2016 Forecast of Loads and Resources

for the Period 2016-2025

March 1, 2016

List of Acronyms

"ACEEE"	American Council for an Energy Efficiency Economy
"C&LM"	Conservation and Load Management
"CAGR"	Compound Annual Growth Rate
"CAM"	Cost Adjustment Mechanism
"CCEF"	Connecticut Clean Energy Fund
"CCRP"	Central Connecticut Reliability Fund
"CEAB"	Connecticut Energy Advisory Board
"CES"	Comprehensive Energy Strategy
"CSC"	Connecticut Siting Council
"CMEEC"	Connecticut Municipal Electric Energy Cooperative, Inc.
"DEEP"	Department of Energy and Environmental Protection
"DOE"	Department of Energy
"DPUC"	Department of Public Utility Control
"DG"	Distributed Generation
"EEB"	Energy Efficiency Board
"EDC"	Electric Distribution Company
"EIPC"	Eastern Interconnection Planning Collaborative
"EIS"	Environmental Impact Statement
"EPA"	Energy Purchase Agreement
"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
"IPR"	Intermittent Power Resource
"IRP"	Integrated Resource Plan
"ISD"	In-Service Date
"ISO-NE"	Independent System Operator – New England
"KV"	Kilovolt or 1,000 Volts
"KW"	Kilowatt or 1,000 Watts
"LDC"	Local Distribution Companies
"LREC"	Low Emission Renewable Energy Credits

List of Acronyms, Continued

"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
"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 Statues
"PAC"	Planning Advisory Committee
"PURA"	Public Utility 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

Contents

Chapter 1: INTRODUCTION

1.1 Overview of Eversource’s 2016 Forecast of Loads and Resources Report

The Connecticut Light & Power Company doing business as Eversource Energy ("Eversource") is a company engaged in electric distribution and transmission services in Connecticut, as defined in Conn. Gen. Stat. §16-1. As such, Eversource has prepared this Ten-Year FLR pursuant to Conn. Gen. Stat. §16-50r. Eversource has provided an annual FLR to the CSC for approximately forty years. This 2016 FLR includes the following information[1]:

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 Eversource's energy efficiency programs 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.

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. Eversource’s electric energy usage is expected to decrease by a weather- normalized CAGR of 0.5% per year, and peak demand is expected to grow by a weather-normalized CAGR of 0.5% per year over the 10-year forecast period from 2015 through 2025.

While Eversource is providing this forecast which was developed for financial forecasting purposes, Eversource uses ISO-NE's load forecast for transmission planning purposes. Further discussion of Eversource'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, Eversource 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,* directing the annual development of an 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 and Planning for Connecticut's Energy Future.* PA 11-80 calls for DEEP to create an IRP by January 1, 2012 and biennially thereafter, in consultation with CEAB[2] and the EDCs.

On March 17, 2015, DEEP issued its 2014 IRP for Connecticut presenting a comprehensive plan for improving Connecticut's electric energy future.

[1] Pursuant to discussions with CSC staff, Eversource has removed the previously provided Table 2-3: Existing Customer Owned Facilities 1 MW and Above Providing Generation to the Eversource System from this filing.
[2] The CEAB was dissolved as of June 6, 2014. *See* General Statutes § 16a-3, repealed by Public Act 14-94, § 82.

ISO-NE Wholesale Electric Markets

Section 2.2 of this report discusses the results of the most recent forward capacity auction in the ISO-NE wholesale electricity market.

Energy Efficiency Programs

For many years, Eversource has been developing and implementing nationally recognized Energy Efficiency 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 per kWh energy efficiency charge on customer bills, as well as revenues received from RGGI auctions and revenue from the ISO New England Forward Capacity Market.

The 2015 Energy Efficiency Plan comports with PA 11-80, and is projected to deliver an economic benefit to customers of approximately $715 million to Connecticut in 2015. The current Energy Efficiency Plan represents a continuation of integrating the energy efficiency plans for both the EDCs and Natural Gas LDCs, to benefit electric and gas customers and to reduce duplicative efforts. Further discussion of Eversource's energy efficiency program forecast can be found in Chapter 3.

Transmission Planning

Eversource 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 Eversource's transmission forecast can be found in Chapter 4. The key topics include:

- Eversource'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.
- Eversource 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.

Chapter 2: FORECAST OF LOADS AND RESOURCES

Chapter Highlights

- Electric energy usage is expected to decrease by 0.5% per year over the 10-year forecast period; however, peak demand is expected to increase by 0.5% per year during this time.

