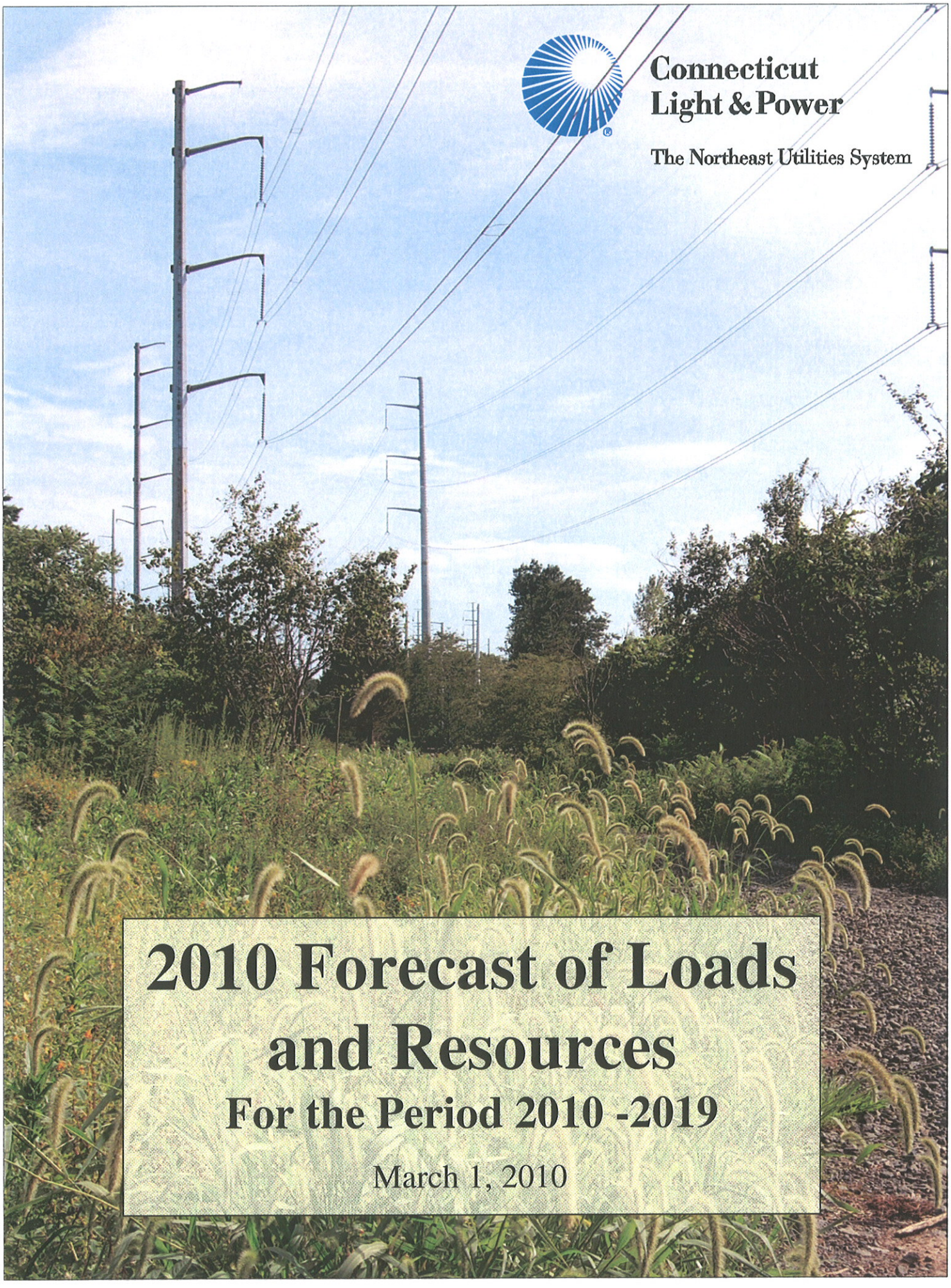


Connecticut
Light & Power

The Northeast Utilities System

2010 Forecast of Loads and Resources

For the Period 2010 -2019

March 1, 2010

List of Acronyms

"ARRA"	American Reinvestment and Recovery Act of 2009
"C&LM"	Conservation and Load Management
"CAGR"	Compound Annual Growth Rate
"CCEF"	Connecticut Clean Energy Fund
"CEAB"	Connecticut Energy Advisory Board
"CEEF"	Connecticut Energy Efficiency Fund
"CSC"	Connecticut Siting Council
"CL&P"	The Connecticut Light & Power Company
"CMEEC"	Connecticut Municipal Electric Energy Cooperative, Inc.
"DSM"	Demand Side Management
"DPUC"	Department of Public Utility Control
"EDC"	Electric Distribution Company
"ERO"	Electric Reliability Organization
"FCA"	ISO-NE Forward Capacity Auction
"FCM"	ISO-NE Forward Capacity Market
"FERC"	Federal Energy Regulatory Commission
"FLR"	Forecast of Loads and Resources
"FMCC"	Federally Mandated Congestion Charge
"IPR"	Intermittent Power Resource
"IRP"	Integrated Resource Plan
"ISD"	In-Service Date
"ISO-NE"	Independent System Operator - New England

"kW"	Kilowatt or 1,000 Watts
"MW"	Megawatt or 1,000,000 Watts
"NEEWS"	New England East – West Solution
"NERC"	North American Electric Reliability Corporation
"NTA"	Non-Transmission Alternative
"PA 05-01"	Public Act 05-01, An Act Concerning Energy Independence
"PA 07-242"	Public Act 07-242, An Act Concerning Electricity and Energy Efficiency
"Project 150"	State Program to Procure 150 MW of Class I Renewable Generation Resources
"REC"	Renewable Energy Certificate
"RGGI"	Regional Greenhouse Gas Initiative
"RPS"	Renewable Portfolio Standards
"RSP"	ISO-NE's Regional System Plan
"SWCT"	ISO-NE Southwest Connecticut Zone
"UI"	The United Illuminating Company
"WMECO"	Western Massachusetts Electric Company

Chapter 1: INTRODUCTION

1.1 Overview of CL&P's 2010 Forecast of Loads and Resources Report

The Connecticut Light & Power Company ("CL&P") is a company engaged in electric distribution and transmission services in Connecticut, as defined in Conn. Gen. Stat. §16-1. As such, CL&P has prepared this Ten-Year Forecast of Loads and Resources ("FLR") pursuant to Conn. Gen. Stat. §16-50r. CL&P has provided an annual FLR to the Connecticut Siting Council ("CSC") for over thirty years. This 2010 FLR includes the following information.

1. A tabulation of the peak loads, resources, and margins for each of the next ten years, using CL&P's 50/50 financial forecasting methodology.
2. Data on energy use and peak loads for the five preceding calendar years, including data on the energy savings provided by CL&P's Conservation and Load Management Programs ("C&LM") during that period.
3. A list and discussion of planned transmission lines on which proposed route reviews are being undertaken or for which certificate applications have already been filed.
4. For each generating facility that generated more than one megawatt from which CL&P purchased power, a statement of the name, location, size, type of the generating facility, fuel consumed by the facility, and the by-product of the consumption.

1.2 Energy and Peak Demand Forecasts

There is uncertainty in any forecast, and even more so this year because of the recession; however, the impact of the recession on the long-run peak demand forecast is expected to be minimal. CL&P's electric energy usage is expected to increase by 0.2% per year and peak demand is expected to grow by 1.4% per year over the 10-year forecast period from 2010 through 2019. It should be noted that weather can have a large impact on any forecast.

While energy and peak demand are growing in Connecticut, the electric distribution companies' ("EDC") 2010 Integrated Resource Plan ("IRP") explored various future generation resource scenarios in Connecticut and found a surplus of generation over the same ten-year period.

While CL&P is providing its forecast developed for financial forecasting purposes and included in its rate case filed at the DPUC in January 2010, CL&P uses ISO-NE's load forecast for transmission planning purposes. Further discussion of CL&P's forecast is provided in Chapter 2.

1.3 Evolving Load and Resource Influences

As part of the state's restructuring of the electric industry, which began in 1998, CL&P was ordered to sell its generation assets, while remaining a Connecticut electric distribution and transmission company. Since that time, the state has enacted a number

of policies and programs which affect the developing wholesale electric market in the region.

State Mandated Integrated Resource Planning

In 2007, the Connecticut legislature passed PA 07-242, *An Act Concerning Electricity and Energy Efficiency ("PA 07-242")*, directed the annual development of an integrated resource plan ("IRP") for Connecticut[1]. CL&P and The United Illuminating Company ("UI") along with their consultant, and with input from the CEAB, the Connecticut Department of Environmental Protection and other parties, submitted their third annual IRP to the CEAB, dated January 1, 2010. As of the date this report was printed, the CEAB was reviewing the 2010 IRP and was expected to forward its findings in a "Procurement Plan" to the DPUC in April 2010. The DPUC will render a decision on the CEAB's and the EDCs' recommended actions in mid-2010. The 2010 IRP's seven primary findings are noted below, as well as being noted in each of the following three chapters, further explaining its relationship to capacity planning (Chapter 2, Section 2), C&LM programs (Chapter 3) and Transmission planning (Chapter 4).

Seven Primary Findings from the EDCs' 2010 IRP (page I-3)....

1. Assuming the New England states are successful in building enough new renewable generation and associated transmission to meet RPS requirements, there should be no need for any additional generating resources for resource adequacy purposes over the next ten years under a wide range of demand uncertainty.

2. Predicated on reasonable assumptions regarding supply and demand and transmission, Connecticut has sufficient generation installed or under contract to assure locational resource adequacy requirements for reliability over the next 10 years, even if significant uneconomic, high-emissions generating plants retire.

3. Due primarily to the effects of RPS and climate legislation, power supply-related costs are expected to increase from 11¢/kWh today and in 2013 to nearly 14¢/kWh in 2020 (in 2010 dollars) under expected supply and demand and moderate fuel and emissions costs.

4. A targeted expansion of DSM programs beyond those currently planned can lead to significant reductions in emissions and costs. It is anticipated that the additional program costs would be more than offset by a reduction in generation service costs and rates.

.....continued on next page.....

[1] In 2009, the Connecticut Legislature amended the IRP statute to require an IRP filing every even numbered year, instead of every year.

...continued from previous page....

5. For New England to meet each respective state's 2020 Class 1 renewable portfolio requirements, New England needs to add about 4,800 MW (nameplate) of new renewable generation, primarily wind, that will be located in areas distant from load centers that would require investments of approximately $20 billion in new renewable generation and about $10 billion of investment in transmission resources to access this new renewable generation.

6. Assuming the Class 1 renewable generation buildout and continuation of the Connecticut DSM measures, New England's CO2 emissions, NOX emissions, and SO2 emissions in 2020 will be substantially below 2007 actual levels.

7. New England electric energy prices are highly dependent on the price of natural gas. It is expected that the large supply of economically recoverable shale gas, which can be found as close to New England as New York and Pennsylvania, may allow natural gas prices to remain moderate and may thereby help to moderate energy prices.

ISO-NE Wholesale Electric Markets and State Procurement of Generation Resources

Section 2.3 of this report discusses the results of the most recent forward capacity auction in the ISO-NE wholesale electricity market. In addition, Connecticut has taken action to procure renewable, peaking and capacity resources through state run solicitations for these resources that result in contracts for electric product sales to the EDCs. The state oversees the procurement processes, including determination of what resources to procure and in what amounts. The EDCs then enter into and administer these contracts for these resources with the State's selected electric suppliers (see Section 2.2).

To date, the state has passed legislation requiring the EDCs to enter into contracts with suppliers for about 150 megawatts ("MW") of renewable resources, 787 MW of capacity resources and 506 MW of peaking generation resources, all of which supply electric products to the ISO-NE markets and subsequently Connecticut customers. As of the date of this report, three projects contracted to the EDCs to provide capacity resources (Waterside Power, Waterbury Generation and Ameresco) have begun performing and other projects with contracts with the EDCs from state procurements are in the late stages of development.

Conservation and Load Management Programs

For many years, CL&P has been developing and implementing nationally recognized Conservation and Load Management ("C&LM") programs for its customers to help them control their energy usage, save money and reduce overall electric consumption in the state. These successful programs are primarily funded by a 3 mil per kWh charge on customer bills, as well as revenues received from Regional Greenhouse Gas Initiative

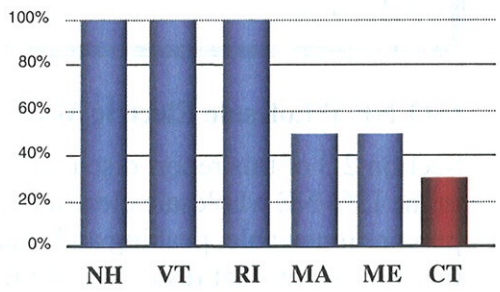
("RGGI") auctions and the sale of Renewable Energy Credits ("REC") Additional funding for C&LM programs would result in increased customer savings and reduced customer electric consumption, while legislative actions that may take funding away from the C&LM programs would reduce the opportunity for customers to save money and would alter the forecasted energy savings of these programs. Further discussion of CL&P's C&LM program forecast can be found in Chapter 3.

Overview of Transmission Planning

A detailed discussion of CL&P's transmission forecast can be found in Chapter 4. CL&P plans, builds and operates transmission infrastructure with a long-term vision to safely and reliably deliver power to its customers, under a wide variety of supply and demand conditions.

