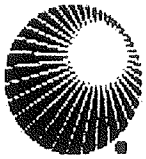

Connecticut
Light & Power

A Northeast Utilities Company

2014 Forecast of Loads and Resources

For the Period 2014-2023

February 28, 2014

Northeast Utilities

107 Selden Street, Berlin, CT 06037

Northeast Utilities
P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000
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February 28, 2014

Mr. Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: CL&P 2014 Forecast of Loads and Resources for the Period 2014-2023

Dear Mr. Stein,

Submitted herewith, on behalf of The Connecticut Light & Power Company ("CL&P" or the "Company"), are 20 copies of the Company's 2014 Forecast of Loads and Resources, as required by Section 97 of Public Act 11-80.

This Forecast is available for review by the public during normal business hours at the principal office of Northeast Utilities Service Company, Regulatory Planning & Policy Department, 107 Selden Street, Berlin, Connecticut. Arrangements for viewing the Report can be made by calling Ms. Tyra Anne Peluso at (860) 665-2674.

Please contact me at (860) 665-3566 if you have any questions with respect to this filing.

Very truly yours,

Christopher Bernard
Manager – Regulatory Policy & Strategy, CT
Northeast Utilities Service Company
As Agent for CL&P

Enclosure

cc: Nicholas E. Neeley, PURA

List of Acronyms

"ACEEE"	American Council for an Energy Efficiency Economy
"C&LM"	Conservation and Load Management
"CAGR"	Compound Annual Growth Rate
"CCEF"	Connecticut Clean Energy Fund
"CCRP"	Central Connecticut Reliability Project
"CEAB"	Connecticut Energy Advisory Board
"CES"	Comprehensive Energy Strategy
"CL&P"	The Connecticut Light & Power Company
"CSC"	Connecticut Siting Council
"CMEEC"	Connecticut Municipal Electric Energy Cooperative, Inc.
"DEEP"	Department of Energy and Environmental Protection
"DPUC"	Department of Public Utility Control
"DG"	Distributed Generation
"EEB"	Energy Efficiency Board
"EDC"	Electric Distribution Company
"EIPC"	Eastern Interconnection Planning Collaborative
"EPA"	Energy Purchase Agreements
"ERO"	Electric Reliability Organization
"EV"	Electric Vehicles
"FCA"	ISO-NE Forward Capacity Auction
"FCM"	ISO-NE Forward Capacity Market
"FERC"	Federal Energy Regulatory Commission
"FLR"	Forecast of Loads and Resources
"GHCC"	Greater Hartford/Central Connecticut
"IRP"	Integrated Resource Plan
"IPR"	Intermittent Power Resource
"ISD"	In-Service Date
"ISO-NE"	Independent System Operator - New England
"kW"	Kilowatt or 1,000 Watts
"LDC"	Local Distribution Companies
"LREC"	Low Emission Renewable Energy Credits
"MRA"	Market Resource Alternative
"MW"	Megawatt or 1,000,000 Watts
"NEEWS"	New England East — West Solution
"NERC"	North American Electric Reliability Corporation
"NPCC"	Northeast Power Coordinating Council

List of Acronyms, Continued

"NPT"	Northern Pass Transmission Project
"NTA"	Non-Transmission Alternative
"OATT"	Open-Access Transmission Tariff
"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
"PA 11-80"	Public Act 11-80, An Act Concerning the Establishment of the Department of Energy and Environmental Protection ("DEEP")
"PA 13-298"	Public Act 13-298, An Act Concerning Implementation of Connecticut's Comprehensive Strategy and Various Revision to the Energy Statutes
"PAC"	Planning Advisory Committee
"PURA"	Public Utilities Regulatory Authority
"REC"	Renewable Energy Certificate
"RGGI"	Regional Greenhouse Gas Initiative
"ROFR"	Federal First Refusal
"RPS"	Renewable Portfolio Standards
"RSP"	ISO-NE's Regional System Plan
"SWCT"	ISO-NE Southwest Connecticut Zone
"SWCT WG"	The Southwest Connecticut Working Group
"TO"	Transmission Owners
"UI"	The United Illuminating Company
"WMECO"	Western Massachusetts Electric Company
"ZREC"	Zero Emission Renewable Energy Credit

Table of Contents

Chapter 1: INTRODUCTION

1.1 Overview of CL&P's 2014 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 approximately forty years. This 2014 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 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 weather can especially have a large impact on the realization of any forecast. CL&P's electric energy usage is expected to increase by a weather- normalized compound annual growth rate ("CAGR") of 0.1% per year, and peak demand is expected to grow by a weather-normalized CAGR of 0.3% per year over the 10-year forecast period from 2014 through 2023.

