

# Regional System Plan Transmission Projects October 2014 Update

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*Planning Advisory Committee Meeting*

**Brent Oberlin**

DIRECTOR, TRANSMISSION PLANNING



# Table of Contents

	<u>Slide</u>
• Highlights	3
• October 2014 Changes	4 – 25
• Status of Major Transmission Projects	26 – 27
• Appendix	28 – 34



# Highlights

- Major cost estimate changes that occurred between the June 2014 and October 2014 project list include:
  - (CT) NEEWS - Central Connecticut Reliability Project – 3 cost related projects Cancelled –
    - New 345 kV line 3208 from North Bloomfield - Frost Bridge,
    - Frost Bridge 18R substation expansion addition of a 345/115 kV autotransformer,
    - North Bloomfield 2A Substation Expansion which includes a 3rd bay with two breakers and associated substation work (total costs for these 3 projects decreased by \$301M).Needs originally resolved by this project are resolved by the 26 GHCC projects that were added at a cost of \$352M
  - (CT) NEEWS – Cancelled project – Add the 2<sup>nd</sup> Beseck 9F Substation variable shunt reactor (decrease \$9.0M)
  - (RI and MA) NEEWS – Interstate Reliability Project costs increased by \$13.1M
  - (CT) Naugatuck Valley 115 kV reliability improvement – Cancelled project (decrease by \$11.1M)
  - (VT) Connecticut River Valley – Cancelled projects – new 115 kV line construction from Coolidge – Ascutney (decreased by \$105M) and LSP – Chelsea Substation (Concept – no cost) were replaced by adding 4 new reliability projects for a cost of \$133.7M
- 16 upgrades on the project list have been placed in-service since the June 2014 update  
The major projects are listed below:
  - (ME) MPRP – 5 projects were placed in-service during this period
  - (ME) Replacement of control system at Chester SVC
  - (CT) SWCT - Add 150 MVAR 345 kV shunt reactor at Haddam Neck Station
  - (RI) NEEWS (Interstate Reliability Project) - 4 projects were placed in-service during this period
  - (MA) NEEWS– Upgrade the Agawam 115 kV substation to BPS standards and other miscellaneous substation upgrades
  - (MA) Long Term Lower SEMA – 2 projects were placed in-service - which completes this project
  - (MA) New Z126 Millbury – Tower #510 115 kV line
  - (NH) Replace Comerford 230 kV breakers and add (1) 230 kV bus tie breaker

Abbreviation footnotes are on next page



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1559	Install a 115 kV 25.2 MVAR capacitor bank at Oxford Substation on 1319 line terminal (Connecticut) SWCT	3.4	Resolves low voltage issues
1560	Close the normally open 115 kV 2T circuit breaker at Baldwin Substation (Connecticut) SWCT	0.9	Address N-1 load interruption concerns in the SWCT area
1561	Reconductor the 1887 line between West Brookfield and West Brookfield Junction (1.4 miles) (Connecticut) SWCT	2.6	Increase load serving capability in Housatonic Valley area
1562	Install a 115 kV circuit breaker (63 kA interrupting capability) in series with the existing 29T breaker at Plumtree Substation (Connecticut) SWCT	2.8	Address reliability concerns in SWCT area
1563	Install 2 x 14.4 MVAR capacitor banks at West Brookfield Substation on 1618 line terminal (Connecticut) SWCT	4.8	Resolves low voltage issues in Housatonic Valley area

SWCT – Southwest Connecticut  
MVAR – megavolt-amperes reactive  
kA – kilo Ampere  
MVA – megavolt-ampere

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1564	Install a new 115 kV line from Plumtree to Brookfield Junction (3.4 miles) (Connecticut) SWCT	20.5	Address N-1 load interruption concerns in the SWCT area
1565	Relocate the existing 37.8 MVAR capacitor bank from 115 kV B bus to 115 kV A bus at Plumtree Substation (Connecticut) SWCT	2.1	Address local voltage issues
1566	Upgrade 1876 line terminal equipment at Newtown Substation (Connecticut) SWCT	0.1	Increase load serving capability in SWCT area
1567	Reduce 12Y-10K (25.2 MVAR) capacitor cans at Rocky River to 14.4 MVAR (Connecticut) SWCT	0.3	Resolves voltage issues in the Housatonic Valley area
1568	Loop the 1570 line in and out of Pootatuck Substation (Connecticut) SWCT	1.8	Increase load serving capability in SWCT area

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1569	Loop the 1990 line in and out of Bunker Hill Substation (Connecticut) SWCT	0.3	Increase load serving capability in SWCT area
1570	Replace two Freight breakers with new breakers having 63 kA interrupting capability (Connecticut) SWCT	1.1	Address short circuit concerns at Freight
1571	Rebuild Bunker Hill to a 9 breaker substation in breaker-and-a-half configuration (Connecticut) SWCT	35.5	Reconfigure substation to address reliability criteria
1572	Rebuild a portion of 1682 line from Wilton to Norwalk and upgrade Wilton Substation terminal equipment (1.5 miles) (Connecticut) SWCT	27.5	Increase load serving capability in SWCT area
1573	Reconductor the 1470-1 line from Wilton to Ridgefield Junction (5.1 miles) (Connecticut) SWCT	8.6	Increase load serving capability in SWCT area