- CL&P is responsible to meet the reliability standards managed by NERC and overseen by FERC, and faces severe financial penalties of up to $1 million per day for *each* non-compliance occurrence.
- Among all the New England states, Connecticut is the least able to serve peak load using power imports.
- Connecticut imports are currently limited by its transmission system to a range with an upper level of approximately 2,500 MWs – about 30% of the state's peak load.
- Consequently, at least 70% of the electric power needed to serve customer peak demand must be generated in Connecticut.

Percentage of Peak Load that Could Be Served by Transmission Imports



Note: Chart uses approximate values based on known interface limits.

- Regional environmental requirements such as RPS and RGGI may necessitate looking beyond New England for low-emissions and renewable resources.
- Potential Federal legislation restricting the output of "greenhouse gasses" may lead to a change in the generation mix in Connecticut. Resource adequacy and reliability along with the uncertainty in Connecticut environmental mandates and future affect on generator locations as a result of renewables integration and air/water constraints will play a key role in the future.
- The potential to develop large quantities of renewable resources, like solar, wind and hydro power, are very low in Connecticut, but wind and hydro power have greater development probability in northern New England and Canada.
- The prospect of transporting renewable energy from northern New England and Canada to New England is particularly promising. Northeast Utilities, the parent company of CL&P, is currently developing a transmission project with NSTAR and Hydro-Quebec that would enable imports of up to 1,200 MW of low-carbon power generation from Canada.

Chapter 1 Review

Despite the complicated mix of the recession, market pressures and market participants - much different from the landscape when the legislature originally mandated the utility companies to provide an annual FLR - Connecticut is expected to see a moderate rise in electric energy consumption and peak demand over the forecast period, but is not expected to see a lack of generation resources. While CL&P's 2010 FLR indicates that there will be adequate generation resources for the forecast period, possible generation changes prompted by future environmental regulations will require a robust, flexible transmission system to reliably provide electric service to customers. CL&P will discuss in this report its efforts to build and maintain a reliable transmission system for delivering renewable energy to its customers and the region.

Chapter 2: FORECAST OF LOADS AND RESOURCES

Chapter Highlights

- There is uncertainty in any forecast, and even more so this year because of the recession.
- Although electric energy usage is expected to increase by 0.2% per year over the 10-year forecast period, peak demand is expected to grow by 1.4% per year during this time.
- While CL&P uses its own Reference Plan Forecast for financial forecasting, the Company uses ISO-NE's load forecast for transmission planning purposes.

2.1 Electric Energy and Peak Demand Forecast

The energy and peak demand forecasts contained in this chapter are based on the Company's budget forecast, which was prepared in August 2009, and are based on CL&P's total franchise area. The base case or 50/50 case is also referred to as the Reference Plan Forecast. The forecast excludes wholesale sales for resale and bulk power sales. CL&P's Reference Plan *Energy* Forecast is based on the results of econometric models, adjusted for CL&P's forecasted C&LM programs and the projected reductions resulting from distributed generation ("DG") projects developed in accordance with Public Act 05-01, *An Act Concerning Energy Independence* ("PA 05-01"). The C&LM program savings used in the energy forecast were the preliminary savings projections developed in 2009 for the Company's budget forecast. They do not exactly match the updated C&LM savings projections that were used in the 2010 IRP that are shown in Chapter 3 of this report, however, the differences between the two projections are not significant.

The Reference Plan *Peak Demand* Forecast is based on an econometric model that uses energy as a trend variable, thus, the reductions for C&LM and DG are implicitly included. The results of the econometric model are adjusted for projected reductions due to ISO-NE's load response program.

The Reference Plan Forecast is used for CL&P's financial planning, but it is not used for transmission planning. As ISO-NE is responsible for regional transmission planning and reliability, it independently develops its own forecast which CL&P utilizes to plan and construct its transmission system. Section 2.1.3 discusses ISO-NE's forecast in general terms and how it conceptually compares to CL&P's forecast.

The Reference Plan *Energy* Forecast projects a weather-normalized compound annual growth rate ("CAGR") for total electrical energy output requirements of 0.2% for CL&P from 2009-2019. Without the Company's C&LM programs and DG resources, the forecasted energy growth rate would be 1.2%.

The normalized CAGR for summer peak demand in the Reference Plan *Peak Demand* Forecast is forecasted to be 1.4% over the ten-year forecast period. Similarly, if CL&P's C&LM and DG programs, along with the ISO-NE load response programs, were excluded, the CAGR for forecasted peak demand would be 2.3%.

Table 2-1 provides historic output and summer peaks, actual and normalized for weather, for the 2005-2009 period, and forecast output and peaks for the 2010-2019 period. The sum of the class sales for each year, adjusted for company use and associated losses, is the annual forecast of system electrical energy requirements or output. This is the amount of energy which must be supplied by generating plants to serve the loads on the distribution system.

The Reference Plan Forecast is a 50/50 forecast[2] that assumes normal weather throughout the year, with normal peak-producing weather episodes in each season. The forecasted 24-hour mean daily temperature for the summer peak day is 82° Fahrenheit ("F") and is based on the average peak day temperatures from 1977-2006. The Reference Plan Forecast's summer peak day is assumed to occur in July, since this is the most common month of occurrence historically. It should be noted, however, that the summer peak has occurred in June, August and September in some years.

2.1.1 Uncertainty in the Reference Plan Forecast

There is uncertainty in any long-run forecast, because assumptions that are used in the forecast are selected at a point in time. The particular point of time chosen is generally insignificant, unless the forecast drivers are at a turning point. Outlined below are five major areas of uncertainty that are inherent to this forecast.

- The Economy - The Reference Plan Forecast is based on an economic forecast that was developed in August 2009. Business cycles represent normal economic fluctuations which are typically not reflected in long-run trend forecasts because recovery eventually follows recession, although it is difficult to pinpoint when. So while the level of energy or peak demand that is forecasted for any given year of the forecast may be attained a little earlier or later than projected, the underlying trend is still likely to occur at some point and needs to be planned for. When this forecast was developed, in the late summer of 2009, the economy was still in a recession and had not yet hit bottom. In 2010, there are reasons to be cautiously optimistic. Although economists have declared the national recession over because growth in Gross Domestic Product is positive again, the state continues to shed jobs and Connecticut is expected to be one of the last states to come out of recession. Due to the severity of this recession and the sluggishness of the recovery, there is still much uncertainty about economic conditions in the next year or two, and the impact of past or future government funded programs on energy usage, even in the long run.
- DG Monetary Grant Program – This forecast includes modest assumptions about sales reductions resulting from DG projects for which monetary grants have been

[2] A "50/50 forecast" is a forecast that is developed such that the probability that actual demand is higher than the forecasted amount is 50%, and the probability that actual demand is lower than the forecasted amount is also 50%.

requested on or before October 14, 2008[3]. If this program is reinstated, or if customers who have already applied for monetary grants decide not to move forward with their projects, energy usage and peak demand would be different from the forecast.

- Electric Prices - This forecast assumes that total average electric prices will remain fairly stable and that there will be no new price shocks that would cause additional dramatic price-induced conservation similar to what occurred in the 2005 to 2007 period. Also, this forecast makes no adjustments to electric consumption for new pricing structures, such as dynamic peak pricing, which may be on the forecast horizon.
- Electric Vehicles ("EV") – This forecast does not include any explicit additions to load due to electric vehicles. It will take several years to build the required infrastructure and develop the EV market.
- Weather - The Reference Plan Forecast assumes normal weather based on a thirty-year average (i.e., 1977-2006) of heating and cooling degree days. The historical peak day 24-hour mean temperatures range from 74° F to 88° F, with deviations from the average peak day temperatures being random, recurring and unpredictable occurrences. For example, the lowest peak day mean temperature occurred in 2000, while the highest occurred in 2001. This variability of peak-producing weather means that over the forecast period, there will be years when the actual peaks will be significantly above or below the forecasted peaks.

Despite the inherent risks outlined above, the Company believes its current forecast to be the best possible given the information and tools available today.

2.1.2 Forecast Scenarios

Table 2-1 contains scenarios demonstrating the variability of peak load around the 50/50 peak forecast due to weather. The table shows that weather has a significant impact on the peak load forecast with variability of approximately 10%, or 700 MWs, above and below CL&P's 50/50 forecast, which is based on normal weather. To illustrate, the 2019 summer peak forecast reflecting average peak-producing weather is 5,678 MWs. However, either extremely mild or extremely hot weather for the entire forecast period could result in a range of potential peak loads from 4,973 MWs to 6,292 MWs. This 1,319 MWs of variation, which is a band of approximately plus or minus 10% around the average, demonstrates the potential impact of weather alone on forecasted summer peak demand.

Extremely hot weather is equally unpredictable, yet the impact is immediate. A hot day in the first year of the forecast that matches the extreme peak day weather in 2001 could produce peak demand almost as high as the forecast for the seventh year under normal weather assumptions. Even a moderately hot day, such as experienced on the 2005 peak day, could increase peak demand by approximately 125 MWs.

[3] On March 18, 2009, the DPUC issued a final decision in Docket No. 05-07-17RE02 which suspended the grant program indefinitely. Projects that had submitted an application prior to October 14, 2008 were still eligible for grants.

The Extreme Hot Weather scenario roughly corresponds conceptually to ISO-NE's 90/10 forecast, described in Section 2.1.3.

2.1.3 ISO-NE Demand Forecasts

The CSC's 2008 Review of the Ten-Year Forecast of Loads and Resources provides a concise description of the ISO-NE's "90/10" forecast used by CL&P for transmission planning purposes. A relevant excerpt is provided below.

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. Page 6.

As CL&P has reported in the past, there is one other major difference between the CL&P and ISO-NE forecasts, aside from the difference between the 50/50 forecast methodology used by CL&P and the 90/10 forecast methodology used by ISO-NE. The CL&P demand forecasts include explicit reductions in the energy forecast for the Company's C&LM programs and DG resources and explicit reductions in the peak demand forecast for ISO-NE's Load Response program, while the ISO-NE demand forecasts do not include these reductions; instead, ISO-NE considers C&LM, Load Response and DG to be supply resources in their capacity forecast.

Table 2-2 shows CL&P's Reference Plan Forecast with savings from CL&P's C&LM programs, DG and ISO-NE's Load Response program added back in to make it easier to compare CL&P's forecast with ISO-NE's forecast.

Table 2-1: CL&P 2010 Reference Plan Forecast

	Net Electrical Energy Output Requirements		Reference Plan (50/50 Case)			Extreme Hot Scenario			Extreme Cool Scenario		
Year	Output	Annual Change	Peak	Annual Change	Load Factor	Peak	Annual Change	Load Factor	Peak	Annual Change	Load Factor
	GWh	(%)	MW	(%)	(2)	MW	(%)	(2)	MW	(%)	(2)
HISTORY											
2005	26119		5402		0.552						
2006	24871	-4.8%	5512	2.0%	0.515						
2007	25185	1.3%	5209	-5.5%	0.552						
2008	24485	-2.8%	5289	1.5%	0.527						
2009	23363	-4.6%	4873	-7.9%	0.547						
Compound Rates of Growth (2005-2009)											
	-2.7%		-2.5%								
HISTORY NORMALIZED FOR WEATHER											
2005	25498		5277		0.552						
2006	24926	-2.2%	5084	-3.6%	0.560						
2007	24936	0.0%	5209	2.5%	0.546						
2008	24467	-1.9%	5184	-0.5%	0.537						
2009	23734	-3.0%	4935	-4.8%	0.549						
Compound Rates of Growth (2005-2009)											
	-1.8%		-1.7%								
FORECAST											
2010	23528	-0.9%	4853	-1.7%	0.553	5467	10.8%	0.491	4148	-15.9%	0.647
2011	23485	-0.2%	4959	2.2%	0.541	5573	1.9%	0.481	4255	2.6%	0.630
2012	23663	0.8%	5064	2.1%	0.532	5678	1.9%	0.474	4360	2.5%	0.618
2013	23752	0.4%	5173	2.1%	0.524	5786	1.9%	0.469	4468	2.5%	0.607
2014	23785	0.1%	5290	2.3%	0.513	5904	2.0%	0.460	4585	2.6%	0.592
2015	23840	0.2%	5401	2.1%	0.504	6015	1.9%	0.452	4697	2.4%	0.579
2016	23965	0.5%	5430	0.5%	0.502	6044	0.5%	0.451	4725	0.6%	0.577
2017	23980	0.1%	5511	1.5%	0.497	6125	1.3%	0.447	4806	1.7%	0.570
2018	24064	0.4%	5596	1.5%	0.491	6210	1.4%	0.442	4891	1.8%	0.562
2019	24154	0.4%	5678	1.5%	0.486	6292	1.3%	0.438	4973	1.7%	0.554
Compound Rates of Growth (2009-2019)											
	0.3%		1.5%			2.6%			0.0%		
Normalized Compound Rates of Growth (2009-2019)											
	0.2%		1.4%			2.5%			-0.1%		

1. Sales plus losses and company use.
2. Load Factor = Output (MWh) / (8760 Hours X Season Peak (MW)).

Forecasted Reference Plan Peaks are based on normal peak day weather (82° mean daily temperature). Forecasted High Peaks are based on the weather that occurred on the 2001 peak day (88° mean daily temperature). Forecasted Low Peaks are based on the weather that occurred on the 2000 peak day (74° mean daily temperature).

