, the statewide projected peak load reduction due to C&LM is projected to be 235 MW in 2008[4]. This cumulative load reduction is projected to increase annually with a CAGR of 13.1 percent and reach 713 MW by 2017, the end of the forecast period. The magnitude of this projected reduction in load is nearly on the order of the output of the (792 MW nominal) Lake Road Generating facility in Killingly. Figure 3 depicts the projected annual peak load reduction by utility throughout the forecast period.

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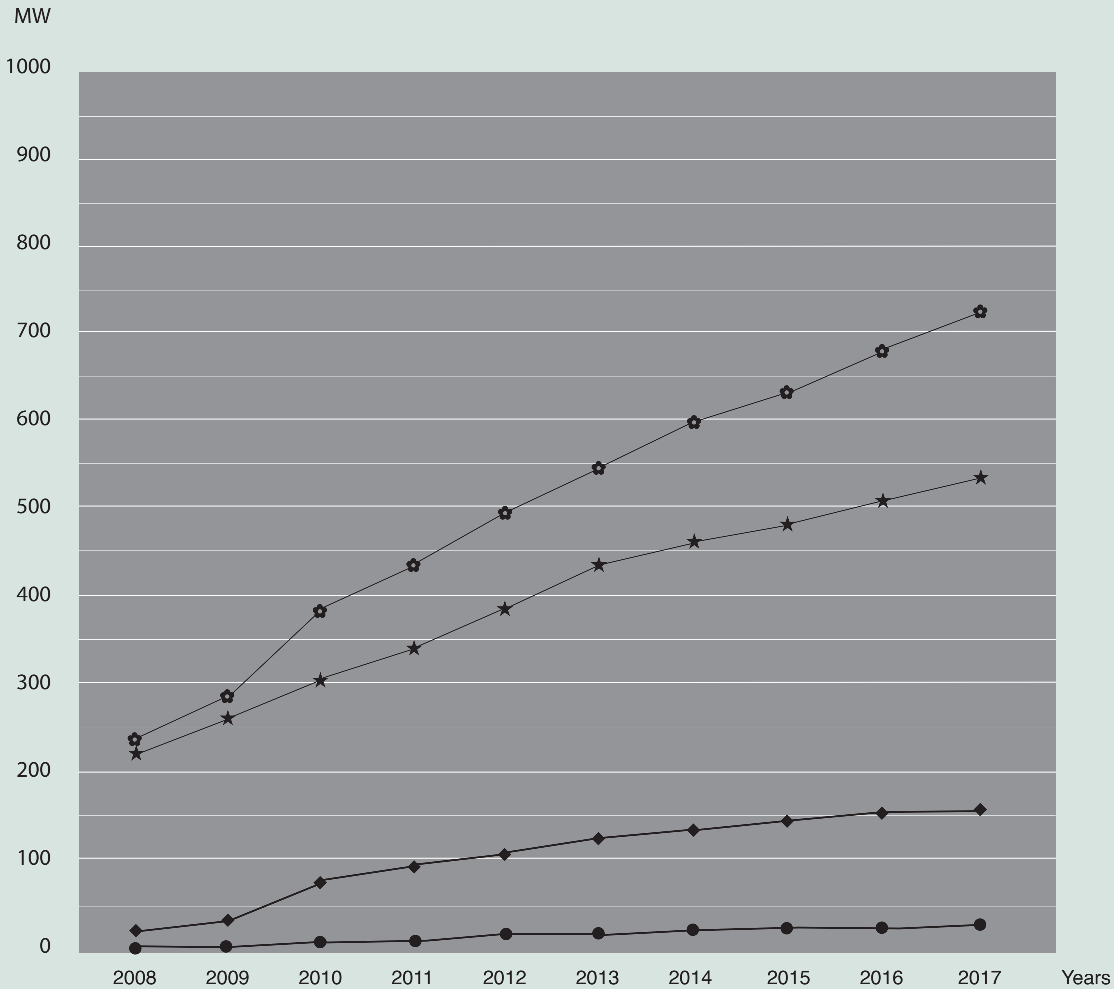
The Council believes that energy efficiency, and programs like CEEF, are an extremely important part of Connecticut's electric energy strategy. Increased efficiency allows the state's electric needs to be met, in part, without incurring the incremental pollution that would be caused by dispatching generation to serve the additional load.

Reductions in peak load due to increased efficiency can also impact the schedule of necessary changes to existing utility infrastructure, such as transmission lines and substation equipment (transformers, distribution feeders, etc.) and hence tends to hold down utility costs. Electric energy efficiency also reduces federal congestion costs and the costs of new generation.

Figure 3: C&LM Projected Load Reductions



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
✿ CT Utilities Combined C&LM	235	285	382	438	496	549	597	632	672	713
★ CL&P C&LM	223	260	301	340	381	421	456	478	505	532
◆ UI C&LM	10	21	75	89	103	115	127	140	153	167
● CMEEC C&LM	1.8	3.9	6.3	9.2	12	13.1	13.8	14.2	14.3	14.4

The Council anticipates a shortage of electric generation supply during the forecast period, when taking into account the most conservative forecast (ISO-NE's 90/10 estimate) and the possible retirement of several existing oil-fired generating facilities.

New Generation

Notwithstanding, several significant generation projects have been approved by the Council and are expected to be brought online within the next few years.

The 620 MW Kleen Energy facility in Middletown is a natural gas-fired (with oil backup) combined-cycle generating facility. The plant was approved by the Council in Docket No. 225. This plant was later selected in a request for proposal (RFP) by DPUC as a project that would significantly reduce federally mandated congestion charges, and the plant is currently under construction. It is reflected in the load/resource balance table based on an estimated in-service date of late 2009.

On June 5, 2008, the Council approved the Bridgeport Energy II (BEII) project. This is a 350 MW gas/oil electric generating plant that was the subject of Petition No. 841. The plant will be located at the site of the existing Bridgeport Energy facility. This facility was the subject of a DPUC RFP for peaking generation. In October 2008, DPUC granted a request from BEII to withdraw from the RFP process. While this creates a void in capacity, the DPUC granted GenConn Energy LLC funding to fulfill the peaking RFP.[5,6]

Public Act 07-242, An Act Concerning Electricity and Energy Efficiency, includes an expedited Council review and approval process to facilitate the siting of certain new power plants. The Council is mandated to approve by declaratory ruling:

- the construction of a facility solely for the purpose of generating electricity, other than an electric generating facility that uses nuclear materials or coal as a fuel, at a site where an electric generating facility operated prior to July 1, 2004;
- the construction or location of any fuel cell—unless the Council finds a substantial environmental effect—or of any customer-side distributed resources project or facility or grid-side distributed resources project or facility with a capacity of not more than 65 megawatts, so long as such the project meets the air quality standards of the Department of Environmental Protection;
- the siting of temporary generation solicited by DPUC pursuant to section 16-19ss of this Act.

Many projects, instead of being submitted to the Council as applications for Certificates of Environmental Compatibility and Public Need, were submitted as petitions for declaratory ruling under this new provision. Several Project 150 proposals (see below) were also in this category.

The Council anticipates a shortage of electric generation supply during the forecast period, when taking into account the most conservative forecast (ISO-NE's 90/10 estimate) and the possible retirement of several existing oil-fired generating facilities.

Project 150

Project 150 is a program funded by the CEEF. The aim of this program is to stimulate Class I renewable energy generation. Applicants that are approved by the Council receive secure funding via long-term power purchase agreements with CL&P and UI. Table 1 reports each applicant's status before the Council, and estimated in-service dates for those already approved.

Table 1: Renewable Generation Projects Selected in Project 150

Project	Location	Project MW	Contract MW	Est. In-service Date	Review Status
Watertown Renewable Power, LLC	Watertown	30	15	4/1/2011	Approved
DFC-ERG Milford Project	Milford	9	9	12/1/2008	Approved
South Norwalk Renewable Generation*	South Norwalk	32.5	30	3/1/2010	Not Rec'd
Plainfield Renewable Energy	Plainfield	37.5	30	11/1/2010	Approved
Clearview Renewable Energy, LLC	Bozrah	30	30	1/12/2011	Under Review
Stamford Hospital Fuel Cell CHP	Stamford	4.8	4.8	10/1/2009	Not Rec'd
Clearview East Canaan Energy, LLC	North Canaan	3	3	6/1/2010	Not Rec'd
Waterbury Hospital Fuel Cell CHP	Waterbury	2.4	2.4	6/9/2009	Not Rec'd
Contingent Project:					
Triangle Fuel Cell Project	Danbury	21	21	TBD	Not Rec'd

* On August 8, 2008, in Docket No. 07-04-27, this contract was filed with the DPUC for its approval.

Source: 2008 CL&P Forecast and Council Records

Waterside Power

On June 20, 2006, Waterside Power, LLC (Waterside) submitted a petition (Petition No. 772) to the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the existing temporary 69.2 MW oil-fired peaking project located at 17 Amelia Place in Stamford, CT. Waterside was also selected as part of an RFP issued by the DPUC. (See the section titled "An Act Concerning Energy Independence.") On May 8, 2008, the Council approved Waterside as a permanent, rather than temporary, generating facility. Waterside's power output is included in Appendix A.

Plainfield Renewable Energy

On August 14, 2006, Plainfield Renewable Energy LLC submitted a petition (Petition No. 784) to the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the proposed construction, maintenance, and operation of a 37.5 MW wood biomass fueled electric generating facility in the Town of Plainfield. This project was approved on June 7, 2007. It will be a Class I renewable resource, will provide additional generation to Connecticut, and will help meet part of the statutory requirement that a certain percentage of the state's power come from renewable resources. (See the later section titled "Renewable Portfolio Standards.")

Kimberly Clark Corporation – New Milford

On May 15, 2007, the Kimberly Clark Corporation (KCC) submitted a petition (Petition No. 813) to the Council for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of a 34 MW natural gas-fired generating facility in New Milford. Approximately 17 MW output would be consumed by KCC, and the remaining 17 MW would be fed into the electric grid. This project was approved by the Council on June 12, 2007.

Ansonia Generation LLC – Ansonia

On May 13, 2007, Ansonia Generation LLC submitted a petition (Petition No. 805) to the Council for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of a 58.4 MW combined heat and power natural gas-fired generating facility. The project is eligible for a customer-side distributed generation capital grant pursuant to a DPUC determination that the project would help minimize federally mandated congestion charges. This project was approved by the Council on July 26, 2007.

Connecticut Jet Power, LLC – Cos Cob, Greenwich

On May 15, 2007, Connecticut Jet Power, LLC submitted a petition (Petition No. 812) to the Council for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of two 20 MW oil-fired combustion turbines in Greenwich. Initially, 60 MW of existing generation capacity was available at this site. With this project, an additional 40 MW became available for use by the electric grid. This project was approved by the Council on July 26, 2007. This facility is complete and in service.

DFC-ERG Milford, LLC – Milford

On September 4, 2007, DFC-ERG Milford, LLC (DFC-ERG) submitted a petition (Petition No. 828) for a declaratory ruling that no Certificate is required for the proposed installation of a 9 MW fuel cell. This project includes three 2.4 MW fuel cell units and a turbo-expander generator powered by the waste heat that would generate an additional 1.8 MW of electricity. This project is part of Project 150 and perhaps the largest fuel cell project in the state. The Council approved this project on October 4, 2007.

Waterbury Generation, LLC – Waterbury

On October 5, 2007, Waterbury Generation, LLC (WatGen), submitted a petition (Petition No. 831) for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of a 96 MW combustion turbine peaking facility. This facility would be fueled by natural gas, with ultra-low sulfur fuel oil as the backup fuel. This project was selected by the DPUC because it would improve the reliability of the electric system and reduce federally mandated congestion charges. This project was approved by the Council on April 10, 2008.

Watertown Renewable Power, LLC – Watertown

On November 14, 2007, Watertown Renewable Power, LLC (WRP) submitted a petition (Petition No. 834) for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of a 30 MW biomass gasification-fueled electric generating facility. The facility would burn clean chipped wood waste, and would operate as a baseload facility. This project was approved by the Council on April 24, 2008. The Council is awaiting a Development and Management Plan (D&M Plan), which contains the final construction details and site plans. This project is part of Project 150. See Table 1.

Devon Power LLC – Milford

On December 21, 2007, Devon Power LLC (DPLLC) submitted a petition (Petition No. 843) for a declaratory ruling that no Certificate is required for the proposed construction, maintenance, and operation of four 50 MW electric generating facilities at the existing Devon Station. These units would replace the decommissioned Devon 7 and 8 units. These new units would be considered Devon 15 through 18 and would be capable of operating on natural gas or ultra-low sulfur fuel oil. This project was approved by the Council on January 24, 2008.

DEMAND/SUPPLY BALANCE

Table 2 contains a tabulation of generation capacity vs. peak loads. The ISO-NE 90/10 forecast is applied in this table because it is the forecast used for utility facility planning purposes. The largest reserve requirement is 1,200 MW, which is approximately the size of Connecticut's largest generator, Millstone 3. In the event that Millstone 3 or any significantly sized smaller unit trips off-line, reserves must be available to rapidly compensate for that loss of capacity.

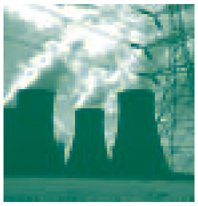
Assumed unavailable generation estimates a typical amount of power plants off-line for maintenance purposes. Existing generation supply resources are based on the total existing generation in Connecticut listed in Appendix A. Appendix A contains data from the July 2008 Seasonal Claimed Capability report from ISO-NE. Approved generation projects (not yet constructed and/or complete) are also included in Table 2. In-service dates for these facilities are estimates and may be subject to change.

The retirement of older generating units is difficult to predict because it is the result of many factors such as market conditions, environmental regulations and the generating companies' business plans. However, NRG Energy Inc. (NRG) testified that, "Due to the age of the units at Norwalk Harbor Station (342 MW), Montville Station (494 MW), and Middletown Station (770 MW), their infrequent dispatch in the energy market and the expectation that capacity prices will clear lower for the next several auctions, CEAB and the Connecticut Siting Council should assume for planning purposes that these units will be retired in the subject time period (2008-2017) if they are not repowered under long-term contract or other market-based arrangements that provide certainty of revenues[7]." Thus, to be conservative, the Council has assumed the retirement of all three power plants (totaling 1,606 MW) at the beginning of the forecast period. As can be readily seen, such retirements could create a material deficiency in generating capacity in the state, especially so in the early years of the forecast period.

Table 2: MW Balance

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
90/10 Load	7,960	8,105	8,250	8,390	8,515	8,630	8,730	8,815	8,890	8,955
Reserve	1,200	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280
Load + Reserve	9,160	9,385	9,530	9,670	9,795	9,910	10,010	10,095	10,170	10,235
Existing Generation	6,912	6,912	6,912	6,912	6,912	6,912	6,912	6,912	6,912	6,912
Est.Unavail. Generation	576	576	576	576	576	576	576	576	576	576
Available Generation	6,336	6,336	6,336	6,336	6,336	6,336	6,336	6,336	6,336	6,336
Normal Import	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Demand Response	67	67	442	576	617	629	633	634	634	634
Total Avail. Resources	8,403	8,403	8,778	8,912	8,953	8,965	8,969	8,970	8,970	8,970
Surplus/Deficiency	-757	-982	-752	-758	-842	-945	-1,041	-1,125	-1,200	-1,265
Project 150			150	150	150	150	150	150	150	150
Kimberly Clark	17	17	17	17	17	17	17	17	17	17
Cos Cob	40	40	40	40	40	40	40	40	40	40
Middletown			620	620	620	620	620	620	620	620
Waterbury		96	96	96	96	96	96	96	96	96
Ansonia			58	58	58	58	58	58	58	58
Bridgeport Energy II				350	350	350	350	350	350	350
NRG Devon			200	200	200	200	200	200	200	200
Surplus/Deficiency	-700	-829	429	773	689	586	490	406	331	266
NEEWS							300	700	1,100	1,100
Ameresco		5	5	5	5	5	5	5	5	5
PSEG Power New Haven			130	130	130	130	130	130	130	130
Millstone Uprate		80	80	80	80	80	80	80	80	80
Surplus/Deficiency	-700	-744	644	988	904	801	1,005	1,321	1,646	1,581
Possible Retirements of Existing Generation										
Norwalk Harbor		-342	-342	-342	-342	-342	-342	-342	-342	-342
Middletown		-770	-770	-770	-770	-770	-770	-770	-770	-770
Montville		-494	-494	-494	-494	-494	-494	-494	-494	-494
Total Net Surplus/Deficiency	-700	-2,350	-962	-618	-702	-805	-601	-285	40	-25

Nuclear Powered Generation



Nuclear plants use nuclear fission (a reaction in which uranium atoms split apart) to produce heat, which in turn generates steam, and the steam pressure operates the turbines that spin the generators. Since no step in the process involves combustion (burning), nuclear plants produce electricity with zero air emissions. Pollutants emitted by fossil-fueled plants are avoided, such as sulfur dioxide (SOx), nitrogen oxides (NOx), mercury, and carbon monoxide. Nuclear plants also do not emit carbon dioxide, which is a significant advantage in the effort to curb greenhouse gas emissions. However, issues remain with regard to security, the short and long-term storage of nuclear waste, and cost of new plants.