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1574	Reconductor the 1470-3 line from Peaceable to Ridgefield Junction (0.04 miles) (Connecticut) SWCT	0.7	Increase load serving capability in SWCT area
1575	Reconductor the 1575 Line (Bunker Hill – Baldwin Junction; 3.0 miles) (Connecticut) SWCT	5.4	Increase load serving capability in SWCT area
1576	Relocate 22K 115 kV capacitor bank (37.8 MVAR) to the same side as the 10K (25.2 MVAR) cap bank at Stony Hill (Connecticut) SWCT	2.8	Resolves voltage issues in the Housatonic Valley area
1577	Reconfigure 1887 line into a 3 terminal line (Plumtree - W. Brookfield - Shepaug) and Reconfigure 1770 line into 2 two terminal lines between Plumtree - Stony Hill and Stony Hill - Bates Rock (Connecticut) SWCT	1.1	Increase load serving capability in Housatonic Valley area
1578	Install a synchronous condenser (+25/-12.5 MVAR) @ Stony Hill (Connecticut) SWCT	22.0	Resolves voltage issues in the Housatonic Valley area

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1579	Separate 3827-1610 DCT (0.38 miles) (Connecticut) SWCT	2.0	Address reliability concerns in SWCT
1620	Ansonia 115 kV Capacitor Bank Additions (Connecticut) SWCT	9.3	Resolves low voltage issues
1621	Pootatuck 115 kV Ring Bus Expansion & Capacitor Bank Addition (Connecticut) SWCT	11.9	Increase load serving capability in SWCT area and resolves low voltage issues
1622	Baird to Housatonic River Crossing 88006A - 89006B 115 kV Line Upgrades (Connecticut) SWCT	59.2	Increase load serving capability in SWCT area
1619	Mill River 115 kV Fault Duty & TRV Mitigation (Connecticut) SWCT	1.6	Address short circuit concerns at Mill River
1618	Old Town 115/13.8 kV Substation Rebuild (Connecticut)	21.8	Address asset condition issues

DCT – Double-circuit tower

TRV – Transient Recovery Voltage

Does not include concept projects





# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1580	Add a new 345/115 kV autotransformer at Barbour Hill and associated terminal equipment (Connecticut) GHCC	31.2	Increase load serving capability in the Barbour Hill area
1581	Reconductor the 115 kV line between Manchester and Barbour Hill (1763) – 7.6 miles (Connecticut) GHCC	13.5	Resolve thermal overloads
1582	Add a 345 kV breaker in series with breaker 24T at the Manchester 345 kV switchyard (Connecticut) GHCC	2.1	Increase load serving capability in the Barbour Hill area
1583	Add a new 10.35 mile, 115 kV line from Frost Bridge to Campville and associated terminal equipment (Connecticut) GHCC	45.5	Increase load serving capability in the Northwest Connecticut area
1584	Separation of 115 kV DCT corresponding to the Frost Bridge to Campville (1191) line and the Thomaston to Campville (1921) line and add a breaker at Campville 115 kV substation (Connecticut) GHCC	5.5	Increase load serving capability in the Northwest Connecticut area

GHCC – Greater Hartford & Central Connecticut

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1585	Upgrade terminal equipment on the 115 kV line between Chippen Hill and Lake Avenue Junction (1810-3). Reconductor the 115 kV line between Southington and Lake Avenue Junction (1810-1) – 5.2 miles (Connecticut) GHCC	12.1	Increase load serving capability in the Northwest Connecticut area
1586	Replace the existing 3% series reactors on the 115 kV lines between Southington and Todd (1910) and between Southington and Canal (1950) with 5% series reactors (Connecticut) GHCC	5.2	Resolve thermal overloads
1587	Replace the normally open 19T breaker at Southington with a 3% series reactor between Southington Ring 1 and Southington Ring 2 and associated substation upgrades (Connecticut) GHCC	8.7	Increase load serving capability in the Hartford area
1588	Add a breaker in series with breaker 5T at the Southington 345 kV switchyard (Connecticut) GHCC	1.8	Eliminate contingency that causes thermal overload
1589	Add a new control house at Southington 115 kV substation (Connecticut) GHCC	22.6	New control house needed to accommodate Southington upgrades

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1590	Add a new 4 mile 115 kV underground cable from Newington to Southwest Hartford and associated terminal equipment including a 2% series reactor (Connecticut) GHCC	91.0	Increase load serving capability in the Hartford area and increase Western Connecticut import capability
1591	Loop the 1779 line between South Meadow and Bloomfield into the Rood Avenue substation and reconfigure the Rood Avenue substation (Connecticut) GHCC	10.7	Increase load serving capability in the Greater Hartford area
1592	Reconfigure the Berlin 115 kV substation including the addition of two 115 kV breakers and the relocation of a capacitor bank (Connecticut) GHCC	4.2	Resolve low voltage violations
1593	Add a 115 kV 25.2 MVAR capacitor at Westside 115 kV substation (Connecticut) GHCC	2.9	Resolve low voltage violations
1594	Reconductor the 115 kV line between Newington and Newington Tap (1783) - 0.01 mile (Connecticut) GHCC	1.0	Resolve thermal overloads

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1595	Separation of 115 kV DCT corresponding to the Bloomfield to South Meadow (1779) line and the Bloomfield to North Bloomfield (1777) line and add a breaker at Bloomfield 115 kV substation (Connecticut) GHCC	7.1	Increase load serving capability in the Greater Hartford area
1596	Install a 115 kV 3% series reactor on the underground cable between South Meadow and Southwest Hartford (1704) (Connecticut) GHCC	3.6	Resolve thermal overloads
1597	Separation of 115 kV DCT corresponding to the Bloomfield to North Bloomfield (1777) line and the North Bloomfield – Rood Avenue – Northwest Hartford (1751) line and add a breaker at North Bloomfield 115 kV substation (Connecticut) GHCC	20.1	Increase load serving capability in the Greater Hartford area
1598	Add a 2nd 345/115 kV autotransformer at Haddam substation and reconfigure the 3-terminal 345 kV 348 line into 2 two-terminal lines (Connecticut) GHCC	46.7	Increase load serving capability in the Middletown area
1599	Terminal equipment upgrades on the 345 kV line between Haddam and Beseck (362) (Connecticut) GHCC	0.5	Resolve thermal overloads