While CL&P is providing its forecast developed for financial forecasting purposes, CL&P uses Independent System Operator - New England ("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 sold 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")*, directing the annual development of an integrated resource plan ("IRP") for Connecticut. In 2011, the Connecticut legislature passed PA 11-80, *An Act Concerning the Establishment of the Department of Energy and Environmental Protection ("DEEP") and Planning for Connecticut's Energy Future ("PA 11-80".)* PA 11-80 calls for DEEP to create an Integrated Resource Plan for Connecticut ("IRP") by January 1, 2012 and biennially

thereafter, in consultation with Connecticut Energy Advisory Board ("CEAB") and the Electric Distribution Companies ("EDCs").

On June 14, 2012, DEEP issued its Final 2012 IRP for Connecticut presenting a comprehensive plan for improving Connecticut's electric energy future. As of the date of this filing the 2014 IRP for Connecticut has not been issued, but one is expected.

ISO-NE Wholesale Electric Markets and Supply Commitments

Section 2.2 of this report discusses the results of the most recent forward capacity auction in the ISO-NE wholesale electricity market. In addition this year's report provides information on the following statutory requirement:

- For each private power producer having a facility generating more than one megawatt and from whom the person furnishing the report has purchased electricity during the preceding calendar year, a statement including the name, location, size and type of generating facility, the fuel consumed by the facility and the by-product of the consumption

Conservation and Load Management Programs

For many years, CL&P has been developing and implementing nationally recognized 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"). Further discussion of CL&P's C&LM program forecast can be found in Chapter 3. The 2013-2015 C&LM Plan includes an increased savings scenario, which is consistent with Public Act 11-80 policy objectives of increasing the role of energy efficiency in Connecticut.

The C&LM Plan comports with the DEEP findings in the IRP and is projected to deliver electric savings of approximately 2.1 % of sales per year on average over the three-year period. Recommendations from the state's recently drafted Comprehensive Energy Plan ("CES") are also integrated into this 3-year Plan. The 2013-2015 C&LM Plan represents a continuation of integrating the C&LM plans for both the EDCs and Natural Gas Local Distribution Companies ("LDCs"), to benefit electric and gas customers and to reduce duplicative efforts.

DEEP approved a three-year Expanded Plan comprising programs, strategies, budgets and increased funding levels necessary to achieve the State's increased savings goals.

Transmission Planning

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. A discussion of CL&P's transmission forecast can be found in Chapter 4. The key features are:

- CL&P's transmission facilities are part of the New England regional grid and must be designed, operated and maintained to ensure compliance with mandatory North American Electric Reliability Corporation ("NERC") 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 objectives and mandates.

1.4 Chapter 1 Review

Despite the complicated mix of the economy, market pressures and market participants (much different from the landscape when the legislature originally required 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 not a lack of generation resources. In this report CL&P discusses its efforts to build and maintain a reliable transmission system for delivering energy to its customers and the region.

Chapter 2: FORECAST OF LOADS AND RESOURCES

Chapter Highlights

- Although electric energy usage is expected to increase by 0.1% per year over the 10-year forecast period, peak demand is expected to grow by 0.3% per year during this time.
- While CL&P uses its own Reference Plan Forecast for financial forecasting, the Company uses Independent System Operator- New England ("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 2013, and are based on CL&P's total franchise area. The base case or 50/50[1] 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, projected reductions resulting from distributed generation ("DG") projects developed in accordance with Public Act 05-01, *An Act Concerning Energy Independence* ("PA 05-01") and projected reductions resulting from low and zero emission renewable energy credits ("LREC/ZREC") developed in accordance with Public Act 11-80.

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 an increase in the weather-normalized CAGR for total electrical energy output requirements of 0.1% for CL&P from 2013-2023. Without the Company's C&LM programs, DG or LREC/ZREC resources, the forecasted energy growth rate would be 0.8%.

The weather-normalized CAGR for summer peak demand in the Reference Plan *Peak Demand* Forecast is forecasted to be 0.3% over the ten-year forecast period. Similarly, if CL&P's C&LM, DG and LREC/ZREC programs, along with the ISO-NE load response programs were excluded, the CAGR for forecasted peak demand would be 1.3%.

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[1] 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%.

the 2009-2013 period, and forecast output and peaks for the 2014-2023 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 that must be supplied by generating plants to serve the loads on the distribution system.

The Reference Plan Forecast is a *50/50* forecast 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 1981-2010. 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 six 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 July 2013. 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.

- DG Monetary Grant Program - This forecast includes modest assumptions about sales reductions resulting from DG projects for which monetary grants have been requested on or before October 14, 2008.[2] 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.