Table 2-2: Adjustments to Output and Summer Peak Forecasts

Net Electrical Energy Output Requirements

Year	Unadjusted Output GWH	Distributed Generation GWH	Company Sponsored C&LM GWH	ISO-NE Load Response GWH	Adjusted Output GWH	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2009					23,734	
FORECAST						
2010	24,031	(404)	(98)	-	23,528	-0.9%
2011	24,352	(483)	(385)	-	23,485	-0.2%
2012	24,794	(485)	(647)	-	23,663	0.8%
2013	25,120	(485)	(883)	-	23,752	0.4%
2014	25,374	(485)	(1,104)	-	23,785	0.1%
2015	25,639	(485)	(1,315)	-	23,840	0.2%
2016	25,968	(485)	(1,519)	-	23,965	0.5%
2017	26,180	(485)	(1,716)	-	23,980	0.1%
2018	26,450	(485)	(1,902)	-	24,064	0.4%
2019	26,721	(485)	(2,083)	-	24,154	0.4%
Normalized Compound Rates of Growth (2009-2019)						
	1.2%				0.2%	

Reference Plan (50/50 Case)

Year	Unadjusted Peak MW	Distributed Generation MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2009					4,935	
FORECAST						
2010	5,087	(35)	(13)	(186)	4,853	-1.7%
2011	5,239	(41)	(52)	(186)	4,959	2.2%
2012	5,380	(42)	(88)	(186)	5,064	2.1%
2013	5,521	(41)	(121)	(186)	5,173	2.1%
2014	5,670	(41)	(153)	(186)	5,290	2.3%
2015	5,813	(41)	(184)	(186)	5,401	2.1%
2016	5,871	(41)	(214)	(186)	5,430	0.5%
2017	5,981	(41)	(242)	(186)	5,511	1.5%
2018	6,093	(41)	(270)	(186)	5,596	1.5%
2019	6,203	(41)	(297)	(186)	5,678	1.5%
Normalized Compound Rates of Growth (2009-2019)						
	2.3%				1.4%	

Extreme Hot Weather Scenario

Year	Unadjusted Peak MW	Distributed Generation MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2009					4,935	
FORECAST						
2010	5,700	(35)	(13)	(186)	5,467	10.8%
2011	5,852	(41)	(52)	(186)	5,573	1.9%
2012	5,994	(42)	(88)	(186)	5,678	1.9%
2013	6,135	(41)	(121)	(186)	5,786	1.9%
2014	6,284	(41)	(153)	(186)	5,904	2.0%
2015	6,427	(41)	(184)	(186)	6,015	1.9%
2016	6,485	(41)	(214)	(186)	6,044	0.5%
2017	6,594	(41)	(242)	(186)	6,125	1.3%
2018	6,707	(41)	(270)	(186)	6,210	1.4%
2019	6,816	(41)	(297)	(186)	6,292	1.3%
Normalized Compound Rates of Growth (2009-2019)						
	3.3%				2.5%	

1. Sales plus losses and company use.
2. Load Factor = Output (MWH) / (8760 Hours X Season Peak (MW)).

2.2 Resources: Existing and Planned Generation Supply

General Connecticut Capacity Picture

Table 2-3 provides a current snapshot of Connecticut's supply-side capacity resources based on fuel type and age, per ISO-NE documents and the Connecticut 2010 IRP. Table 2-3 includes both existing supply side resources and those under contract to be built.

CL&P Specific Capacity Picture

CL&P does not own generation as a result of the restructuring of the electric industry in Connecticut that began in 1998.

Ongoing Generation Purchase Obligations

The Company purchases generation under a number of power-purchase agreements. CL&P also purchases generation from customers who choose to provide supply to the grid through the use of Rate 980. Rate 980 is a CL&P tariff that allows customer-owned generation to be sold to CL&P at prices derived from the ISO-NE wholesale energy market. CL&P does not use any of the foregoing purchases to serve load but rather uses them in the ISO-NE wholesale market to offset contract cost obligations.

Project 150

Over the last seven years, the EDCs have entered into long-term purchase power agreements with Class I renewable energy resource projects, in cooperation with the CCEF and under the direction of the DPUC. Conn. Gen. Stat. §16-244c directed that such agreements should be comprised of not less than a total of 150 MW, and the DPUC program to procure these renewable resources is commonly known as "Project 150". Both CL&P and UI are responsible for compensating Project 150 suppliers through a DPUC-approved Cost Sharing Agreement. CL&P incurs approximately 80% of the costs and receives approximately 80% of the benefits derived from Project 150 energy purchase agreements ("EPAs").

Table 2-4 lists the projects that are currently under long-term contracts in Project 150 and denotes their planned capacity and the estimated date the projects plan to begin operation.

Table 2-3
Summer Seasonal Claimed Capabilities for Existing and Contracted Connecticut Capacity Sorted by Fuel Supply and Age

Fuel Supply (first type is primary, second type is alternate)

Age	Nuclear	Natural Gas	Residual Oil	Residual Oil / Natural Gas	Oil / Gas / Light Oil	Coal / Residual Oil	Coal	Light Oil	Natural Gas / Light Oil	Water	Other	Total
Under contract to be built		1,166									133	1,299
<= 10 years old		228	72		686			60				1,046
<= 20 years old		579						12	48	2	61	702
<= 30 years old	1,233						187	14	55	21	134	1,644
<= 40 yeas old	869		823	448				149				2,289
<= 50 years old			460	236		383		163				1,242
Greater than 50 years old				198						112		310
Total	2,102	1,973	1,355	882	686	383	187	398	103	135	328	8,532

Sources / Notes

(1) Existing unit ratings from January 2010 ISO-NE seasonal claimed capability report at: http://www.iso-ne.com/genrtion_resrcs/snl_clmd_cap/2010/scc_january_2010.xls

(2) Under contract to be built unit ratings for Project 150 MWs from this section, rest from 2010 Electric Distribution Companies' (EDC) Integrated Resource Plan (IRP) filing with the Connecticut Energy Advisory Board (CEAB) at: http://www.ctenergy.org/pdf

(3) Existing unit in-service dates from 2009 ISO-NE CELT report at: http://www.iso-ne.com/trans/celt/report/2009/2009_celt_report_in_spreadsheet_posted-version.xls

(4) Under contract to be built in-service dates for Project 150 MWs from this section, rest from 2010 EDC IRP filing with CEAB

(5) Other fuel includes resources whose primary fuel is wind, tires, biomass, refuse, landfill gas or wood.

(5) Lake Road units 1 through 3, 745 summer MWs are physically but not electrically in Connecticut and so are not part of the table. The 2010 EC IRP filed with CEAB indicates that post-NI these resources would likely be considered electrically in Connecticut. These units are less than ten years old, their primary fuel is natural gas and their alternative fuel is oil.

Table 2-4: Renewable Generation Projects Selected In Project 150

Round	Project (Location)	Project Amount (MW)	Contract Amount (MW)	Est. In-Service Year	Term
1	Watertown Renewable Power, LLC (Watertown, CT)	27.3	15	2013	15
2	DFC-ERG Milford Project (Milford, CT)	9	9	2010	18
2	South Norwalk Electric Works (South Norwalk, CT)	35.5	30	2011	15
2	Plainfield Renewable Energy (Plainfield, CT)	37.5	30	2012	15
2	Clearview Renewable Energy, LLC (Bozrah, CT)	30	30	2011	20
2	Stamford Hospital Fuel Cell CHP (Stamford, CT)	4.8	4.8	2011	15
2	Clearview East Canaan Energy, LLC (North Canaan, CT)	3	3	2010	20
2	Waterbury Hospital Fuel Cell CHP (Waterbury, CT)	2.4	2.4	2011	15
3	Cube Fuel Cell (Danbury, CT)	3.36	3.36	2011	20
3	DFC-ERG Glastonbury	3.4	3.4	2011	20
3	DFC-ERG Trumbull	3.4	3.4	2011	20
3	DFC-ERG Bloomfield	3.65	3.65	2011	20
3	Bridgeport Fuel Cell Park	14.93	14.93	2011	15

Although the Project 150 generating facilities have contracts with the EDCs, and CL&P is responsible for 80% of their costs and benefits, they are not included in this report's supply tables since CL&P does not anticipate acting as Lead Market Participant for them in the ISO-NE wholesale markets. CL&P believes each project owner has an obligation under this proceeding's enabling statute to report on its project directly to the CSC. CL&P will revisit whether to include these resources in the supply tables in annual filings after they have been placed in-service and reporting responsibilities have been better defined.

Peaking Generation Contracts

PA 07-242 required the state's two publicly owned electric utilities, as well as other interested entities, to submit a proposal to the DPUC to build peaking generation facilities. While CL&P's two proposals were not chosen in the DPUC's solicitation of peaking generation, CL&P is the contractual counter parties to the three selected projects and through a cost sharing agreement with UI is responsible for 80% of the costs. The three selected projects provide a total of 506 MW of peaking generation capacity. CL&P will not receive any of the projects' electricity products nor represent the projects in the ISO-NE markets – it is the responsibility of the owners of the winning projects to provide their services to the market. CL&P will not include these projects in its annual filings.

Capacity Contracts

In the DPUC's Docket No. 05-07-14PH02 *DPUC Investigation of Measures to Reduce Federally Mandated Congestion Charges (Long Term Measures)* the DPUC selected a portfolio of four projects to provide capacity and reduce FMCCs. The winning portfolio constituted a total maximum capacity of 787 MW and consisted of one 620 MW new combined cycle gas-fired baseload plant in Middletown offered by Kleen Energy, a 66 MW peaking plant located in the constrained Southwest Connecticut region (Stamford) offered by Waterside Power, one 96 MW new peaking unit also located in Southwest Connecticut (Waterbury) offered by Waterbury Generation LLC, and one state-wide 5 MW energy efficiency program offered by Ameresco.

UI is the counterparty to both the Waterbury Generation and Ameresco contracts, while CL&P is the counterparty to the Waterside Power and Kleen Energy contracts. CL&P is responsible for 80% of all the costs for all four projects and UI the remaining 20%. All projects have met their planned in-service dates and are in commercial operation, with the exception of Kleen Energy. Kleen Energy's original proposed commercial operation date was November 30, 2010. A physical plant emergency occurred at the site of the Kleen Energy facility on February 7, 2010. As of the publication date of this report CL&P was not aware of any public assessment as to what impact the physical plant emergency would have on the start of commercial operation.

2.2.1 Capacity Forecast

The capacity tables in this chapter provide estimates of CL&P's supply resources for which it has ownership or purchase entitlement interests at present and will maintain such interests during the 2010-2019 forecast period. All resources have winter and summer ratings in MWs, reflecting the effects of varying seasonal conditions, such as ambient air and water temperatures, on unit ratings. Starting with the ISO-NE Forward Capacity Market ("FCM") capacity commitment period of June 2010 through May 2011, capacity obligations will be measured and met using principally only summer-rated capacity. Winter-rated capacity can be compensated in the FCM in two ways: 1) resources with winter ratings greater than their summer ratings may partner with resources having summer ratings greater than their winter ratings to meet capacity obligations; or 2) intermittent power resources ("IPR") are paid for their winter rated capacity. Resources contractually obligated to sell all their output to utilities under PURPA are considered IPRs. In order to provide the CSC with a complete picture of Connecticut's generation capacity, winter ratings will continue to be provided in this annual report.

2.2.2 Existing Resources and Planned Generation Resource Additions, Deactivations or Retirements

Table 2-5 lists existing supply resources in which CL&P has ownership or entitlement interests for winter 2009/2010 and summer 2010. This table lists CL&P's supply resources based on ownership or entitlement, arranged by: Base Load, Intermediate, Peaking, Pumped Storage, Hydroelectric, and Purchases categories.

Table 2-5: Generation Facilities in Which CL&P Has Ownership or Entitlement by Category

	WINTER RATING (MW)	SUMMER RATING (MW)	YEAR INSTALLED	LOCATION	% ENTITLEMENT CL&P
	2009/10	2010			
Base					
Vermont Yankee	49.59	47.72	1972	Vernon, VT	7.897
Nuclear Subtotal	49.59	47.72			
Intermediate	0.00	0.00			
Peaking	0.00	0.00			
Pumped Storage	0.00	0.00			
Hydro	0.00	0.00			
Purchases					
System	0.00	0.00			
Non-Utility	365.13	357.51			
Purchase Total	365.13	357.51			
Total Generation	414.72	405.23			

Base-load units are typically operated around the clock, intermediate units are those used to supply additional load required over a substantial part of the day, and peaking units supply power usually during the hours of highest demand. On occasion, some of the more efficient intermediate units operate as base-load units, while others may be called upon to operate as peaking capacity. Accordingly, these categories are intended to be generally descriptive rather than definitive, and reflect past operating patterns.

2.2.3 Ten-Year Capacity Forecast

Tables 2-6 and 2-7 summarize the ten-year capacity forecast for supply resources in which CL&P will have ownership or entitlement interest during the summer and winter peak periods from 2010 through 2019. The tables show CL&P's reserve margin expressed in MWs. Reserve margins decline over time, reflecting the ends of purchase power agreements. CL&P does not know with certainty that these resources will continue to operate as merchant generators once their contracts with CL&P end. However, with respect to these resources, the 2010 IRP assumes they will continue to operate.