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Need

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1600	Separation of 115 kV double circuit towers corresponding to the Branford – Branford RR line (1537) and the Branford to North Haven (1655) line and adding a series breaker at Branford 115 kV substation (Connecticut) GHCC	2.0	Increase load serving capability in the Middletown area
1601	Terminal Equipment upgrades on the Middletown to Dooley Line (1050) (Connecticut) GHCC	0.1	Increase load serving capability in the Middletown area
1602	Terminal Equipment upgrades on the Middletown to Portland Line (1443) (Connecticut) GHCC	0.1	Increase load serving capability in the Middletown area
1603	Redesign the Green Hill 115 kV substation from a straight bus to a ring bus and add a 37.8 MVAR capacitor bank (Connecticut) GHCC	7.6	Resolve voltage violations in the Middletown area
1604	Add a 37.8 MVAR capacitor bank at Hopewell 115 kV substation (Connecticut) GHCC	4.3	Resolve voltage violations in the Middletown area

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Needs

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1605	Separation of 115 kV double circuit towers corresponding to the Middletown – Pratt and Whitney line (1572) and the Middletown to Haddam (1620) line (Connecticut) GHCC	1.9	Increase load serving capability in the Middletown area
1606	1779 Line Partial Rebuild (Connecticut)	29.0	Resolves asset condition issues
1607	Replace both 345/115 kV Montville autotransformers (Connecticut)	18.9	Resolves asset condition issues
1612	Install one 115 kV breaker to separate K St. 345B bus connection from line 483-525 (Massachusetts) K St to Dewar/Andrew Sq Cable Project	0.7	Increase load serving capability in the Dewar/Andrew Square area
1613	Replace the PV20 submarine cables (Vermont)	35.0	Resolves asset condition issues

Does not include concept projects



# October 2014 Changes,

## 62 New Projects and Corresponding Needs

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1623	Reconductor V-148N line between Washington and Woonsocket Substations (Rhode Island) Brayton Point Non-Price Retirement	12.3	Resolve thermal violations observed with the Brayton Point retirement
1625	Pelham Substation - Install 115 kV Tap and an in-line breaker (Associated with the 2nd 115/13.2 kV transformer addition) (New Hampshire)	2.0	Address reliability concerns in the Pelham area
1614	Rebuild K31 (Coolidge - Ascutney) 115 kV line (Vermont) Connecticut River Valley	70.1	Resolve thermal overload
1615	Install one +50/-25 MVAR dynamic voltage support device at Ascutney (Vermont) Connecticut River Valley	40	Resolve voltage issues in the Connecticut River Valley area
1616	Split Hartford 25 MVAR capacitor bank into two 12.5 MVAR banks (Vermont) Connecticut River Valley	3.8	Resolve high voltage violations at Hartford
1617	Rebuild Chelsea Station to a three-breaker ring bus (Vermont) Connecticut River Valley	19.8	Reconfigure substation to resolve low voltage violations at Chelsea

Does not include concept projects



# October 2014 Changes, *cont.*

## 16 Projects Placed In-Service and Corresponding Needs

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1400	Add a 150 MVAR 345 kV shunt reactor at the Haddam Neck Station (Connecticut) Southwest Connecticut	9.6	Address high voltage concerns on CT 345 kV system
1234	West Farnum Substation 115 kV upgrades (Rhode Island) NEEWS (Interstate Reliability Project)	6.4	Improve East-West, West-East and Rhode Island import transfer capability
1295	Riverside Substation Relay Upgrades (Rhode Island) NEEWS (Interstate Reliability Project)	0.9	Improve East-West, West-East and Rhode Island import transfer capability
1296	Woonsocket Substation Relay Upgrades (Rhode Island) NEEWS (Interstate Reliability Project)	1.3	Improve East-West, West-East and Rhode Island import transfer capability
1297	Hartford Ave Substation Relay Upgrades (Rhode Island) NEEWS (Interstate Reliability Project)	1.6	Improve East-West, West-East and Rhode Island import transfer capability
1092	Upgrade the Agawam 115 kV Substations to BPS standards together with other misc. substation upgrades (Massachusetts) NEEWS	11.4	Meet NPCC BPS design standards





# October 2014 Changes, *cont.*

## 16 Projects Placed In-Service and Corresponding Needs

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1349	Reconfigure the existing #120 line between Canal and Barnstable into three segments : Canal - Bourne, Bourne to vicinity of Oak Street (to become part of 399 Line), and West Barnstable to Barnstable (Massachusetts) Long Term Lower SEMA	106.5	Increase load serving capability in Lower SEMA Area
1350	Expand the existing Bourne 115 kV Substation by adding a new breaker to terminate the existing #120 line between Canal and Barnstable at Bourne (Massachusetts) Long Term Lower SEMA	Part of RSP 1349 (\$106.5 million)	Increase load serving capability in Lower SEMA Area
941	Install new Z126 Millbury - Tower #510 115 kV line (Massachusetts) Central/Western Massachusetts Upgrades - Group 2 - Webster St. Supply Improvements	19.0	Increase load serving capability in Central/Western MA
674	Replace Comerford 230 kV breakers and add (1) 230 kV bus tie breaker (New Hampshire)	34.4	Bus tie breaker to address operational flexibility
1506	Like kind replacement of control system at Chester SVC (Maine) Chester SVC Control System Replacement	8.0	Replace outdated Control System