- While Eversource 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 2015, and are based on Eversource's total franchise area. The base case or 50/50[3] case is also referred to as the Reference Plan Forecast. Eversource's Reference Plan *Energy* Forecast is based on the results of econometric models, adjusted for Eversource's forecasted energy efficiency programs and projected reductions resulting from solar installations.

The Reference Plan *Peak Demand* Forecast is also based on an econometric model that uses energy as a trend variable which means reductions for energy efficiency and solar are implicitly included. The results of the econometric model are adjusted for projected reductions due to ISO-NE's load response program.

As noted, the Reference Plan Forecast is used for Eversource'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 the Company 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 Eversource's forecast.

The Reference Plan *Energy* Forecast projects a *decrease* in the weather-normalized CAGR for total electrical energy output requirements of 0.5% for CL&P from 2015-2025. Without the Company's energy efficiency programs or solar installations, the forecasted energy growth rate is projected to be an *increase* in the weather-normalized CAGR of 0.1%.

The change in the weather-normalized CAGR for summer peak demand in the Reference Plan *Peak Demand* Forecast is forecasted to increase by 0.5% over the ten-year forecast period. Similarly, if Eversource's Energy Efficiency and solar installations, along with the ISO-NE load response programs were excluded, the increase in the CAGR for forecasted peak demand would be 0.8%.

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[3] 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%.

Table 2-1 provides historic output and summer peaks, actual and normalized for weather, for the 2011-2015 period, and forecast output and peaks for the 2016-2025 periods. The sum of the class sales for each year, adjusted for 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° F and is based on the average peak day temperatures from 1985-2014. 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 July 2015. 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.
- Solar - This forecast includes explicit reductions to electrical energy output requirements due to solar installations stemming from the LREC/ZREC program and the Connecticut Green Bank residential program.
- Electric Prices - This forecast assumes that total average electric prices will decrease slightly in 2016 and then remain fairly stable throughout the remainder of the forecast period.
- 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 (1985 - 2014) of heating and cooling degree days. The historical peak day 24- hour mean temperatures range from 74° F to 89° 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 2011. 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 16%, or 800 MWs, above and below Eversource's 50/50 forecast, which is based on normal weather. To illustrate, the 2025 summer peak forecast reflecting average peak-producing weather is 5,268 MWs. However, either extremely mild or extremely hot weather could result in a range of potential peak loads from 4,502 MWs to 6,160 MWs. This 1,650 MWs of variation, which is a band of approximately plus or minus 16% around the average, demonstrates the potential impact of weather alone on forecasted summer peak demand.

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

Table 2-1: Eversource 2016 Reference Plan Forecast

	Net Electrical Energy Output Requirements		Reference Plan (50/50 Case)			Extreme Hot Scenario			Extreme Cool Scenario		
Year	Output GWh (1)	Annual Change (%)	Peak MW	Annual Change (%)	Load Factor (2)	Peak MW	Annual Change (%)	Load Factor (2)	Peak MW	Annual Change (%)	Load Factor (2)
HISTORY											
2011	23494		5516		0.486						
2012	23235	-1.1%	5280	-4.3%	0.501						
2013	23447	0.9%	5448	3.2%	0.491						
2014	23041	-1.7%	4772	-12.4%	0.551						
2015	23047	0.0%	4850	1.6%	0.543						
Compound Rates of Growth (2011-2015)											
	-0.5%		-3.2%								
HISTORY NORMALIZED FOR WEATHER *											
2011	23286		5279		0.504						
2012	23200	-0.4%	5039	-4.5%	0.524						
2013	23275	0.3%	5202	3.2%	0.511						
2014	22992	-1.2%	5002	-3.8%	0.525						
2015	22811	-0.8%	5034	0.6%	0.517						
Compound Rates of Growth (2011-2015)											
	-0.5%		-1.2%								
FORECAST											
2016	23144	1.5%	5125	1.8%	0.514	5850	16.2%	0.450	4500	-10.6%	0.585
2017	23121	-0.1%	5158	0.6%	0.512	5902	0.9%	0.447	4517	0.4%	0.584
2018	22919	-0.9%	5167	0.2%	0.506	5929	0.5%	0.441	4511	-0.2%	0.580
2019	22698	-1.0%	5177	0.2%	0.501	5958	0.5%	0.435	4505	-0.1%	0.575
2020	22574	-0.5%	5190	0.2%	0.495	5989	0.5%	0.429	4502	-0.1%	0.571
2021	22355	-1.0%	5205	0.3%	0.490	6023	0.6%	0.424	4502	0.0%	0.567
2022	22198	-0.7%	5220	0.3%	0.485	6056	0.6%	0.418	4501	0.0%	0.563
2023	22047	-0.7%	5235	0.3%	0.481	6090	0.6%	0.413	4501	0.0%	0.559
2024	21965	-0.4%	5251	0.3%	0.476	6124	0.6%	0.408	4501	0.0%	0.556
2025	21767	-0.9%	5268	0.3%	0.472	6160	0.6%	0.403	4502	0.0%	0.552
Compound Rates of Growth (2015-2025)											
	-0.6%		0.8%			2.4%			-0.8%		
Normalized Compound Rates of Growth (2015-2025)											
	-0.5%		0.5%			2.0%			-1.2%		