Table 2-6

2010 - 2019 Summer Forecast of Capacity (MW) at the Time of Summer Peak

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SUPPLY BEFORE SALES OR EXCHANGES	405.23	357.48	348.71	248.29	248.29	248.29	47.47	44.47	24.91	24.91
CAPACITY SALES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET GENERATION AVAILABLE	405.23	357.48	348.71	248.29	248.29	248.29	47.47	44.47	24.91	24.91
RESERVE	405.23	357.48	348.71	248.29	248.29	248.29	47.47	44.47	24.91	24.91

Table 2-7

2009/10 - 2018/19 Summer Forecast of Capacity (MW) at the Time of Winter Peak

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
SUPPLY BEFORE SALES OR EXCHANGES	414.72	414.72	358.21	358.21	251.29	251.29	237.18	50.47	47.47	26.99
CAPACITY SALES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET GENERATION AVAILABLE	414.72	414.72	358.21	358.21	251.29	251.29	237.18	50.47	47.47	26.99
RESERVE	414.72	414.72	358.21	358.21	251.29	251.29	237.18	50.47	47.47	26.99

Resource Purchases

Table 2-8 provides a listing of existing cogeneration and small power production facilities 1 MW and greater located in Connecticut from which CL&P purchased power in 2009. The winter and summer claimed capacity of the generation at each production facility is shown in this table.

TABLE 2-8

EXISTING CUSTOMER OWNED FACILITIES 1 MW AND ABOVE
PROVIDING GENERATION TO THE NORTHEAST UTILITIES SYSTEM

EXISTING & PROVIDED GENERATION TO CL&P DURING 2009

Project Name	Location	(1) Facility Type	Fuel Source	By-Product of Fuel Consumption	Estimated Capacity kW	Max Claimed Capability Winter	Max Claimed Capability Summer
FACILITIES UNDER LONG TERM CONTRACT (2)							
AES	Montville, CT	COGEN	Coal	Steam	181,000	186,705	186,705
Algonquin(Dexter)	Windsor Locks, CT	COGEN	Gas	Steam	39,000	47,741	47,741
Derby Dam	Shelton, CT	SPP	Hydro	-	6,900	7,050	7,050
Goodwin Dam	Hartland, CT	SPP	Hydro	-	3,294	3,000	3,000
Colebrook	Colebrook, CT	SPP	Hydro	-	3,000	1,550	1,550
Quinebaug	Danielson, CT	SPP	Hydro	-	2,161	1,298	307
Kinneytown B	Seymour, CT	SPP	Hydro	-	1,500	1,510	585
Mid-CT CRRA(So. Meadow 5/6)	Hartford, CT	SPP	Refuse	-	67,000	57,326	52,709
Preston (SCRRRA)	Preston, CT	SPP	Refuse	-	13,850	17,420	17,420
Bristol RRF	Bristol, CT	SPP	Refuse	-	13,200	14,115	14,115
Lisbon	Lisbon, CT	SPP	Refuse	-	13,500	14,812	14,812
Wallingford RRF	Wallingford, CT	SPP	Refuse	-	7,100	8,770	8,770
Hartford Landfill	Hartford, CT	SPP	Methane	-	2,445	1,893	1,893
					353,950	**363,190**	**356,657**
FACILITIES NOT UNDER LONG TERM CONTRACT (3)							
Pratt & Whitney	E. Hartford, CT	COGEN	Gas	Steam	23,800	N/A	N/A
Rainbow (Farmington River Power)	Windsor, CT	SPP	Hydro	-	8,200	N/A	N/A
Ten Co./The Energy Network	Hartford,CT	COGEN	Gas	Steam	4,500	N/A	N/A
WM Renewable	New Milford,CT	SPP	Methane	-	2,223	N/A	N/A
					38,723	**0**	**0**
				TOTAL EXISTING	**392,673**	**363,190**	**356,657**

(1) "SPP" Denotes a Small Power Producer, "COGEN" Denotes a Cogenerator.
(2) Estimated Capacity Represents Contracted Capacity.
(3) Estimated Capacity Represents Estimated Installed Capacity.

2.3 Generation Capacity Considerations

Although CL&P no longer owns or operates generation, it continues to have a responsibility to ensure the reliability of the electric system to deliver power to customers. Two important developments since the advent of the deregulated electric industry in Connecticut, the IRP and the ISO-NE FCM, play roles in planning for supply resources in the state.

Integrated Resource Plan for Connecticut

The 2010 IRP concluded that Connecticut will not need to add new capacity to supply capacity needs under a wide range of scenarios for the next ten years. This conclusion was based on a set of assumptions, including: retirements; the continued funding of C&LM initiatives at current levels; new resources contracted by the DPUC in recent dockets come on-line as planned, including 506 MWs of peaking generation (see Section 2.2); and the completion of the NEEWS transmission projects. The 2010 IRP developed a Base Case, predicated on a number of assumptions, that found that 1,504 MW of capacity retired by 2020. Depending on the 2010 IRP's scenarios, retirements were as low as 858 MW and as

high as 1,904 MW by 2020. The foregoing retirements were based on a retirement study done as part of the 2010 IRP effort that looked at going-forward costs and costs to comply with possible future emission requirements developed in consultation with the Connecticut Department of Environmental Protection and compared to net energy and capacity revenues.

ISO-NE Forward Capacity Market

ISO-NE conducted its third Forward Capacity Auction ("FCA") in October 2009 in which 43,415 MW of new and existing demand-side and supply-side resources competed to provide 31,965 MWs needed for reliability between June 2012 and May 2013. The FCA consisted of seven rounds, starting at a price of $9.84/kW-mo. Bidding in the final round reached the minimum price established for this auction at $2.951/kW-mo, with 5,031MW of excess internal New England generation resources remaining. [Note: the excess generation does not include 30 MW of real-time emergency generation that cleared surplus to the 600 MW allotment for real-time emergency generation under the capacity market rules.]

Chapter 3: CONSERVATION AND LOAD MANAGEMENT

Chapter Highlights

- CL&P collaborates with consultants and organizations in the development of nationally-recognized energy-efficiency and load management programs.
- Energy and Demand savings resulting from Connecticut Energy Efficiency Fund ("CEEF") programs are a cost-effective resource available to Connecticut customers.
- CEEF programs maximize the amount of energy-efficiency monies available to customers by leveraging a variety of funding sources.
- The 2010 IRP recommends a targeted expansion of C&LM programs beyond those currently planned. The targeted expansion would reduce customer costs and emissions while even reducing rates for non-participants.

Energy efficiency is a cost-effective resource available to policymakers to address rising energy costs and reliability challenges, and to meet the greenhouse gas reduction goals in the Governor's Climate Action Plan. Connecticut's energy-efficiency programs support more than 2,500 jobs and serve as an economic development engine, creating private sector businesses to deliver energy-saving services. Efficiency and load-response programs reduce the amount of energy Connecticut's homes, businesses and schools consume, helping to decrease demands on power plants and the electric grid. This reduces the emissions of nitrous and sulfur oxides, and carbon dioxide, protecting our environment from these air pollutants. In addition to job creation and environmental benefits, energy-efficiency and load-response programs generate hundreds of millions of dollars of lifetime energy savings for electric and natural gas customers.

Since 2000, Connecticut's energy-efficiency programs and policies have received national recognition for their cost-effectiveness and energy savings. In August 2009, the American Council for an Energy-Efficient Economy ranked Connecticut third in the United States, behind California and Massachusetts, on actions the state has taken to adopt and include energy efficiency in its policies.[4] CL&P collaborates with consultants and organizations to develop and administer Connecticut's energy efficiency and load-management programs.

On October 1, 2009, the 2010 Conservation & Load Management Plan ("2010 C&LM Plan") was filed with the DPUC. The 2010 C&LM Plan was a joint electric and natural gas program plan filed by the state's electric distribution companies, CL&P and UI, and natural gas distribution companies, Connecticut Natural Gas Corporation, The Southern Connecticut Gas Company, and Yankee Gas Services Company, in Docket 09-10-03, *DPUC Review of The Connecticut Light and Power Company's and The United Illuminating Company's Conservation and Load Management Plan for Year 2010.* The

[4] American Council for an Energy-Efficient Economy, 2009 State Scorecard, http://www.aceee.org/pubs/e097.htm.

2010 C&LM Plan received input from members of the public, industry groups and private enterprise, and was given final approval from the Energy Conservation Management Board in September 2009. CL&P's budget in the 2010 C&LM Plan is $98.4 million.

Funding for C&LM programs comes from several sources. Since the passage of the state's restructuring legislation in 1999, a 3 mil electric charge has served as the primary funding source.[5] This funding source is known as the Connecticut Energy Efficiency Fund ("CEEF"), which is administered by the state's electric and natural gas utilities. In 2009, C&LM programs received additional funding from new sources including the ISO-NE's FCM, Class III REC revenues, RGGI and the American Recovery and Reinvestment Act of 2009 ("ARRA").

In 2010, the Energy Conservation Management Board, CL&P and UI proposed continuing near-term measures to reduce demand on the electrical grid, and plan to spend an additional $1.4 million to implement demand-response programs focused on reducing FMCCs. This additional funding is expected to supplement ISO-NE demand payments and will continue through May 31, 2010. On June 1, 2010, these supplemental payments will cease and these demand resources will be fully integrated into the ISO-NE Forward Capacity Market.

Connecticut Integrated Resource Plan

PA 07-242 mandated the creation of an IRP that states that "resource needs shall first be met through all available energy efficiency and demand reduction resources that are cost-effective, reliable and feasible." PA 07-242 positioned energy efficiency as a key component of the state's comprehensive energy resource plan and creates the potential for more funding for energy efficiency programs in the future.

The EDCs' 2010 IRP presents how Connecticut customers' needs for capacity and energy, as well as state Renewable Portfolio Standard ("RPS") requirements, can be met while minimizing costs and emissions. The 2010 IRP recommends a targeted expansion of demand-side management ("DSM") programs in Connecticut. Expanding Connecticut DSM programs beyond those currently planned in the 2010 C&LM Plan is predicted to lead to significant reductions in emissions and costs. The 2010 IRP also predicts that the additional program costs incurred will be more than offset by a reduction in generation service costs and rates

3.1 Ten-Year C&LM Forecast

Table 3-1 presents the potential annual energy savings and summer and winter peak-load reductions forecasted for C&LM programs implemented in the CL&P service territory for C&LM program budgets described in the beginning of Chapter 3. Table 3-1 also reflects ten years of projected program activity beginning in 2010. The projected impacts of C&LM programs have been shown as separate line items since the average impact of

[5] Conn. Gen. Stat 16-245m.

energy-efficiency programs is greater than ten years, while load-response activities have a more immediate, short-term impact.

3.2 Forecast Sensitivity

The C&LM programs utilize a complementary mix of lost opportunity, retrofit, and market transformation implementation strategies to achieve savings. The energy savings and peak-load reductions projected in this forecast are sensitive to changes in a number of factors including changes in the electricity marketplace and to customer attitudes.

The most significant variable in determining energy savings is the stability of funding. Projections are based on the continued implementation of a suite of programs similar in nature and focus to the 2010 C&LM Plan[6], Any legislative or regulatory changes in geographic and program focus will produce results which may vary from these projections. In particular, the adoption of the 2010 IRP's recommendation to expand DSM programs in Connecticut would result in increased spending and savings over time.

[6]A variety of funding sources are leveraged in order to support this level of C&LM activity. Since the passage of the State's restructuring legislation in 1999 (Public Act 98-28), a 3 mil electric charge has been the primary funding source for C&LM programs. The 3 mil charge will account for approximately $67.7 million of the C&LM budget in 2010. In addition to the 3 mil charge, demand savings from the C&LM Programs are entered into the FCM. CL&P expects approximately $5.6 million in revenues from the FCM. Energy savings from C&LM activity also generates Class III renewable energy revenues that will support C&LM activity at a level of approximately $2.0 million in 2010. In addition to those sources of C&LM funding, CL&P estimates an additional $17.1 million annually of C&LM revenue from RGGI in 2010. Also included is $4.6 million in funding from ARRA.

Table 3-1: CL&P C&LM Programs Annual Energy Savings and Peak Load Reduction by Customer Class

Connecticut Light and Power 2010 – 2019 GWh Sales Saved

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Residential	35	139	229	299	358	412	465	513	555	595
Commercial	38	150	256	359	458	554	647	738	826	912
Industrial	22	85	144	201	257	311	363	414	464	512
Total GWh Sales Conserved	95	374	629	859	1,073	1,277	1,475	1,665	1,845	2,020

MW Reductions (Passive Resource Summer Impacts)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Residential	4	17	28	38	46	55	63	70	77	84
Commercial	6	24	41	58	74	90	105	119	134	148
Industrial	3	11	18	26	33	40	46	53	59	65
Total	**13**	**52**	**88**	**121**	**153**	**184**	**214**	**242**	**270**	**297**

MW Reductions (Passive Resource Winter Impacts)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Residential	10	40	67	91	112	131	151	169	186	202
Commercial	4	15	26	36	46	56	65	75	83	92
Industrial	2	8	13	19	24	29	33	38	43	47
Total	**16**	**63**	**107**	**145**	**182**	**216**	**249**	**282**	**312**	**341**

Note: This table includes only passive resources. It does not include 186 MW of Load Response demand savings (active resources) which CL&P maintains through the ISO-NE program. The Load Response C&LM supplemental payments are expected to end May 2010. However, ISO-NE FCM payments will continue beyond June 1, 2010.

Chapter 4: TRANSMISSION PLANNING AND SYSTEM NEEDS

Chapter Highlights

- CL&P's transmission facilities are part of the New England regional grid and must be designed, operated and maintained in compliance with mandatory federal and regional reliability standards.
- CL&P is proposing new 345-kV and 115-kV transmission projects to strengthen the Connecticut transmission system.
- The New England transmission system is an important enabler of competitive markets and the region's efforts to meet environmental goals.
- The Connecticut 2010 IRP recognizes that a robust transmission system benefits both generation and load with increased interconnection opportunities and deliverability enhancements.

