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May 1, 2017

BY HAND DELIVERY AND E-FILING

Mark D. Marini, Secretary
Commonwealth of Massachusetts
Department of Public Utilities
One South Station
Boston, MA 02110

Re: *Cape Light Compact, D.P.U. 17-100*
2016 Plan Year Report

Dear Secretary Marini:

On behalf of Cape Light Compact (the "Compact"), enclosed is the Compact's 2016 Energy Efficiency Plan-Year Report for filing with the Department of Public Utilities (the "Department").¹ Plan Year 2016 was the first year of implementation under the *2016-2018 Massachusetts Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan*, as reviewed and approved by the Department in D.P.U. 15-160 through D.P.U. 15-169.

Most notably in 2016, the Massachusetts Energy Efficiency Program Administrators² (the "Program Administrators" or "PAs") successfully delivered on very ambitious energy savings goals for the year - exceeding statewide energy savings goals while maintaining budgetary control and complying with the directive of the Green Communities Act to seek all available cost-effective energy efficiency opportunities. The PAs successfully implemented their

¹ This report is being submitted pursuant to the Hearing Officer's Memorandum dated May 2, 2014 adopting the Energy Efficiency Plan-Year Report Template in D.P.U. 11-120-A, Phase II.

² The Massachusetts Program Administrators are: Bay State Gas Company, d/b/a Columbia Gas of Massachusetts; The Berkshire Gas Company; Boston Gas Company, Colonial Gas Company, Massachusetts Electric Company and Nantucket Electric Company each d/b/a National Grid; Cape Light Compact; Fitchburg Gas and Electric Light Company d/b/a Unitil; NSTAR Electric Company, NSTAR Gas Company and Western Massachusetts Electric Company, each d/b/a Eversource Energy; and Liberty Utilities (New England Natural Gas Company) Corp. d/b/a Liberty Utilities.

programs in the field while also continuing to manage a sustainable delivery of their energy efficiency programs to meet goals not just for 2016, but for the full life of the three-year plans and beyond.

The 2016 goals were intentionally designed to be very challenging, and despite anticipated challenges the PAs achieved statewide benefits goals. In the wake of these challenges, the PAs engaged in numerous and varied efforts to increase savings, in particular in the C&I sector, including a special focus on increased internal sales training and external workforce development training, expanded offerings, and enhanced strategies to encourage increased participation. For example, in 2016, the PAs worked to establish a consistent approach to large new construction projects, along with developing a statewide baseline document for custom new construction projects. The increased transparency, clarity, and consistency of program elements across all PAs reduced confusion in the marketplace for customers and design teams with projects spanning multiple PA territories.

In the residential sector, the PAs achieved strong results in 2016 despite the mild winter. The Home Energy Services core initiative conducted over 75,000 Home Energy Assessments throughout the Commonwealth, and attained the highest closure rate to date. The PAs also received the ENERGY STAR® Partner of the Year Award for excellence in energy efficiency program delivery for the Residential Lighting & Products core initiative. This is the Environmental Protection Agency's ("EPA") most prestigious award that recognizes the success and innovativeness of the PAs' efforts to increase the adoption of energy efficient products in Massachusetts. In 2016, the PAs continued to enhance the energy efficiency programs to meet the needs of customers and improve the overall customer experience. As an example, the PAs procured a rebate processing vendor to work across all residential initiatives and fuels (gas, electric, oil, and propane). With their new vendor, the PAs created a single online rebate form to streamline the experience for their customers who often apply for different measures across multiple initiatives at the same time.

These accomplishments demonstrate the PAs' continued commitment throughout 2016 and beyond to building on the experience of their initial three-year plans, and leveraging their good working relationships to better coordinate their efforts and share ideas and best practices. The PAs' management committees have continued to meet regularly to facilitate the process of enhanced integration and coordination between electric and gas programs.

Given the exceptional nature of these efforts and the unprecedented goals established in the 2016-2018 plans, plan year 2016 performance has been an outright success for energy efficiency in Massachusetts. The PAs look forward to continuing these efforts and achieving additional successes going forward.