SVC – static VAR compensator  
SEMA – Southeastern Massachusetts



# October 2014 Changes, *cont.*

## 16 Projects Placed In-Service and Corresponding Needs

Project ID #	Transmission System Upgrades	Cost (in millions)	Improvement/Need
1407	Add a new 345 kV transmission line (3022) between Maguire Road and Eliot (formerly called Three Rivers) (Maine) Maine Power Reliability Program (MPRP)	Part of RSP 1402 (\$1,362.5 billion)	Increase load serving capability in Maine
1412	Convert the 3-terminal 115 kV 86 line into 2 lines: 115 kV (266) between Belfast and Lincolnville and 115 kV (86) between Belfast and Bucksport (Maine) Maine Power Reliability Program (MPRP)	Part of RSP 1402 (\$1,362.5 billion)	Increase load serving capability in Maine
1435	Expand the existing Maguire Rd 115 kV substation to include a new 345kV transformer and switchyard that interconnects line 3021 to South Gorham and line 3022 to the NU Eliot Switching Station (Maine) Maine Power Reliability Program (MPRP)	Part of RSP 1402 (\$1,362.5 billion)	Increase load serving capability in Maine
1439	Expand the existing Belfast 115 kV Substation interconnecting lines 86 and 266 between substations Bucksport and Lincolnville (Maine) Maine Power Reliability Program (MPRP)	Part of RSP 1402 (\$1,362.5 billion)	Increase load serving capability in Maine
1446	Separation of 115 kV Double Circuit Tower of lines 65 and 205 between Bucksport and Orrington (Maine) Maine Power Reliability Program (MPRP)	Part of RSP 1402 (\$1,362.5 billion)	Increase load serving capability in Maine

MVAR – megavolt-amperes reactive



# October 2014 Changes, *cont.*

## Cost Estimate Comparisons of Reliability Projects

### June 2014 vs. October 2014 Update <sup>(1)</sup>

	As of June 2014 Plan Update (in millions \$)	As of October 2014 Plan Update (in millions \$)	Change in Plan Estimate (in millions \$)
<b>MAJOR PROJECTS</b>			
Maine Power Reliability Program (MPRP)	1453	1453	0
Greater Hartford & Central Connecticut (GHCC)		352	352
Long Term Lower SEMA Upgrades	114	114	0
New England East - West Solution (NEEWS)	1886	1586	-300
NEEWS (Greater Springfield Reliability Project) \$676.0			
NEEWS (Rhode Island Reliability Project) \$314.6			
NEEWS (Interstate Reliability Project) \$535.8			
NEEWS \$59.6			
Greater Rhode Island Transmission Reinforcements (including Advanced NEEWS)	151	151	0
Pittsfield/Greenfield Project	146	147	1
Greater Boston - North, South, Central, Western Suburbs	695	695	0
New Hampshire Solution - Southern, Central, Seacoast, Northern	336	333	-3
Vermont Solution - Southeastern, Connecticut River	93	134	41
Southwest Connecticut (SWCT)	295	442	147
SUBTOTAL <sup>(2)</sup>	<b>5169</b>	<b>5407</b>	238
<b>OTHER PROJECTS</b>	5961	6053	92
<b>NEW PROJECTS</b>		98	98
<b>PROJECTS WHOSE COST ESTIMATES WERE PREVIOUSLY REPORTED AS TO BE DETERMINED (TBD)</b>		0	0
TOTAL <sup>(2)</sup>	<b>11130</b>	<b>11558</b>	428
Minus 'concept'	-119	0	
Minus 'in-service'	-6595	-6794	
<b>Aggregate estimate of active projects in the Plan <sup>(2)</sup></b>	<b>4416</b>	<b>4764</b>	

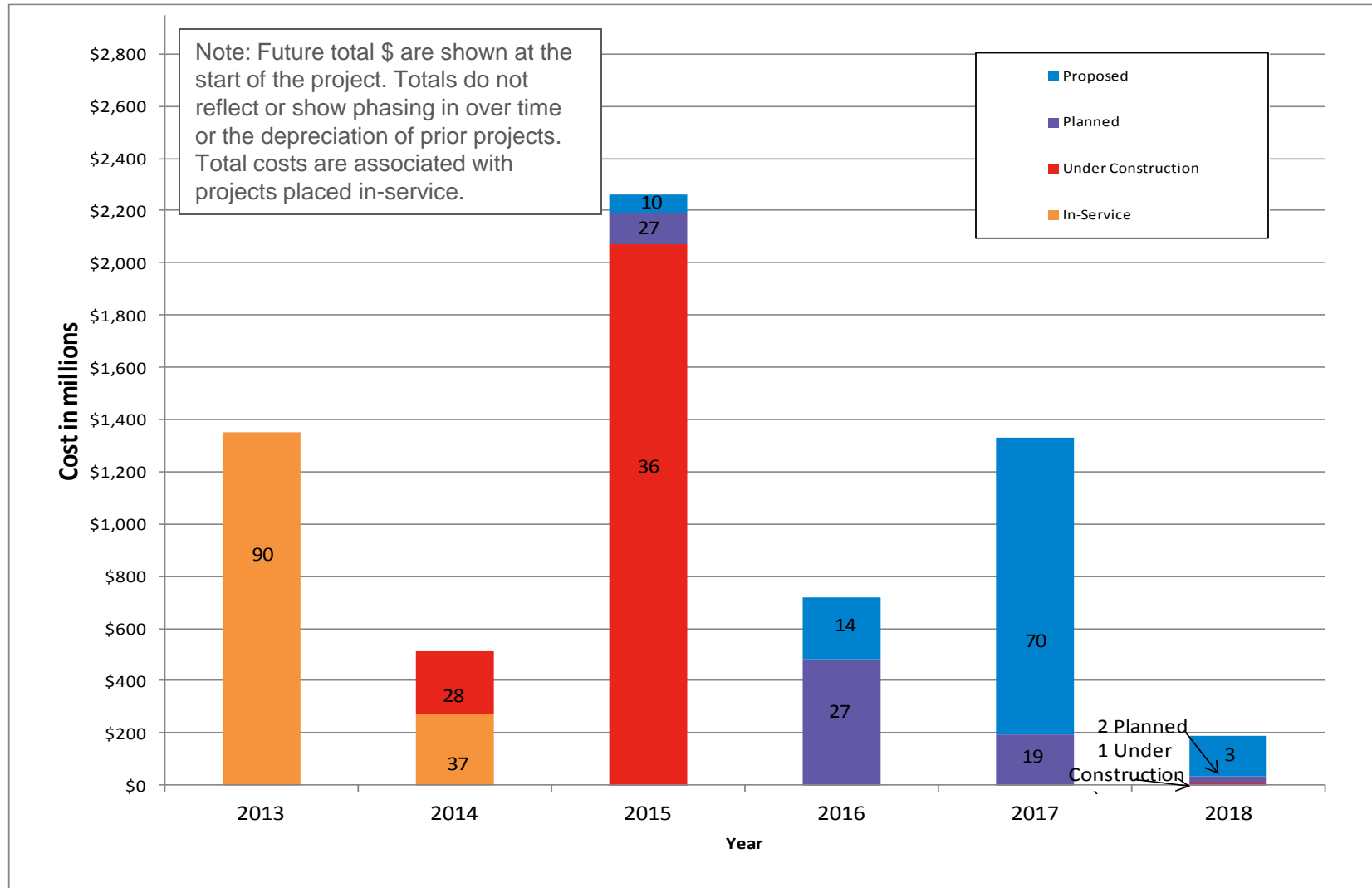
<sup>(1)</sup> Transmission Owners provided all estimated costs, which may not meet the guidelines described in Planning Procedure 4, Attachment D