Connecticut currently has two operational nuclear electric generating units (Millstone Unit 2 and Unit 3) contributing a total of 2,014 MW of summer capacity, approximately 29.1 percent of the state's generating capacity. (The Millstone facility is the largest generating facility in Connecticut by power output.) Previously, nuclear power supplied approximately 45 percent of Connecticut's electricity. However, this capacity has been reduced to 29 percent by the retirement of the Connecticut Yankee plant in Haddam Neck (December 1996) and Millstone Unit 1 (July 1998).

The former Millstone 1 reactor has been decommissioned in place. Dominion Nuclear Connecticut Inc. (Dominion), owner of the Millstone units, has no plans at this time to construct another nuclear power generating unit at the site.

Dominion submitted license renewal applications to the United States Nuclear Regulatory Commission (NRC) on January 22, 2004. On November 28, 2005, the NRC announced that it had renewed the operating licenses of Unit 2 and Unit 3 for an additional 20 years. With this renewal, the operating license for Unit 2 is extended to July 31, 2035 and the operating license for Unit 3 is extended to November 25, 2045.

Most recently, on July 16, 2007, Dominion filed an application with the NRC for a capacity up-rate of approximately 80 megawatts on Millstone Unit 3. This application was approved in 2008. Therefore, this increase in output could be delivered as early as the end of 2008. This will provide more capacity to Connecticut and the region. This up-rate is reflected in Table 2, with an estimated in-service date of 2009, since that is projected to be the first full year of operation with the upgrade. This up-rate is also reflected in the increased reserve requirement in table 2.

Coal Powered Generation

Connecticut has two coal-fired electric generating facilities contributing 564 MW, or approximately 8.2 percent of the state's current capacity. The AES Thames facility, located in Montville, burns domestic coal and generates approximately 181 MW. The AES Thames facility is technically a cogeneration facility because, besides generating electricity for the grid, it also provides process steam to the Jefferson Smurfit-Stone Container Corporation.

The other coal-fired generating facility in Connecticut is the Bridgeport Harbor #3 facility located in Bridgeport. This facility burns imported coal and has a summer power output of approximately 383 MW.

While both of these facilities are listed as coal/oil in Appendix A, the Council notes that these are not dual-fuel facilities and cannot operate on oil alone. Oil is only used to help ignite the coal initially to start the plant.

In general, using coal as fuel has the advantages of an abundant domestic supply (US reserves are projected to last more than 250 years), and an existing rail infrastructure to transport the coal. However, despite the advantages of domestic coal, generators sometimes find imported coal more economical to use. With very low sulfur content, imported coal does not require as much cost for emissions control.

In conventional coal-fired plants, coal is pulverized into a dust and burned to heat steam for operating the turbines. However, burning coal to make electricity causes air pollution. Pollutants emitted include sulfur dioxide, carbon dioxide, and mercury. Coal-fired power plants have high carbon dioxide emissions relative to plants using other fuels; thus, they are considered particularly significant contributors to global warming. (See later section on the Regional Greenhouse Gas Initiative.)

One alternative to conventional coal-fired generation is "clean coal technology." This is a complex process in which gaseous fuel (such as carbon monoxide) is extracted from coal and then burned in a gas turbine engine. The result is higher efficiency and significantly lower air pollution than conventional coal-fired power plants. However, this process is not yet commercially available.

Petroleum Powered Generation

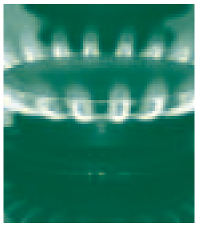
Connecticut currently has 34 oil-fired electric generating facilities contributing 2,656 MW, or 38.4 percent of the state's current capacity. This takes into account the reactivation of Devon 10 (14 MW) on June 29, 2006.

Both Devon 7 and 8 are considered decommissioned. These units are expected to be replaced by Devon 15 through 18. (See earlier section titled Devon Power LLC – Milford.) This repowering project will result in higher efficiency, lower emissions, and will replace the approximately 200 MW of capacity lost when Devon 7 and 8 were taken out of service.

Additional oil-fired generation is not likely in the near future, due to market volatility. (However, replacement and/or repowering of existing aging units may occur.) In particular, the price of crude oil has recently set a record peak in excess of $140 per barrel this year, up approximately 46 percent this year alone. More recently, prices have fallen into $60-70 per barrel range.

Moreover, oil-fired generation presents environmental problems, particularly related to the sulfur content of the oil, and may face tighter air-emissions standards in the near-term, such as regulation of carbon dioxide emissions. Some of the oil-fired generating facilities in Connecticut are dual-fueled, meaning that they can switch to natural gas if necessary. Currently, four active plants in Connecticut (Middletown #2 and #3; Montville #5; and New Haven Harbor #1), totaling approximately 882 MW, have the ability to change from oil to gas. The Council believes that dual-fuel capability is an important part of diversifying the fuel mix for electric generation, with the benefit of avoiding overdependence on a particular fuel.

Natural Gas Powered Generation



Connecticut currently has 14 natural gas-fired generating units (not including Lake Road[8] which is electrically more part of Rhode Island than Connecticut) contributing a total of 1,352 MW, or 19.6 percent of the state's generating capacity. This includes additions such as the Milford Power facility, with a total summer rating of 489 MW.

Natural gas-fired electric generating facilities are preferred over those burning coal or oil primarily because of higher efficiency, lower initial cost per MW, and lower air pollution. Natural gas generating facilities also have the advantage of being linked directly to their fuel source via a pipeline.

Some natural gas generating plants, such as Bridgeport Energy, Milford Power, Lake Road, and the upcoming Kleen Energy plant are combined-cycle. Added to the primary cycle, in which gas turbines turn the generators to make electricity, is a second cycle, in which waste heat from the first process is used to generate steam: steam pressure then drives another turbine that generates even more electricity. Thus, a combined-cycle plant is highly efficient, with an efficiency on the order of 60 percent. However, the tradeoffs are higher initial costs and increased space requirements for the extra generating unit.

The Towantic power plant in Oxford and the NRG facility in Meriden were approved by the Council, but have been subject to project-specific delays. The completion dates are unclear at this time. Accordingly, they are not included in Table 2.

Additional oil-fired generation is not likely in the near future, due to market volatility. (However, replacement and/or repowering of existing aging units may occur.) In particular, the price of crude oil has recently set a record peak in excess of $140 per barrel this year, up approximately 46 percent this year alone. More recently, prices have fallen into $60-70 per barrel range.

Hydroelectric Power Generation

Connecticut's hydroelectric generation consists of 28 facilities contributing approximately 138 MW, or 2.0 percent of the state's current generating capacity. Hydroelectric generating facilities use a largely renewable energy source, emit zero air pollutants, and have a long operating life. Also, some hydro units have black start capability. However, hydroelectric units can divert river flows from worthwhile public uses, such as recreation and irrigation, and can disrupt fish and wildlife. The main obstacle to the development of additional hydroelectric generation in Connecticut is a lack of suitable sites.

FirstLight Hydro Generating Company (FLHGC) formerly known as Northeast Generation Company, Connecticut's largest provider of hydroelectric power, owns the following hydroelectric facilities: Bantam, Bulls Bridge, Falls Village, Robertsville, Scotland, Shepaug, Stevenson, Taftville, Tunnel 1-2, Rocky River, and Tunnel 10. Table 3 shows the status of the Federal Energy Regulatory Commission (FERC) licenses for FLHGC's facilities.

Solid Waste Power Generation

Connecticut currently has approximately 184 MW of solid waste-fueled generation, approximately 2.7 percent of the state's generation capacity. The Exeter generating plant in Sterling burns used tires, and has a summer rating of approximately 24 MW. The remaining 160 MW of solid waste-fueled generation includes: Bridgeport Resco; Bristol Resource Recovery Facility (RRF); Lisbon RRF; Preston RRF; Wallingford RRF; and the Connecticut Resources Recovery Authority South Meadows facility. See Table 4.

Table 3: Licensing Status of FLHGC Hydroelectric Facilities

Generating Facility	MW (Summer)	Status of FERC License[9]
Bantam 1	0.07	License not required
Bulls Bridge 1-6	4.72	40 year license issued on June 23, 2004
Falls Village 1-3	4.32	40 year license issued on June 23, 2004
Robertsville 1-2	0.33	License not required
Scotland 1	1.82	License expires August 31, 2012. Re-licensing process began in 2007.
Shepaug 1	41.51	40 year license issued on June 23, 2004
Stevenson 1-4	28.31	40 year license issued on June 23, 2004
Taftville 1-5	2.03	License not required
Tunnel 1-2	1.48	License not required
Rocky River	29.35	40 year license issued on June 23, 2004

Source: FLHGC June 25, 2008 Response to Council Interrogatories

Table 4: Solid Waste-Fuel Facilities

Solid Waste-fueled Generation	MW
Bridgeport Resco	58.52
Bristol Resource Recovery Facility	13.20
Lisbon Resource Recovery Facility	12.96
Preston Resource Recovery Facility	16.01
Wallingford Resource Recovery Facility	6.35
Connecticut Resource Recovery Agency - South Meadows Unit #5	25.60
Connecticut Resource Recovery Agency - South Meadows Unit #6	27.11
Exeter Tire-burning Facility	24.17
Total	183.92

Source: July 2008 ISO-NE Seasonal Claimed Capability Report

Solid waste has the advantage of being a renewable, locally supplied fuel and it contributes to Connecticut's fuel diversity. It is not affected by market price volatility, nor supply disruptions—significant advantages over fossil fuels. In addition, the combustion of solid waste produces relatively low levels of greenhouse gases, and reduces the amount of space needed for landfills.

Recently passed energy legislation encourages the development and expansion of waste-to-energy facilities. Trash-to-energy plants are considered a Class II renewable resource, which could count toward the Renewable Portfolio Standards. (See later section titled "Renewable Portfolio Standards.")

Solid waste has the advantage of being a renewable, locally supplied fuel and it contributes to Connecticut's fuel diversity. It is not affected by market price volatility, nor supply disruptions—significant advantages over fossil fuels.

Miscellaneous Small Generation

Approximately 134 MW of electricity is generated by 67 independent entities in Connecticut such as schools, businesses, homes, etc. This portion of generation is not credited to the state's capability to meet demand because ISO-NE does not control its dispatch. However, these privately-owned units do serve to reduce the net load on the grid, particularly during periods of peak demand. They range from 5 kW to 32.5 MW in size and are fueled primarily by natural gas, with several others using oil, solid waste, hydro, solar, wind, landfill gas (essentially methane), and propane. The newest significant addition to this category is the 24.9 MW cogeneration facility at the University of Connecticut. This unit was put into service in August 2005.

Under Public Act 05-01, An Act Concerning Energy Independence, financial and other incentive mechanisms were put in place to encourage the amount of installed distributed generation and combined heat and power in Connecticut. The DPUC has approved numerous grant applications for distributed generation projects. So while more small distributed generation is expected, it is not clear at this time how many of these projects will actually be constructed. In addition, several unreported units may be in service in Connecticut. Therefore, the total amount of miscellaneous small generation is an approximation at best.

Fuel Mix

Based on existing generation and future (approved) generation projected in Table 1, the estimated fuel mix (by MW) is provided below for 2008 and also 2017, the end of the forecast period. This includes the hypothetical retirements of Norwalk Harbor, Middletown, and Montville generating stations by 2017. See Figure 4a and 4b below.

Figure 4A. 2008 Fuel Mix

Percent of CT Generating Capacity by MW

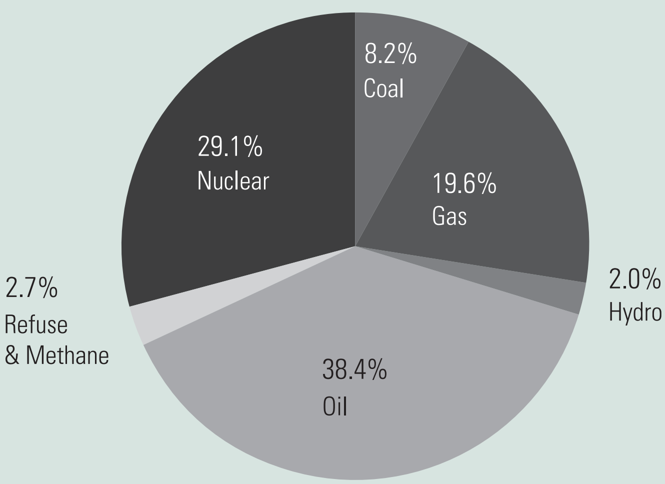
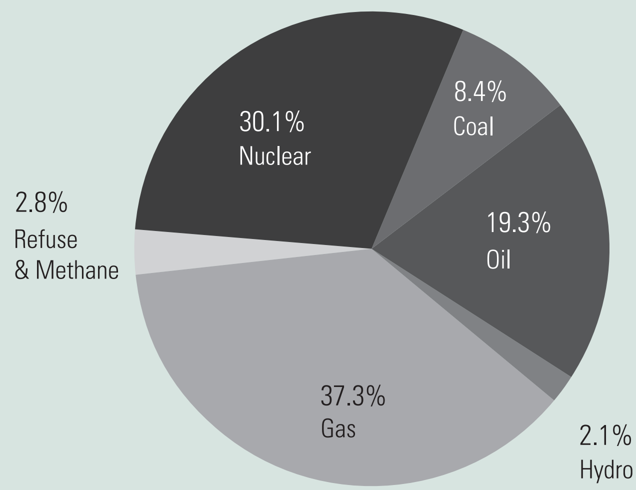


Figure 4B. 2017 Projected Fuel Mix

Percent of CT Generating Capacity by MW



* Lake Road generating plant is not included in this figure because it is electrically more part of Rhode Island than Connecticut.

Import Capability

The ability to import electricity plays a significant role in Connecticut's electric supply. Sufficient import capability is essential for maximizing reliability and for allowing economic interchange of electric energy. Connecticut can reliably import approximately 1,500 MW to 2,500 MW of power from the neighboring states of New York, Rhode Island, and Massachusetts. 2,500 MW is considered the maximum and best-case scenario at this time.

Connecticut has one 345-kV tie with each bordering state. The 345-kV tie from New York can carry 18 percent of our import capacity. The 345-kV tie from Rhode Island can carry 31 percent. The 345-kV tie from Massachusetts can carry about 32 percent. This results in 81 percent of our imports being carried on high-capacity lines. The remaining power is carried via 115-kV interstate connections.

While the previous imports mentioned have all been on the alternating current (AC) transmission system, there is one direct current (DC) tie between New Haven and Long Island called the Cross Sound Cable. The Cross Sound Cable is 450-kV DC and has a capacity of approximately 330 MW in either direction.

The twenty-five hundred MW import capability only represents about 30 percent of the state's peak demand. Looking ahead, CL&P is developing a transmission upgrade plan that would increase the state's import capacity to approximately 45 percent of peak demand. This plan would significantly increase the reliability of Connecticut's supply system and allow for greater import of economical supply. It is called the New England East – West Solution (NEEWS). (See Transmission section.)

MARKET RULES AFFECTING ELECTRIC SUPPLY

Forward Capacity Market

Pursuant to a settlement agreement filed with FERC on March 2, 2006, ISO-NE has introduced a new Forward Capacity Market (FCM) under which ISO-NE projects the needs of the power system three years in advance, then holds annual auctions to purchase power resources to supply those needs. New generating plants are allowed to bid in on the same basis as existing ones, a rule that should favor alternative fuels, and, for the first time, demand response resources can bid in a form of capacity supply. The market rules pay resources based on their performance, or availability, when called upon by ISO-NE. Generators and demand resources that fail to fulfill their auction commitments are subject to reduced capacity payments.

The ISO-NE FCM rules needed to conduct the first forward capacity auction (FCA) were approved by the FERC during 2007. In the first auction, 39,155 MW of new and existing demand and supply resources competed to provide the 32,305 MW needed for New England reliability for the twelve month period: June 2010 through May 2011. The auction consisted of eight rounds over a three-day period.

Given that the FCA invited demand response resources to bid in as a source of capacity, the result has been particularly notable. Six hundred MW of new supply and nearly 1,200 MW of new demand resources were procured in the first auction, and the show-of-interest for the second auction is robust for both new supply and demand resources.

An important function of the FCM is to allow resources to secure commitments for providing capacity several years in advance of the need, which should provide additional financial support beyond what is obtained through the other wholesale electricity markets. However, there appears to be some concern, at least by some market participants, that revenues from the FCM may be inadequate: if so, some units will be retired during the forecast period. It is possible that NRG Norwalk Harbor, Middletown, and Montville units may fall into this category.

The ISO-NE is in the process of integrating a relatively large amount of Demand Resources into system operations within New England as a result of the Demand Resources selected in the first auction and the levels proposed for the second auction. On October 1, 2008, ISO-NE filed changes to the market rules to improve the integration of these resources into system operations within New England. The DR integration filing is posted on the ISO-NE Web site: www.iso-ne.com. This filing can be found under on the website under Regulatory, then ISO-NE FERC filings.

Other ISO-NE Markets

In addition to FCM, ISO-NE also runs other electric supply markets: one for forward reserves and the other for ancillary services. In addition to integrating demand resources into the FCM, ISO-NE is conducting a pilot program to test the ability of Demand Resources to provide reserves. The Demand Response Reserves Pilot (DRR Pilot) began in 2007, and FERC recently authorized the pilot to continue through May 2010. The extended DRR Pilot will provide additional information on the operational performance of Demand Resources to provide Operating Reserves. It would allow ISO-NE to collect additional data to develop responsiveness metrics for DR resources. It would also enable system operators to model the likely real-time performance of DR Resources. The extended pilot program would also assist in the design and development of a secure, lower-cost, real-time, two-way communication infrastructure for DR Resources and integrate that infrastructure into operations and market systems. Finally, the next phase of the program also would provide the basis for developing any modifications to the market rules, operating procedures, and business processes that are necessary to enable DR Resources to participate directly in the Operating Reserve markets on a comparable basis to other resources.