4.1 Transmission is Planned and Built for the Long Term

Transmission enables varied amounts of generation resources to serve varying load over a long term. The addition of significant amounts of remote renewable generating capacity or the retirement of local generation may increase the need to import more power into Connecticut, and the transmission system may need to be expanded. Transmission is proposed and built to accommodate the future, considering as many scenarios as possible.

4.2 National Reliability Standards are Mandatory

The Federal Energy Policy Act of 2005 required FERC to designate an entity to provide for a system of mandatory, enforceable reliability standards under FERC's oversight. This action is part of a transition from a voluntary to a mandatory system of reliability standards for the bulk-power system. In July 2006, FERC designated the North American Electric Reliability Corporation ("NERC") as the nation's Electric Reliability Organization ("ERO"). The ERO is to improve the reliability of the bulk-power system by proactively preventing situations that can lead to blackouts, such as that which occurred in August 2003.

The Connecticut transmission system is part of the larger NERC Eastern Interconnection and thus subject to the interdependencies of generation, load and transmission in neighboring electric systems. NERC recognizes that the planning and construction of new transmission facilities have become more complex. In 1997, NERC stated the following:

> *The new competitive electricity environment is fostering an increased demand for transmission service. With this focus on transmission and its ability to support*

competitive electric power transfers, all users of the interconnected transmission systems must understand the electrical limitations of the transmission systems and the capability of these systems to reliably support a wide variety of transfers.

The future challenge will be to plan and operate transmission systems that provide the requested electric power transfers while maintaining overall system reliability. All electric utilities, transmission providers, electricity suppliers, purchasers, marketers, brokers, and society at large benefit from having reliable interconnected bulk electric systems. To ensure that these benefits continue, all industry participants must recognize the importance of planning these systems in a manner that promotes reliability.

On March 15, 2007, FERC approved mandatory reliability standards developed by NERC. FERC believes these standards will form the basis to maintain and improve the reliability of the North American bulk power system. These mandatory reliability standards apply to users, owners and operators of the bulk power system, as designated by NERC through its compliance registry procedures. Both monetary and non-monetary penalties may be imposed for violations of the standards. The final rule, "Mandatory Reliability Standards for the Bulk Power System," became effective on June 18, 2007.

4.3 Environmental Requirements May Change over the Next Ten to Twenty Years

New England's electricity sector faces many energy and capacity challenges in the next two decades as it simultaneously attempts to meet reliability needs and environmental requirements, while minimizing economic impacts. Regional environmental requirements such as RPS and RGGI may necessitate looking beyond New England for low-emissions and renewable resources. Today, renewable resources provide only a small portion of New England's energy requirements. However, the New England states, like other regions throughout the nation, are looking to further diversify energy resources and are likely to push to substantially increase renewable resource requirements. In addition, potential Federal legislation restricting the output of "greenhouse gasses" may lead to a change in the generation mix in Connecticut. Uncertainty in Connecticut concerning environmental mandates and the future location of renewable generation will be key factors for resource adequacy and transmission system requirements.

Energy efficiency and demand-side management options will remain important components of New England's resource adequacy. Importing power from Canada would provide significant amounts of low-emission and potential renewable power. A portfolio approach with a mix of New England and Canadian resources could best meet the region's needs. CL&P believes that further development of the portfolio approach could provide significant opportunities for Connecticut and the region.

4.4 The Integrated Resource Plan's Effect on Transmission in Connecticut

The 2010 IRP proposes a process that will provide an efficient and effective means for considering alternatives to transmission system upgrades by integrating Connecticut state

processes with the region-wide planning process administered by ISO-NE. State agencies participating in the regional process will have an opportunity to influence outcomes by monitoring the Regional System Plan and the multiple on-going Connecticut-related transmission studies.

Currently, transmission planning studies (needs assessments and solution studies) are being conducted by ISO-NE and transmission owners, with a focus on the load areas posing the most significant risk to reliability. Many of the studies have been focused on potential near-term solutions but there are also several long-term analyses underway to address potential future concerns. When needs assessments are complete, ISO-NE shares the findings with the ISO-NE Planning Advisory Committee (thereby informing proponents of market resources) and incorporates identified needs into a subsequent Regional System Plan ("RSP").

In November 2009, a collaborative effort between CL&P, UI, ISO-NE and Connecticut state agencies identified ways to improve the process of looking at possible alternatives to new transmission at the beginning of the IRP process, along with specific deliverables for advocates of transmission alternatives that meet established planning criteria. Later that month the DPUC issued a Notice of Request for comments on a "summary of consensus" option regarding non-transmission alternative ("NTA") planning, a DPUC "Straw Proposal" and on remaining issues.

In January 2010 the DPUC held an IRP stakeholder meeting to review their Straw Proposal and discuss how it integrates the Connecticut evaluation of NTAs with the ISO-NE regional system planning process. ISO-NE is the key regional planning authority and assures the reliability of the electric system in New England. It was described that the DPUC should play a crucial role and would be responsible for approval of NTA projects contingent upon a finding by the ISO-NE that the NTA project(s) selected met the needs identified and the transmission project can be avoided. In early February 2010, CL&P and UI filed comments with the DPUC that, along with the DPUC's Straw Proposal, create a potentially feasible process for analyzing NTA proposals.

4.5 Background on CL&P's Transmission System

Transmission lines operate at 69-kV and above and collectively form the infrastructure that is the interstate electric "highway system." The transmission line system is capable of moving large amounts of electric energy from where it is produced to where it is used. In New England, moving large amounts of electric energy over longer distances is achieved primarily by the interconnected 345-kV regional bulk power system. The expansion of the 345-kV transmission network and ties to neighboring utilities and control areas enables CL&P to continue to reliability meet customer peak demands for electricity.

CL&P's transmission grid is used to support reliable, economical and continuous service to intra-state customers. The 345-kV system allows for the efficient transfer of bulk power within and outside of the New England control area. This integrated grid enables

CL&P to efficiently transmit power throughout its franchise service territory and to share in the reliability benefits of parallel transmission paths.

In the recent past, Connecticut's most pressing transmission system need was to increase the capability of the system to transport power in southwest Connecticut ("SWCT"), where nearly half of the state's load is located. CL&P has addressed these needs with the construction of the Bethel – Norwalk Project, Glenbrook Cables Project, the Long Island Cable Replacement Project and the Middletown – Norwalk Project. In addition, as the system evolves and load demand expands there may become a need for local transmission upgrades to address future requirements.

4.6 Transmission System

CL&P's transmission system is part of the interconnected New England transmission network. Transmission lines across New England and outside of the region are interconnected to form a transmission network, sometimes called a "grid" or "system". The transmission grid serves multiple purposes, all of which work together to enhance delivery reliability. CL&P and other electric utilities design the transmission grid to withstand national, regional and company-specified contingencies, so that electric power can be transmitted reliably and safely throughout the interconnected grid.

CL&P's 345-kV transmission system enables the movement of power from large central generating stations, such as Middletown 4, and the Millstone Nuclear Power Station throughout Connecticut and over three interstate transmission tie lines to and from neighboring utilities. These tie lines provide connections with National Grid in Rhode Island, with the Western Massachusetts Electric Company ("WMECO") in Massachusetts, and with Consolidated Edison in New York.

CL&P's transmission network also includes lower capacity transmission ties to neighboring utilities, all operating at voltages between 69 kV and 138 kV. These tie lines connect with WMECO in Massachusetts, National Grid in Rhode Island, Central Hudson in New York, Long Island Power Authority in New York, Connecticut Municipal Electric Energy Cooperative, Inc. ("CMEEC"), and UI.

The CL&P transmission system, with its tie lines to neighboring utilities, provides The CL&P transmission system, with its tie lines to neighboring utilities, provides multiple paths for electric energy to move freely over the southern New England transmission grid following transmission and generation emergencies. CL&P relies on the bulk power 345-kV transmission grid to reliably transmit electric energy to high load density areas in Connecticut. CL&P continuously assesses the peak demands for electricity in Connecticut and plans to maintain a robust and reliable 345-kV transmission network to meet those demands. CL&P's long-term mission is to ultimately operate 345-kV loops to its neighboring electric systems in New England and New York to ensure reliability of its transmission system in the best interests of CL&P's customers.

Existing Substations and System Loops

CL&P currently has twelve major bulk-power substations where the 345-kV and 115-kV transmission networks interconnect - Montville, Card, Manchester, Barbour Hill, Southington, Frost Bridge, North Bloomfield, East Devon, Norwalk, Killingly, Haddam, and Plumtree. These twelve substations enable bulk power from the large central generation stations and power imported over the three 345-kV transmission tie lines to be delivered to CL&P's 115-kV system.

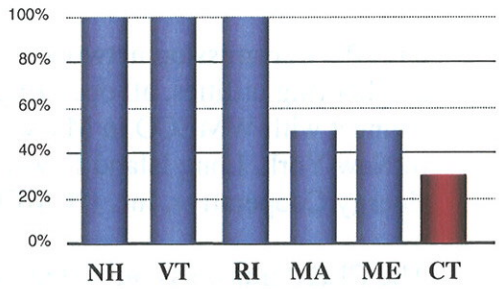
The 115-kV transmission system draws upon these power sources and transmits this power, and power from smaller central generating stations and from 115-kV transmission tie lines, to distribution step-down substations, which supply local area load over distribution lines. It also loops around high load-density pockets, primarily in central and SWCT, and moves power to connect load centers in the eastern and northwestern areas of the state.

The State of Connecticut's Transmission System and Serving Load

CL&P plans, builds and operates transmission infrastructure with a long-term vision to safely and reliably deliver power to its customers, under a wide variety of supply and demand conditions.

- CL&P is responsible to meet the mandatory reliability standards managed by the NERC and overseen by FERC and faces severe financial penalties of up to $1 million per day for *each* non-compliance occurrence.
- Among all the New England states, Connecticut is the least able to serve peak load using power imports.
- Connecticut imports are currently limited by its transmission system to a range with an upper level of approximately 2,500 MWs – about 30% of the state's peak load.
- Consequently, at least 70% of the electricity needed to serve customer peak demand must be generated in Connecticut.

Percentage of Peak Load that Could Be Served by Transmission Imports



Note: Chart uses approximate values based on known interface limits.

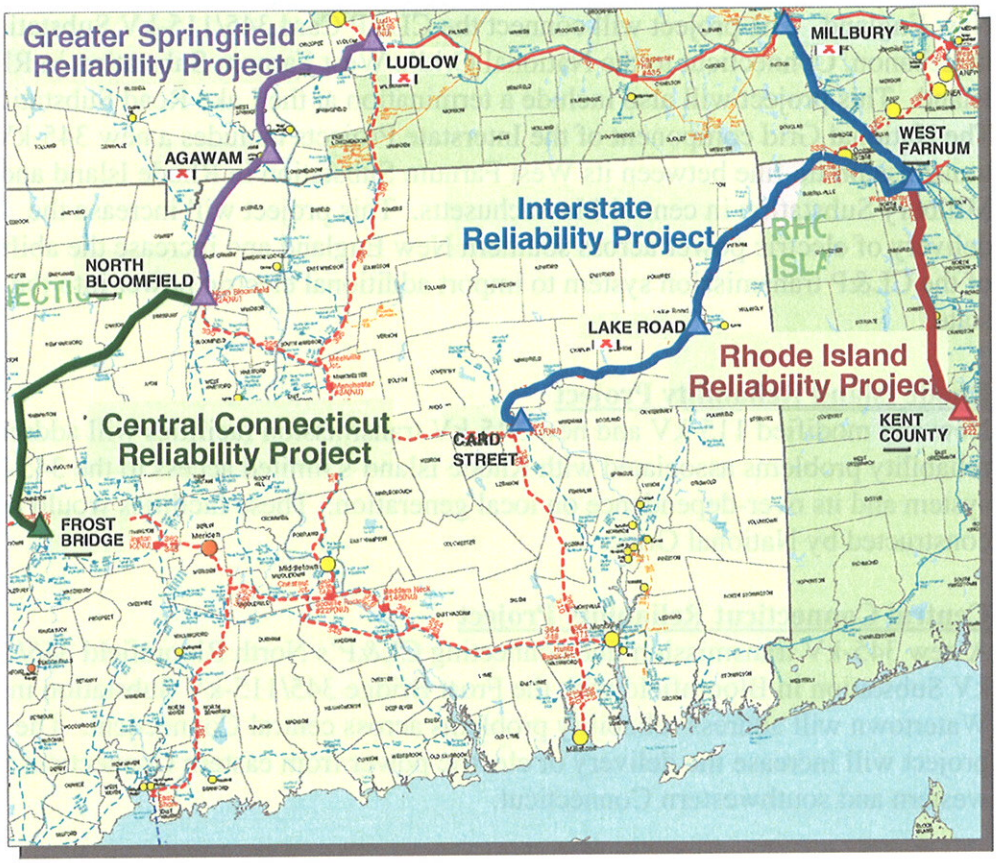
- The potential to develop large quantities of renewable resources, like solar, wind and hydro power, is very low in Connecticut, but wind and hydro power have greater development probability in northern New England and Canada.
- The prospect of transporting renewable energy from northern New England and Canada to New England is particularly promising. Northeast Utilities, the parent company of CL&P, is currently developing a transmission project with NSTAR and Hydro-Quebec that would enable imports of up to 1,200 MW of low-carbon generation from Canada.