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

Forecasted Reference Plan Peaks are based on normal peak day weather (82º mean daily temperature). Forecasted High Peaks are based on the weather that occurred on the 2011 peak day (89º mean daily temperature). Forecasted Low Peaks are based on the weather that occurred on the 2000 peak day (74º 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 Eversource 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.

The 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, 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 Eversource has reported in the past, there is one other major difference between the Eversource and ISO-NE forecasts, aside from the difference between the 50/50 forecast methodology used by Eversource and the 90/10 forecast methodology used by ISO-NE. The Eversource demand forecasts include explicit reductions in the energy forecast for the Company's C&LM programs and solar 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 large scale solar to be supply resources in their capacity forecast. ISO-NE has developed a new Photovoltaic (PV) forecast such that small scale solar is calculated and explicitly reduces the ISO-NE demand forecast. ISO-NE publishes the PV forecast annually as part of their load forecast documentation.

Table 2-2 shows Eversource's Reference Plan Forecast with savings from Eversource's C&LM programs, DG and ISO-NE's Load Response program added back in to make it easier to compare Eversource'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	Solar GWH	Company Sponsored C&LM GWH	ISO-NE Load Response GWH	Adjusted Output GWH	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2015					22,811	
FORECAST						
2016	23,210	(42)	(24)	-	23,144	1.5%
2017	23,356	(145)	(89)	-	23,121	-0.1%
2018	23,328	(249)	(159)	-	22,919	-0.9%
2019	23,258	(336)	(224)	-	22,698	-1.0%
2020	23,265	(402)	(289)	-	22,574	-0.5%
2021	23,177	(469)	(353)	-	22,355	-1.0%
2022	23,152	(535)	(418)	-	22,198	-0.7%
2023	23,131	(601)	(483)	-	22,047	-0.7%
2024	23,180	(668)	(547)	-	21,965	-0.4%
2025	23,114	(734)	(612)	-	21,767	-0.9%
Normalized Compound Rates of Growth (2015-2025)						
	0.1%				-0.5%	

	Reference Plan (50/50 Case)					
Year	Unadjusted Peak MW	Solar MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2015					5,034	
FORECAST						
2016	5,225	(4)	(2)	(95)	5,125	1.8%
2017	5,273	(12)	(8)	(95)	5,158	0.6%
2018	5,297	(21)	(14)	(95)	5,167	0.2%
2019	5,320	(29)	(19)	(95)	5,177	0.2%
2020	5,344	(34)	(25)	(95)	5,190	0.2%
2021	5,370	(40)	(30)	(95)	5,205	0.3%
2022	5,397	(46)	(36)	(95)	5,220	0.3%
2023	5,423	(51)	(41)	(95)	5,235	0.3%
2024	5,450	(57)	(47)	(95)	5,251	0.3%
2025	5,478	(63)	(52)	(95)	5,268	0.3%
Normalized Compound Rates of Growth (2015-2025)						
	0.8%				0.5%	

	Extreme Hot Weather Scenario					
Year	Unadjusted Peak MW	Solar MW	Company Sponsored C&LM MW	ISO-NE Load Response MW	Adjusted Peak MW	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2015					5,034	
FORECAST						
2016	5,951	(4)	(2)	(95)	5,850	16.2%
2017	6,017	(12)	(8)	(95)	5,902	0.9%
2018	6,059	(21)	(14)	(95)	5,929	0.5%
2019	6,100	(29)	(19)	(95)	5,958	0.5%
2020	6,143	(34)	(25)	(95)	5,989	0.5%
2021	6,188	(40)	(30)	(95)	6,023	0.6%
2022	6,233	(46)	(36)	(95)	6,056	0.6%
2023	6,278	(51)	(41)	(95)	6,090	0.6%
2024	6,324	(57)	(47)	(95)	6,124	0.6%
2025	6,370	(63)	(52)	(95)	6,160	0.6%
Normalized Compound Rates of Growth (2015-2025)						
	2.4%				2.0%	

2.2 ISO-NE Wholesale Electric Markets

This section reports on the most recent ISO-NE forward capacity auction.