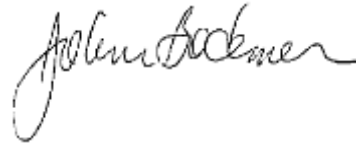
Mark D. Marini, Secretary

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Thank you for your attention to this matter. If you require further information or have any questions, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Jo Ann Bodemer". The signature is fluid and cursive, with the first name "Jo" and last name "Bodemer" clearly distinguishable.

Jo Ann Bodemer

JAB/kch

Enclosures

cc: Jeffrey Leupold, Esq., Hearing Officer, DPU (via email and hand delivery) (1 CD-ROM copy)
Donald Boecke, Esq., Office of the Attorney General (via email and first class mail)
Rachel Graham Evans, Esq., Department of Energy Resources (via email only)
Jerrold Oppenheim, Esq., Low-Income Energy Affordability Network (via email and first class mail)
Members of the Energy Efficiency Advisory Council (via email only)
D.P.U. 15-166 Service List (via email only)
Margaret T. Downey, Administrator, Cape Light Compact (via email and first class mail)



Cape Light Compact

Plan-Year Report on Energy Efficiency Activities for 2016

**Submitted to the
Massachusetts Department of Public Utilities
and the Massachusetts Department of Energy Resources
May 1, 2017**

Cape Light Compact

D.P.U. 17-100

2016 Energy Efficiency Plan-Year Report

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SECTION I INTRODUCTION AND OVERVIEW

Cape Light Compact Overview

The Cape Light Compact (“Compact” or “CLC”) is pleased with the results for the first year (“2016 Plan-Year”) of its 2016-2018 Three-Year Energy Efficiency Plan (“2016-2018 Three-Year Plan”), the third of such plans envisioned by the Green Communities Act (“GCA”) and approved by the Department of Public Utilities (“Department” or “DPU”). The Compact and the other Massachusetts Energy Efficiency Program Administrators (“Program Administrators” or “PAs”) diligently implemented their respective plans over the past year, making significant progress toward their three-year goals. Program year 2016 built on the nationally acclaimed accomplishments of the 2013-2015 Three-Year Plan and the 2010-2012 Three-Year Plan, showing remarkable success with respect to goal attainment and achievement of real benefits for the environment and the economy in the Commonwealth of Massachusetts.

Notably, in 2016 the Compact received the Community Partner Award from Habitat for Humanity of Cape Cod.

The results of the first year of the 2016-2018 Three-Year Plan, presented in this 2016 annual report (“Plan-Year Report”), indicate that the Compact is on track to reach its three-year goals by the end of 2018. Including actual results from 2016, the Compact achieved 37 percent of its three-year annual energy savings goal, achieved 25 percent of its three-year total benefit goal, and spent 21 percent of its planned three-year budget. Based on these results in combination with the 2017 and 2018 planned values, over the three-year term, the Compact expects to achieve:

- robustly cost-effective programs with a benefit-cost ratio (“BCR”) of 2.59,
- net benefits of \$229 million,
- annual energy savings of 182 gigawatt hours (“GWh”),
- lifetime energy savings of 1,645 GWh,
- total benefits of \$372 million, and
- program costs of \$112 million.

Organization of Plan-Year Report

The Compact's 2016 Plan-Year Report¹ is organized as follows:

- Section I provides an overview of the 2016 Plan-Year.
- Section II provides Compact-specific data tables at the core initiative level, including planned, preliminary, and evaluated data, and comparisons across the three different types of data.
- Appendix 1 provides explanations for (a) significant variances at the core initiative level and (b) any non-cost-effective core initiatives over the three-year term, consistent with the D.P.U. 11-120, Phase II, Energy Efficiency Plan-Year Report Template.
- Appendix 2 provides the Compact's evaluated benefit-cost ratio screening tool in Microsoft Excel format.
- Appendix 3 provides the 2016 Program Year – Report Version of the statewide Technical Reference Manual ("TRM").
- Appendix 4 provides detail on the year's evaluation efforts, including summaries for each statewide evaluation study and a complete copy of each evaluation study.
- Appendix 5 provides the statewide performance incentive model. Since the Compact is a public entity it does not collect any performance incentives. As such, this section is not applicable to the Compact.
- Appendix 6 provides a summary of the Compact's demand response activities.
- Appendix 7 provides the Compact's town activity reports for the 2016 Plan-Year.
- Appendix 8 provides the Compact's Energy Education Outreach activities for the 2016 Plan-Year.