4.7 The New England East – West Solution ("NEEWS")

Connecticut's electric system reliability is explicitly tied to the state's ability to import electric power over the New England transmission grid. During the summer of 2006, Connecticut (including CL&P, UI and CMEEC) experienced an all-time peak demand of approximately 7,400 MW. Under ideal system conditions Connecticut can reliably import only about 30% of the state's peak demand, as described above and much less if external system conditions limit transfers such as outages of certain generators in the greater Springfield, Massachusetts area. Additionally, it is becoming increasingly likely that the potential retirement of aging and uneconomic Connecticut generation will result in a condition where in-service generation and transmission import capabilities together cannot reliably meet the growing summer peak customer demands for electricity.

ISO-NE, in its 2005 Regional System Plan, first identified the need for major southern New England transmission system reinforcements to address multiple reliability problems between Connecticut, Massachusetts and Rhode Island. ISO-NE, CL&P and National Grid since collaborated and developed a comprehensive set of interrelated transmission reinforcement projects known as NEEWS. Figure 4-1 presents a graphical description of the new 345-kV transmission projects associated with NEEWS.

Figure 4-1: Map of NEEWS Projects



A brief description of the NEEWS projects follows.

Greater Springfield Reliability Project

A new 345-kV transmission tie-line connecting north-central Connecticut and western Massachusetts, will address reliability problems in the greater Springfield area. The new 345-kV line will connect CL&P's North Bloomfield Substation in Bloomfield to a new WMECO's 345/115-kV substation being planned for the Agawam Substation. This transmission plan called the Connecticut Valley Electric Reliability Transmission Project included the Connecticut portion of the Greater Springfield Reliability Project ("GSRP") and the related Manchester to Meekville Junction Circuit Separation Project ("MMP"). GSRP also includes the construction of a new 345-kV transmission line between the existing WMECO Ludlow 345/115-kV Substation and the new Agawam 345/115-kV Substation. The project also includes the modification of existing 115-kV transmission lines and the construction of new 115-kV transmission lines in the greater Springfield area. This project is currently nearing the end of the siting and permitting process in both Massachusetts and Connecticut.

Interstate Reliability Project

A new 345-kV transmission tie-line connecting eastern Connecticut with Rhode Island and central Massachusetts will address reliability problems in southern New England. The project will connect the CL&P Card 345/115-kV Substation in Lebanon, Connecticut to the National Grid's West Farnum Substation in Rhode Island. This project will also include a termination at the Lake Road Substation. The National Grid component of the Interstate Projects includes a new 345-kV transmission tie-line between its West Farnum Substation in Rhode Island and its Millbury Substation in central Massachusetts. This project will increase the delivery of electric power across southern New England and increase the ability of the CL&P transmission system to import additional electric power into the state.

Rhode Island Reliability Project

New and modified 115-kV and new 345-kV transmission facilities will address reliability problems associated with Rhode Island's limited access to the 345-kV system and its over-dependence on local generation. These facilities would be constructed by National Grid.

Central Connecticut Reliability Project

A new 345-kV transmission line connecting CL&P's North Bloomfield 345/115-kV Substation in Bloomfield with the Frost Bridge 345/115-kV Substation in Watertown will address reliability problems across central Connecticut. The project will increase the delivery of electric power from eastern Connecticut to western and southwestern Connecticut.

NEEWS is a comprehensive plan for Connecticut and southern New England that addresses many conditions by enhancing the transmission system in the following manner:

- Strengthens the bulk-power delivery systems between Connecticut, Massachusetts and Rhode Island with the addition of new high capacity 345-kV transmission circuits;
- Increases the east-west regional power transfer capability across southern New England;
- Provides an alternate 345-kV electric power source to the North Bloomfield Substation and establishes a new 345/115-kV "hub" west of the Connecticut River in Agawam where many existing 115-kV transmission circuits connect;
- Establishes additional 345-kV circuit connections at the Lake Road Switching Station in Killingly which will enhance the power delivery capability of the transmission network in the vicinity of the Lake Road Generating Station;
- Establishes a new 345-kV transmission path between the North Bloomfield and Frost Bridge Substations which will increase Connecticut's transmission system capability to deliver electric power from east to west across the state; and
- Increases reactive reserve capability with the installation of new 345-kV capacitor banks.

Following the completion of the NEEWS projects, Connecticut's import capability will increase to approximately 3,600 MW – 4,000 MW or approximately 45% of the state's peak load. Increasing the state's ability to import electric power from outside Connecticut will benefit customers in three ways.

- First, it will strengthen system reliability by broadening the base of power supply available to meet customer demands including the enhanced 345-kV interconnection of the Lake Road Generating Station.
- Second, it will have a favorable impact on electric energy costs, because the same broadened base of supply should reduce the instances of reliability agreements and other congestion charges that are related to transmission system limitations.
- Third, it will help provide access to remote renewable and/or lower emission generation, helping Connecticut to meet state and federal environmental goals.

ISO-NE is currently reviewing the need date for the Interstate Reliability Project and Central Connecticut Reliability Project and will present its findings in 2010.

4.8 Assessment of Transmission Needs in Connecticut's Sub-areas

CL&P's service territory is sub-divided into six areas for the purpose of assessing the reliability of the CL&P transmission system. A description of the areas and a summary of the future transmission needs in each area are discussed below. Planned projects (solid red) that are identified on the geographic maps have ISO-NE approval. Proposed projects (dotted red, as identified on the geographic maps) are alternative projects under assessment and do not have ISO-NE approval. Station reinforcements are identified by single line entries under the "from" station title in the supporting tables. Transmission

line reinforcements are identified by entries under the "from" and "to" station titles in the supporting tables. The term "station" is interchangeable with substation or switching station. Tables 4-1 through 4-5 in the following sections include information on the project's proposed in-service date ("ISD"); these dates may change subject to system needs.

In the future, significant changes in the geographic patterns of generating capacity and loads may affect transmission flows and transmission requirements in Connecticut and New England, and may ultimately require enhancements to the transmission system beyond those currently being considered. The addition of significant amounts of remote renewable generating capacity or the retirement of local generation may increase the need to import power to Connecticut, and the transmission system may need to be expanded. The transmission projects listed in the six Connecticut areas are documented in the 2009 ISO-NE RSP project listing and on Northeast Utilities Local System Plan for 2009 located at www.transmission-nu.com/business/ferc890postings.asp.

4.8.1 Southwest Connecticut Area

The SWCT, shown in Figure 4-2, is the largest load area within Connecticut and comprises fifty-four towns including all of UI's service territory. This area includes the towns essentially west of Interstate 91 and south of Interstate 84, and accounts for approximately half of the state's peak electric load demand.

Figure 4-2: Geographic Map of SWCT

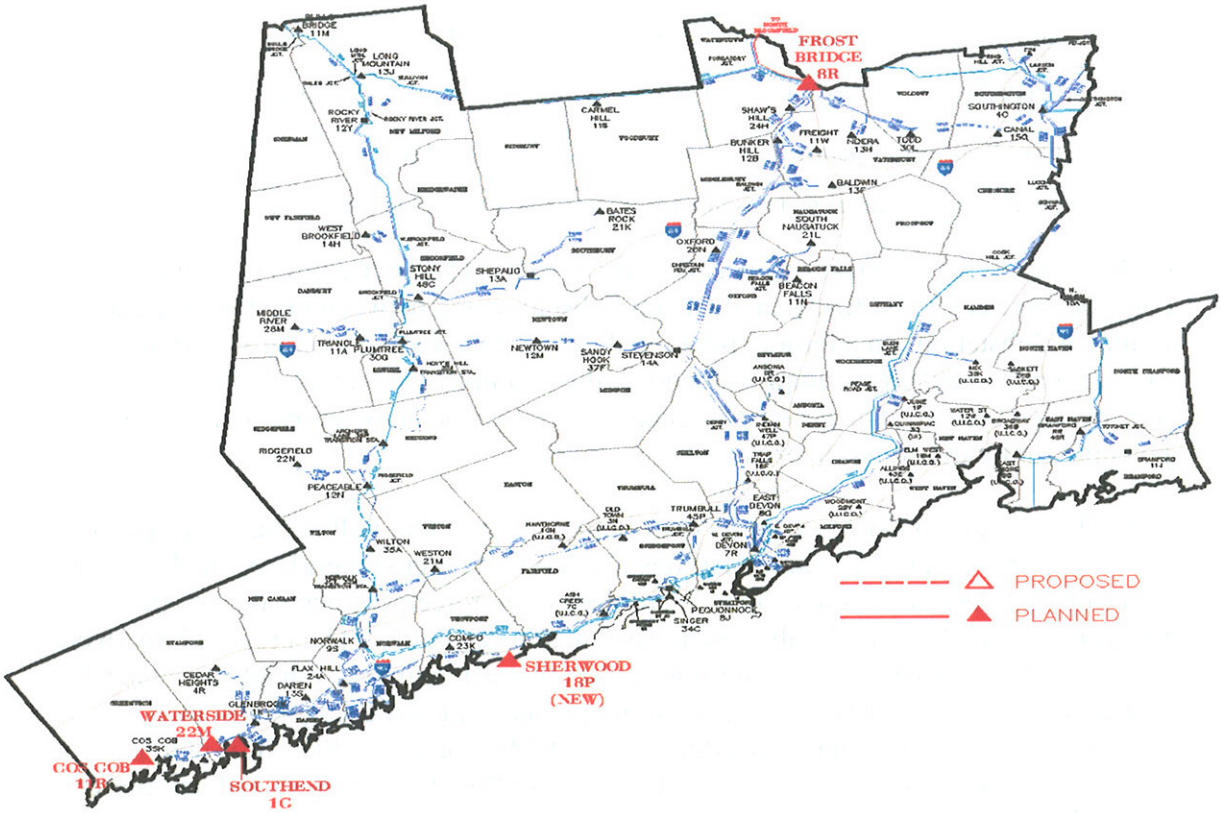


Table 4-1: Proposed Substation Projects in SWCT

Substation	City or Town	Voltage kV	ISD	Project Description
Waterside	Stamford	115/13.2	2010	Add a distribution transformer
Cos Cob	Greenwich	115/13.2	2011	Add a distribution transformer
Sherwood	Westport	115/13.8	2011	Add a new substation
South End	Stamford	115/13.2	2012	Add a distribution transformer
Frost Bridge	Watertown	345/115	2013	NEEWS

Note: Presently there are no transmission line projects proposed in SWCT

CL&P is assessing the power-flow capability of each 115-kV circuit in the transmission corridors between Frost Bridge and Devon Substation and between Frost Bridge and Plumtree Substation. In addition, forecasted higher than normal load growth in the Stamford area may require improvements to the Stamford-Greenwich 115-kV transmission system. The geographic map does not include any representation of these potential future transmission projects at this time.

Table 4-1 contains a listing of future distribution projects that will require transmission reinforcements to integrate these facilities into SWCT's regional grid. At the Waterside Cos Cob and South End Substations the projected reinforcement plans include the installation of additional distribution transformation capability. The proposed Sherwood Substation is a planned new distribution facility that is required to reliably serve local area load. Also, substation modifications are planned at Frost Bridge Substation in support of the Central Connecticut Reliability NEEWS project. ISO-NE is currently reviewing the need date for the Central Connecticut Reliability Project and will present its findings in 2010.

4.8.2 Manchester - Barbour Hill Area

The Manchester - Barbour Hill Area, shown in Figure 4-3, includes towns north and south of Manchester. These include Glastonbury to the south and the Massachusetts border towns of Enfield, Suffield and Somers to the north. The growth along the Interstate 91 and 84 corridors, especially in Manchester and South Windsor adjacent to the Buckland Hills Mall, has resulted in the need to upgrade the transmission network.

Table 4-2 contains a listing of transmission reinforcement projects in the Manchester – Barbour Hill area. The projects listed in the table include transmission circuit separations from common structures to individual structures along existing rights-of-way.