The DRR Pilot filing is posted on the ISO-NE Web site: www.iso-ne.com. This filing can also be found on the website under Regulatory, then ISO-NE FERC Filings.

LEGISLATION AFFECTING ELECTRIC SUPPLY

An Act Concerning Energy Independence

Ever since the beginning of this decade, public concern about the cost of electricity in Connecticut and about available supply has prompted state legislators to consider comprehensive action. On July 21, 2005, Connecticut Public Act 05-1 (PA 05-1), "An Act Concerning Energy Independence", was approved. Its purpose is to boost electric supply through a combination of innovative means, with the incentive being relief from congestion charges, that is, charges imposed by FERC on Connecticut rate-payers in locations where demand is especially high and supply is especially low. (These are the FMCC charges shown on all electric bills.) PA 05-1 provisions that are most relevant to the Council's forecast review are discussed below.

PA 05-1 requires the DPUC to solicit proposals for reducing congestion costs during 2006-2010. Proposals can be submitted for customer-side distributed resources, grid-side distributed resources, new generation facilities, including expanded or repowered generation, and conservation or energy efficiency agreements. Successful proposals will receive contracts for no more than 15 years for the purchase of electric capacity rights. DPUC is instructed to prefer proposals that cause the greatest aggregate reduction in federally mandated congestion charges; make efficient use of existing sites and supply infrastructure; and serve the long-term interests of ratepayers.

PA 05-1 also requires the DPUC to issue an RFP soliciting new or additional generation or conservation to mitigate electric demand and rates in the state. In response to this RFP (September 16, 2006), 80 project bid packages from 45 different entities were received, representing more than 8,000 MW of capacity from a full spectrum of resources, including generation, demand-side reduction, conservation and energy efficiency technologies. On April 23, 2007, the DPUC announced that it had selected four winning bidders whose projects total 787 MW. The portfolio of projects consists of: a 620 MW gas-fired combined-cycle baseload plant in Middletown offered by Kleen Energy; a 66 MW oil-fired peaking facility located in Stamford offered by Waterside Power; a 96 MW gas-fired peaking facility in Waterbury offered by Waterbury Power; and a 5 MW statewide energy efficiency project offered by Ameresco. These upcoming projects are reflected in Table 2.

PA 05-1 further requires the electric utilities to submit Time-of-Use (TOU) rate plans to the DPUC, by October 2005. These provide for a combination of mandatory and voluntary rates, including peak, shoulder, off-peak and seasonal rates, and, additionally, optional interruptible/ load response rates for certain commercial and industrial customers.

PA 05-1 also creates a new municipal conservation and load management program, to start in 2006, requiring municipal electric utilities to assess a 1.0 mill per kilowatt-hour sold, with the charge increasing to 2.5 mills by January 1, 2011. The money goes into a special non-lapsing fund held by CMEEC, which must develop an annual conservation plan for member utilities. (See Conservation and Load Management Section.)

The Connecticut Energy Efficiency Fund (CEEF)

CEEF, an agency that was legislatively mandated in 1998 as part of electric deregulation, offers financial incentives and technical support to customers for energy-efficiency improvements to their businesses and facilities. Incentives for peak demand reduction (kW) are a major focus of the programs. The Load Response programs provide additional incentives to customers who shed load or run emergency generators during peak demand events. Customers do not have to receive a monetary grant to be eligible for CEEF program incentives. There are also special incentives offered for customers in southwest Connecticut. CEEF has been quite successful in stimulating energy efficiency over the years, and some of its results are reflected in the earlier graphs and tables under the section on Electric Demand.

An Act Concerning Electricity and Energy Efficiency

On June 4, 2007, Public Act 07-242, An Act Concerning Electricity and Energy Efficiency (PA 07-242) became effective. This is one of the most sweeping pieces of state energy legislation since electric deregulation. In general, it requires coordinated electric utility planning for procuring energy efficiency and other clean energy resources such as renewables. While PA 07-242 cannot be described thoroughly here, some of its main provisions affecting electric supply will be noted below.

Appliance Standards

Efficiency standards for certain appliances are ratcheted up so that all new appliances of these kinds sold in Connecticut will use less electricity.

Regional Greenhouse Gas Initiative (RGGI)

Seven years ago, then-Governor Rowland signed a compact with other New England states and eastern Canadian provinces to reduce greenhouse gas emissions. Through a series of legislative steps in Connecticut since then, this initial pledge has been translated into mandatory timelines and rules governing CO2 emissions statewide, with particular emphasis on the electricity sector, since greenhouse gas emissions from power plants contribute about a quarter (11 million tons) of Connecticut's estimated 40-45 million tons. Most notably, an auction program—the first in the US—has been established through which electricity generators can buy and sell CO2 allowances to comply with RGGI's regional cap of 188 million tons of CO2 emissions annually. PA 07-242 dictates that Connecticut's share of the proceeds from this auction mostly be used to fund energy efficiency, demand response, and renewables, with a small percentage of the proceeds being used to support administration of the program and climate policy development.

A preliminary "test" auction offering allowances from six of the ten RGGI states was held on September 25, 2008 (see below), and another will be held in December, with more states participating. A regular slate of auctions will continue beyond January 1, 2009, when the RGGI cap officially takes effect, so that all regional power producers will be able to meet the emissions limit. Per legislated schedule, the cap holds steady until 2014, then declines by 2.5 percent per year through 2018. The specific level of the cap was set during 2004, and is regarded now as generous, since regional emissions currently are 15-20 million tons below it, on account of mild weather, the economic slowdown, and New England's continued shift from fuels that are high in CO2 emissions, such as coal and oil, to ones that are low, such as natural gas. Thus, initially, the supply of CO2 allowances available to electricity generators in Connecticut will be larger than the demand, and the RGGI targets will not have a significant effect on electric supply. By 2014, however, when the cap starts ratcheting down, RGGI could have a greater effect, particularly in accelerating plant retirements.

The results of the September auction showed that a cap-and-trade system can work well to price carbon emissions, according to RGGI Inc., which manages the initiative[10]. Six states offered a total of 12,565,387 allowances for sale: Connecticut, Maine, Maryland, Massachusetts, Rhode Island and Vermont. Fifty-nine bidders took part, representing the energy, financial and environmental sectors. The number of allowances they asked for was four times the available supply. Thus, the market proved to be open and competitive. With a minimum price of $1.86 for each allowance, and a maximum price at $10, the final clearing price was $3.07. The $38,575,783 in proceeds will be distributed to the six states per the number of allowances each one offered into the auction. Connecticut's share will be approximately $4 million.

Renewable Portfolio Standards

Connecticut's Renewable Portfolio Standards (RPS) were first legislated by Public Act 03-135. In general, these standards require retail electric suppliers (including, most notably, CL&P and UI) to ensure that a certain minimum percentage of their electricity comes from renewable energy sources. Legislation has divided renewable fuels into two classes, depending roughly how much pollution they cause, and their sustainability. Under PA 07-242, these percentages have been revised, with a target of 20 percent renewable energy sources by 2020. Table 5 depicts the required percentages for Class I and Class II renewable energy sources through 2020.

Figure 5: Renewable Portfolio Standards

Effective Date January 1	Minimum Class I Percentage	Addt'l Percentage of Class I or II
2006	2 percent	3 percent
2007	3.5 percent	3 percent
2008	5 percent	3 percent
2009	6 percent	3 percent
2010	7 percent	3 percent
2011	8 percent	3 percent
2012	9 percent	3 percent
2013	10 percent	3 percent
2014	11 percent	3 percent
2015	12.5 percent	3 percent
2016	14 percent	3 percent
2017	15.5 percent	3 percent
2018	17 percent	3 percent
2019	19.5 percent	3 percent
2020	20 percent	3 percent

Source: PA 07-242

According to PA 07-242, Section 40, an electric supplier or electric distribution company may satisfy the RPS requirements by purchasing certificates issued by the New England Power Pool Generation Information System, provided the certificates are for Class I or Class II renewables generated within ISO-NE's territory (i.e. New England) or energy imported into ISO-NE's territory. For those renewable energy certificates under contract to serve end-use customers in the state on or before October 1, 2006, the electric supplier or distribution company may participate in a renewable trading program within said jurisdictions by the Department of Public Utility Control, or purchase eligible renewable electricity and associated attributes from residential customers who are net producers.

PA 07-242 also requires electric distribution companies and electric suppliers, on or after January 1, 2007, to demonstrate that no less than one percent of the total output of the suppliers or the standard service of an electric distribution company is obtained from Class III sources, a newly-defined group of resources focusing on combined heat and power systems, and C&LM. On January 1, 2008, this percentage increases to 2 percent. For January 1 of years 2009 and 2010, the percentages are 3 and 4 percent, respectively.

Connecticut Advisory Board (CEAB) and the Integrated Resource Plan

PA 07-242 restructures the CEAB, and requires that it conduct studies on how to integrate and coordinate the state's energy entities to achieve the state's greenhouse gas goals, as well as evaluate the efficacy of the state's efficiency program delivery. Under this broad mandate, one of the CEAB's most important new duties is to review and approve an electric resource assessment and procurement plan—a plan to be submitted for approval by UI and CL&P.

On January 2, 2008, as required, the two utilities, along with their consultant, The Brattle Group, submitted their integrated resource plan (IRP). It departs notably from earlier resource assessments in emphasizing electric energy efficiency over generation capacity as a form of supply. More specifically, the IRP concludes that Connecticut will not need to add new capacity to meet electric reliability needs under a wide range of possible futures for the next ten years.

This conclusion is based on certain assumptions, including the following:
- funding of C&LM initiatives continues;
- new resources contracted by the DPUC in certain recent dockets enter service as planned;
- 280 MW of peaking units are added to Connecticut's generation capacity to meet regional contingency concerns;
- the NEEWS project goes forward; and
- approximately 1,400 MW of generation may retire by 2018 due to tighter NOx and SO2 emissions requirements.

The IRP had four recommendations:
- maximize the use of demand side management, within practical operational and economic limits, to reduce peak load and energy consumption;
- explore other power procurement structures, such as longer term power contracts on a cost-of-service basis, with merchant and utility owners of existing and new generation;
- evaluate the structure and costs of Connecticut's renewable portfolio standards in the context of a regional reexamination of the goals and costs of similar policies throughout New England; and
- consider possible ways to mitigate the exposure of Connecticut consumers to the price and availability of natural gas[11].

Per mandate, the IRP was reviewed and modified by the CEAB, and then re-drafted in the form of the CEAB's 2008 Comprehensive Plan for the Procurement of Energy Resources, dated August 1, 2008. The document was then submitted to the DPUC for final review and approval.

Finally, PA 07-242 is expected to benefit Connecticut by resulting in increased energy efficiency, reduced pollution, and additional electric generation powered by renewable energy sources. However, it is not clear at this time how many megawatts of this renewable-fueled electricity required by the RPS will be generated in Connecticut and how many will be imported.

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Transmission is often referred to as the "backbone" of the electric system, since it transports large amounts of electricity over long distances efficiently by using high voltage. High voltages maximize efficiency. This is because higher voltages result in less current. Since losses are proportional to the square of the current, higher voltages result in less losses.

In Connecticut, electric lines with a voltage of 69 kilovolts (kV) or more are considered transmission lines. The highest transmission line voltage in Connecticut is 345 kV.

Distribution lines are those below 69-kV. They are the lines that come down our streets to connect (via a transformer) with even lower-voltage lines supplying each residence or business.

The state's electric transmission system contains approximately: 413.1 circuit miles of 345-kV transmission; 1,300 circuit miles of 115-kV transmission; 5.8 miles of 138-kV transmission; and 99.5 circuit miles of 69-kV transmission. (These figures refer to AC transmission. The Cross Sound Cable is not counted because it is DC.) Appendix B shows planned new transmission, reconductoring, or upgrading of existing lines to meet load growth and/or system operability needs.

Connections with other systems outside the state are critical to overall reliability and economic efficiency. There are 11 such AC connections or ties: one at 69-kV; one at 138-kV (the underwater cable from Norwalk to Long Island); six at 115-kV; and three at 345-kV. In addition, the Cross Sound Cable, at 450-kV, is a DC tie between New Haven and Long Island.

Of these interstate connections, one 345-kV tie is with National Grid in Rhode Island; one 345-kV tie is with Central Hudson in New York state; and five ties (one 345-kV and four 115-kV) are with the Western Massachusetts Electric Company (WMECO) in Massachusetts.

The CL&P 345-kV transmission system transmits power from large central generating stations such as Millstone, Lake Road, and Middletown via four 345-kV transmission ties with neighboring utilities. Large generating units are typically connected to the 345-kV transmission system because they are higher capacity lines[12].

ELECTRIC TRANSMISSION IN SOUTHWEST CONNECTICUT

The most critical and constrained transmission area in the state is the 54-town region referred to as Southwest Connecticut (SWCT). This includes almost all of UI's service territory. The area is essentially west of Interstate 91 and south of Interstate 84. It accounts for approximately one-half the state's peak load and has been one of the fastest growing and economically vital areas of the state.

Dockets 217 and 272

After the turn of the century, it became evident that the 115-kV lines serving SWCT were reaching the limit of their ability to support the area's current and projected loads reliably and economically. ISO-NE, CL&P, and UI devised a plan to supplement the existing 115-kV transmission lines with a new 345-kV "loop" though SWCT that would integrate the area better with the 345-kV system in the rest of the state and New England, and provide electricity more efficiently.

The first phase of this proposed upgrade (known as "Phase One"), involved the construction of a 345-kV transmission line from Plumtree Substation in Bethel to the Norwalk Substation in Norwalk. The Phase One proposal was the subject of Council Docket No. 217, approved by the Council on July 14, 2003. Construction is complete, and the line was activated in October 2006.

The second phase of the upgrade (known as "Phase Two") was the subject of Council Docket No. 272. This proposal includes the construction of a 345-kV transmission line from Middletown to Norwalk Substation. This project was approved by the Council on April 7, 2005. Construction began in 2006. The project is now in service from Middletown to East Devon (Milford), and the balance is expected to be complete in 2009.

Glenbrook-Norwalk Cable Project

Within SWCT, a critical sub-area is called the Norwalk-Stamford Sub-Area. Historically, Norwalk and Stamford have relied on local generation. Since generation has become less economical, given electric restructuring, and given the age of generating plants around Norwalk and Stamford, the Norwalk-Stamford Sub-Area had to look at an additional 115-kV transmission line, rather than generation, to meet its increasing needs.

To address these needs, the Council reviewed and approved the construction of two new 115-kV underground transmission cables between the Norwalk Substation in Norwalk and the Glenbrook Substation in Stamford. This project, proposed by CL&P, will effectively bring the reliability benefits of the new 345-kV transmission loop to the large load center in Stamford. The project is presently under construction and is scheduled to be in service by year-end 2008.

NEEWS

In 2006, National Grid, a utility company that provides service in various parts of New England, CL&P, and ISO-NE began planning a major tri-state transmission upgrade to improve electricity transfers between Connecticut, Massachusetts, and Rhode Island. Known as NEEWS, the large-scale upgrade is comprised of four separate projects, described below.

The Interstate Reliability Project is the most comprehensive. It would include a new 345-kV transmission line to tie National Grid's Millbury Substation in Massachusetts with CL&P's Card Street Substation in Lebanon, thus connecting electric service more efficiently from Massachusetts to eastern Connecticut, offering an existing connection point with Rhode Island. When combined with the three other projects within NEEWS, this project would increase the east-west power transfer capability across New England in general.

The Greater Springfield Reliability Project (GSRP) seeks to improve connections between Connecticut and Massachusetts to address particular problems in the Springfield, Massachusetts area. New 345-kv facilities would be built to tie the Western Massachusetts Electric Company's (WMECO) Ludlow Substation with Agawam Substation and also connect Agawam Substation with CL&P's North Bloomfield Substation in Bloomfield. New and modified 115-kV facilities for the area would be integrated into this project.

The Central Connecticut Reliability Project is intended to increase the reliability of power transfers from eastern Connecticut to western and southwest Connecticut. A new 345-kV transmission line would connect the North Bloomfield Substation in Bloomfield and Frost Bridge Substation in Watertown. Associated upgrades to the 115-kV facilities in the area would also be necessary.

The Rhode Island Reliability Project principally would affect Rhode Island. New 115-kV and 345-kV facilities would be built to improve Rhode Island's access to the regional 345-kV grid and decrease its dependence on local generation. National Grid would construct the facilities. Connecticut would be only minimally involved in this project.

Overall, the aggregate of the southern New England transmission reinforcements provided by NEEWS could increase Connecticut's import capacity significantly. Eleven hundred MW would be added, possibly more. The ISO-NE technical approval process for NEEWS is scheduled to be completed in 2008. Applications for the projects will be submitted to the Council beginning in late 2008. The first NEEWS application for the Connecticut portion of the GSRP was received by the Council on October 20, 2008.