<sup>(2)</sup> May not sum exactly due to rounding

<sup>(3)</sup> The cost estimates for projects in the "Major Projects" category are moved to the "Other Projects" category once they are fully completed.

# October 2014 Changes, *cont.*

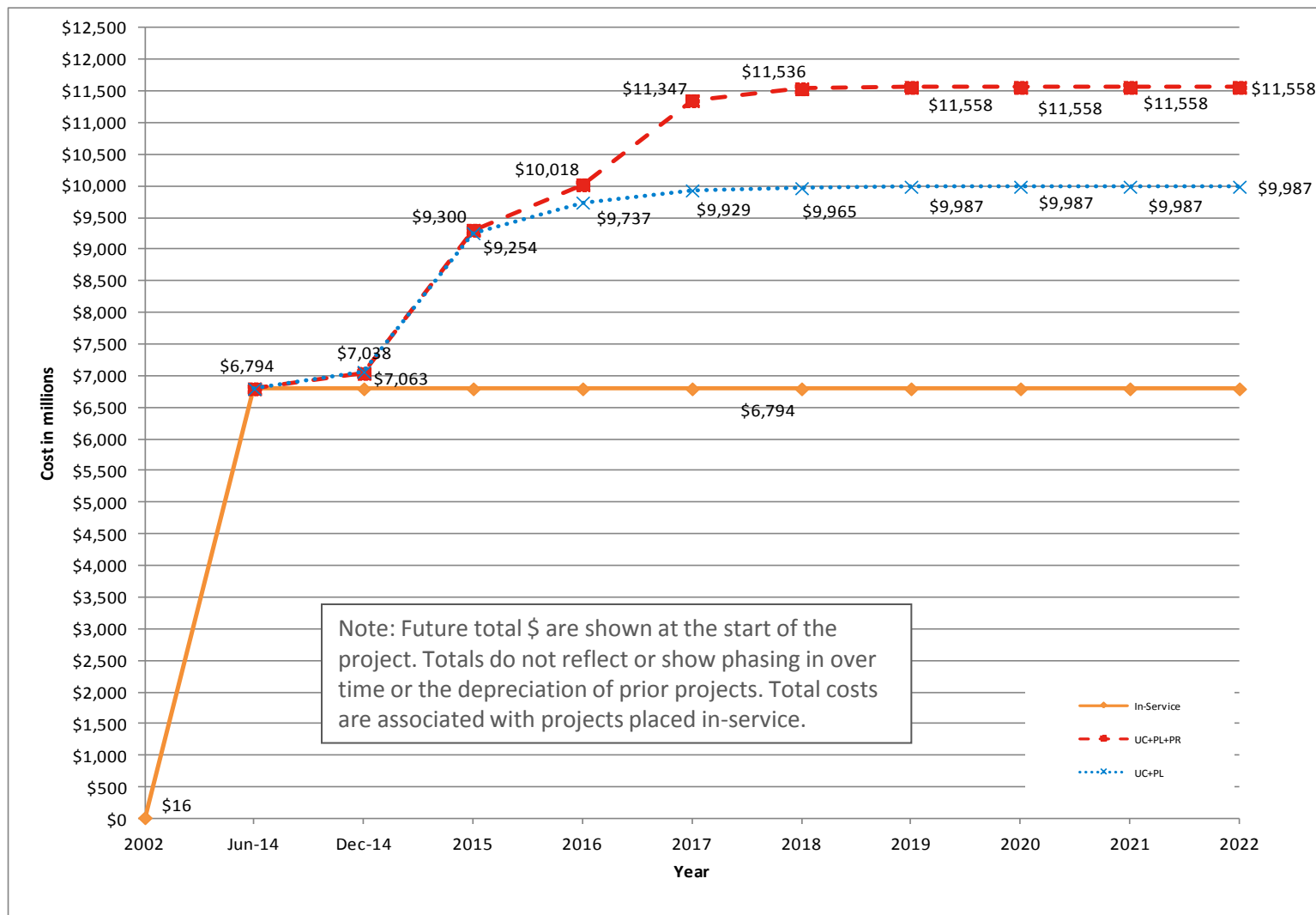
## Investment of New England Transmission Projects by Status through 2018