The tenth forward capacity auction took place on Monday, February 8, 2016. The following information on FCA10 is taken from the ISO-NE press release at the following location,

http://www.iso-ne.com/static-assets/documents/2016/02/20160211_fca10_initialresults_final.pdf

Holyoke, MA—February 11, 2016—New England's annual capacity auction concluded Monday with sufficient resources to meet demand in 2019-2020, at a lower price, and with more than 1,400 megawatts (MW) of new generating capacity that will help replace recently retired and retiring generators. The auction is run by ISO New England Inc. to procure the resources that will be needed to meet projected demand three years in the future.

The tenth Forward Capacity Market (FCM) auction (FCA #10) attracted significant competition among resources to provide reliability services in New England. Before the auction, a total of 40,131 MW of resources, including 6,700 MW of new resources, qualified to compete in the auction to provide the 34,151 MW Installed Capacity Requirement (ICR) for 2019-2020. …

Preliminary results of FCA #10:

About 35,567 MW of capacity cleared the auction to meet the 34,151 MW ICR for 2019-2020. (The region can acquire more or less than the specific capacity requirement, depending on reliability standards and price.)

- 31,371 MW of generation, including 1,459 MW of new generation
- 2,746 MW of demand-side resources, including 371 MW that is new
- 1,450 MW of imports from New York and Canada

Preliminary clearing price:

The auction closed for resources within New England after four rounds of competitive bidding at $7.03/kW-month, at the point on the demand curve where there were still sufficient resources to meet demand. The clearing price will be paid to all resources in both capacity zones in the region. [Clarification] Imports from Quebec over Phase II and Highgate also cleared at $7.03/kW-month.

The clearing price was more than 25% lower than last year's $9.55/kW-month for most resources. The lower clearing price demonstrates strong competition among resources and also illustrates that the capacity market is continuing to work: higher prices resulting from resource shortfalls in earlier auctions provided the incentives for developers to bring new—and needed—resources to the market.

- At $7.03/kW-month, the total value of the capacity market in 2019-2020 will be approximately $3 billion, compared to the estimated $4 billion for 2018-2019.
  - The price of $7.03/kW-month is less than the pre-auction estimate of the cost of building a new natural-gas-fired power plant in New England, at $10.81/kW-month

The auction continued for a fifth round for 181 MW of New Brunswick imports and 224 MW of imports from Quebec, which will receive $4.00/kW-month. New York imports totaling 1,044 MW, which cleared in the fourth round, will receive a price of $6.26/kW-month.

Highlights of FCA #10:

Three large, new, dual-fuel power plants totaling 1,302 MW cleared the auction. The proposed plants are all near the region's largest population centers, and two are in the former Southeast Massachusetts/Rhode Island zone, where a capacity shortfall materialized before last year's auction for 2018-2019. All three will burn natural gas as their primary fuel, with oil as their secondary fuel:

- About 485 MW of the Burrillville Energy Center 3 in Burrillville, Rhode Island
- 484 MW at Bridgeport Harbor 6 in Bridgeport, Connecticut
- 333 MW at Canal 3 in Sandwich, Massachusetts

27 megawatts of new wind and **44 megawatts of new solar** cleared the auction; in all, 135 MW of wind and 65 MW of solar facilities cleared FCA #10

Several firsts, including:

• 6.8 MW from the first offshore wind farm under construction in the US cleared the auction: Deepwater Wind's 34-MW facility off Block Island, RI

• With the development of the first, multi-state, long-term forecast of solar growth in the nation, small-scale solar facilities around New England were incorporated into the calculation of how much capacity will be required. Forecasted demand reductions from solar reduced the ICR in 2019-2020 by 390 MW.

• Two large fuel cell facilities, providing 2.5 MW each, cleared the auction.

For FCA #10, the region was divided into two zones: Rest of Pool (ROP) which includes Connecticut, western and central Massachusetts, Vermont, New Hampshire, and Maine; and Southeastern New England (SENE), which includes Northeast Massachusetts/Greater Boston and Southeast Massachusetts/Rhode Island. The SENE zone was created based on transmission limitations that restrict the level of power that can be imported into the area, as well as local resource levels and needs. The clearing price in FCA #10 applies to resources in both zones.