Substations and Switching Stations

A substation is a grouping of electrical equipment including switches, circuit breakers, buses, transformers and controls for switching power circuits and transforming electricity from one voltage to another. An example is the Killingly 2G Substation, which is discussed below.

On May 11, 2005, the Council approved the Northeast Connecticut Reliability Project (Docket No. 302). This project includes the construction of a new 345-kV/115-kV substation (Killingly 2G) on CL&P property straddling the Killingly/Putnam town line. This substation connects to an existing overhead 345-kV transmission line, then uses that source to feed into two existing overhead 115-kV transmission lines. Killingly 2G was intended to alleviate transmission capacity constraints and improve electric system reliability in this region of the state. It was placed into service on December 16, 2006.

Another common type of substation connects the transmission system to the distribution system. For example, the input might be 115-kV transmission and the output might be 13.8-kV distribution. The Council recently approved a new substation of this type in the Town of Guilford (Docket No. 326).

Another type of substation connects a generator to the grid. A generator's output voltage is much less than the transmission voltage. Thus, the generator's voltage has to be raised before the power generated can be fed into the grid.

Lastly, a switching station is a facility where transmission lines are interconnected at the same voltage.

As depicted in Appendix C, as many as 15 new substations are planned for the next seven years to address high load areas within the state. Some of the substations are associated with the 345-kV transmission projects in SWCT. Others are associated with local load growth. Other additional substations are also being considered, with the estimated in-service dates to be determined.

New Transmission Technologies

Although the amount of investment in R&D for transmission technology has historically been small, the next decade should increase that investment. For instance, during the recent 345kV transmission upgrade running from Middletown to Norwalk, helicopters were used to install overhead conductors in Connecticut for the first time. Transmission towers fabricated with new materials are being installed. Conductors designed with special-purpose metals and ceramics—so-called "superconductors"—are being tested in other parts of the country and could be applied at certain sites in Connecticut. Also, the spread of distributed generation, particularly units using renewable fuels, such as solar panels, wind microturbines, advanced batteries, fuel cells, and even plug-in electric vehicles, may demand a variety of new methods for integrating these innovative power sources onto the grid.

Transmission towers fabricated with new materials are being installed. Conductors designed with special-purpose metals and ceramics—so-called "superconductors"—are being tested in other parts of the country and could be applied at certain sites in Connecticut.

RESOURCE PLANNING

Since 1972, when, by statute, the Council began its annual forecast reviews, the practice of resource planning in Connecticut has changed in two major and largely unexpected ways.

The first change resulted from Connecticut's electric restructuring. It caused an inexorable shift in the relationship between the electric system in our state and the regional electric system. Prior to restructuring, the state's utility industry was fully accountable for all planning decisions. Since that change, utilities are no longer in a position to perform such rigorous planning. Decisions on generation are entirely out of their hands and scattered among many participants. ISO-NE has now assumed the role of principal planner, since it makes the forecasts associated with facility planning. Connecticut utilities now make their forecasts only for financial planning. Hence, the Council's emphasis in its forecast review must of necessity shift more and more away from the state's utilities and toward ISO-NE.

The second major change in the Council's task of resource planning has to do with the nature of planning itself. Forecasting electric loads and resources is an inherently difficult process even in the best of times, because the electric system is so complex. But the nation is going through a period of game-changing instability. Energy prices are not simply rising but becoming increasingly volatile. Technological change, geopolitics, the economy, and climate affect the nation's electric system daily. Studies have shown that forecasters are weak at estimating uncertainties especially in the long range: indeed, they try to delay plans until more variables are known. The period of this forecast review, however, seems to promise only extraordinary uncertainties, and it cannot be waited out. Nonetheless, forecasting can be effective, within limits, if it acknowledges that human behavior can change, if it discusses major variables openly, if it is modest, and if it incorporates data sets from several different sources. The Council has tried to follow these maxims.

As depicted in Appendix B, the Council continues to assess the existing electric system to maintain and improve reliability. Rate pressures, congestion management, targeted demand-side programs, regional transfers, likely retirements, and scarce locations for siting facilities are the main issues making the Council's decisions difficult and critical. Further, the Council notes the legislated mandate of its sister agency, the CEAB, for stimulating alternatives to certain proposed electric facilities that come before the Council. Such alternatives may include new transmission technologies, generation using renewable fuels, distributed generation, wholesale and retail market strategies, CEEF, and combinations thereof. The Council encourages innovation. In order for regulators to work well, they must look at multiple scenarios, and consider diverse solutions.

This Council has considered Connecticut's electric energy future for the next ten years and projects that a shortage of electric generation during this period will exist, when taking into account the most conservative weather prediction (ISO-NE's 90/10 estimate) and possible retirement of several oil-fired generating facilities, unless additional generation is brought online. Notwithstanding its cautionary prediction, the Council notes that significant progress has been made to address a previous shortage of electric generation in the state. Several generation projects have been approved by the Council; others are currently under Council review or will be filed with the Council in the near term.

The most significant gains in generating capacity will be associated with the upcoming 620 MW Kleen Energy power plant in Middletown and the 350 MW Bridgeport Energy II facility in Bridgeport. These, along with other smaller projects, will result in over 1,000 additional megawatts of new capacity for the state. Furthermore, additional generation fueled by renewable resources as well as increased efficiency in homes and businesses are expected to result from the Act Concerning Electricity and Energy Efficiency.

In addition to generating capacity and demand side management, the Council cannot overstate the importance of having adequate transmission to transport the electricity from generators (both in-state and out of state) to our substations to serve the local loads. In particular, the Council is pleased to note the significant improvements to our transmission system that are complete and/or underway. The Phase I transmission upgrade is up and running, and Phase II is under construction. The NEEWS projects, soon to be filed with Council, are intended to address regional reliability needs and expected to increase electric supply in Connecticut via additional import capacity.

Issues that warrant attention in the future include:

- maintain sufficient emergency generation and demand response in SWCT;

- consider additional interstate transmission resources that will allow greater transfer capability into Connecticut, increasing reliability and helping meet the state's renewable portfolio standards requirements, as well as the growing load in the New England region;

- promote clarity, transparency and a longer forecast period in relation to ISO-NE's operating reserve requirements for Connecticut;

- consider a uniform forecasting methodology for the transmission/distribution companies consistent with the ISO-NE 90/10 forecast, which is considered the lead forecast;

- be proactive regarding the deactivation/retirement of older generating facilities in the context of electric system needs and consider replacement/repowering of such facilities where feasible;

- encourage additional energy efficiency and demand response as recommended in the Integrated Resource Plan;

- increase fuel diversity to avoid excessive reliance on any one fossil fuel for generation; and encourage innovations that conserve energy and/or generate electricity through diverse fuel sources.

End Notes

1. A one MW load would be the equivalent of operating 10,000 light bulbs of 100 Watts each simultaneously. Put another way, 1 MW could serve between 300 and 1,000 homes, with 500 being a typical number.

2. A very small amount of CMEEC load is the result of providing service to Fisher's Island, New York via a connection to a substation in Groton, Connecticut. The peak load on Fisher's Island is on the order of 1 MW and thus considered negligible.

3. Electric energy consumption, as used in this report, includes losses. See "Losses" in Glossary.

4. Peak load reduction due to C&LM includes Energy Independence Act initiatives, excluding third party contracts.

5. The GenConn Energy LLC project is a proposed 200 MW gas/oil peaking electric generating facility to be located at Middletown Station. This project is currently under Council review as Petition No. 875.

6. This action by BEII does not vacate the Council's approval of this project. Thus, BEII may consider options to provide capacity in SWCT. While it is unknown when this capacity will come to fruition, the DPUC filled this void with a project in queue for an RFP which limits the deficit of needed peaking capacity.

7. NRG's July 8, 2008 Response to CEAB interrogatory question No. 26.

8. While the Lake Road power plant does provide electricity to Connecticut under normal operating conditions, it is not considered a Connecticut resource by ISO-NE due to the existing transmission configuration. As such, it is not included in this forecast.

9. Hydroelectric units under 5 MW do not require licensing from the Federal Energy Regulatory Commission.

10. RGGI Inc. Press Release dated September 29, 2008.

11. Interestingly, no mention was made of the use of oil as a fuel both for electric generation and space heating. Yet oil is the fuel that has historically driven energy costs and availability.

12. Since power is directly proportional to voltage, all else being equal, a 345-kV line can carry three times as much power as a 115-kV line. A typical 345-kV line has two conductors per phase, whereas a typical 115-kV line has one, thus turning the three times power-carrying advantage of a 345-kV line to six times.

GLOSSARY

50/50 forecast: A projection of peak electric load assuming normal weather conditions. The 50/50 projected peak load has a 50 percent chance of being exceeded in a given year.

90/10 forecast: A projection of peak electric load assuming extreme (hot) weather conditions. The 90/10 forecast has a 10 percent chance of being exceeded in a given year.

Ampere (amp): A unit measure for the flow (current) of electricity. As load increases, so does the amperage at any given voltage.

AC (Alternating Current): An electric current that reverses (alternates) its direction of flow periodically. In the United States, this occurs 60 times per second (60 cycles or 60 Hz).

Baseload generator: A generator that operates nearly 24/7 regardless of the system load.

Blackout: A total disruption of the power system, usually involving a substantial or total loss of load and generation over a large region.

Black start capability: Having the ability to return to service without the need for an outside power source. Usually applies to generators.

C&LM (Conservation and load management): Any measures to reduce electric usage and provide savings. See Conservation. See Demand response.

Cable: A fully insulated conductor usually installed underground, especially at voltages of 69-kV and above.

CEAB (Connecticut Energy Advisory Board): The CEAB is a 15-member body responsible for representing the state in regional energy planning, participating in the Council's annual load forecast proceeding, and reviewing the procurement plans submitted by electric distribution companies.

CELT (Capacity, Energy, Load, and Transmission Report): An annual ISO-NE report including data and projections for New England's electric system over the next ten years.

CHP (Combined heat and power): Term used interchangeably with cogeneration. See Cogen.

Circuit: A system of conductors (three conductors or three bundles of conductors) through which electrical energy flows between substations. Circuits can be supported above ground by transmission structures or placed underground.

Class I renewable energy sources: "(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-the-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 the effective date of this section, 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 rate 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." (Public Act 03-135)

Class II renewable energy source: "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 0.2 pounds of nitrogen oxides per million BTU of heat input for the previous calendar quarter, or a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the riverflow, and began operation prior to the effective date of this section." (Public Act 03-135)

Class III source: "The electricity output from combined heat and power systems with an operating efficiency level of no less than fifty percent that are part of customer-side distributed resources developed at commercial and industrial facilities in this state on or after January 1, 2006, a waste heat recovery system installed on or after April 1, 2007, that produces electrical or thermal energy by capturing preexisting waste heat or pressure from industrial or commercial processes, or the electricity savings created in this state from conservation and load management programs begun on or after January 1, 2006." (Public Act 07-242)

CL&P (The Connecticut Light and Power Company): CL&P is the largest transmission/distribution company in Connecticut.

CMEEC (The Connecticut Municipal Electric Energy Cooperative): An "umbrella" group comprised of all of the municipal electric utilities in Connecticut. It manages coordinated generation and transmission/distribution services on their behalf.

Combined-cycle: A power plant that uses its waste heat from a gas turbine to generate even more electricity for a higher overall efficiency (on the order of 60 percent).

Conductor: A metallic wire, busbar, rod, tube or cable, usually made of copper or aluminum, that serves as a path for electric flow.

Cogen (Cogeneration plant): A power plant that produces electricity and uses its waste heat for a useful purpose. For example, some cogeneration plants heat buildings, provide domestic hot water, or provide heat or steam for industrial processes.

Conservation: The act of using less electricity. Conservation can be achieved by cutting out certain activities that use electricity, or by adopting energy efficiencies: thus, conservation is virtually the same as energy efficiency.

Customer-side distributed resource: "The generation of electricity from a unit with a rating of not more than sixty-five megawatts on the premises of a retail end user within the transmission and distribution system including, but not limited to, fuel cells, photovoltaic systems or small wind turbines, or a reduction in demand for electricity on the premises of a retail end user in the distribution system through methods of conservation and load management, including, but not limited to, peak reduction systems and demand response systems." (Public Act 05-01)

DC (Direct Current): An electric current that flows continuously in one direction.

Dual-fuel: The ability of a generator to operate on two different fuels, typically oil and natural gas. Economics, the availability of fuels and environmental (e.g. air emission) restrictions are factors that generating companies consider when deciding which fuel to burn.

Demand: The total amount of electricity required at any given instant by an electric customers. "Demand" can be used interchangeably with the term "load." See Load.

Demand response: The ability to reduce load during peak hours, by turning down/off air conditioning units, industrial equipment, etc.

Distribution: The part of the electric delivery system that operates at less than 69,000 volts. Generally, the distribution system connects a substation to an end user.

Distributed generation: Generating units (usually on the customer's premises) that connect to the electric distribution system, not to the transmission system. These units are generally smaller than their counterparts.

DPUC (Department of Public Utility Control): The state agency charged with regulating utilities in Connecticut.

Energy (electric): The total work done by electricity. Energy is the product of the average load and time. The unit is kilowatt hours (kWh).

Energy efficiency: Using less energy to perform the same function (that is, doing the same with less). Energy efficiency activities are distinguished from demand-side management (DSM) in that DSM generally refers to electric utility-sponsored and-financed programs and may also include load management measures, while energy efficiency is a broader term, not limited to any particular sponsor, energy type or sector.

Feeder: Conductors (forming a circuit) that is part of the distribution system. See Distribution. See Circuit.

Fuel cell: Fuel cells are devices that produce electricity and heat by combining fuel and oxygen in an electrochemical reaction. Fuel cells can operate on a variety of fuels, including natural gas, propane, landfill gas, and hydrogen. Unlike traditional generating technologies, fuel cells do not use a combustion process that converts fuel into heat and mechanical energy. Rather, a fuel cell converts chemical energy into heat and electrical energy. This process results in quiet operation, low emissions, and high efficiencies. Nearly all commercially installed fuel cells operate in a cogeneration mode. See Cogen. In addition, fuel cells provide very reliable electricity and are therefore potentially attractive to customers operating sensitive electronic equipment.

Generator: A device that produces electricity. See Baseload generator, Intermediate generator, and Peaking generator.

Grid: A system of interconnected power lines and generators that is managed so that the generators are dispatched as needed to meet the requirements of the customers connected to the grid at various points. The term "gridco" is sometimes used to identify an independent company responsible for the operation of the grid.

Grid-side distributed resource: "The generation of electricity from a unit with a rating of not more than sixty-five megawatts that is connected to the transmission or distribution system, which units may include, but are not limited to, units used primarily to generate electricity to meet peak demand." (Public Act 05-01)

ISO-NE: (ISO New England): An entity charged by the federal government to oversee the bulk power system and the electric energy market in the New England region.

Intermediate generator: A generator that operates approximately 50 to 60 percent of the time, depending on the system load.

kV (kilovolt): One thousand volts (i.e. 345 kV = 345,000 volts). See Volt.

Line: A series of overhead transmission structures that support one or more circuits; or, in the case of underground construction, a single electric circuit.

Load: Amount of power delivered, as required, at any point or points in the system. Load is created by the aggregate load (demand) of customers' equipment (residential, commercial, and industrial).

Load management: Steps taken to reduce demand for electricity at peak load times or to shift some of the demand to off-peak times. The reduction may be made with reference to peak hours, peak days or peak seasons. Electric peaks are mainly caused by high air-conditioning use, so air-conditioners are the prime targets for load management efforts. Utilities or businesses that provide load management services pay customers to reduce load through a variety of manual or remotely-controlled methods.

Loss or losses: Electric energy that is lost as heat and cannot be used to serve end users. There are losses in both the transmission and the distribution system. Higher voltages help reduce losses.

Megawatt (MW): One million Watts. A measure of the rate at which useful work is done by electricity.

Normal weather: Weather that includes typical temperatures and humidity consistent with past meteorological data.

Peak load: The highest electric load experienced during a given time period. See Load.

Peaking unit: A generator that can start under short notice (e.g. 10 to 30 minutes) and operates approximately less than 10 percent of the hours in a year.

Quick-start unit: A generator that can start and provide electricity within 30 minutes of being dispatched.

Substation: Electric facilities that use equipment to switch, control and change voltages for the transmission and distribution of electrical energy.

Switching station: A type of substation where no change in voltage occurs.

Terminal structure: A structure typically within a substation that physically ends a section of transmission line.

Transformer: A device used to change voltage levels to facilitate the efficient transfer of electrical energy from the generating plant to the ultimate customer.

Transmission line: Any electric line operating at 69,000 or more volts.

Transmission tie-line or tie: A transmission line that connects two separate transmission systems. In the context of this report, a tie is a transmission line that crosses state boundaries and connects the transmission systems of two states.

UI (The United Illuminating Company): A transmission/distribution company that serves customers in the New Haven – Bridgeport area and its vicinity.

Voltage or volts: A measure of electric force.

Wire: See Conductor.

The members of the Council for energy and telecommunications matters are as follow:

- Daniel F. Caruso, Esq. is the chair of the agency and is appointed by the Governor. The Chairman is the judge of probate for the Fairfield Probate District (since January 1995); Vice-President and a member of the Executive Committee of the Connecticut Probate Assembly; former State Representative for the Towns of Fairfield and Trumbull (1988-1994); former Assistant Minority Leader (1991-1994); former member of the environmental, judiciary, general law, and regulations review committees; former member of Board of Finance, and the Representative Town Meeting, and Treasurer for the Town of Fairfield; member of the Kiwanis Club, the Red Cross, Caroline House, and the Community Theatre Foundation.