- Low & Zero Emission Renewable Energy Credits ("LREC/ZREC") -This forecast includes explicit reductions to electrical energy output requirements due to renewable energy credits. The LREC/ZREC program was created by the Connecticut General Assembly in 2011 as part of an energy policy reform bill.

- Electric Prices - This forecast assumes that total average electric prices will remain fairly stable throughout the forecast period 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.

[2] 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.

- Electric Vehicles ("EV") - This forecast includes explicit additions to electrical energy output requirements due to electric vehicles. It does not include any additions to the peak forecast since it assumed that the majority of the charging will be done off-peak.

- Weather - The Reference Plan Forecast assumes normal weather based on a thirty-year average (i.e., 1981 – 2010) 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 650 MWs, above and below CL&P's 50/50 forecast, which is based on normal weather. To illustrate, the 2023 summer peak forecast reflecting average peak-producing weather is 5,367 MWs. However, either extremely mild or extremely hot weather could result in a range of potential peak loads from 4,657 MWs to 5,957 MWs. This 1,300 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 sixth 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.

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

Table 2-1: CL&P 2013 Reference Plan Forecast

	Net Electrical Energy Output Requirements		Reference Plan (50/50 Case)			Extreme Hot Scenario			Extreme Cool Scenario		
Year	Output GWh	Annual Change (%)	Peak MW	Annual Change (%)	Load Factor (2)	Peak MW	Annual Change (%)	Load Factor (2)	Peak MW	Annual Change (%)	Load Factor (2)
HISTORY											
2009	23364		4873		0.547						
2010	23931	2.4%	5345	9.7%	0.511						
2011	23494	-1.8%	5516	3.2%	0.486						
2012	23235	-1.1%	5280	-4.3%	0.501						
2013	23441	0.9%	5448	3.2%	0.491						
Compound Rates of Growth (2009-2013)											
	0.1%		2.8%								
HISTORY NORMALIZED FOR WEATHER *											
2009	23735		4935		0.549						
2010	23484	-1.1%	4994	1.2%	0.537						
2011	23286	-0.8%	5279	5.7%	0.504						
2012	23200	-0.4%	5039	-4.5%	0.524						
2013	23268	0.3%	5202	3.2%	0.511						
Compound Rates of Growth (2009-2013)											
	-0.5%		1.3%								
FORECAST											
2014	23481	0.9%	5211	0.2%	0.514	5747	10.5%	0.466	4576	-12.0%	0.586
2015	23477	0.0%	5234	0.4%	0.512	5775	0.5%	0.464	4590	0.3%	0.584
2016	23558	0.3%	5253	0.4%	0.511	5800	0.4%	0.462	4601	0.2%	0.583
2017	23492	-0.3%	5268	0.3%	0.509	5821	0.4%	0.461	4608	0.1%	0.582
2018	23403	-0.4%	5280	0.2%	0.506	5840	0.3%	0.458	4612	0.1%	0.579
2019	23252	-0.6%	5286	0.1%	0.502	5851	0.2%	0.454	4609	-0.1%	0.576
2020	23353	0.4%	5304	0.4%	0.501	5876	0.4%	0.452	4619	0.2%	0.576
2021	23341	-0.1%	5325	0.4%	0.500	5903	0.4%	0.451	4632	0.3%	0.575
2022	23399	0.3%	5346	0.4%	0.500	5930	0.5%	0.450	4644	0.3%	0.575
2023	23461	0.3%	5367	0.4%	0.499	5957	0.5%	0.450	4657	0.3%	0.575
Compound Rates of Growth (2013-2023)											
	0.0%		-0.2%			0.9%			-1.8%		
Normalized Compound Rates of Growth (2013-2023)											
	0.1%		0.3%			1.4%			-1.3%		

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).

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.

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 2-2: Adjustments to Output and Summer Peak Forecasts

Net Electrical Energy Output Requirements

Year	Unadjusted Output GWH	Renewable Energy Credits GWH	Distributed Generation GWH	Company Sponsored C&LM GWH	ISO-NE Load Response GWH	Adjusted Output GWH	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER							
2013						23,268	
FORECAST							
2014	24,258	(94)	(665)	(19)	-	23,481	0.9%
2015	24,439	(225)	(669)	(68)	-	23,477	0.0%
2016	24,704	(361)	(671)	(115)	-	23,558	0.3%
2017	24,821	(503)	(669)	(156)	-	23,492	-0.3%
2018	24,917	(652)	(669)	(192)	-	23,403	-0.4%
2019	24,874	(731)	(669)	(223)	-	23,252	-0.6%
2020	25,001	(731)	(669)	(248)	-	23,353	0.4%
2021	25,008	(731)	(669)	(268)	-	23,341	-0.1%
2022	25,082	(731)	(669)	(283)	-	23,399	0.3%
2023	25,153	(731)	(669)	(293)	-	23,461	0.3%
Normalized Compound Rates of Growth (2013-2023)							
	0.8%					0.1%	