Chapter 3: ENERGY EFFICIENCY

Chapter Highlights

- Energy savings resulting from Connecticut Energy Efficiency Fund programs are a cost-effective resource available to Connecticut customers by reducing customer bills and helping to mitigate peak energy prices.
- Connecticut Energy Efficiency Fund programs are recognized nationally and provide economic development benefits to the State.
- The 2016-18 C&LM Plan is expected to generate $1.39 billion in economic benefit to Connecticut.

CL&P 2016 - 2018 Conservation and Load Management Plan

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 in Connecticut reduce the amount of energy 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. Energy efficiency programs also provide economic development benefits for Connecticut and help mitigate winter peak energy prices resulting from natural gas pipeline constraint during winter high-use periods.

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 December 22, 2015, DEEP approved the 2016 – 2018 Conservation and Load Management Plan ("Three Year Plan") submitted by the Connecticut electric and gas utility companies on October 1, 2015.[4] 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 Plan included unprecedented levels of funding for both electric and natural gas energy efficiency programs based on Public Act 13-298.

The Three Year Plan includes an electric budget of approximately $602 million and a natural gas budget of approximately $162 million. This is expected to generate approximately 1,242 GWh of electric savings and generate $1.39 billion in net economic benefit to Connecticut customers. The Three Year Plan builds upon the momentum of the 2013-15 C&LM Plan by continuing efforts to improve upon

[4] DEEP, Public Act 11-80 – Section 33 – 2016-2018 Conservation and Load Management Plan submitted by The Connecticut Light and Power Company, The United Illuminating Company, The Yankee Gas Service Company, Connecticut Natural Gas Corporation, Southern Connecticut Gas Company.

existing energy-saving programs, including upstream and midstream initiatives; customer segmentation; customer engagement tools; strategic energy management; business energy sustainability; Home Energy Solutions program enhancements; lighting technologies and behavioral-based programs.

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.[5] Public Act 11-80 and the subsequent DEEP approval of the Plan provide an additional 3 mil CAM charge for conservation. In addition, C&LM programs receive funding from other sources including the ISO-NE's Forward Capacity Market, Class III renewable energy revenues, and RGGI.

Connecticut is a nationally recognized leader in implementing high-quality energy-efficiency programs. Since 2000, the ACEEE has ranked Connecticut as one of the top states for energy efficiency. In the ACEEE's *2014 State Energy Efficiency Scorecard*, Connecticut ranked sixth 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 award-winning programs, but makes wiser energy choices every day.

3.1 Ten-Year C&LM Forecast

Table 3-1 presents the potential cumulative annualized 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 budget. The forecast is based on anticipated savings from the 2016-2018 C&LM Plan. Forecasted savings beyond 2018 assumes similar programs, budgets and savings as anticipated in 2018. However, savings in years 2019 and beyond reflect anticipated changes in energy efficiency budgets and production costs.

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.

[5] Conn. Gen. Stat. § 16-245m.

Table 3-1

CL&P C&LM Programs Annual Energy Savings
and
Peak Load Reduction by Customer Class

Connecticut Light and Power

2016-2025

GWh Sales Saved

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Residential	117	233	360	451	536	615	689	757	821	880
Commercial	152	318	490	650	798	937	1,065	1,185	1,297	1,400
Industrial	45	95	147	195	239	281	319	355	389	420
Total	**314**	**646**	**996**	**1,296**	**1,574**	**1,833**	**2,074**	**2,298**	**2,506**	**2,700**

MW Reductions (Passive Resource Summer Impacts)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Residential	17	34	55	68	79	90	100	110	119	127
Commercial (non-Load Response))	21	43	66	88	108	127	144	160	175	189
Industrial (non-Load Response)	6	13	20	26	32	38	43	48	53	57
Total	**44**	**90**	**141**	**182**	**220**	**255**	**288**	**318**	**347**	**373**

MW Reductions (Passive Resource Winter Impacts)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Residential	25	51	80	101	121	139	156	172	187	201
Commercial (non-Load Response))	24	50	76	101	124	145	165	183	201	216
Industrial (non-Load Response)	7	15	23	30	37	44	49	55	60	65
Total	**56**	**116**	**179**	**233**	**282**	**328**	**371**	**411**	**448**	**482**

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

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

Eversource'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.

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 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.*[6]

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

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

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. Since then, many of the standards have undergone revisions and strengthening.

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 ruling approving revisions to NERC's "Bulk Electric System" definition. Key revisions to the approved definition removed 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.

On March 19, 2015 FERC approved FERC Order 1000 that requires a transition in the way New England plans the transmission system. ISO-NE is currently working on the implementation of the FERC Order 1000 process.