Figure 4-3: Geographic Map of the Manchester – Barbour Hill Area

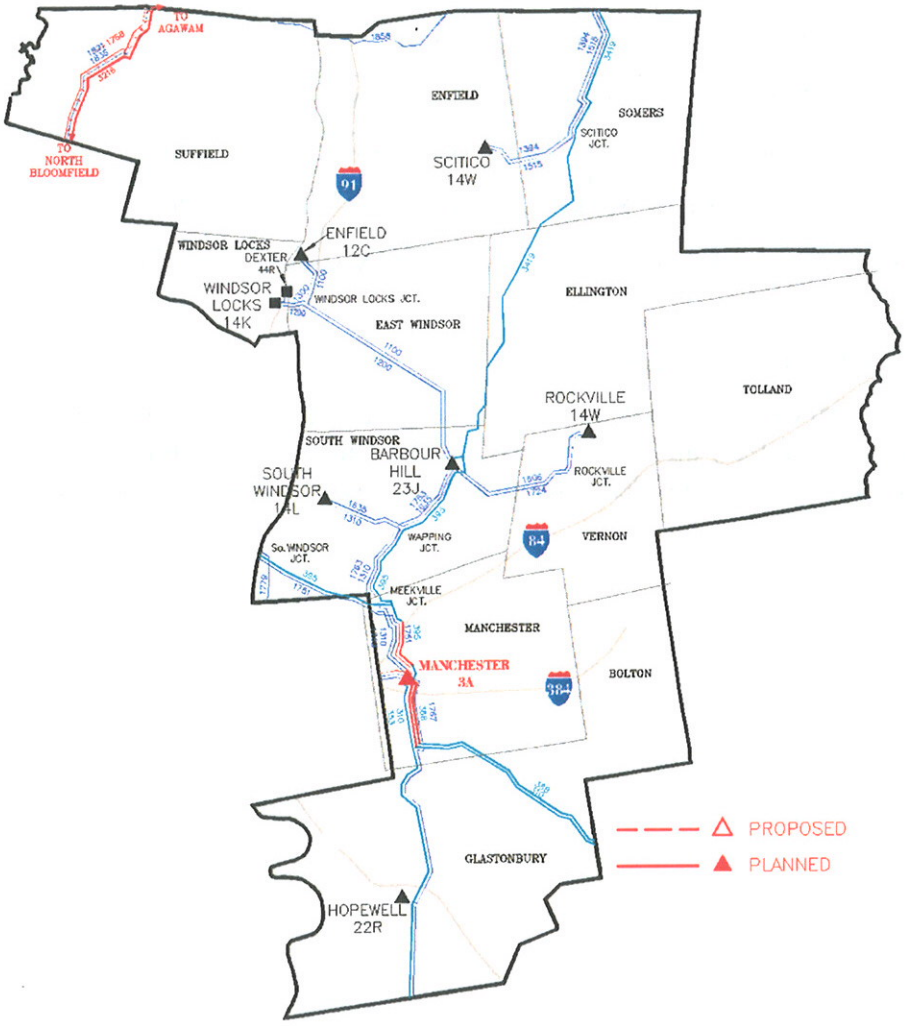


Table 4-2: Proposed Transmission Line Projects

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description
Manchester	Manchester	Millstone	Waterford	345	2010	1.8	Circuit separation
Manchester	Manchester	Card	Lebanon	345	2010	1.8	Circuit separation
Manchester	Manchester	Hopewell	Glastonbury	115	2010	1.8	Circuit reconstruction
Manchester	Manchester	Meekville Jct.	Manchester	345	2013	2.0	Circuit separation
Manchester	Manchester	Meekville Jct.	Manchester	115	2013	2.0	Circuit separation

Note: Presently, there are no substation projects proposed in the Manchester – Barbour Hill Area.

4.8.3 Eastern Connecticut Area

The Eastern Connecticut Area, shown in Figure 4-4, extends from the Rhode Island border in a westerly direction for about twenty miles and north from Long Island Sound to the Massachusetts border. The area is served by both CL&P and CMEEC.

Figure 4-4: Geographic Map of the Eastern Connecticut Area

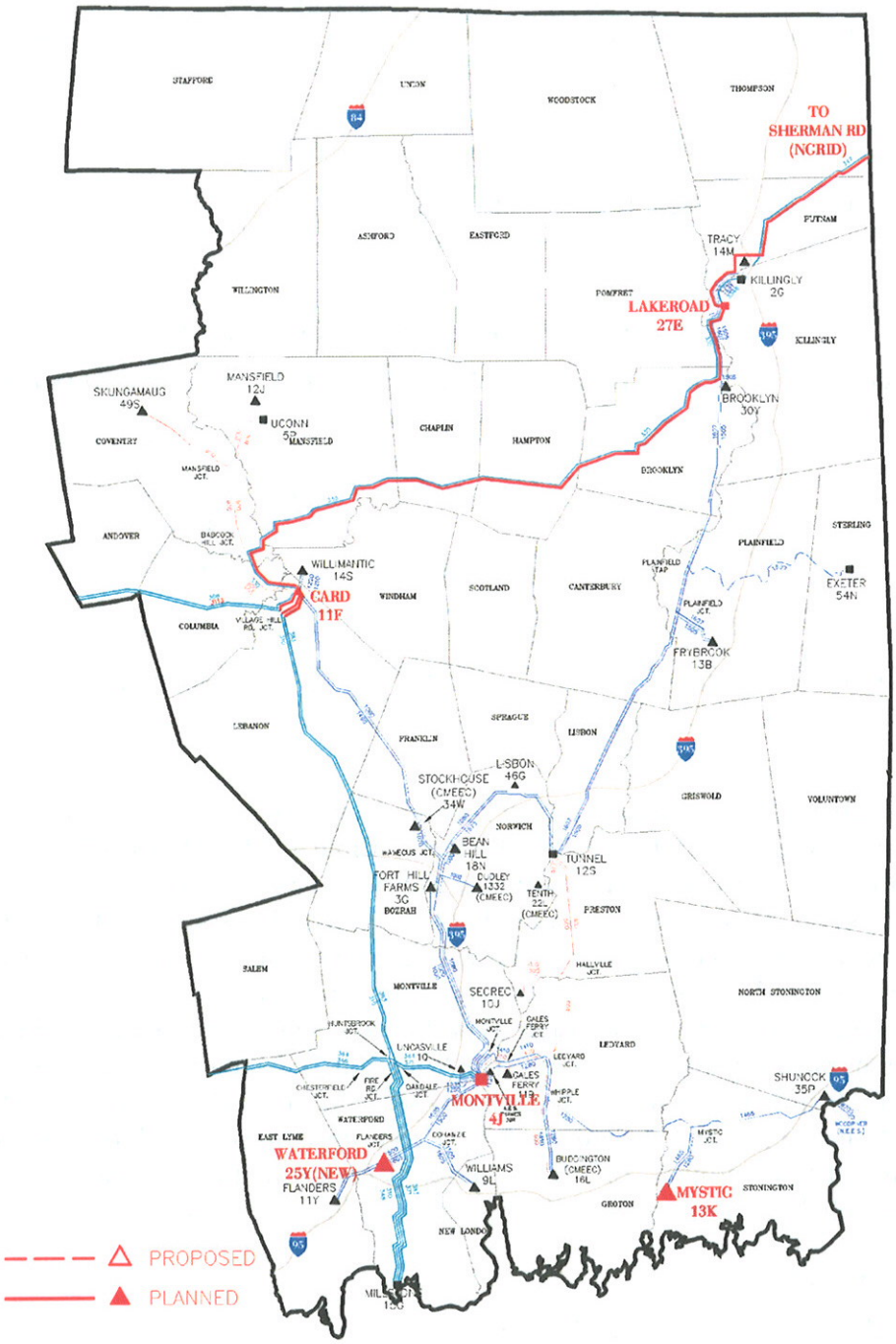


Table 4-3A: Proposed Transmission Line Projects

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description
Card	Lebanon	Lake Road	Killingly	345	2013	29.3	NEEWS
Lake Road	Killingly	CT/RI Border	Thompson	345	2013	7.6	NEEWS
Millstone	Waterford	Manchester	Manchester	345	2013	1.0	NEEWS
Card	Lebanon	Manchester	Manchester	345	2013	1.0	NEEWS

Table 4-3B: Proposed Substation Projects

Substation	City or Town	Voltage kV	ISD	Project Description
Waterford	Waterford	115/23	2010	New substation
Mystic	Stonington	115/13.8	2010	Add two distribution transformers
Montville	Montville	345	2013	NEEWS
Card	Lebanon	345	2013	NEEWS
Lake Road	Killingly	345	2013	NEEWS

Table 4-3A lists the transmission circuit reinforcements associated with the Interstate Reliability Project, one of the NEEWS Projects. Table 4-3B contains substation projects where Montville Substation will require the addition of 345-kV capacitor banks for reactive reserve. This is also part of the Interstate Reliability project. Other substation projects include distribution projects that will require transmission reinforcements to integrate these facilities into the eastern Connecticut regional grid. At the Mystic Substation the projected reinforcement plans include the installation of additional distribution transformation capability. The Waterford Substation is a planned new distribution facility that is required to reliably serve local area load. Also, substation modifications are planned at Card and Lake Road substations related to the Interstate Reliability NEEWS project. ISO-NE is currently reviewing the need date for the Interstate Reliability Project and will present its findings in 2010.

4.8.4 Middletown Area

The Middletown Area, shown in Figure 4-5, consists of a five- to ten-mile wide band east and west of the Connecticut River from Hebron to Old Lyme. The westerly section consists of the area included in a triangle that runs from Middletown to Old Saybrook and back to the eastern part of Meriden.

Figure 4-5: Geographic Map of the Middletown Area

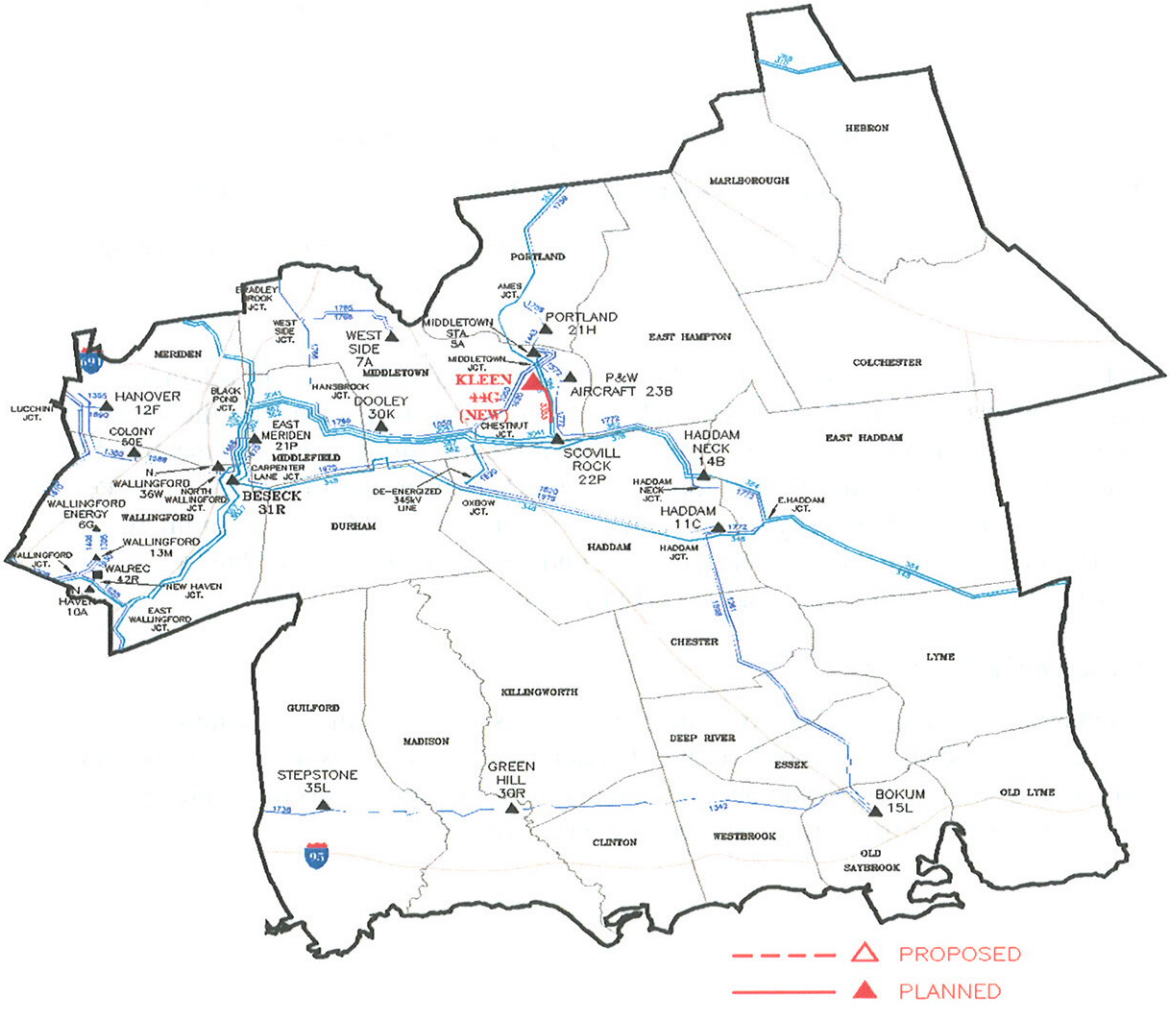


Table 4-4A: Proposed Transmission Line Project

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description
Manchester	Manchester	Scovill Rock	Middletown	345	TBD	0.9	Rebuild a portion of the line

Table 4-4B: Proposed Substation Project

Substation	City or Town	Voltage kV	ISD	Project Description
Kleen Energy	Middletown	345	TBD	New station – Interconnect new generator

Table 4-4A contains a 345-kV Manchester – Scovill Rock 3533 circuit upgrade associated with the NEEWS Projects. In addition, Table 4-4B identifies the Kleen Energy Generating Station. The construction of the transmission interconnection for the Kleen Energy Generating Station loops the 345-kV Manchester to Scovill Rock 353 circuit into the Kleen Energy Station and was completed in 2009. The commercial operation date of the Kleen Energy plant is undetermined at this time due to a construction accident at the plant in early February 2010.

4.8.5 Greater Hartford Area

The Greater Hartford Area, shown in Figure 4-6, is the towns in the vicinity of the Capitol city and stretches north to the Massachusetts border, west to the Farmington River, and south to the Route 691 interchange with the Berlin Turnpike and straddles the Connecticut River in the heart of central Connecticut.