Reference Plan (50/50 Case)

Year	Unadjusted Peak MW	Renewable Energy Credits MW	Distributed Generation MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER							
2013						5,202	
FORECAST							
2014	5,389	(8)	(57)	(13)	(100)	5,211	0.2%
2015	5,461	(19)	(57)	(51)	(100)	5,234	0.4%
2016	5,530	(31)	(57)	(89)	(100)	5,253	0.4%
2017	5,595	(43)	(57)	(127)	(100)	5,268	0.3%
2018	5,658	(56)	(57)	(165)	(100)	5,280	0.2%
2019	5,708	(63)	(57)	(203)	(100)	5,286	0.1%
2020	5,765	(63)	(57)	(241)	(100)	5,304	0.4%
2021	5,824	(63)	(57)	(279)	(100)	5,325	0.4%
2022	5,882	(63)	(57)	(317)	(100)	5,346	0.4%
2023	5,941	(63)	(57)	(355)	(100)	5,367	0.4%
Normalized Compound Rates of Growth (2013-2023)							
	1.3%					0.3%	

Extreme Hot Weather Scenario

Year	Unadjusted Peak MW	Renewable Energy Credits MW	Distributed Generation MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER							
2013						5,202	

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

FORECAST							
2014	5,924	(8)	(57)	(13)	(100)	5,747	10.5%
2015	6,002	(19)	(57)	(51)	(100)	5,775	0.5%
2016	6,077	(31)	(57)	(89)	(100)	5,800	0.4%
2017	6,148	(43)	(57)	(127)	(100)	5,821	0.4%
2018	6,218	(56)	(57)	(165)	(100)	5,840	0.3%
2019	6,274	(63)	(57)	(203)	(100)	5,851	0.2%
2020	6,337	(63)	(57)	(241)	(100)	5,876	0.4%
2021	6,402	(63)	(57)	(279)	(100)	5,903	0.4%
2022	6,466	(63)	(57)	(317)	(100)	5,930	0.5%
2023	6,532	(63)	(57)	(355)	(100)	5,957	0.5%
Normalized Compound Rates of Growth (2013-2023)							
	2.3%					1.4%	

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

2.2 ISO-NE Wholesale Electric Markets and Supply Commitments

This section reports on the most recent ISO-NE forward capacity auction and the statutory filing requirements for electric distribution companies.

The eighth forward capacity auction took place on February 3, 2014 and concluded in the first round. Per ISO-NE's press release on the auction,

> "Preliminary results show that the Forward Capacity Market (FCM) auction concluded with about 33,700 megawatts (MW) of the 33,855 MW of capacity required for the 2017–2018 capacity commitment period. The auction commenced at a starting price of $15.82/kilowatt-month (kW-month) and concluded with a capacity clearing price of $15.00/kW-month when a resource submitted a bid to withdraw from the auction if the price fell lower.
>
> The capacity clearing price of $15.00/kW-month will be paid in 2017–2018 to about 1,370MW of new capacity resources cleared in this auction while about 24,885MW of existing resources will be paid $7.025/kW-month. Another 1,030MW of existing resources with multi-year supply obligations will be paid at rates set in previous auctions. In Northeast Massachusetts/Boston (NEMA/Boston), 3,085 MW of both new and existing resources will be paid $15.00/kW-month based on administrative pricing rules. Another 3,330 MW of self-supply resources will not be paid through the FCM.

With respect to the request that for each private power producer having a facility generating more than one megawatt and from whom the person furnishing the report has purchased electricity during the preceding calendar year, a statement including the name, location, size and type of generating facility, the fuel consumed by the facility and the by-product of the consumption, CL&P provides this information in Table 2-3 below.