- Colin C. Tait, Esq., is the vice-chair of the agency and is appointed by the Governor. Professor Tait is a retired law professor at the University of Connecticut Law School; Connecticut Forest and Park Association Board of Directors; past President of Norfolk Land Trust; past Chairman, Planning and Zoning Commissions, Towns of New Hartford and Colebrook; and past member of the Appalachian Trail Conference Board of Managers.

- Gerald J. Heffernan is the designee of the Chairman of the Department of Public Utility Control. Mr. Heffernan is the current Chairman of the Naugatuck Valley Revolving Loan Committee; member of the Board of Directors of Catholic Family Services; former supervisor of the Department of Public Utility Control's Management Audit Unit (for approximately 20 years); and former tax commissioner (1975-1979).

- Brian Golembiewski is the designee of the Commissioner of the Department of Environmental Protection (DEP). Mr. Golembiewski is an Environmental Analyst at DEP. Mr. Golembiewski has been employed by DEP for approximately 18 years.

- Dr. Barbara Currier Bell is the designee of the Speaker of the House. Dr. Bell is a member of the Milford Inland Wetlands Commission; member of the Mayor's Clean Energy Task Force in Milford; environmental columnist for the Milford Mirror; former Board member, Woodlands Coalition; former professor (English and Humanities) at Wesleyan University, Middletown, CT; former referee for Environmental Ethics; past President and co-founder, National Coalition of Independent Scholars.

- Daniel P. Lynch, Jr. is the designee of the President Pro Tempore of the Senate. Mr. Lynch is managing member Carpe Diem Enterprises, LLC (turnaround management); Partner DLD Agency (insurance); consultant and board member Resorts Holding International Limited (Glastonbury, CT and London, UK); marketing consultant to the Nutmeg State Games; member of the Connecticut Siting Council, 1988 to 1995 (first term); and advisory board member for United States Veterans.

- Philip T. Ashton is a member with utility experience appointed by the Governor. Mr. Ashton is a retired Chairman, President and CEO of Yankee Energy System; former Vice President, Transmission and Distribution, Northeast Utilities; Professional Engineer (Massachusetts and formerly Connecticut); Chairman, Meriden Flood Control Implementation Agency; Director and past Chapter Chairman, American Red Cross-Greater Hartford Chapter; former Chairman, Meriden Planning Commission; Advisor on Energy to the U.S. Trade Representative; former Chairman, New England Gas Association; former Director, American Gas Association; and former Vice President, Power Engineering Society of the Institute of Electrical and Electronic Engineers (IEEE).

- Edward S. Wilensky is a member appointed by the Governor with experience in ecology. Mr. Wilensky is a former mayor of the Town of Wolcott (1983-1999); past Chairman of Bristol Resource Recovery Authority; past Chairman of Central Naugatuck Valley Council of Governments; past Vice Chairman of Connecticut Conference of Municipalities; former member of Governor's Task Force on Aquifer Management; former member of Board of Directors for Tunxis Recycling Operating Committee; former Chairman of Wolcott Planning and Zoning Commission; and former member of Board of Directors for Connecticut Interlocal Risk Management Agency (CIRMA).

- James J. Murphy, Jr. is appointed by the Governor. Attorney Murphy is retired from the law firm Berberick, Murphy & Whitty, P.C.; former State Senator, 19th District; former State Assistant Prosecutor, 10th Circuit Court; former State of Connecticut Criminal Justice Commission Chairman; former Board of Directors member, Eastern Connecticut Chamber of Commerce; former Chairman, Stonington Board of Education; Exalted Ruler of the Norwich Lodge of Elks; and W.W. Backus Hospital Incorporator.

Appendix A. Existing Generation facilities as of July, 2008 by Project

Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
AES Thames	AES Thames, Inc.	Montville	Coal/Oil	181.00	182.15	12/1/1989
Aetna Capitol District	Capitol District Energy Ctr.	Hartford	Gas/Oil	55.25	61.33	11/1/1988
Bantam #1	FirstLight Hydro Generating Co.	Litchfield	Hydro	0.07	0.32	1/1/1905
Branford #10	NRG	Branford	Oil	15.84	20.95	1/1/1969
Bridgeport Energy	Bridgeport Energy LLC	Bridgeport	Gas	441.96	521.21	8/1/1998
Bridgeport Harbor #2	PSEG Power, LLC	Bridgeport	Oil	130.50	147.51	8/1/1961
Bridgeport Harbor #3	PSEG Power, LLC	Bridgeport	Coal/Oil	383.43	384.98	8/1/1968
Bridgeport Harbor #4	PSEG Power, LLC	Bridgeport	Oil	15.41	20.21	10/1/1967
Bridgeport Resco	CRRA	Bridgeport	Refuse	58.52	58.74	4/1/1988
Bristol RRF	Ogden Martin Systems-CT	Bristol	Refuse/Oil	13.20	12.74	5/1/1988
Bulls Bridge #1- #6	FirstLight Hydro Generating Co.	New Milford	Hydro	4.72	8.40	1/1/1993
Colebrook	MDC	Colebrook	Hydro	1.55	1.55	3/1/1988
Cos Cob #10	NRG	Greenwich	Oil	18.78	23.68	9/1/1969
Cos Cob #11	NRG	Greenwich	Oil	21.84	16.94	1/1/1969
Cos Cob #12	NRG	Greenwich	Oil	18.44	23.34	1/1/1969
Cytec #1	CMEEC	Wallingford	Oil	2.00	1.92	5/15/2008
Cytec #2	CMEEC	Wallingford	Oil	2.00	1.93	5/15/2008
Cytec #3	CMEEC	Wallingford	Oil	2.00	1.94	5/15/2008
Dayville Pond	Summit Hydro Power	Killingly	Hydro	0.00	0.10	3/1/1995
Derby Dam	McCallum Enterprises	Shelton	Hydro	7.05	7.05	3/1/1989
Devon #10 (reactivated)	NRG	Milford	Oil	14.41	19.19	4/1/1988
Devon #11	NRG	Milford	Gas/Oil	29.58	39.10	10/1/1996
Devon #12	NRG	Milford	Gas/Oil	29.23	38.44	10/1/1996
Devon #13	NRG	Milford	Gas/Oil	29.97	38.97	10/1/1996
Devon #14	NRG	Milford	Gas/Oil	29.75	40.33	10/1/1996
Dexter	Alstom	Windsor Locks	Gas/Oil	38.00	39.00	5/1/1990
Exeter	Oxford Energy, Inc.	Sterling	Tires/Oil	24.17	25.66	12/1/1991
Falls Village #1- #3	FirstLight Hydro Generating Co.	Canaan	Hydro	4.32	7.57	1/1/1914
Franklin Drive #10	NRG	Torrington	Oil	15.42	20.53	11/1/1968
Glen Falls	Summit Hydro Power	Plainfield	Hydro	0.00	0.00	3/1/1998
Goodwin Dam	MDC	Hartland	Hydro	3.00	3.00	2/1/1986
Hartford Landfill	CRRA	Hartford	Methane	1.90	1.90	8/1/1998
John Street #3	CMEEC	Wallingford	Oil	2.00	2.00	9/26/2007
John Street #4	CMEEC	Wallingford	Oil	2.00	2.00	9/26/2007
John Street #5	CMEEC	Wallingford	Oil	0.00	1.83	11/1/2007
Kinneytown A	Kinneytown Hydro Co.	Ansonia	Hydro	0.00	0.00	3/1/1988
Kinneytown B	Kinneytown Hydro Co.	Seymour	Hydro	0.62	1.51	11/1/1986
Lake Road #1	Lake Road Generating Co., L.P.	Killingly	Gas/Oil	232.75	268.37	3/15/2002
Lake Road #2	Lake Road Generating Co., L.P.	Killingly	Gas/Oil	251.33	286.95	3/15/2002
Lake Road #3	Lake Road Generating Co., L.P.	Killingly	Gas/Oil	254.90	283.67	5/22/2002
Lisbon RRF	Riley Energy Systems	Lisbon	Refuse	12.96	13.04	1/1/1996
Mechanicsville	Saywatt Hydro Associates	Thompson	Hydro	0.07	0.27	9/1/1995
Middletown #2	NRG	Middletown	Oil/Gas	117.00	120.00	1/1/1958
Middletown #3	NRG	Middletown	Oil/Gas	236.00	245.00	1/1/1964

Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
Middletown #4	NRG	Middletown	Oil	400.00	402.00	6/1/1973
Middletown #10	NRG	Middletown	Oil	17.12	22.02	1/1/1966
Milford Power #1	Milford Power Company, LLC	Milford	Gas/Oil	239.00	267.24	2/12/2004
Milford Power #2	Milford Power Company, LLC	Milford	Gas/Oil	249.71	284.25	5/3/2004
Millstone #2	Dominion Nuclear CT, Inc.	Waterford	Nuclear	876.92	878.41	12/1/1975
Millstone #3	Dominion Nuclear CT, Inc.	Waterford	Nuclear	1137.48	1146.93	4/1/1986
Montville #5	NRG	Montville	Oil/Gas	81.00	81.59	1/1/1954
Montville #6	NRG	Montville	Oil	407.40	409.91	7/1/1971
Montville #10 & #11	NRG	Montville	Oil	5.30	5.35	1/1/1967
New Haven Harbor #1	PSEG Power, LLC	New Haven	Oil/Gas	447.89	454.64	8/1/1975
New Milford Landfill	Vermont Electric Power Co.	New Milford	Methane/Oil	1.61	1.61	8/1/1991
Norwalk Harbor #1	NRG	Norwalk	Oil	162.00	164.00	1/1/1960
Norwalk Harbor #2	NRG	Norwalk	Oil	168.00	172.00	1/1/1963
Norwalk Harbor #10 (3)	NRG	Norwalk	Oil	11.93	17.13	10/1/1996
Norwich Jet	CMEEC	Norwich	Oil	15.26	18.80	9/1/1972
Pierce	CMEEC	Wallingford	Oil	75.14	94.64	10/1/2007
Pinchbeck	William Pinchbeck, Inc.	Guilford	Wood	0.01	0.01	7/1/1987
PPL Wallingford Unit #1	PPL EnergyPlus, LLC	Wallingford	Gas	42.92	48.41	12/31/2001
PPL Wallingford Unit #2	PPL EnergyPlus, LLC	Wallingford	Gas	40.13	51.13	2/7/2002
PPL Wallingford Unit #3	PPL EnergyPlus, LLC	Wallingford	Gas	42.94	47.84	12/31/2001
PPL Wallingford Unit #4	PPL EnergyPlus, LLC	Wallingford	Gas	42.50	47.78	1/23/2002
PPL Wallingford Unit #5	PPL EnergyPlus, LLC	Wallingford	Gas	41.15	52.15	2/7/2002
Preston RRF	SCRRF	Preston	Refuse/Oil	16.01	16.51	1/1/1992
Putnam	Putnam Hydropower, Inc.	Putnam	Hydro	0.25	0.58	10/1/1987
Quinebaug	Quinebaug Associates LLC	Killingly	Hydro	0.46	1.30	9/1/1990
Rainbow Dam	Farmington River Power Co.	Windsor	Hydro	8.20	8.20	1/1/1980
Robertsville #1- #2	FirstLight Hydro Generating Co.	Colebrook	Hydro	0.33	0.62	1/1/1924
Rocky Glen/Sandy Hook Hydro	Rocky Glen Hydro LP	Newtown	Hydro	0.11	0.11	4/1/1989
Rocky River	FirstLight Hydro Generating Co.	New Milford	Hydro-pump strg.	29.35	29.00	1/1/1928
Scotland #1	FirstLight Hydro Generating Co.	Windham	Hydro	1.82	2.20	1/1/1937
Shepaug #1	FirstLight Hydro Generating Co.	Southbury	Hydro	41.51	42.56	1/1/1955
South Meadow #5	CRRA	Hartford	Refuse	25.60	29.21	11/1/1987
South Meadow #6	CRRA	Hartford	Refuse	27.11	28.12	11/1/1987
South Meadow #11	CRRA	Hartford	Oil	35.78	46.92	8/1/1970
South Meadow #12	CRRA	Hartford	Oil	37.70	47.87	8/1/1970
South Meadow #13	CRRA	Hartford	Oil	38.32	47.92	8/1/1970
South Meadow #14	CRRA	Hartford	Oil	36.75	46.35	8/1/1970
Stevenson #1- #4	FirstLight Hydro Generating Co.	Monroe	Hydro	28.31	28.90	1/1/1919
Taftville #1- #5	FirstLight Hydro Generating Co.	Norwich	Hydro	2.03	2.03	1/1/1906
Torrington Terminal #10	NRG	Torrington	Oil	15.64	20.75	8/1/1967
Toutant	Toutant Hydro Power, Inc.	Putnam	Hydro	0.40	0.40	2/1/1994
Tunnel #1- #2	FirstLight Hydro Generating Co.	Preston	Hydro	1.48	2.10	1/1/1919
Tunnel #10	FirstLight Hydro Generating Co.	Preston	Oil	17.00	22.10	1/1/1969
Wallingford RRF	CRRA	Wallingford	Refuse/Oil	6.35	6.90	3/1/1989

Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
Waterside Power	Waterside Power	Stamford	Oil	70.46	72.00	5/1/2004
Willimantic #1	Willimantic Power Corp.	Willimantic	Hydro	0.30	0.77	6/1/1990
Willimantic #2	Willimantic Power Corp.	Willimantic	Hydro	0.30	0.77	6/1/1990
Wyre Wynd	Summit Hydro Power	Griswold	Hydro	1.40	2.78	4/1/1997

	Summer	Winter
Seasonal Claimed Capability of coal fired plants	564.43	567.13
Seasonal Claimed Capability of natural gas fired plants	1352.09	1577.18
Seasonal Claimed Capability of oil fired plants	2656.33	2814.97
Seasonal Claimed Capability of hydroelectric plants	137.65	152.09
Seasonal Claimed Capability of methane fired plants	3.51	3.51
Seasonal Claimed Capability of nuclear plants	2014.40	2025.34
Seasonal Claimed Capability of refuse fueled plants (inc. tires)	183.92	190.92
Seasonal Claimed Capability of wood fired plants	0.01	0.01
Total Seasonal Claimed Capability available for dispatch to the grid. (Lake Road is excluded from the total.)	6912.34	7331.14

Miscellaneous Small Generation						
Connecticut Valley Hospital	State of Connecticut	Middletown	Oil	2.05	2.05	5/9/1999
Fairfield Hills Hospital	Fairfield Hills Hospital	Newtown	Oil	3.95	3.95	5/9/1999
Federal Paper Board	Federal Paper Board	Sprague	Oil	9.00	9.00	5/9/1999
Groton Sub Base	U.S. Navy	Groton	Oil/Gas	18.50	18.50	1/1/1966
Loctite	Loctite	Rocky Hill	Gas	1.18	1.18	4/1/1994
Norwalk Hospital	Norwalk Hospital	Norwalk	Gas	2.36	2.36	1/1/1992
Norwich State Hospital	Norwich State Hospital	Norwich	Oil	2.00	2.00	5/9/1999
Pfizer #1	Pfizer	Groton	Oil	32.50	32.50	1/1/1948
Pratt & Whitney	UTC	E. Hartford	Gas	23.80	23.80	4/1/1992
Pratt & Whitney	UTC	Middletown	Oil	1.00	1.00	5/9/1999
Smurfit-Stone Container Co.	Smurfit-Stone Container Co.	Montville	Refuse	2.00	2.00	9/1/1989
Southbury Training School	State of Connecticut	Southbury	Oil	1.50	1.50	5/9/1999
University of Conn. COGEN	State of Connecticut	Mansfield	Gas/Oil	24.90	24.90	8/1/2005

	Summer	Winter
Total Natural Gas Fired Generation less than 1 MW each	4.42	4.42
Total Propane Fired Generation less than 1 MW each	0.03	0.03
Total Hydroelectric Generation less than 1 MW each	3.33	3.33
Total Methane Fueled Generation less than 1 MW each	0.13	0.13
Total Solar (photovoltaic) Generation less than 1 MW each	0.15	0.15
Total Wind Powered Generation less than 1 MW each	0.04	0.04
Total Oil Fired Generation less than 1 MW each	0.01	0.01
Generation retained by facility	132.85	132.85
Total MWs of generation in Connecticut.	7045.19	7463.99