Note: Numbers shown represent project quantities

# October 2014 Changes, *cont.*

## Cumulative Investment of New England Transmission Projects through 2022



Note: UC – Under Construction, PL – Planned, PR – Proposed

# October 2014 Changes, *cont.*

## Reliability Project Counts and Aggregated Cost Estimates by Project Stage with Applied Accuracy Ranges <sup>(1)</sup>

Project Stage (Status)	Component / Project / Plan Count <sup>(2)</sup>	Estimate Range		Estimated Costs (\$millions)	Range	
		Minimum	Maximum		Minimum	Maximum
Proposed	97	-25%	25% <sup>(3)</sup>	1595	1196	1994
Planned	77	-25%	25%	843	632	1054
Under Construction	67	-10%	10%	2326	2093	2559
<b>Total Plan (excluding Concept)</b>	<b>241</b>			<sup>(5)</sup> <b>4764</b>	<b>3922</b>	<b>5606</b>
Concept	19			<sup>(4)</sup> 0		
In-Service	16	-10%	10%	199	179	219
Cancelled	9			519		

(1) All costs provided by Transmission Owners. The costs in the table reflect all projected in-service dates

(2) Efforts need to be made to describe projects on a more consistent basis

(3) All estimates may not yet be at this level of accuracy; many estimates may be -25%/+50%

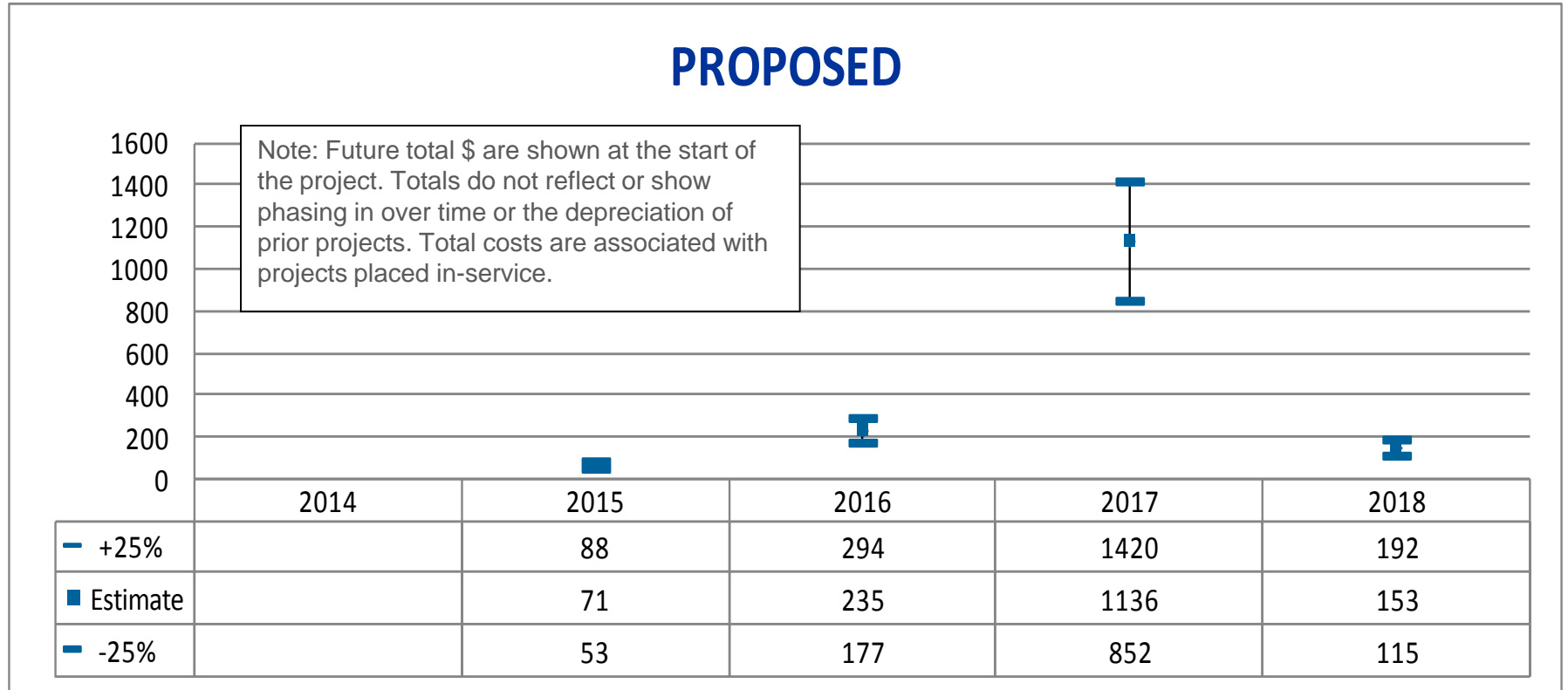
(4) Not included here are the costs of 20 reliability projects for which no estimates have been provided.

**Estimates for these projects are noted as TBD in the Project Listing and are only Concept Projects.**

(5) May not add up due to rounding.