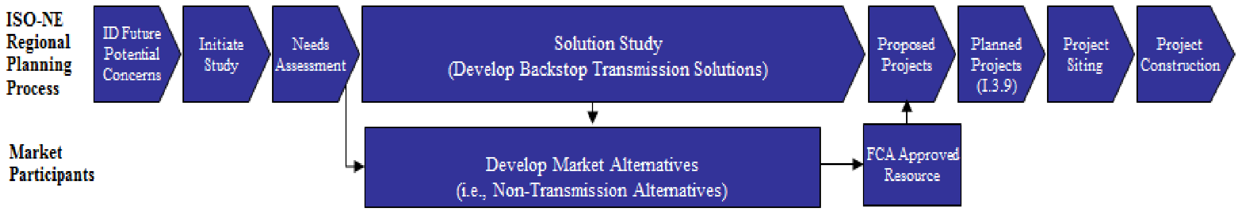
4.3 Transmission Planning Process

Within the ISO-NE regional planning process that strives for compliance with NERC and 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 PAC. In parallel, market participants can develop and propose market resource 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 RSP as depicted in the sequence of the process below:

Transmission Planning Process Figure 1



4.4 Connecticut's Transmission System and Serving Load

Eversource 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.

- Eversource 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.
- Connecticut's potential to develop large quantities of renewable and/or low carbon energy resources like wind and hydroelectric power is low, but wind and hydroelectric power have greater development prospects in northern New England and Canada.
- Northern Pass along with Hydro-Quebec, has developed a transmission project that will enable imports of up to 1,090 MW of low-carbon power generated in Canada. This project is known as the NPT Project. The NPT project has received FERC acceptance of a transmission service agreement with Hydro Renewable Energy Inc. (Hydro Quebec).

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

Eversource divides its service territory into six areas as described below for the purpose of assessing the reliability of its transmission system. ISO-NE has identified reliability projects within those areas that are needed in Connecticut.

- The SWCT area is the largest load area within Connecticut which comprises fifty-four towns, including all of United Illuminating'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 was completed and presented to ISO-NE PAC in February 2014. In July of 2014, the Southwest Connecticut 2022 Preferred Solution was presented to ISO-NE PAC. Eversource received ISO-NE approval for the SWCT preferred Solution in April of 2015. There also is a reliability project proposed in the Norwalk Stamford subarea known as the Greenwich Substation and Line project to meet growing needs. The CSC application for this project was submitted in June 2015 in Docket 461.
- 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 Eversource and CMEEC. The Eastern Connecticut Needs Assessment was completed in 2013. The Solution Study including alternatives is being developed and is expected to be presented to the PAC in 2016.
- 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.

ISO-NE completed the GHCC studies. The GHCC study area consists of four subareas: Greater Hartford, including the Southington station; Manchester–Barbour Hill; Middletown; and northwestern Connecticut. Each of these subareas is a load pocket with limited generation fed by limited transmission. The study area also includes the Western Connecticut Import interface. The 345 kV CCRP component of NEEWS was designed to increase transfer capacity across this interface, from western to eastern Connecticut. When preliminary results of a reassessment of the need for CCRP indicated that the need for increased transfer capacity had been reduced by changes in resources and forecasted demand, the reassessment was combined with the GHCC study. The objective of this expansion of the scope of the GHCC study was to determine if the load-serving needs in the four GHCC subareas and the western Connecticut import need could be addressed by a single set of integrated 115 kV solutions.

The GHCC needs assessment was completed in February, 2014, and a needs report was published In April, 2014. The preferred solutions for the identified needs were presented to PAC in July, 2014. The preferred solutions consist of transmission improvements in each of the four GHCC subareas, and include elements that will perform a “double duty” of both meeting local load-serving needs and addressing the remaining need for increased Western Connecticut import capacity. Eversource received ISO-NE approval for the GHCC preferred Solution in April of 2015 replacing the CCRP as originally designed.

A list of all transmission projects and their components is listed by transmission line and substation in tables 4-1 and 4.2, below. 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 ISD.