Appendix A. Existing Generation facilities as of July, 2008, by Fuel type

Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
AES Thames	AES Thames, Inc.	Montville	Coal/Oil	181.00	182.15	12/1/1989
Bridgeport Harbor #3	PSEG Power, LLC	Bridgeport	Coal/Oil	383.43	384.98	8/1/1968
Bridgeport Energy	Bridgeport Energy LLC	Bridgeport	Gas	441.96	521.21	8/1/1998
PPL Wallingford Unit #1	PPL EnergyPlus, LLC	Wallingford	Gas	42.92	48.41	12/31/2001
PPL Wallingford Unit #2	PPL EnergyPlus, LLC	Wallingford	Gas	40.13	51.13	2/7/2002
PPL Wallingford Unit #3	PPL EnergyPlus, LLC	Wallingford	Gas	42.94	47.84	12/31/2001
PPL Wallingford Unit #4	PPL EnergyPlus, LLC	Wallingford	Gas	42.50	47.78	1/23/2002
PPL Wallingford Unit #5	PPL EnergyPlus, LLC	Wallingford	Gas	41.15	52.15	2/7/2002
Aetna Capitol District	Capitol District Energy Ctr.	Hartford	Gas/Oil	55.25	61.33	11/1/1988
Dexter	Alstom	Windsor Locks	Gas/Oil	38.00	39.00	5/1/1990
Devon #11	NRG	Milford	Gas/Oil	29.58	39.10	10/1/1996
Devon #12	NRG	Milford	Gas/Oil	29.23	38.44	10/1/1996
Devon #13	NRG	Milford	Gas/Oil	29.97	38.97	10/1/1996
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Milford Power #1	Milford Power Company, LLC	Milford	Gas/Oil	239.00	267.24	2/12/2004
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Colebrook	MDC	Colebrook	Hydro	1.55	1.55	3/1/1988
Dayville Pond	Summit Hydro Power	Killingly	Hydro	0.00	0.10	3/1/1995
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Kinneytown A	Kinneytown Hydro Co.	Ansonia	Hydro	0.00	0.00	3/1/1988
Kinneytown B	Kinneytown Hydro Co.	Seymour	Hydro	0.62	1.51	11/1/1986
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Stevenson #1- #4	FirstLight Hydro Generating Co.	Monroe	Hydro	28.31	28.90	1/1/1919
Taftville #1- #5	FirstLight Hydro Generating Co.	Norwich	Hydro	2.03	2.03	1/1/1906
Toutant	Toutant Hydro Power, Inc.	Putnam	Hydro	0.40	0.40	2/1/1994
Tunnel #1- #2	FirstLight Hydro Generating Co.	Preston	Hydro	1.48	2.10	1/1/1919
Willimantic #1	Willimantic Power Corp.	Willimantic	Hydro	0.30	0.77	6/1/1990
Willimantic #2	Willimantic Power Corp.	Willimantic	Hydro	0.30	0.77	6/1/1990

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Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
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Hartford Landfill	CRRA	Hartford	Methane	1.90	1.90	8/1/1998
New Milford Landfill	Vermont Electric Power Co.	New Milford	Methane/Oil	1.61	1.61	8/1/1991
Millstone #2	Dominion Nuclear CT, Inc.	Waterford	Nuclear	876.92	878.41	12/1/1975
Millstone #3	Dominion Nuclear CT, Inc.	Waterford	Nuclear	1137.48	1146.93	4/1/1986
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Bridgeport Harbor #2	PSEG Power, LLC	Bridgeport	Oil	130.50	147.51	8/1/1961
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Cos Cob #11	NRG	Greenwich	Oil	21.84	16.94	1/1/1969
Cos Cob #12	NRG	Greenwich	Oil	18.44	23.34	1/1/1969
Cytec #1	CMEEC	Wallingford	Oil	2.00	1.92	5/15/2008
Cytec #2	CMEEC	Wallingford	Oil	2.00	1.93	5/15/2008
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Devon #10 (reactivated)	NRG	Milford	Oil	14.41	19.19	4/1/1988
Franklin Drive #10	NRG	Torrington	Oil	15.42	20.53	11/1/1968
John Street #3	CMEEC	Wallingford	Oil	2.00	2.00	9/26/2007
John Street #4	CMEEC	Wallingford	Oil	2.00	2.00	9/26/2007
John Street #5	CMEEC	Wallingford	Oil	0.00	1.83	11/1/2007
Middletown #4	NRG	Middletown	Oil	400.00	402.00	6/1/1973
Middletown #10	NRG	Middletown	Oil	17.12	22.02	1/1/1966
Montville #6	NRG	Montville	Oil	407.40	409.91	7/1/1971
Montville #10 & #11	NRG	Montville	Oil	5.30	5.35	1/1/1967
Norwalk Harbor #1	NRG	Norwalk	Oil	162.00	164.00	1/1/1960
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Norwalk Harbor #10 (3)	NRG	Norwalk	Oil	11.93	17.13	10/1/1996
Norwich Jet	CMEEC	Norwich	Oil	15.26	18.80	9/1/1972
Pierce	CMEEC	Wallingford	Oil	75.14	94.64	10/1/2007
South Meadow #11	CRRA	Hartford	Oil	35.78	46.92	8/1/1970
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Facility	Owner	Town	Fuel	Summer Rating	Winter Rating	In-Service Date
Preston RRF	SCRRF	Preston	Refuse/Oil	16.01	16.51	1/1/1992
Wallingford RRF	CRRA	Wallingford	Refuse/Oil	6.35	6.90	3/1/1989
Exeter	Oxford Energy, Inc.	Sterling	Tires/Oil	24.17	25.66	12/1/1991
Pinchbeck	William Pinchbeck, Inc.	Guilford	Wood	0.01	0.01	7/1/1987

	Summer	Winter
Seasonal Claimed Capability of coal fired plants	564.43	567.13
Seasonal Claimed Capability of natural gas fired plants	1352.09	1577.18
Seasonal Claimed Capability of oil fired plants	2656.33	2814.97
Seasonal Claimed Capability of hydroelectric plants	137.65	152.09
Seasonal Claimed Capability of methane fired plants	3.51	3.51
Seasonal Claimed Capability of nuclear plants	2014.40	2025.34
Seasonal Claimed Capability of refuse fueled plants (inc. tires)	183.92	190.92
Seasonal Claimed Capability of wood fired plants	0.01	0.01
Total Seasonal Claimed Capability available for dispatch to the grid. (Lake Road is excluded from the total.)	6912.34	7331.14

Miscellaneous Small Generation						
Loctite	Loctite	Rocky Hill	Gas	1.18	1.18	4/1/1994
Norwalk Hospital	Norwalk Hospital	Norwalk	Gas	2.36	2.36	1/1/1992
Pratt & Whitney	UTC	E. Hartford	Gas	23.80	23.80	4/1/1992
Connecticut Valley Hospital	State of Connecticut	Middletown	Oil	2.05	2.05	5/9/1999
Fairfield Hills Hospital	Fairfield Hills Hospital	Newtown	Oil	3.95	3.95	5/9/1999
Federal Paper Board	Federal Paper Board	Sprague	Oil	9.00	9.00	5/9/1999
Norwich State Hospital	Norwich State Hospital	Norwich	Oil	2.00	2.00	5/9/1999
Pfizer #1	Pfizer	Groton	Oil	32.50	32.50	1/1/1948
Pratt & Whitney	UTC	Middletown	Oil	1.00	1.00	5/9/1999
Southbury Training School	State of Connecticut	Southbury	Oil	1.50	1.50	5/9/1999
Groton Sub Base	U.S. Navy	Groton	Oil/Gas	18.50	18.50	1/1/1966
Smurfit-Stone Container Co.	Smurfit-Stone Container Co.	Montville	Refuse	2.00	2.00	9/1/1989
University of Conn. COGEN	State of Connecticut	Mansfield	Gas/Oil	24.90	24.90	8/1/2005

	Summer	Winter
Total Natural Gas Fired Generation less than 1 MW each	4.42	4.42
Total Propane Fired Generation less than 1 MW each	0.03	0.03
Total Hydroelectric Generation less than 1 MW each	3.33	3.33
Total Methane Fueled Generation less than 1 MW each	0.13	0.13
Total Solar (photovoltaic) Generation less than 1 MW each	0.15	0.15
Total Wind Powered Generation less than 1 MW each	0.04	0.04
Total Oil Fired Generation less than 1 MW each	0.01	0.01
Generation retained by facility	132.85	132.85
Total MWs of generation in Connecticut.	7045.19	7463.99

Appendix B. Planned Transmission Lines in Connecticut

Planned Transmission Lines in Connecticut	Utility	Length (miles)	Voltage (kV)	Expected Date to be In Service
Norwalk Harbor S/S, Norwalk - Northport S/S, Northport, New York (cable replacement, underwater)	CL&P	5.8	138	2008
Norwalk S/S, Norwalk - Glenbrook S/S, Stamford (underground cable circuit #1)	CL&P	8.7	115	2008
Norwalk S/S, Norwalk - Glenbrook S/S, Stamford (underground cable circuit #2)	CL&P	8.7	115	2008
East Devon S/S, Milford - Singer S/S, Bridgeport (undeground cable circuit #1)	CL&P	2.4	345	2009
East Devon S/S, Milford - Singer S/S, Bridgeport (undeground cable circuit #2)	CL&P	2.4	345	2009
Norwalk S/S, Norwalk - Singer Substation, Bridgeport (underground cable circuit #1)	CL&P	15.4	345	2009
Norwalk S/S, Norwalk - Singer Substation, Bridgeport (underground cable circuit #2)	CL&P	15.4	345	2009
Devon S/S, Milford - Wallingford S/S, Wallingford (rebuild #1640 circuit)	CL&P	24.1	115	2009
Devon S/S, Milford - June Street S/S, Woodbridge (rebuild #1685 circuit)	CL&P	13.4	115	2009 *
North Haven S/S, North Haven - Branford S/S, Branford (rebuild #1655 circuit)	CL&P	1.2	115	2009 *
East Devon S/S, Milford - Devon S/S, Milford (new circuit #1, overhead)	CL&P	1.3	115	2009
East Devon S/S, Milford - Devon S/S, Milford (new circuit #2, overhead)	CL&P	1.3	115	2009
East Meriden S/S, Meriden - North Wallingford S/S, Wallingford	CL&P	2	115	2009 *
Southington S/S, Southington - June Street S/S, Woodbridge (rebuild a portion of the #1610 circuit) (overhead)	CL&P	11.5	115	2009
Devon S/S, Milford - Devon Switching Station, Milford (rebuild a portion of #1780 circuit) (overhead)	CL&P	0.1	115	2009
Devon S/S, Milford - Devon Switching Station, Milford (rebuild a portion of #1790 circuit) (overhead)	CL&P	0.1	115	2009
Devon S/S, Milford - Beacon Falls Substation, Beacon Falls (rebuild a portion of #1570 circuit) (overhead)	CL&P	3.8	115	2009
Bunker Hill S/S, Waterbury - Beacon Falls S/S, Beacon Falls (rebuild a portion of #1575 circuit) (overhead)	CL&P	3.8	115	2009
Devon S/S, Milford - Southington S/S, Southington (remove a portion of #1690 circuit) (overhead)	CL&P	22.5	115	2009 *
Scovill Rock S/S, Middletown - Chestnut Junction, Middletown (new line) (overhead)	CL&P	2.6	345	2009
Oxbow Junction, Haddam - Beseck Switching Station, Wallingford (new line) (overhead)	CL&P	8.0	345	2009
Black Pond Junction, Middlefield - Beseck Switching Station, Wallingford (new circuit #1) (overhead)	CL&P	2.8	345	2009
Black Pond Junction, Middlefield - Beseck Switching Station, Wallingford (new circuit #2) (overhead)	CL&P	2.8	345	2009
Beseck Switching Station, Wallingford - East Devon Substation, Milford (new line) (overhead)	CL&P	33.4	345	2009
Haddam S/S, Haddam - East Meriden S/S, Meriden (rebuild a portion of #1975 circuit)	CL&P	8.4	345	2009
Singer S/S, Bridgeport - splicing chamber west of Housatonic River, Stratford (underground)	UI	5.7	345	2009

*completed construction in 2007 as part of Docket 272

Planned Transmission Lines in Connecticut	Utility	Length (miles)	Voltage (kV)	Expected Date to be In Service
Naugatuck Valley 115-kV Reliability Improvement Project	UI	TBD	115	2012
Card S/S, Lebanon - Lake Road S/S, Killingly (new line)	CL&P	TBD	345	TBD
Lake Road S/S, Killingly - West Farnum S/S, Rhode Island (new line)	CL&P	TBD	345	TBD
Millstone S/S, Waterford - Manchester S/S, Manchester (modify a portion of the #310 circuit)	CL&P	TBD	345	TBD
Card S/S, Lebanon - Manchester S/S, Manchester (modify a portion of the #368 circuit)	CL&P	TBD	345	TBD
Tunnel S/S, Lisbon - Ledyard Junction, Ledyard (rebuild to 115-kV)	CL&P	8.5	69	TBD
Ledyard Junction, Ledyard - Gales Ferry S/S, Ledyard (rebuild to 115-kV)	CL&P	1.6	69	TBD
Gales Ferry S/S, Ledyard - Montville S/S, Montville (rebuild to 115-kV)	CL&P	2.4	69	TBD
Ledyard Junction, Ledyard - Buddington S/S, Groton (rebuild to 115-kV)	CL&P	4.7	69	TBD
Frost Bridge S/S, Watertown - Campville S/S, Harwinton (rebuild line)	CL&P	10.3	115	TBD
North Bloomfield S/S, Bloomfield - Agawam S/S, Massachusetts (new line)	CL&P	TBD	345	TBD
North Bloomfield S/S, Bloomfield - Frost Bridge S/S, Watertown (new line)	CL&P	TBD	345	TBD
North Bloomfield S/S, Bloomfield - Southwick S/S, Massachusetts (modify #1768 circuit)	CL&P	TBD	115	TBD
North Bloomfield S/S, Bloomfield - South Agawam S/S, Massachusetts (modify #1821 circuit)	CL&P	TBD	115	TBD
North Bloomfield S/S, Bloomfield - South Agawam S/S, Massachusetts (modify #1836 circuit)	CL&P	TBD	115	TBD
Manchester S/S, Manchester - Scovill Rock S/S, Middletown (rebuild a portion of the #353 circuit)	CL&P	TBD	345	TBD

Appendix C: Planned Substation Projects

	Est. In-Service Date	Company
Install the new 115-kV/13.8-kV Wilton Substation in Wilton	2008	CL&P
Modify the existing 115-kV Norwalk Substation in Norwalk	2008	CL&P
Modify the existing 115-kV Glenbrook Substation in Stamford	2008	CL&P
Modify the existing 138-kV/115-kV Norwalk Harbor Substation in Norwalk	2008	CL&P
Modify the existing 115-kV Flax Hill Substation in Norwalk	2008	CL&P
Install the new 115-kV Oxford Substation in Oxford	2008	CL&P
Modify the existing 115-kV Cedar Heights Substation in Stamford	2008	CL&P
Modify the existing 345-kV/115-kV Barbour Hill Substation in South Windsor	2008	CL&P
Modify the existing 115-kV Enfield Substation in Enfield	2008	CL&P
Install the new 115-kV/13.8-kV Trumbull Substation in Trumbull	2008	UI
Modify the existing 115-kV Cos Cob Substation in Greenwich	2009	CL&P
Modify the existing 115-kV Devon Substation in Milford	2009	CL&P
Install the new 345-kV/115-kV East Devon Substation in Milford	2009	CL&P
Modify the existing 345-kV Southington Substation in Southington	2009	CL&P
Modify the existing 115-kV Mystic Substation in Mystic	2009	CL&P
Modify the existing 115-kV North Bloomfield Substation in Bloomfield	2009	CL&P
Modify the existing 345-kV Norwalk Substation in Norwalk	2009	CL&P
Modify the existing 345-kV Beseck Switching Substation in Wallingford	2009	CL&P
Modify the existing 345-kV Card Substation in Lebanon	2009	CL&P
Modify the existing 345-kV Millstone Substation in Waterford	2009	CL&P
Install the new 115-kV Stepstone Substation in Guilford	2009	CL&P
Install the new 115-kV Rood Avenue Substation in Windsor	2009	CL&P
Modify the existing 115-kV Glenbrook Substation in Stamford	2009	CL&P
Modify the existing 345-kV Long Mountain Substation in New Milford	2009	CL&P
Install the new 345-kV/115-kV Singer Substation in Bridgeport	2009	UI
Install the new 115-kV Waterford Substation in Waterford	2010	CL&P
Install the new 345-kV Kleen Substation in Middletown	2010	CL&P
Modify the existing 115-kV Waterside Substation in Stamford	2010	CL&P
Install a new 115-kV substation in Shelton	2010	UI
Install a new 115-kV substation in New Haven I	2010	UI
Install a new 115-kV/27.6-kV Metro-North Substation	2010	UI
Modify the existing 115-kV Scitico Substation in Enfield	2011	CL&P
Rebuild the existing Grand Avenue 115-kV Switching Station	2012	UI
Naugatuck Valley Reliability improvement Project (115-kV)	2012	UI
Pequonnock Fault Duty Mitigation Project (115-kV)	2012	UI
Install a new 115-kV substation in Fairfield	2012	UI
Install a new 115-kV substation in Orange	2013	UI
Install a new 115-kV substation in Hamden	2014	UI
Install a new 115-kV substation in North Branford	2014	UI
Install a new 115-kV substation in New Haven II	2015	UI
Modify the existing 115-kV Bunker Hill Substation in Waterbury	TBD	CL&P
Modify the existing 345-kV Millstone Substation in Waterford	TBD	CL&P
Modify the existing 345-kV Card Substation in Lebanon	TBD	CL&P
Modify the existing 345-kV Lake Road Substation in Killingly	TBD	CL&P
Modify the existing 345-kV Frost Bridge Substation in Watertown	TBD	CL&P
Modify the existing 345-kV North Bloomfield Substation in Bloomfield	TBD	CL&P
Modify the existing 115-kV Glenbrook Substation in Stamford	TBD	CL&P
Modify the existing 115-kV Torrington Terminal Substation in Torrington	TBD	CL&P
Modify the existing 115-kV Montville Substation in Montville	TBD	CL&P
Modify the existing 115-kV Peaceable Substation in Redding	TBD	CL&P
Modify the existing 115-kV Cedar Heights Substation in Stamford	TBD	CL&P
Modify the existing 345-kV Manchester Substation in Manchester	TBD	CL&P
Modify the existing 115-kV Waterside Substation in Stamford	TBD	CL&P
Install the new 115-kV Westport Substation in Westport	TBD	CL&P

The members of the Council staff are as follows:

S. Derek Phelps (Executive Director) has served the Council for the past seven years. Mr. Phelps holds a bachelor's degree in public administration from the University of Connecticut and a master's degree in e-media communications from Quinnipiac University. He has held elected and appointed office at the local level, and is a former deputy commissioner. He has also worked in the private sector in various matters involving public utilities.