# October 2014 Changes, *cont.*

## Project Cost Estimate Tolerances by Status and Year in Millions

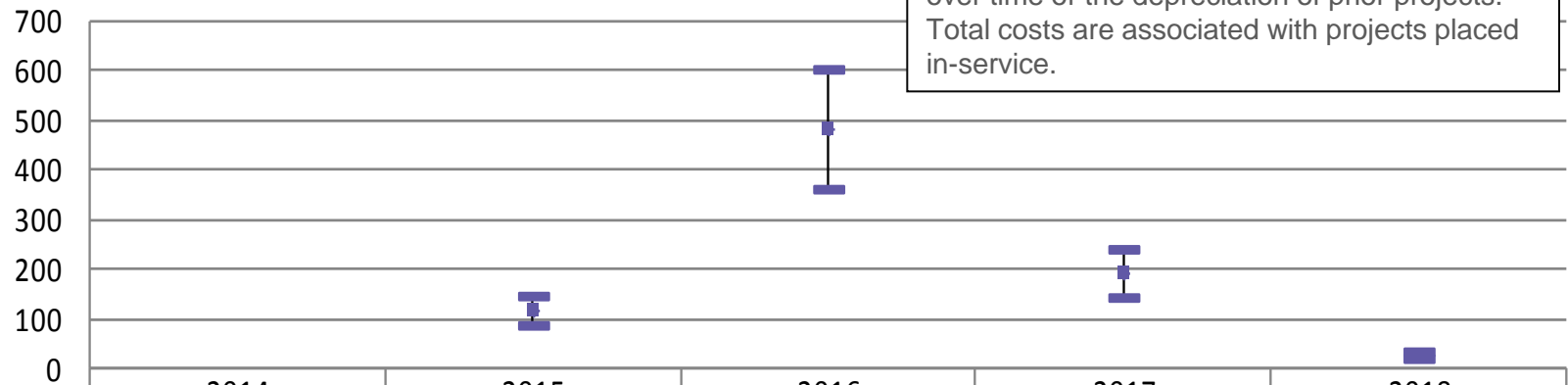


# October 2014 Changes, *cont.*

## Project Cost Estimate Tolerances by Status and Year in Millions

### PLANNED

Note: Future total \$ are shown at the start of the project. Totals do not reflect or show phasing in over time or the depreciation of prior projects. Total costs are associated with projects placed in-service.

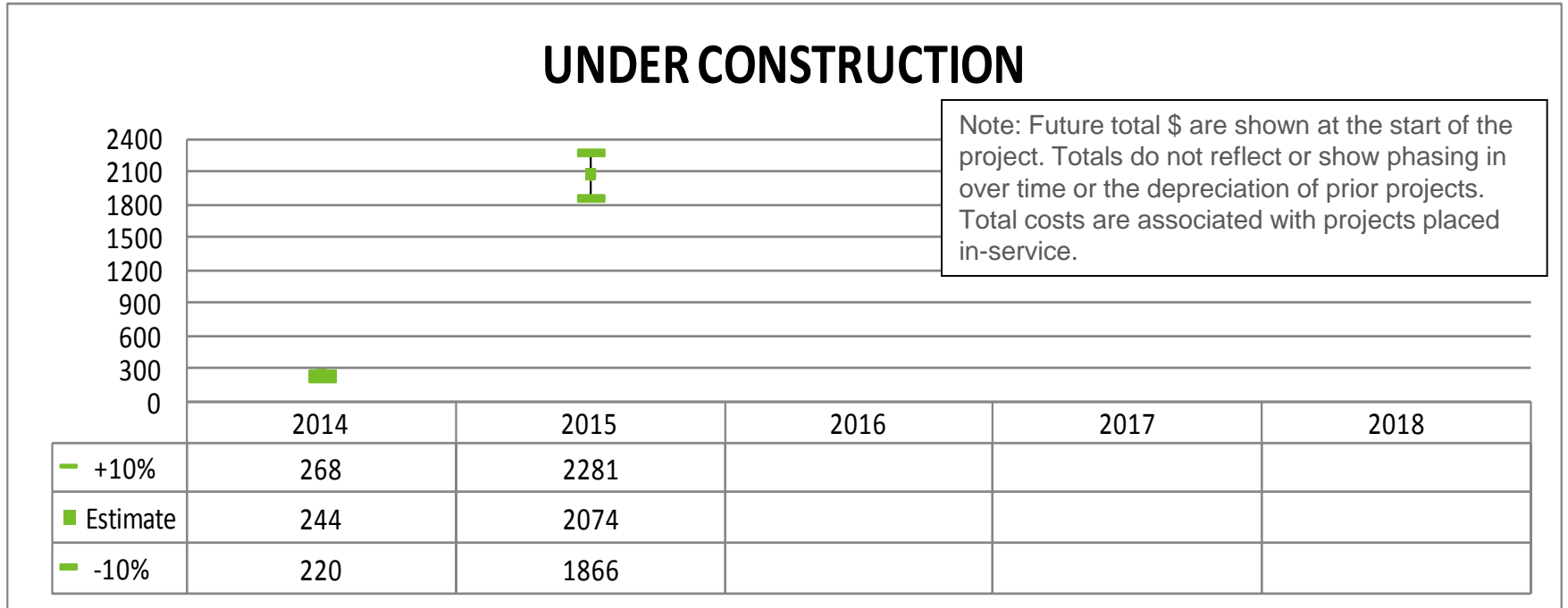


	2014	2015	2016	2017	2018
+25%		147	603	241	35
Estimate		118	483	193	28
-25%		88	362	144	21



# October 2014 Changes, *cont.*

## Project Cost Estimate Tolerances by Status and Year in Millions



# Status of Major Transmission Projects

	PPA	TCA	Construction
Auburn Area Transmission System Upgrades	Approved 1/08, 2/10	Approved 10/13, 2/14	Project completion 2013-2015
Long-term Lower SEMA Upgrades	Approved 11/09, 7/11	Approved 12/16/11	Project completed 2014
Pittsfield/Greenfield Project	Approved 12/12	Not Submitted	Project completion 2014-2016
Maine Power Reliability Program (MPRP)	Approved 7/08, 2/09, 11/10	Approved 1/29/10	Project completion 2014-2017
Vermont Solution – Connecticut River Valley	Not Submitted	Not Submitted	Project completion 2017
Southwest Connecticut (SWCT)	Small portions of the Project have PPA approval	Not Submitted	Project completion 2013-2017