Table 2-3

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

EXISTING & PROVIDED GENERATION TO CL&P DURING 2013

Project Name	Location	(1) Facility Type	Fuel Source	By-Product of Fuel Consumption	Estimated Capacity MW	Max Claimed Capability Winter	Max Claimed Capability Summer
FACILITIES UNDER LONG TERM CONTRACT (2)							
Derby Dam	Shelton, CT	SPP	Hydro	-	6,900	7,050	7,050
Goodwin Dam	Hartland, CT	SPP	Hydro	-	3,300	3,000	3,000
Colebrook	Colebrook, CT	SPP	Hydro	-	3,300	583	758
Quinebaug	Danielson, CT	SPP	Hydro	-	2,161	933	330
Kinneytown B	Seymour, CT	SPP	Hydro	-	1,500	734	0
Preston (SCRRRA)	Preston, CT	SPP	Refuse	-	13,850	16,052	15,813
Bristol RRF	Bristol, CT	SPP	Refuse	-	13,200	12,767	12,370
Lisbon	Lisbon, CT	SPP	Refuse	-	13,500	13,449	13,522
Hartford Landfill	Hartford, CT	SPP	Methane	-	2,445	1,352	1,248
Plainfield Renewable Energy	Plainfield, CT	SPP	Wood	-	30,000	0	0
Somers Solar Center	Somers, CT	SPP	Solar	-	5,000	N/A	N/A
					95,156	55,920	54,091
FACILITIES NOT UNDER LONG TERM CONTRACT (3)							
Hartford Steam	Hartford, CT	COGEN	Gas	Steam	3,510	N/A	N/A
Pratt & Whitney	E. Hartford, CT	COGEN	Gas	Steam	23,800	N/A	N/A
Rainbow (Farmington River Power)	Windsor, CT	SPP	Hydro	-	8,200	8,200	8,200
Rand-Whitney	Montville, CT	COGEN	Gas	Steam	14,200	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	1,400	1,304
					56,433	9,600	9,504
				TOTAL EXISTING	151,589	65,520	63,595

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

Chapter 3: CONSERVATION AND LOAD MANAGEMENT (C&LM)

Chapter Highlights

- Public Act 13-298 provided for increased conservation funding. As a result, a three-year Conservation and Load Management Plan was approved by DEEP in 2013 which nearly doubled conservation efforts in Connecticut.
- Energy and Demand savings resulting from Connecticut Energy Efficiency Fund programs are a cost-effective resource available to Connecticut customers.
- Connecticut Energy Efficiency Fund programs maximize the amount of energy-efficiency monies available to customers by leveraging a variety of funding sources.
- Connecticut Energy Efficiency Fund programs are recognized nationally and provide economic development benefits to the State.

CL&P 2013 - 2015 Conservation and Load Management Plan

In 2011, Public Act 11-80, *An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future Efficiency*, was passed which laid the groundwork for pursuing all cost effective energy efficiencies. In 2013, Public Act 13-298, *An Act Concerning Implementation of Connecticut's Comprehensive Strategy and Various Revision to the Energy Statutes*, provided the framework for increased conservation spending in Connecticut for electric and natural gas conservation programs. On October 31, 2013, the Department of Energy and Environmental Protection ("DEEP") approved the 2013 – 2015 Conservation and Load Management Plan ("Plan") submitted by the Connecticut electric and gas utility companies on November 1, 2012.[3] The C&LM Plan was based upon input from members of the public, industry groups and private enterprise, and was developed in collaboration with the Energy Efficiency Board ("EEB"). The approved Plan resulted in approximately $180 million in statewide funding for electric conservation programs. This unprecedented level of funding is anticipated to increase the benefits of conservation programs in the future.

Funding for C&LM programs currently 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.[4] Public Act 11-80 and the subsequent DEEP approval of the Plan provide an additional 3 mil Cost Adjustment Mechanism ("CAM") charge for conservation. In addition, C&LM programs receive funding from other sources including the Independent System Operator of New England ("ISO-NE")'s Forward Capacity Market, Class III renewable energy revenues, and Regional Greenhouse Gas Initiative ("RGGI").

Energy efficiency is a cost-effective resource available to policymakers to address rising energy costs, reliability challenges, and greenhouse gas reduction. Efficiency and load response programs reduce the amount of energy Connecticut's homes, businesses and schools consume, helping to decrease demand for energy from power plants, reducing the harmful emissions those power plants produce, and reducing consumer energy bills in all sectors including residential, commercial,

[3] DEEP, Public Act 11-80 – Section 33 – 2013-2015 Conservation and Load Management Plan.
[4] Conn. Gen. Stat. § 16-245m.

industrial and municipal. Energy efficiency programs also provide economic development benefits for Connecticut.[5]

Connecticut is a nationally recognized leader in implementing high-quality energy-efficiency programs. Since 2000, the American Council for an Energy Efficient Economy ("ACEEE") has ranked Connecticut as one of the top states for energy efficiency. In the ACEEE's *2013 State Energy Efficiency Scorecard*, Connecticut ranked fifth in the nation. This ranking reflects the success of Connecticut's energy efficiency programs.