Table 4-1: Eversource Proposed Transmission Line Projects in Connecticut

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description	Status
Manchester	Manchester	Barbour Hill	South Windsor	115	2016	7.6	(GHCC) - Reconductor	Under Construction
Wilton	Wilton	Norwalk	Norwalk	115	2016	1.5	(SWCT) – Rebuild Line section	Planned
Bunker Hill	Waterbury	Baldwin Jct.	Waterbury	115	2016	3.0	(SWCT) – Reconductor Line section	Planned
Southington	Southington	Lake Ave, Jct	Bristol	115	2017	5.2	(GHCC) – Reconductor Line Section	Planned
Wilton	Wilton	Ridgefield Jct.	Ridgefield	115	2017	5.1	(SWCT) – Reconductor Line Section	Planned
Peaceable	Redding	Ridgefield Jct.	Ridgefield	115	2017	0.04	(SWCT) – Reconductor Line Section	Planned
Southington Southington	Southington Southington	Todd Canal	Wolcott Southington	115 115	2017	N/A	(GHCC) - Replace Line reactors	Planned
South Meadow	Hartford	Bloomfield	Bloomfield	115	2017	N/A	(GHCC) - Loop in and out of Rood Ave substation	Planned
Bloomfield Bloomfield Bloomfield	Bloomfield Bloomfield Bloomfield	South Meadow Rood Ave N.Bloomfield	Hartford Windsor Bloomfield	115	2017	N/A	(GHCC) - Line Separation	Planned
Bloomfield N.Bloomfield	Bloomfield Bloomfield	N.Bloomfield NW Hartford	Bloomfield Hartford	115	2017	N/A	(GHCC) - Line Separation	Planned
Branford Branford	Branford Branford	Branford RR North Haven	Branford North Haven	115	2017	N/A	(GHCC) - Line Separation	Planned
Middletown Middletown	Middletown Middletown	Pratt&Whitney Haddam	Middletown Haddam	115	2017	N/A	(GHCC) - Line Separation	Planned
South Meadow	Hartford	Bloomfield	Bloomfield	115	2017	N/A	Rebuild Line Section	Planned
Cos Cob	Greenwich	Greenwich	Greenwich	115	2018	2.4	New Line	Planned
Cos Cob	Greenwich	Greenwich	Greenwich	115	2018	2.4	New Line	Planned
Frost Bridge	Watertown	Campville	Harwinton	115	2018	10.4	(GHCC) – New Line	Planned
Newington	Newington	Newington Tap	Newington	115	2018	0.01	(GHCC) – Reconductor Line Section	Planned
Newington	Newington	SW Hartford	Hartford	115	2018	4.0	(GHCC) - New Line & Series Reactor	Planned
West Brookfield	Brookfield	West Brookfield Jct.	Brookfield	115	2018	1.4	(SWCT) – Reconductor Line Section	Planned
Plumtree	Bethel	Brookfield Jct.	Brookfield	115	2018	3.4	(SWCT) – New Line	Planned
Frost Bridge Thomaston	Watertown Thomaston	Campville Campville	Harwinton Harwinton	115 115	2018	N/A	(GHCC) - Line Separation	Planned
South Meadow	Hartford	SW Hartford	Hartford	115	2018	N/A	(GHCC) - Install a series reactor	Planned
Beacon Falls	Beacon Falls	Indian Well (UI) Devon	Derby Milford	115	2018	N/A	(SWCT) - Loop in and out of Pootatuck	Planned
Frost Bridge	Watertown	Baldwin Stevenson	Waterbury Monroe	115	2018	N/A	(SWCT) - Loop line in and out of Bunker Hill	Planned
Beseck Southington	Wallingford Southington	East Devon Mix Ave (UI) June St (UI)	Milford Hamden Woodbridge	115	2018	N/A	(SWCT) - Line Separation	Planned

From Station	City or Town	To Station	City or Town	Voltage kV	ISD	Miles	Project Description	Status
Plumtree	Bethel	Stony Hill Bates Rock	Brookfield Southbury	115	2018	N/A	(SWCT) – Line Reconfiguration	Planned
Plumtree	Bethel	West Brookfield Shepaug	Brookfield Southbury	115	2018	N/A	(SWCT) – Line Reconfiguration	Planned
Towantic	Oxford	Bunker Hill	Waterbury	115	2018	6.0	Reconductor/Rebuild Line Section	Planned
Towantic	Oxford	Baldwin Tap	Waterbury	115	2018	3.0	Reconductor Line Section	Planned
Devon	Milford	Trumbull Jct.	Trumbull	115	2018	4.4	Reconductor Line Section	Planned
Devon	Milford	UI – Border	Trumbull	115	2018	4.5	Reconductor – Line Section	Planned
Towantic	Oxford	Oxford	Oxford	115	2018	1.2	Reconductor – Line Section	Planned