# Status of Major Transmission Projects, *cont.*

	PPA	TCA	Construction
Central/Western MA Reinforcements	Approved 12/07, 3/11	Group 1 2/29/2012	Project completion 2009-2017
New England East-West Solution (NEEWS)	Approved 9/08, 5/12	Greater Springfield Reliability Project (GSRP) Approved 2/24/2014	Rhode Island Reliability Project and GSRP are completed; Projected completion of other components 2013-2015
Greater Boston – North, South, Central and Suburbs	Small portions of the Project have PPA approval	Not Submitted	Project completion 2013-2018
New Hampshire Solution – Western, Northern, Southern and Seacoast	3/13	Not Submitted	Project completion 2013-2016
Greater Hartford & Central Connecticut (GHCC)	Not Submitted	Not Submitted	Project completion 2017



# APPENDIX

# Summary: Project Listing Definitions

- **ISO New England Inc. Transmission, Markets and Services Tariff Section II**
  - **Attachment K, Regional System Planning Process**
    - Definition Of Needs Assessment
    - Definition of Solution Studies
  - **Project Listing Subcategories**
    - **Concept:** shall include a transmission project that is being considered by its proponent as a potential solution to meet a need identified by the ISO in a Needs Assessment or the RSP, but for which there is little or no analysis available to support the transmission project. (Project not well-defined, costs not well-defined, solution implementation not supportable).
    - **Proposed:** The project will include a regulated transmission solution that has been proposed in response to a specific Needs Assessment on the RSP and has been evaluated or further defined and developed in a Solutions Study and communicated to PAC. (Project well-defined, cost estimate quality sufficient for comparison of alternatives).
    - **Planned:** The project will include a Transmission upgrade that has been approved by the ISO, pursuant to Section I.3.9 (presumes Needs Assessment and Solutions Study have been completed). (Still subject to Schedule 12C review for Transmission Cost Allocation)

# Project Listing

Project Listing Column  
Definitions for:

- Reliability Projects
- Interconnection Projects
- Market Efficiency Upgrades
- Elective Projects
- Merchant Projects
- Projects In-Service
- Cancelled Projects

# Project Listing – Column Definitions

## Part Number (Part #)

The Part #'s designate the 'need' category of the project. Original categories are not changed when a project is placed 'In-Service' or 'Cancelled'.

Part 1 – These projects are Reliability Upgrades.

1a: Planned or Under Construction

1b: Conceptual or Proposed

Part 2 – These projects are Generator Interconnection Upgrades.

2a: Proposed (I.3.9 approval but without Generator Interconnection Agreement), Planned (I.3.9 approval with Generator Interconnection Agreement), or Under Construction

2b: Conceptual or Proposed

Part 3 – These projects are Market Efficiency Upgrades.

3a: Planned or Under Construction

3b: Conceptual or Proposed

Part 4,5 – These projects may be promoted by any entity electing to support the cost of transmission changes. The entity sponsoring the changes will have their own justification for their actions.

4,5a: Planned or Under Construction

4,5b: Conceptual or Proposed

# Project Listing – Column Definitions, *cont.*

## **Project ID**

This number is generated from ISO-NE System Planning Information Tracking System. It may change in the future as the tracking system evolves.

## **Primary Equipment Owner**

The company listed here is the responsible equipment owner / provider designated to design and implement the project.

## **Other Equipment Owner**

For projects that involve multiple Transmission Owners, the company listed here is also a responsible equipment owner / provider designated to design and implement the project.

## **Projected Month/Year of In-Service**

The month/year entered is the date the project is expected to be placed in service.

## **Major Project**

Name given to a project that consists of smaller subprojects.

## **Project / Project Component**

A brief, high-level description of the project is entered here. It will either include major pieces of substation equipment and/or types of line work to be performed.





# Project Listing – Column Definitions, *cont.*

## Status

**In Service:** The project has been placed in operation.

**Under Construction:** The project has received necessary approvals and a significant level of engineering or construction is underway.

**Planned:** The project will include a Transmission upgrade that has been approved by the ISO.

**Proposed:** The project will include a regulated transmission solution that has been proposed in response to a specific Needs Assessment on the RSP and has been evaluated or further defined and developed in a Solutions Study and communicated to PAC.

**Concept:** Shall include a transmission project that is being considered by its proponent as a potential solution to meet a need identified by the ISO in a Needs Assessment or the RSP, but for which there is little or no analysis available to support the transmission project.

**Cancelled:** Project has been cancelled.



# Project Listing – Column Definitions, *cont.*

## **PPA Approval (Review of Market Participant’s Proposed Plans)**

A date in this column signifies when the project received approval pursuant to Section I.3.9 of the ISO-New England Tariff. This approval indicates that the project will have no adverse impact on the stability, reliability, or operating characteristics of the system. A ‘no’ indicates that an approval is required, but has not been received yet. An ‘NR’ indicates that an I.3.9 approval is not required.

## **TCA Approval (Transmission Cost Allocation)**

A date in this column signifies when the project PTF costs were reviewed and approved. This approval indicates that it has been agreed whether, and by how much, the scope of the project and associated costs exceed regional needs. An ‘NR’ indicates that a TCA approval is not applicable either because the project has been cancelled or no/very minimal PTF costs are involved.

## **Estimated Costs**

The pool-supported project cost estimate presented here should be the best estimate available. It is understood that the estimate accuracy may vary dependent on the maturity of the project.

Accuracy tolerances for these estimates are targeted as follows:

Concept Project

Proposed Project that has been reviewed and approved to proceed by ISO-NE (+/-25%),

I.3.9-Approved Project (+/-25%), and

TCA-Approved Project (+/-10%)