CL&P with guidance from the EEB, maintain their conservation and load management programs' success through an evolving, integrated approach that reaches out to customers in their homes, at their jobs, in schools and in the community. Through seminars, workshops, teacher training, museum partnerships, trade and professional affiliations, retail partnerships and marketing, CL&P is helping to shape a more efficiency-minded consumer that not only participates in our award-winning programs, but makes wiser energy choices every day.

3.1 Ten-Year C&LM Forecast

Table 3-1 presents the potential cumulative annual energy savings and summer and winter peak-load reductions forecasted for C&LM programs implemented in the CL&P service territory for the C&LM Plan base budget. The forecasts is based on anticipated savings[6] from the three year approved C&LM Plan. Forecasted savings beyond 2014 assumes similar programs, budgets and savings as anticipated in 2014.

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 consumer 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 C&LM Plan and expected future funding as described above. Any additional legislative or regulatory changes in geographic and program focus will produce results that may vary from these projections.

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[5] Navigant Consulting, CT Renewable Energy/Energy Efficiency Economy Baseline Study. Phase I Deliverable, March 27, 2009.

[6] Per the DEEP approval of the C&LM three-year Plan, CL&P is currently working with the EEB and DEEP on updating savings projections for 2014 and 2015. The provided forecast is subject to change based on EEB and DEEP input.

Table 3-1

CL&P C&LM Programs Annual Energy Savings

and

Peak Load Reduction by Customer Class

Connecticut Light and Power

2014-2023

GWh Sales Saved

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Residential	42	169	296	423	550	677	804	931	1,058	1,185
Commercial	44	176	308	440	572	705	837	969	1,101	1,233
Industrial	13	53	92	132	172	211	251	290	330	370
Total	**100**	**398**	**697**	**996**	**1,294**	**1,593**	**1,892**	**2,190**	**2,489**	**2,788**

MW Reductions (Passive Resource Summer Impacts)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Residential	6	22	39	55	72	88	105	122	138	155
Commercial (non-Load Response))	6	23	40	58	75	92	110	127	144	162
Industrial (non-Load Response)	2	7	12	17	23	28	33	38	43	48
Total	**13**	**52**	**91**	**130**	**169**	**209**	**248**	**287**	**326**	**365**

MW Reductions (Passive Resource Winter Impacts)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Residential	10	42	73	104	135	166	198	229	260	291
Commercial (non-Load Response))	5	21	36	51	67	82	97	113	128	144
Industrial (non-Load Response)	2	6	11	15	20	25	29	34	38	43
Total	**17**	**68**	**119**	**171**	**222**	**273**	**324**	**375**	**427**	**478**

Notes:

1) This table includes only passive resources. It does not include 95 MW of Load Response demand savings (active resources) which CL&P maintains through the ISO-NE program.
2) Total savings assumes that all measures will continue to provide savings throughout the forecast period.

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 to ensure compliance with mandatory NERC 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 objectives and mandates.

4.1 Transmission is planned and built for the long term

Transmission systems enable varying amounts and sources of generation 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 or export power to or from Connecticut, and the transmission system may need to be expanded. Transmission system additions are proposed and built to accommodate the future, considering many scenarios.

4.2 Transmission Planning and National Reliability Standards

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 NERC as the nation's Electric Reliability Organization ("ERO"). The ERO seeks 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. The pre-ERO NERC recognized that the actual planning and construction of new transmission facilities was becoming more complex when in 1997 it's Planning Standards 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.*[7]

[7] Planning Standards, North American Electric Reliability Corporation, September 1997

On March 15, 2007, the 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.

FERC Order 890 amended the regulations and the pro forma open-access transmission tariff adopted in Order 888 and 889 to ensure that transmission services are provided on a basis that is just, reasonable and not unduly discriminatory or preferential. The final rule was designed to: (1) strengthen the pro forma open-access transmission tariff, or OATT to ensure that it achieves its original purpose of remedying undue discrimination: (2) provide greater specificity to reduce opportunities for undue discrimination and facilitate the Commission's enforcement; and (3) increase transparency in the rules applicable to planning and use of the transmission system.

On December 20, 2012 the FERC issued a final rule approving revisions to NERC's "Bulk Electric System" definition. Key revisions to the approved definition remove language allowing for broad discretion across the reliability regions in North America and establish a "bright-line" threshold that includes all facilities operated at or above 100 kilovolts. The revised definition requires that more facilities be covered and be compliant with the NERC Transmission Planning Reliability Standards than under the previous definition. Future transmission planning assessments and studies must be expanded to adhere to this revised definition to comply with the NERC reliability standards.