Table 4-2: Eversource Proposed Substation Projects in Connecticut

Substation	City or Town	Voltage kV	ISD	Project Description	Status
Canal	Southington	115/23	2016	Add a distribution transformer and a circuit breaker	Concept
Manchester	Manchester	115/23	2016	Replace transformer	Concept
Haddam	Haddam	345/115	2016	(GHCC) – Add an autotransformer and Reconfiguration	Planned
Westside	Middletown	115	2016	(GHCC) – Install a capacitor bank	Planned
Tracy	Putnam	115/23	2017	Add a distribution transformer and a circuit breaker	Concept
Campville	Harwinton	115	2017	(GHCC) – Add five circuit breakers	Planned
Chippen Hill	Bristol	115	2017	(GHCC) – Upgrade terminal equipment	Planned
Southington	Southington	115	2017	(GHCC) – Replace breaker with series reactor and add a new control house	Planned
Southington	Southington	345	2017	(GHCC) – Add a circuit breaker	Planned
Newington	Newington	115	2017	(GHCC) – Reconfigure substation	Planned
Southwest Hartford	Hartford	115	2017	(GHCC) – Upgrade terminal equipment	Planned
Rood Ave	Windsor	115	2017	(GHCC) – Reconfigure substation	Planned
Bloomfield	Bloomfield	115	2017	(GHCC) – Add a circuit breaker	Planned
North Bloomfield	Bloomfield	115	2017	(GHCC) – Add a circuit breaker	Planned
Haddam Neck	Haddam	345	2017	(GHCC) – Upgrade terminal equipment	Planned
Beseck	Wallingford	345	2017	(GHCC) – Upgrade terminal equipment	Planned
Dooley	Middletown	115	2017	(GHCC) – Upgrade terminal equipment	Planned
Portland	Proposed	115	2017	(GHCC) – Upgrade terminal equipment	Planned
Green Hill	Madison	115	2017	(GHCC) – Reconfigure substation and install a capacitor bank	Planned
Branford	Branford	115	2017	(GHCC) – Add a series breaker	Planned
Baldwin	Waterbury	115	2017	(SWCT) – Close circuit breaker	Planned
Stony Hill	Brookfield	115	2017	(SWCT) – Add a Synchronous Condenser & relocate a capacitor bank	Planned
West Brookfield	Brookfield	115	2017	(SWCT) – Install two capacitor banks	Planned
Plumtree	Bethel	115	2017	(SWCT) - Add a circuit breaker & and relocate a capacitor bank	Planned
Rocky River	New Milford	115	2017	(SWCT) – Reduce capacitor bank size	Planned
Oxford	Oxford	115	2017	(SWCT) – Install a capacitor bank	Planned
Cos Cob	Greenwich	115	2017	Add a circuit breaker	Planned
Bloomfield	Bloomfield	115/23	2017	Replace transformer	Concept
Berlin	Berlin	115	2018	(GHCC) – Reconfigure substation and add two breakers	Planned
Bunker Hill	Waterbury	115	2018	(SWCT) – Rebuild substation	Planned
Newtown	Newtown	115/13.8	2018	Replace both distribution transformers	Planned
Greenwich	Greenwich	115/13.2	2018	Add a new substation	Planned
Westside	Middletown	115/13.2	2018	Replace Transformer	Concept
Newington	Newington	115/23	2018	Replace Transformer	Concept
Scitico	Enfield	115/23	2019	Add a distribution transformer	Concept
Franklin Drive	Torrington	115/13.2	2019	Replace Transformer	Concept
Canton	Canton	115/23	2019	Replace Transformer	Concept

4.6 Incorporation of Renewables through Transmission, including future outlook

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

The NPT project has received FERC acceptance of a transmission service agreement with Hydro Renewable Energy Inc. (Hydro Quebec). ISO-NE is reviewing the NPT Proposed Plan Application which is based on the NPT project's revised capacity (1090MW) and technology. It is anticipated that ISO-NE will conclude as it did on the prior NPT Proposed Plan Application (which was based on 1200 MW capacity and LCC converter technology) showing that NPT will not have a significant adverse effect upon the New England power system. The Presidential Permit process with the U.S. DOE is underway. The DOE issued the draft EIS for Northern Pass in July 2015 and opened the public comment period on the draft EIS. In August, the NPT project announced the Forward NH Plan and revised route that included placing an additional 52 miles of the line underground, and amended its Presidential Permit application to reflect the new route and change in project capacity and technology. The NPT project commenced the state permitting process by holding five public information sessions and then filing its state permit application on October 19, 2015. The DOE issued a supplement to the draft EIS in November that addressed the new route, and extended the public comment period to April 4, 2016. On December 18, 2015, the New Hampshire Site Evaluation Committee issued an order holding that the NPT project's application was complete, thus initiating the 12 month state siting process. The $1.6 billion project is expected to be operational in the second quarter of 2019.