Melanie A. Bachman (Staff Attorney) is a recent addition to the Council staff. Ms. Bachman holds a bachelor's degree in business management from Fordham University and a Juris Doctor from the University of Connecticut School of Law. She is a former state prosecutor and has private practice experience in matters related to land use.

Fred O. Cunliffe (Supervisor Siting Analyst) has been employed by the Council for approximately 20 years. Mr. Cunliffe holds a bachelor of science degree in wildlife biology from the University of Massachusetts, Amherst. He previously served as a research assistant with the Department of Environmental Protection.

Christina M. Walsh (Siting Analyst II) has been employed by the Council for eight years. Mrs. Walsh holds a bachelor of science degree in environmental science from Marist College and a master of science degree in environmental science from the University of New Haven.

Robert D. Mercier (Siting Analyst II) has been employed by the Council for seven years. Mr. Mercier holds a bachelor of arts degree with a concentration in environmental science from Central Connecticut State University. Prior to employment with the Council, he was employed as an environmental consultant specializing in hazardous materials assessment and remediation.

C. David Martin, Jr. (Siting Analyst I) has been employed by the Council for six years. He holds a bachelor of arts degree from Bates College and a masters in urban planning from Michigan State University. Mr. Martin has previously worked for the Central Connecticut Regional Planning Agency, as a town planner for a Connecticut municipality, and the Connecticut Resources Recovery Authority.

Michael A. Perrone (Siting Analyst I) has been employed by the Council for five years. Mr. Perrone holds a bachelor of science degree in mechanical engineering from the University of New Haven. He was previously employed as an engineer at the Connecticut Department of Public Utility Control.

Lisa A. Fontaine (Fiscal Administrative Officer) has been employed by the Council for eight years. Mrs. Fontaine holds an associate of science degree.

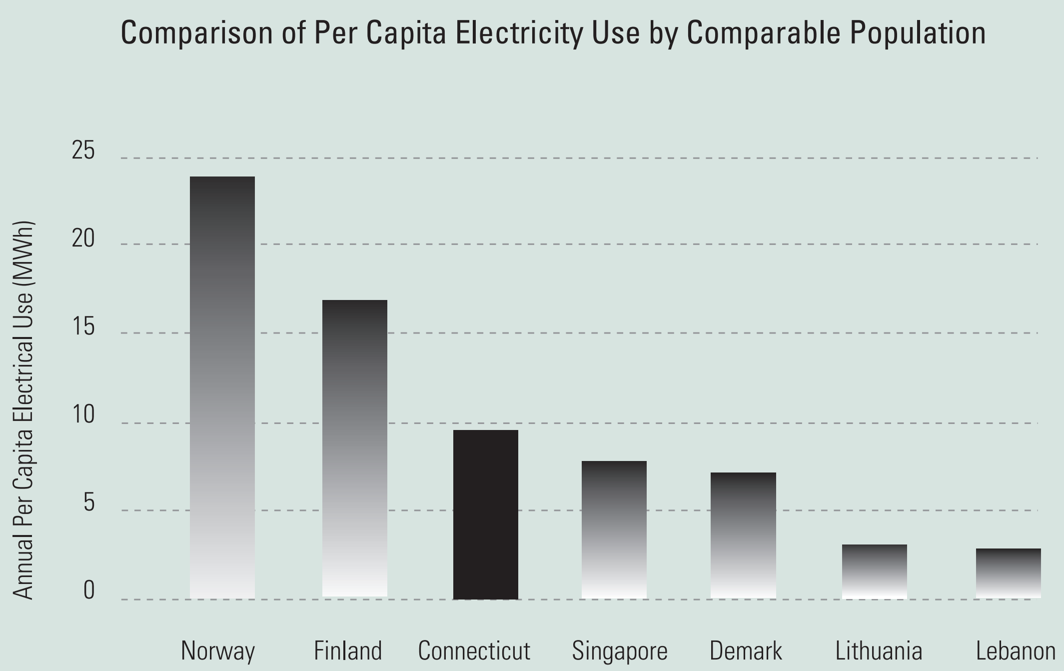
Carriann Mulcahy (Secretary II) has been employed by the Council for five years. Ms. Mulcahy was previously employed by Central Connecticut State University. Her past experience also includes employment at the federal and municipal level.

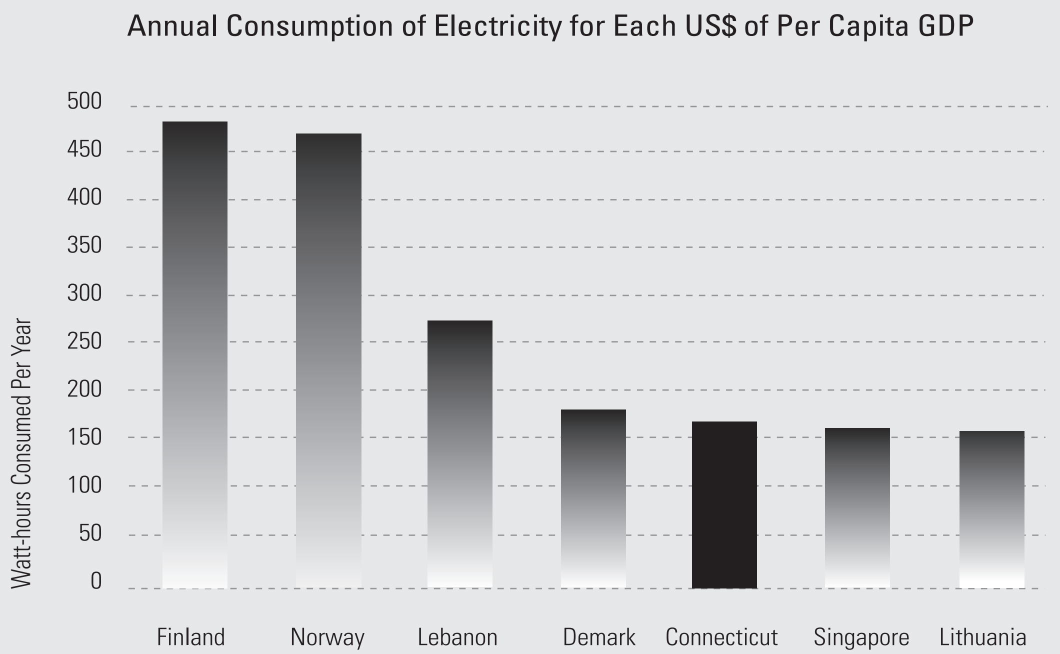
Jessica Brito (Office Assistant) has been employed by the Council for one year. Ms. Brito was previously employed by the State of Connecticut Department of Developmental Services.

Year	Population	U.S.	CT	Source
2007	Total Population	301,621,157	3,549,606	CT Economic Resource Center; U.S. Pop from : Table 1: Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2007
2000	Total Population	281,424,602	3,405,565	CERC
2000-2007	Population Change	7.2%	4.2%	CERC
2007	People per Square Mile	85	732	U.S. total area = 3,794,082 sq. mi., land area (used to calculate pop/sq. mi.) = 3,537,438 sq. mi.; CT total area = 5,544 sq. mi., CT land area = 4,845 sq. mi.
Financial				
2006	GDP ($ Current Millions)	13,194,700	204,134	U.S. figure from U.S. Bureau of Economic Analysis (see gdplev.xls); CT figure from US Bureau of Economic Analysis (see web page - http://www.bea.gov/regional/gsp/action.cfm)
2006	GDP per capita	$44,165	$58,395	2006 population figures from U.S. Census Annual Estimates of Population/ CT 2006 population =3,495,753
2006	Productivity (GDP/# workers)	$90,420	$109,496	
2006	Employees (# of workers)	145,926,000	1,864,300	National employment figures from US Dept of Labor, The Employment Situation , December 2006; CT figures from: Bureau of Labor Statistics, Regional and State Employment and Unemployment, December 2006
Labor				
June 2008	Minimum Wage	$5.85	$7.65	
March 2008	Employed Labor Force	145,969,000	1,699,300	CT figure from CT Dept of Labor: Labor Situation, March, 2008 data; US Figure from US Bureau of Labor Statistics employment situation, April 2008 (http://www.bls.gov/news.release/empsit.nr0.htm)
2006	Median Annual Income	$48,201	$78,154	U.S. figure from U.S. Census Bureau Historical Income Tables - Households [http://www.census.gov/hhes/www/income/histinc/h09ar.html]; State Figure from US Census Bureau, B19119. MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2006 INFLATION-ADJUSTED DOLLARS) BY FAMILY SIZE - Universe: FAMILIES
2006-2007	Per Capita Personal Income Growth	5.2%	6.6%	U.S. Dept. of Commerce, Bureau of Economic Analysis. Released March 26, 2008. [see us-pci.xls]
2007	Average Hourly Earnings	$17.12	$21.67	U.S. figure: Data 360 (see link); CT figure from Current Employment Statistics, Average Hourly Earnings, CT Dept of Labor, Office of Research, March, 2008 (see link)
2007	Average Annual Manufacturing Pay	$36,691	$44,669	U.S. figure from Table B-3. Average hourly and weekly earnings of production and nonsupervisory workers (1) on private nonfarm payrolls by industry sector and selected industry detail [http://www.bls.gov/news.release/empsit.t16.htm]; CT figure from Hours and Earnings of Manufacturing Workers, CT Dept of Labor, Office of Research [http://www.ctdol.state.ct.us/lmi/glan/glanhrse.htm]
2006	Average Annual Retailing Pay	$23,940	$27,600	CT figure from: May 2006 State Occupational Employment and Wage Estimates Connecticut; and US Department of Labor, Bureau of Labor Statistics.

Labor as a Percent of Total Employment		U.S.	CT	Source
2007	Government Employment	15.2%	14.7%	CT Figure from CT Dept of Labor Current Employment Statistics, 2007; US figure from Employment Situation Summary, Bureau of Labor Statistics, US Department of Labor - Apr, 2008 report - 2007 figures from 4th Qtr, 2007
2007	Manufacturing employment	9.4%	11.4%	CT Figure from CT Dept of Labor Current Employment Statistics, 2007; US figure from Employment Situation Summary, Bureau of Labor Statistics, US Department of Labor - Apr, 2008 report - 2007 figures from 4th Qtr, 2007
2007	Unemployment Rate	4.6%	4.6%	US figure from Employment status of the civilian non-institutional population, 1942 to date, Bureau of Labor Statistics, US Dept of Labor; CT figure from Connecticut Department of Labor, Office of Research Annual Average 2007
Exports				
2007	Total Exports ($thousands)	16,283,580,000	13,719,049	CT figure from WISERTrade at HCC: State Exports by NAICS Database, CT [see spreadsheet]; US figure from U.S. International Transactions Accounts Data, U.S. Bureau of Economic Analysis [see table1.xls]
2006-2007	Change in Exports (%)	12.6%	12.1%	
Tourism				
2003	Total Tourism Spending ($ millions)	$490,870	$6,709	Connecticut Economic Resources Center, 2006 State Comparisons
2003	Tourism Spending Share of U.S. Total	100.0%	1.4%	
	Tourism Spending per Capita	$1,688	$1,924	
	Environmental Conditions			
	Air Pollution (1000s Short Tons)	$193,956	$1,456	
	Air Pollution Emissions (per Capita)	0.7	0.4	
Cost of Living				
2005-2007	Change in Median Price of Homes	-0.3%	0.03%	US Figure from National Association of Realtors; CT number from CT Home Sales Reports published by CT Association of Realtors (found on DECD Housing Information webpage - CT percentage change based on 2005 and 2007 third quarter numbers
Electricity Costs (cents/kilowatt hour)				
Dec-07	Residential	10.31 cents/kWh	17.86 cents/kWh	Energy Information Administration, State Energy Profile: Connecticut
Dec-07	Commercial	9.41 cents/kWh	14.66 cents/kWh	
Dec-07	Industrial	6.25 cents/kWh	12.89 cents/kWh	
Cost of Living Index				
2007	Consumer Price Index	207.342	226.94	
2004-2007	Change in Consumer Price Index	9.8%	10.8%	

Prices	U.S. Average	CT Average
Feb-08 No. 2 Heating Oil, Residential	$3.176/gal	$3.124/gal
Feb-08 Natural Gas, Residential	$12.46/thousand cu ft	$15.73/thousand cu ft
Dec-07 Electricity, Residential	10.31 cents/kWh	17.86 cents/kWh
Dec-07 Electricity, Commercial	9.41 cents/kWh	14.66 cents/kWh
Dec-07 Electricity, Industrial	6.25 cents/kWh	12.89 cents/kWh
Electricity Generation	**Share of U.S.**	**CT**
Dec-07 Total Net Electricity Generation	0.8%	2,873,000 MWh
Dec-07 Petroleum-fired Generation	6.4%	176,000 MWh
Dec-07 Natural Gas-fired Generation	1.1%	731,000 MWh
Dec-07 Coal-fired Generation	0.2%	294,000 MWh
Dec-07 Nuclear-powered Generation	2.1%	1,501,000 MWh
Dec-07 Hydroelectric-powered Generation	0.2%	39,000 MWh
Dec-07 Other Renewable Generation	0.7%	67,000 MWh
Stocks	**Share of U.S.**	**CT**
Feb-08 Distillate Fuel Oil (excluding pipelines)	2.3%	1,994,000 bbls
Energy Consumption	**U.S. Rank**	**CT**
2005 Per Capita Energy Consumption	43 of 50	258 million Btu
Energy for Electricity Generation	**Share of U.S.**	**CT**
Dec-07 Petroleum	6.6%	324,000 bbls
Dec-07 Natural Gas	1.0%	5,408 million cu ft
Dec-07 Coal	0.2%	156,000 short tons
Home Heating (Share of Households)	**U.S. Average**	**CT**
Natural Gas	51.2%	29%
Fuel Oil	9.0%	52%
Electricity	30.3%	15%
Liquified Petroleum Gases	6.5%	2%
Other/Non	1.8%	2%
Electric Power Industry Emissions	**Share of U.S.**	**CT**
2006 Carbon Dioxide	0.4%	11,056,606 metric tons
2006 Sulfur Dioxide	0.1%	5,404 metric tons
2006 Nitrogen Oxide	0.2%	8,953 metric tons





Source: World Factbook and Wikipedia

Electric Rates in Connecticut:

BUYER'S REMORSE ON "DEREGULATION"

BY ARTHUR W. WRIGHT

Ask most any Connecticut resident and she'll likely agree that her electric rates have been on the march, upward (not forward), in recent years. Of course, it's old news in these parts that New England lacks commercially viable fossil fuels and is "at the end of the pipeline," about as far as one can get in the contiguous 48 states from traditional domestic sources of oil, natural gas, and low-sulfur western coal. Of late, though, Connecticut seems to have been hit especially hard at the wall socket.

The perception is accurate. The facts show that the Nutmeg State has suffered some of the biggest rate increases in the country. Linear regression analysis of the data reveals that a primary cause—likely the single biggest factor—was the so-called "deregulation" of electric rates introduced beginning in the late 1990s.

The facts show that the Nutmeg State has suffered some of the biggest rate increases in the country.

A PERSISTENT DULL ACHE...

As the table shows, in 1990 the average retail price of electricity sold in Connecticut was 9.16 cents per kilowatt hour (kWh), according to data from the U.S. Energy Information Administration (EIA, the source for all data cited here unless stated otherwise). That gave the Nutmeg State the third highest average rate among all states including the District of Columbia (DC). By 2007 that figure had risen by some 7 cents to 16.18 cents per kWh, moving Connecticut up to second-highest, or (ignoring the outlier Hawaii) top dog among the remaining 50 states. The jump equated to an average yearly increase of 3.2 percent over the 18-year period. In real terms (constant purchasing power), Connecticut's electric rates rose 0.60 percent per year faster than the general consumer price level over the 18-year period. (Bruce Blakey, on page 16 of this issue, shows that much of the increase in Connecticut occurred after 2003.)

For the nation as a whole over that period, the average retail price of power rose from 6.57 to 9.14 cents per kWh, a yearly average rise of 1.85 percent. But in real terms, the average price of power nationally fell by an average of 0.73 percent per year from 1990 to 2007.

So it's adding insult to injury: Connecticut already paid 2.6 cents per kWh above the national average in 1990, and endured a more rapid than average yearly increase, boosting the differential to 7 cents per kWh by 2007.