4.3 Environmental Regulations and Public Policy

Some existing and proposed EPA rules and regulations will affect generation retirement decisions. While prices in the capacity markets will also influence generation retirement decisions, EPA rules and regulations (e.g., regarding hazardous air pollutants such as mercury, tighter ozone standards, and the Clean Water Act on cooling water intakes) that require generators to install costly retrofits will also be a major factor in retirement decisions in the longer term.

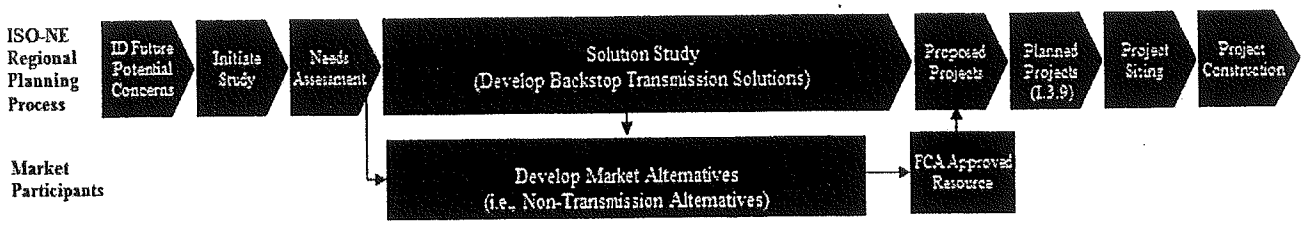
With regards to public policy, Connecticut has the highest target under the Renewable Portfolio Standard ("RPS")—20% by 2020—of all New England states, but few native resources. CT meets its RPS targets primarily by purchasing renewable energy credits generated elsewhere in New England; therefore, Connecticut competes with other states in the renewable energy credit market. The 2012 IRP found that Connecticut will fall short of its RPS target as early as 2018 unless the development of renewable resources and associated enabling transmission across New England is accelerated.

4.4 Transmission Planning Process

Within the ISO-NE regional planning process that strives for compliance with NERC and Northeast Power Coordinating Council ("NPCC") planning standards, ISO-NE and TOs perform reliability assessment studies of the New England transmission system. Individual sub-area studies ("Needs Assessments") are performed to identify system needs over a ten-year horizon. When a system reliability problem is identified from a needs assessment, ISO-NE and the TOs develop one or more transmission system options (i.e., backstop transmission solutions) to resolve the transmission reliability needs and ensure that NERC and NPCC reliability standards are met.

The transmission system solution options are then further evaluated to determine their feasibility of construction, potential for environmental impacts, estimated costs, longevity, operational differences, etc. When analysis of the options is complete, the TOs recommend a proposed transmission project to ISO-NE and the Planning Advisory Committee ("PAC"). In parallel, market participants can develop and propose market resource alternatives (non-transmission alternatives: "NTAs") to resolve the identified needs.
These transmission studies, and the transmission solutions, are documented in a Solution Study report, and in aggregate, provide a basis for updating ISO-NE's Regional System Plan (RSP), as depicted in the sequence of the process below:

Transmission Planning Process Figure 1



4.5 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 reliability standards mandated by the FERC and implemented by NERC and faces severe financial penalties of up to $1 million per day for *each* non-compliance occurrence.
- The potential to develop large quantities of renewable resources, like solar, wind and hydroelectric power, is very low in Connecticut, but wind and hydroelectric power have greater development prospects in northern New England and Canada.
- The prospect of transporting renewable energy from northern New England and Canada to southern New England is particularly promising. To this end, CL&P's parent company. Northeast Utilities, along with Hydro-Quebec, is currently developing a transmission project that will enable imports of up to 1,200 MW of low-carbon power generated in Canada.

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

CL&P divides its service territory into six areas as described below for the purpose of assessing the reliability of its transmission system. A list of transmission projects is listed by transmission line and substation in tables 4-1 and 4.2, following the area descriptions. Transmission line reinforcements are identified by entries under the "from" and "to" station headings in Table 4.1. Station reinforcements are identified by single line entries under the "from" station heading in Table 4.2. The term "station" is interchangeable with substation or switching station. The tables include information on the project's proposed in-service date ("ISD").