Figure 4-6: Geographic Map of the Greater Hartford Area

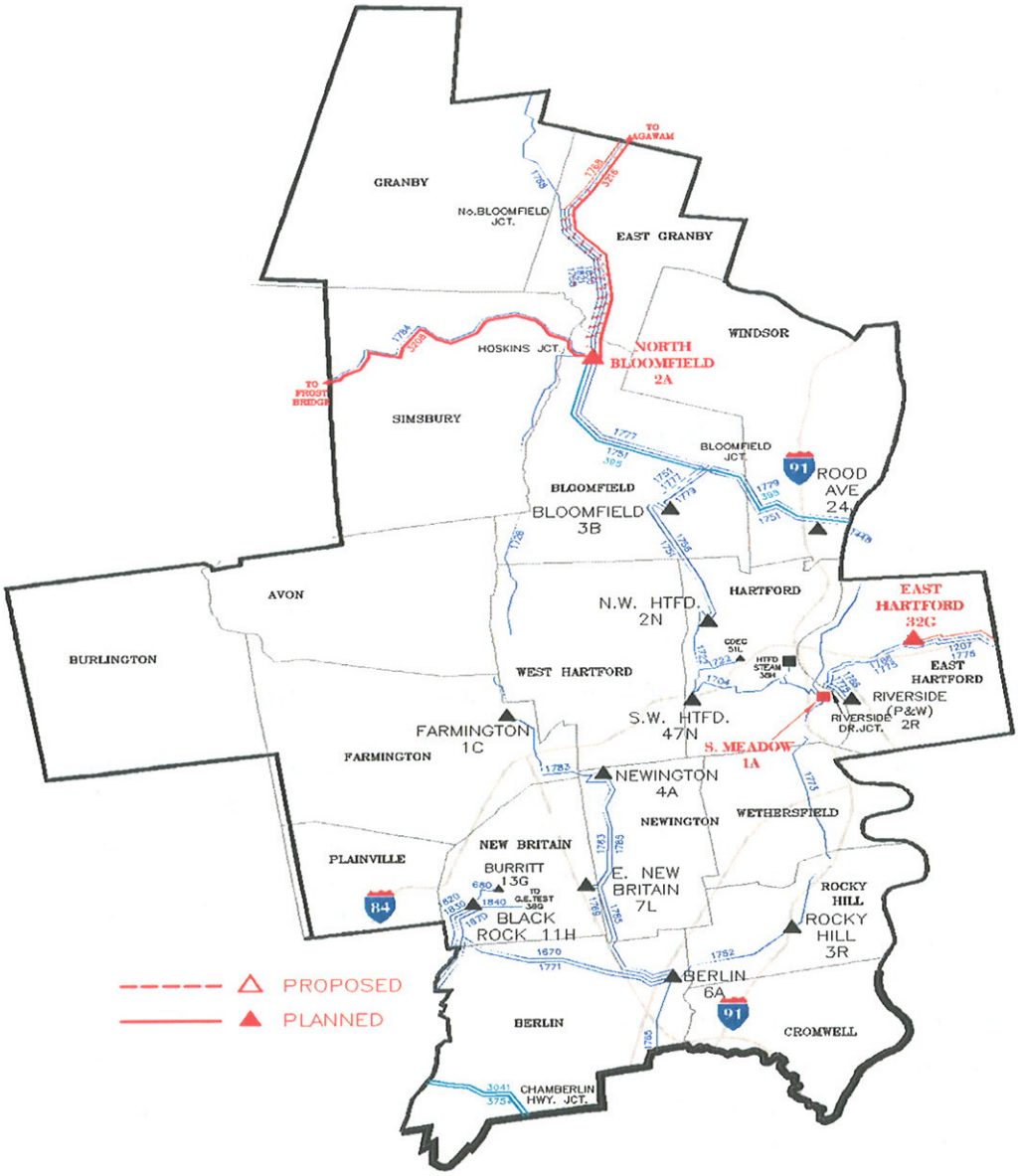


Table 4-5A: Proposed Transmission Line Projects

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description
North Bloomfield	Bloomfield	CT/Ma Border	Suffield	345	2013	11.5	NEEWS
North Bloomfield	Bloomfield	CT/MA Border	Suffield	115	2013	*11.9	NEEWS
North Bloomfield	Bloomfield	CT/MA Border	Suffield	115	2013	*11.9	NEEWS
North Bloomfield	Bloomfield	CT/MA Border	Granby	115	2013	*8.7	NEEWS
Manchester	Manchester	East Hartford	East Hartford	115	TBD	3.2	New transmission line

*Actual existing line mileage in Connecticut

Table 4-5B: Proposed Transmission Substation Projects

Substation	City or Town	Voltage kV	ISD	Project Description
North Bloomfield	Bloomfield	345	2013	NEEWS
North Bloomfield	Bloomfield	115/23	2015	Add a distribution transformer

Table 4-5A contains a listing of future transmission reinforcement projects for the Greater Hartford area. The table identifies transmission line projects associated with NEEWS. One new 345-kV transmission circuit is planned to tie the North Bloomfield Substation with the new 345/115-kV substation additions in Agawam, Massachusetts. In addition, the three existing 115-kV transmission circuits from North Bloomfield Substation to Massachusetts substations will be removed or modified. Table 4-5B includes future modifications planned for the North Bloomfield substation in regard to both the Interstate and Central Connecticut Reliability NEEWS projects.

4.8.6 Northwestern Connecticut Area

The Northwestern Connecticut Area, shown in Figure 4-7, is the portion of the state bounded by the Massachusetts and New York state borders and easterly toward Route 8 and south to the SWCT region.

Figure 4-7: Geographic Map of the Northwestern Connecticut Area

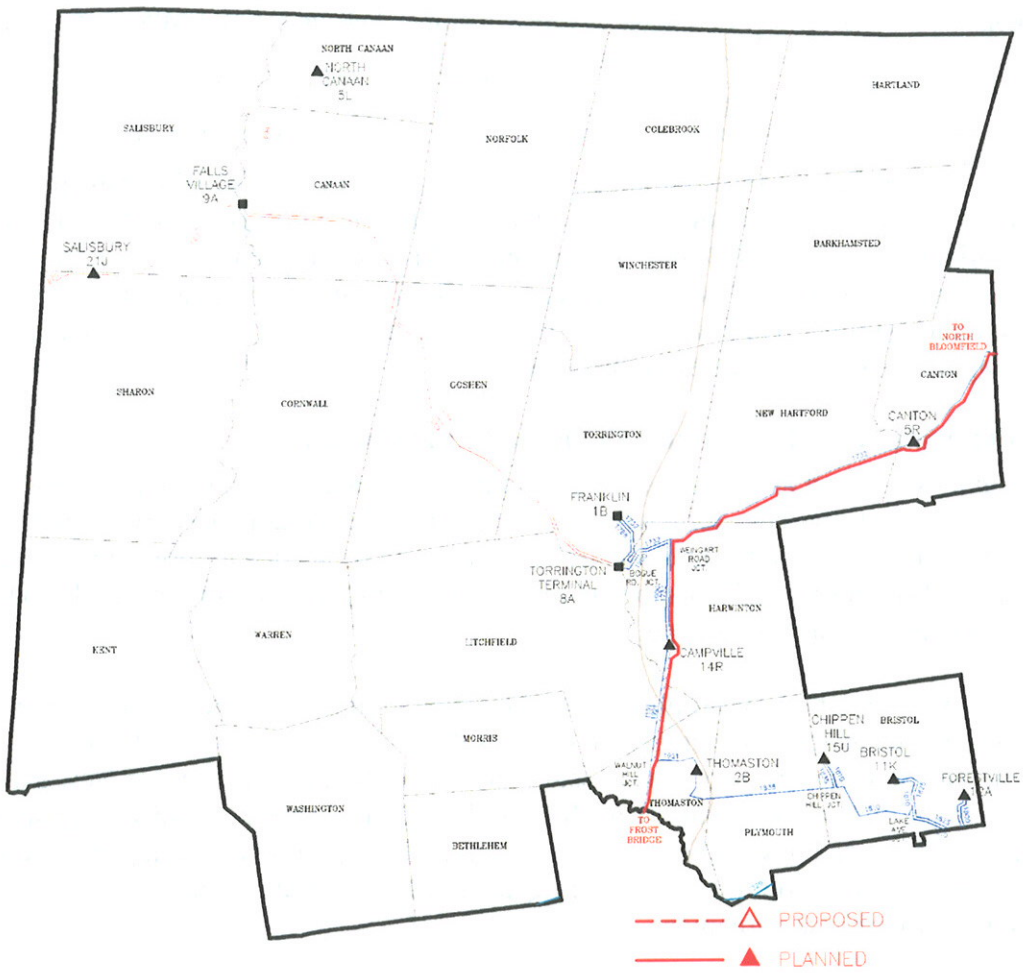


Table 4-6: Proposed Transmission Line Project

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description
Frost Bridge(1)	Watertown	North Bloomfield	Bloomfield	345	2013	35.4	NEEWS

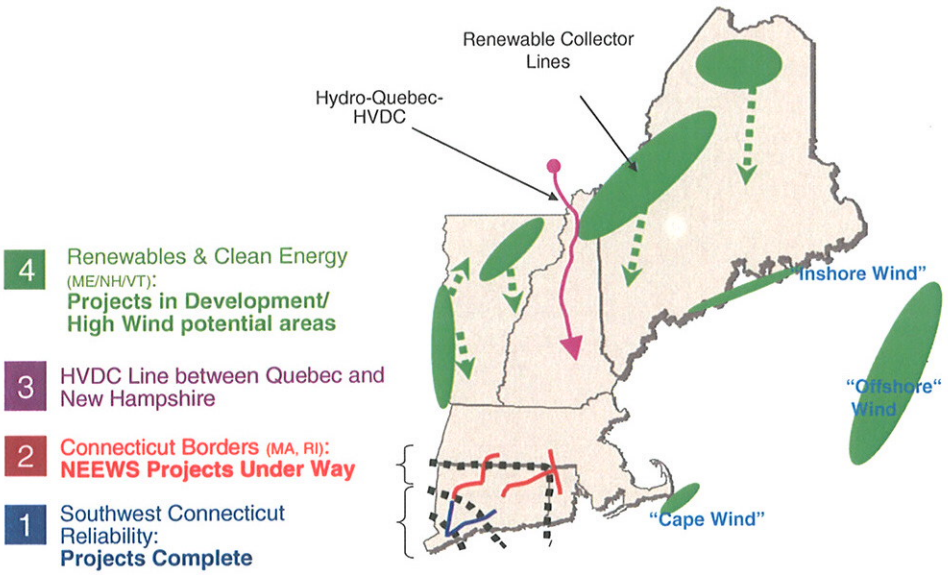
Note: Presently, there are no substation projects proposed in the Northwestern Connecticut Area

The table identifies a transmission line project associated with NEEWS. This project includes a new 345-kV circuit which is planned to tie the North Bloomfield Substation in Bloomfield with the Frost Bridge Substation, in Watertown, Connecticut. In the Torrington, Salisbury, and North Canaan area, CL&P is evaluating the existing 69-kV transmission system. However, at this time, CL&P has no definitive plans to upgrade the existing transmission facilities in this area.

4.9 Incorporation of Renewables through Transmission

Transmission has an essential role to play in providing access to remote renewable electric energy resources. Renewable resources like wind and hydro power will likely not be sited close to load centers, so transmission will be needed to move this energy to the load. The prospect of transporting renewable energy from northern New England and Canada is particularly promising.

Long-term forecasts show surplus renewable generation in the eastern provinces of Canada and insufficient generation in Ontario, New York, and New England. Strengthening Connecticut's transmission interconnection with the rest of New England will give the state the opportunity to share in the region's access to Canada's projected surplus power. NU has studied various options and has proposed a high-voltage direct current transmission tie line with Hydro Quebec which would be combined with a long-term power purchase agreement.



4.10 Underground Transmission and Cost

Transmission line dockets in recent years have established that the electrical characteristics and other attributes of underground transmission lines make such lines difficult to incorporate within the existing Connecticut transmission system, especially at the 345-kV voltage level. System reliability issues created by underground lines are not always feasible or inexpensive to manage. Public concern over the magnetic fields that surround power transmission lines has been a driver for public pressures to construct new transmission lines underground; however, underground transmission lines also produce magnetic fields in publicly accessible locations.

Some of CL&P's recent transmission line projects have required applications of underground transmission cables, including cables operating at 345 kV. As part of CL&P's Bethel-Norwalk Project, 6.4 miles of existing 115-kV overhead transmission line was replaced by approximately ten miles of underground 115-kV transmission cables. Under this project, approximately twelve miles of parallel 345-kV underground cables entered service as part of a new 20.4-mile long 345-kV circuit. As part of the Middletown-Norwalk Project, CL&P's new transmission facilities include approximately thirty-four new circuit miles of underground 345-kV cables, and one mile of overhead 115-kV line was replaced by underground 115-kV cables. Also, two new 115-kV underground cable circuits, each almost nine miles long, were completed as part of the Glenbrook Cables Project. Finally, the Long Island Cable Project from Norwalk Harbor to Northport on Long Island, New York
was completed in 2008.

Cost

The 2007 Investigation into the Life-Cycle Costs of Electric Transmission Lines (Final CSC Report dated February 13, 2007) identified that the first and life-cycle costs of underground 115-kV and 345-kV transmission line are several times higher than the cost of an equal length of overhead transmission line when sufficient right-of-way already exists to accommodate the overhead line. In a regional cost allocation decision dated September 22, 2006, ISO-NE determined that $117.4 million of the estimated $357.2 million Bethel-Norwalk Project cost would not be eligible for regional cost recovery after finding that an all-overhead 345-kV line costing $117.4 million less was feasible and practical to build, even though some new right-of-way was needed. Therefore, Connecticut customers are now paying 100% of the ineligible $117.4 million cost. ISO-NE determinations on regional cost allocation for the Middletown-Norwalk Transmission Project and the Glenbrook Cables Project are pending in 2010, and may also reflect localization of some costs. The NEEWS transmission projects would also face localization of any extra costs incurred from underground lines where a less costly overhead line alternative is deemed practical and feasible by ISO-NE.