Total electric bills depend on consumption as well as rates. Nutmeggers'

AVERAGE RETAIL ELECTRIC RATES (ALL SECTORS), SELECTED STATES, 1990 AND 2007

1990 (¢/kWh)		RANK: HIGHEST TO LOWEST	2007	(¢/kWh)
9.48	AK	1	HI	21.29
9.37	NY	2	CT	16.18
9.16	CT	3	NY	15.35
9.15	RI	4	MA	15.23
9.09	NH	5	NH	13.96
9.08	NJ	6	NJ	13.43
9.02	HI	7	ME	13.26
8.85	MA	8	RI	13.19
8.84	CA	9	AK	13.15
8.28	VT	10	CA	12.77
7.75	AZ	11	DC	12.06
7.65	PA	12	VT	11.99
7.66	ME	13	MD	11.41
7.49	IL	14	DE	11.35
7.10	NM	16	TX	10.27
6.57	KS	19	MI	8.59
5.93	IA	30	MT	7.51
5.78	TX	33	OK	7.29
4.18	OR	48	KY	5.76
3.96	MT	49	WY	5.27
3.80	ID	50	WV	5.27
3.40	WA	51	ID	5.06
6.57	U.S.		U.S.	9.14

SOURCE: The Connecticut Economy from EIA data total use of power rose from a bit more than 27 billion kWh in 1990 to slightly over 34 billion kWh in 2007. That translates into 0.94 percent per year per capita, given average yearly population growth of about 0.4 percent. An average price rise better than 3 percent per year and usage per person growing nearly 1 percent easily leads to a feeling that total electricity costs have been rising. (Blakey's article in this issue traces the sources of increasing power usage per capita.)

It turns out that the foregoing overall averages understate the rise in *residential* electric power prices, usage, and therefore household electric bills. Residential electric rates in Connecticut rose by an average of 3.7 percent per year, 1990-2007, versus 3.2 percent for all power sold to end users. And residential sales of power actually increased a bit faster than total sales (1.5 percent versus 1.35 percent per year, on average). No wonder we're feeling the pain.

THE COMPANY WE KEEP

Connecticut has not been alone, of course. In order for the 2007 national retail electric rate to average 9.14 cents per kWh below the Nutmeg State's 16.18 figure a slew of states must have below-average rates. A "slew" here turns out to equal 34 states, ranging from Pennsylvania at 9.07 cents per kWh down to a mere 5.06 cents per kWh in Idaho. That leaves 16 other states besides Connecticut with above-average rates in 2007. And four of those states—DC, Hawaii, Maryland, and Nevada—suffered even faster rates of increase over the 1990 level than did Connecticut.

The dispersion in electric rates across states also rose over the period. The coefficient of variation—the ratio of the standard deviation to the mean—among all states' average retail electric prices rose by a factor of 1.5, from 0.244 in 1990 to 0.365 in 2007. Moreover, that there were only 17 states above the national average figure in 2007 suggests that much of the increased dispersion resulted from more rapid increases in price among that group than in the remaining 34 states. In fact, every state but Alaska in that group experienced above-average rates of increase in electric rates, 1990-2007, while only three states with rates below the 2007 national average saw rates grow faster than the U.S. average.

Every state but Alaska in that group experienced above-average rates of increase in electric rates.

What happened between 1990 and 2007 to change the distribution of average retail electric rates across states so dramatically?

THE SIREN SONG OF ALL THOSE DATA

The U.S. Energy Information Administration or EIA offers a plethora of raw data on retail electric rates by state, by type of customer, and by month, from 1990 through 2007. (Why else choose the total period used in this analysis?) Though potentially one could concoct a huge panel study and give a couple graduate students their dissertation topics, for present purposes I focused much more narrowly on using regression analysis to explain the change, 1990-2007, in the average retail electric rate by state. The explanatory variables of choice included state data for (1) changes over the same period in the shares of residential and commercial electricity use (with the third major component, industrial, omitted); (2) changes in per capita Gross State Product (GSP)

(continued on page 14)

 (continued from page 11)

and in population (both only through 2006), to capture the effects of differences in economic activity; and (3) changes in the residential price of natural gas (again, only through 2006), to capture a possible substitution effect and perhaps an indirect input price effect from the growing role of gas in electric generation.

In addition, for two reasons, I also included a dummy variable for whether or not a state had attempted what has loosely been called "deregulation" since the 1990s. First, in a November 2007 paper, Marilyn Showalter, of the lobbying group Power in the Public Interest, argued that electric rates for industrial users had risen much more in "deregulation" states than in "traditional regulation" states; Showalter's study did not use regression analysis. Second, I noted that 12 of the 14 "deregulation" states (CA, CT, DC, DE, MA, MD, ME, NH, NJ, NY, RI and TX) were among the 17 states with electric rates higher than the 2007 national average price of 9.14 cents per kWh (see table p. 10).

Those states that tried deregulation experienced significantly higher increases in average retail electric rates.

The results of my regression are shown in the box below. What they reveal is that (1) (by omission) none of the structural variables proved significant at less than the 27% level (i.e., there is no better than a 1-in-4 chance that their coefficients are actually zero, rather than the estimated values of the coefficients); but (2) the "deregulation" dummy variable is highly significant, positive as predicted, and by itself explains about 60% of the variation in the dependent rate change variable.

For a "deregulation" state, the model predicts that the mean change in its average retail electric rate would be 3.22 cents per kWh higher than the average change in non-deregulation states. Put differently, the average change in electric rates in deregulation states was 4.84 cents per kWh, equal to the average change in non-deregulation states, 1.62 cents per kWh, plus the coefficient on the dummy variable, 3.22 cents per kWh (see bar graph). Nothing else obvious comes close to explaining so much of the variation across states in electric-rate changes.

A FEW LESSONS

My results indicate that Showalter's critique of the attempted deregulations of electric power markets was right. Those states that tried deregulation experienced significantly higher increases in average retail electric rates than the states that did not.

Interestingly, not all of the 14 "deregulation" states suffered relatively large increases in average electric rates. Michigan, California and Rhode Island might be said to have been more successful with their deregulations than the other 11 "deregulation" states. At the same time, four non-deregulation states—Hawaii, Nevada, Oregon and Washington—might be said to have suffered "deregulation"-like increases without even having tried it. Hawaii relies heavily on imported oil and coal

EXPLAINING CHANGES IN RETAIL ELECTRIC RATES ACROSS STATES, 1900-2007

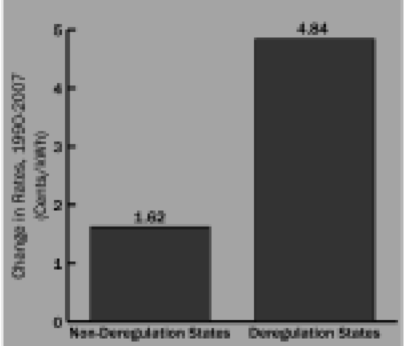
	Coefficients	P-value
Constant	1.6219	0.0000
Deregulation Dummy	3.2243	0.0000

Adjusted R Squared: 0.5997

The coefficient on the constant measures the average change in electric rates in "traditional regulation" states, while the coefficient on the dummy variable measures the additional increase in rates associated with "deregulation." The p-values are estimates of the likelihood that these coefficient values occurred by chance. The smaller the p-value, the more statistically significant the result.

SOURCE: *The Connecticut Economy*

WHAT A DIFFERENCE "DEREGULATION" MADE!



SOURCE: *The Connecticut Economy*

for power generation. Nevada was the only state to more than double in population over the study period; other high-growth states like Arizona and Utah (+73% and +54%, respectively) seem to have managed their surging power demands better. And Oregon and Washington were coping with the end of superabundant hydro power. One deregulation state, Montana, suffered a large increase in rates, 1990-2007, but even so its average rate was still below the U.S. level in 2007; Montana has now abandoned its deregulation experiment.

For its part, Connecticut had the most costly experience, in terms of rate increases, of any of the deregulation states. An analysis of the residual values from the regression reported in the box showed that Connecticut's actual increase in electric rates, 1990-2007, was nearly 2 cents per kWh above its predicted value. Next highest, at some 1.5 cents per kWh above predicted, was Massachusetts.

"Deregulate in haste; repent at leisure." That is the clearest lesson for Connecticut to draw from my regression results. Subjecting electric power markets to "competition" back in the 1990s seemed like a good idea at the time—to many economists (me included) as well as policy makers—but in retrospect it wasn't as straightforward as a lot of us had expected or at least hoped. The goals of deregulation were themselves not always straightforward, and what was supposed to happen seldom transpired. Far too little attention was paid to the design of the auctions used to establish so-called competitive prices, with the result that bidders (the suppliers) often could take advantage of the auctions to reap higher-than-competitive prices. Too, a number of states' regulators, including Connecticut's, lost their nerve as rates rose, and postponed further phases of the deregulation—in the process, pulling the rug from under would-be investors in new capacity and discouraging other, potential investors.

The best course may well be "back to the drawing board," but with all options on the table—not just rolling back the clock to traditional regulation. For instance, we might improve auction design, re-think the wisdom of breaking up electric utilities like CL&P vertically (the company has recently acquired some generation facilities), and provide Federal regulators with greater clout to compel states to follow through without flinching.

A second approach would be to take advantage of all those glorious data points from EIA to increase both the breadth and depth of our empirical understanding of what determines electric rates. Such an understanding would help us to learn from the deregulation experience and find better ways to run the electric power business.

Connecticut had the most costly experience, in terms of rate increases, of any of the deregulation states.

Demand, Supply, and Connecticut Electricity Prices

BY BRUCE BLAKEY

Energy costs receive ongoing attention because of the importance of energy to the economy, and especially because of rising energy prices. Economic theory tells us that prices reflect the interaction of demand and supply. So to understand changing prices, we need to examine these underlying forces. Fortunately, the wealth of available information about electric usage in Connecticut facilitates that analysis. What emerges is a familiar story: the price of electricity in Connecticut is high and climbing because of growing demand and rising costs.

CONNECTICUT ELECTRIC USAGE

Let us start with the demand side. The table below summarizes electricity sales and their growth over the last ten years. Residential and commercial consumption were the largest portions of 2007 electric sales, 41.9% and 43% respectively. Industrial sales (manufacturing) are relatively small and declining.

The growth in sales is the product of two dynamics: an increasing number of consumers, and a greater intensity of use. As the number of households and non-manufacturing workers increase, the demand for electricity tends to go up.

Usage growth is the other key determinant of electric demand. Residential usage rises with new housing construction, the increase in the size of new homes, the increased share of single-family homes, and the more extensive use of air conditioning, which drives summer peak demand. Air conditioning was considered a luxury 20 years ago, but today it is viewed as more of a necessity. CL&P estimates that 30% of its market uses central air conditioning, while about half of residential customers have room air conditioning.

On the commercial side, increased electricity usage per employee is likely due to more energy-intensive equipment, such as computers and office equipment, and to increased cooling and ventilation needs in commercial buildings. Commercial usage, which is a major factor behind summer peak demand, is strongly tied to the health care, finance and leisure industries.

CONNECTICUT ELECTRIC DEMAND: COMPONENTS OF GROWTH

	Percent Growth 1997-2007	Percent of 1997 Sales	Percent of 2007 Sales
Residential Sales	20.8%	39.6%	41.9%
Households	6.8%		
Usage Growth	14.0%		
Commercial Sales	18.3%	40.8%	43.0%
Non-manufacturing Employment	10.6%		
Usage Growth	7.7%		
Industrial Sales	-13.6%	18.3%	13.8%
Manufacturing Employment	-22.0%		
Usage Growth	8.4%		
Total Sales	13.5%	100.0%	100.0%
Real Personal Income	31.3%		

SEASONALITY OF ELECTRIC USAGE

Weather and lighting needs significantly affect seasonal usage and peak demands. Whereas industrial electric demand is relatively stable, commercial establishments (which are usually air conditioned) have their highest demands in months with cooling requirements. Nonresidential customers, mainly commercial, increase their usage on summer peak days by roughly 40 percent over their average load. Heating and air conditioning dominate residential use, which surges in both the winter and the summer. In summer, the peak residential day load is roughly double the average residential summer load.

The combination of commercial and residential air conditioning requirements makes Connecticut strongly summer-peaking. Pricing strategies such as time-of-day rates for commercial customers have not prevented summer peak demand from growing faster than average energy usage.

ELECTRIC RATES

To get a handle on the supply side of the picture, we need to dissect the data on electric power rates. The bar graph shows the growth in average electric rates in Connecticut from 2002 to 2008. Rates grew from roughly a dime per kWh in 2002 to about 18 cents per kWh today. (Arthur Wright's article in this issue examines electric rates for 1990-2007.) Over this period the generation service charge, which depends on the cost of fuel, grew from roughly a nickel to about 12 cents, largely due to rising natural gas prices. Generation costs accounted for 67% of January 2008 average electric rates for Connecticut Light and Power (CL&P) and United Illuminating (UI). Distribution and transmission were 17.8 and 4.6 percent, respectively, of average rates. Other charges made up the balance.

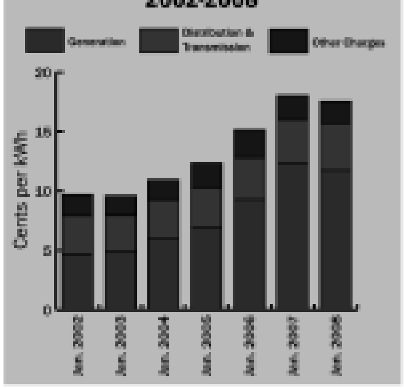
The cost of fuel was 71 percent of the 2007 generation service charge. So fuel costs are the major driver of the generation service cost and the primary cause of the recent increase in electricity prices.

THE IMPACT OF PEAK DEMAND ON ELECTRIC RATES

The line graph demonstrates that the price of electricity increases when the intensity of electric demand increases. However, total electric bills increase during high-demand periods both because usage is higher and cost increases. For example, Connecticut's 10% highest 2007 hourly loads made up 13.8% of annual energy consumption (orange line) and 18.9% of energy costs (gray line). Conversely, the lowest 10% of 2007 hourly loads accounted for only 6.8% of annual energy use and only 3.9% of 2007 costs. Low-cost base load generation serves most demand during low-demand hours, lowering the cost of electricity in those hours (green line). Less efficient peaking plants with higher fuel and operating costs are added when demand is high, pushing up the cost of electricity.

For Connecticut, over the 2005 to 2007 period, the top 1% of hourly loads (88 hours) made up 1.7% of annual energy use and 2.9% to 4.3% of annual energy costs. Similarly, in 2007 the top 2% of hourly loads were 3.2% and 5.0% of annual energy use and energy costs, respectively.

CL&P-UI AVERAGE ELECTRIC RATES, 2002-2008



CONCLUSIONS

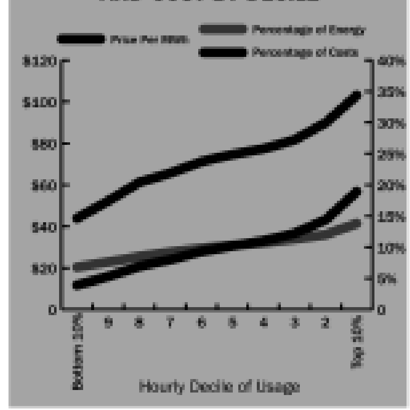
Economic growth and the increased use of temperature sensitive equipment push up peak demand for electricity. The price of electricity is mainly driven by the cost of fuel used to generate electricity, exacerbated by high costs during peak demand periods. (Roughly two-thirds of high-price hours occur outside high-demand hours, possibly because of factors like high gas prices.)

This analysis suggests some ways to lower the cost of electricity. Since market prices are determined by the interaction of supply and demand, to reduce price we have to increase supply or trim demand. Or we may need to remove market barriers that hamper the forces of supply and demand.

No single program or action is likely to materially change short-run electric prices. Customers wishing to reduce their total energy bills are best able to do so by reducing their energy consumption. Longer run, increasing energy efficiency reduces both energy use and peak demand. And reducing peak demand has both individual and system-wide benefits.

For specific recommendations, see the *Integrated Resource Plan for Connecticut* or the *2008 Conservation and Load Management Plan*. Similarly, there are numerous noteworthy energy efficiency options such as the ones catalogued by ACEEE in *The 2nd National Review and Recognition of Exemplary Energy Efficiency Programs.*

CONNECTICUT ENERGY USAGE AND COST BY DECILE



This article is based on an analysis conducted for the State of Connecticut Energy Conservation Management Board (ECMB) as required by Public Act 07-242.
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Environmentally Printed

In 2006, Governor Rell introduced Connecticut's Energy Vision for a Cleaner, Greener State. A key part of this Vision was a plan to promote energy efficient behavior among all residents and businesses. This plan is embraced and promoted through a communications campaign that asks Connecticut's resident's to take one small step, every day, to conserve energy and help protect the environment. In keeping with the spirit of Governor Rell's vision, this report is printed on Green Seal certified paper that is manufactured with non-polluting, wind-generated energy. By selecting paper that is 100 percent postconsumer waste fiber, the Council was able to achieve the following benefits to the environment:

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- 4,155 gallons wastewater flow saved
- 460 lbs solid waste not generated
- 905 lbs net greenhouse gases prevented
- 6,929,200 BTUs energy not consumed

Savings from the use of emission-free wind-generated electricity:

- 470 lbs air emissions not generated

Displaces this amount of fossil fuel:

- 1,119 cubic feet natural gas unused

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- not driving 510 miles

OR

- planting 32 trees

*This analysis is based on the use of 1,019 lbs of Green Seal certified paper.
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The Council is proud to take this small but significant step. Please visit onethingct.com and help spread the word about Governor Rell's OneThing Energy Vision.

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