The SWCT area 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. An updated needs assessment in the SWCT area is expected to be completed in early 2014 and presented to ISO-NE PAC. Solutions to resolve the identified needs will be proposed to ISO-NE and PAC. Greenwich is one of the fastest growing towns in Southwest

Connecticut. Currently, the electric load in Greenwich is served by the Cos Cob 27.6-kV system. The Cos Cob Substation is projected to reach its permissible load limit in 2017 and there is inadequate space at the Cos Cob Substation for any further transformation. To resolve reliability issues, CL&P is proposing a new 115/13.2-kV bulk power substation in Greenwich. The Eastern Connecticut Area extends in a westerly direction for about twenty miles from the Rhode Island border and north from Long Island Sound to the Massachusetts border. The area is served by both CL&P and CMEEC. The Eastern Connecticut Needs Assessment was presented to PAC in two stages. The first stage was presented In May 2013 and detailed the thermal and voltage analysis. The second stage was presented to PAC and in July 2013 and detailed the critical load level analysis and short circuit assessment. Based on the needs identified, various transmission reinforcements will be required. These reinforcements will be identified during the Solution Study phase in 2014.

The Manchester - Barbour Hill Area 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 Middletown Area 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.

The Greater Hartford Area includes 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. It straddles the Connecticut River in the heart of central Connecticut.

The Northwestern Connecticut Area is the portion of the state bounded north and west by the Massachusetts and New York state borders, easterly toward Route 8 and southerly to the SWCT region.

Through its GHCC (Greater Hartford / Central Connecticut) working group, ISO-NE is currently studying load serving needs in the Hartford, Middletown, northwestern Connecticut, and Manchester / Barbour Hill areas, as well as the need for increased transfer capacity across the Western CT Interface. Since the CCRP transmission project was designed to address a need for a higher Western Connecticut Import, the GHCC study also includes the reassessment of that project. The results of the modeling of these needs have been presented to the ISO-NE PAC, and a full needs assessment report will be issued in early 2014. Solutions to address the documented needs are under study and will be presented to ISO-NE PAC in Q1 2014.

Table 4-1: CL&P Proposed Transmission Line Projects in Connecticut

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description	Status
Frost Bridge	Watertown	Stevenson	Monroe	115	2014	20.5	Replace structures & reconductor	Under Construction
Glenbrook	Stamford	South End	Stamford	115	2014	1.5	Underground Cable	Under Construction
Card	Lebanon	Lake Road	Killingly	345	2015	29.3	NEEWS - Interstate	Planned
Lake Road	Killingly	CT/RI Border	Thompson	345	2015	7.6	NEEWS - Interstate	Planned
Cos Cob	Greenwich	Greenwich	Greenwich	115	2017	3.0	New transmission line	Planned
Frost Bridge	Watertown	North Bloomfield	Bloomfield	345	2017	35.4	NEEWS - CCRP	Planned
Manchester	Manchester	East Hartford	East Hartford	115	TBD	3.2	New transmission line	Concept

Table 4-2: CL&P Proposed Substation Projects in Connecticut

Substation	City or Town	Voltage kV	ISD	Project Description	Status
South End	Stamford	115/13.2	2014	Add a distribution transformer	Under Construction
Norwalk	Norwalk	115/13.8	2014	Add a distribution transformer	Planned
East Devon	Devon	345	2014	Add a series breaker	Planned
Haddam Neck	Haddam	345	2014	Add a Variable Shunt Reactor	Under Construction
Bulls Bridge	New Milford	115/27.6/23	2015	Replace transformer	Proposed
Card	Lebanon	345	2015	NEEWS - Interstate	Under Construction
Lake Road	Killingly	345	2015	NEEWS - Interstate	Planned
Canal	Southington	115/23	2016	Add a distribution transformer	Concept
Tracy	Putnam	115	2016	Add a distribution transformer and a 115-kV breaker	Concept
Uncasville	Montville	115/13.2	2016	Replace both transformers with larger capacity transformers	Concept
Frost Bridge	Watertown	345/115	2017	NEEWS – (CCRP)	Planned
Greenwich	Greenwich	115/13.2	2017	Add a new substation	Planned
Beseck	Wallingford	115	2017	Add a second Variable Shunt Reactor	Planned
North Bloomfield	Bloomfield	345	2017	NEEWS – CCRP	Planned
Burrville	Torrington	115	2018	New Substation	Concept
North Bloomfield	Bloomfield	115/23	2020	Add a distribution transformer	Concept

4.7 Incorporation of Renewables through Transmission, including future outlook

NU has proposed a high-voltage direct current transmission tie line with Hydro Quebec (Northern Pass Transmission Project: "NPT") that would provide New England access to competitively priced, non-carbon emitting hydroelectric power.

The NPT project has received FERC approval of a transmission service agreement with Hydro Renewable Energy Inc. (Hydro Quebec) and the federal siting approval process with the U.S. Department of Energy is underway. The NPT project has filed a revision to the route to the Department of Energy and is currently awaiting a draft Environmental Impact Statement. In December 2013, ISO-NE approved the NPT Proposed Plan Application showing that NPT will not have a significant adverse effect upon the New England power system.