¹ In previous annual reports, the Cape Light Compact provided information on its financial reports. The Compact continues to provide its financial reports on its website at: www.capelightcompact.org/reports.

SECTION II
CAPE LIGHT COMPACT DATA TABLES

Energy Efficiency Data Tables

2016 Plan-Year Report Overview

Cape Light Compact
May 1, 2017

OVERVIEW

The following data tables provide a summary of the Program Administrator's benefits, costs, savings, and cost-effectiveness for 2016 through 2018. The planned values are consistent with each Program Administrator's 2016-2018 Three-Year Plan. The 2016 preliminary and evaluated values are presented here for the first time as part of each Program Administrator's 2016 Plan-Year Report.

The data included in these tables is based on other supporting models. The primary supporting models used by the Program Administrators in the preparation of this 2016 Plan-Year Report are the Benefit-Cost Screening model and the Performance Incentive model. These exhibits should be referenced when looking for more detailed analyses, such as measure-level savings. High-level summaries for each of these models are provided below.

USING THE DATA TABLES

These Plan-Year Report data tables are in a pivot table format with set outputs based on the Department's direction in D.P.U. 11-120, Phase II. Users can manipulate the data by using either the raw data included on the Master Data tab, or the Slicers shown on the Selections tab. The Slicers will update the comparisons between the planned, preliminary, or evaluated results on the Plan-Year Summary tables only.

BENEFIT-COST SCREENING MODEL

The Benefit-Cost Screening model provides measure-level savings and benefits. This model uses the avoided cost values from the 2015 Avoided Energy Supply Cost study prepared by Tabors Caramanis Rudkevich.

PERFORMANCE INCENTIVE MODEL

The Performance Incentive model filed as part of the Joint Statewide Three-Year Plan provides support for the performance incentive dollars proposed for collection by the Program Administrator. Final performance incentive amounts will be based on the three-year term and will be subject to review and final approval in the three-year term report; the amounts shown in the Plan-Year Report are based on the data available to date and will change as additional years of data are included. Note that performance incentives are not applicable to the Cape Light Compact.

EM&V ACTIVITIES

The Evaluation, Monitoring & Verification (EMV) Section of the Joint Statewide Three-Year Plan describes in detail the EM&V activities planned for 2016-2018. The EMV section of each Program Administrator's 2016 Plan-Year Report summarizes the evaluation results completed in 2016 and their impact on the 2016 evaluated results. The Technical Reference Manual (TRM) has been updated to account for recent evaluation results.

2016 Plan-Year Report Variances

Variances Summary

Cape Light Compact

May 1, 2017

Variances Summary				
Program	Total Program Cost Variances	Lifetime Electric Savings (MWh) Variances	Total Benefits (2016\$) Variances	Total Resource Benefits (2016\$) Variances
A - Residential	-23.9%	52.8%	5.7%	-9.7%
A1 - Residential Whole House	-26.0%	31.8%	-12.6%	-14.9%
A1a - Residential New Construction	72.1%	92.3%	122.7%	-52.9%
A1b - Residential Multi-Family Retrofit	-29.0%	3.0%	-1.4%	27.1%
A1c - Residential Home Energy Services - Measures	-27.5%	25.9%	-22.0%	-7.4%
A1d - Residential Home Energy Services - RCS	-35.4%			
A1e - Residential Behavior/Feedback Program	-46.8%	-75.1%	-72.9%	0.6%
A2 - Residential Products	-13.8%	68.3%	64.6%	-1.7%
A2a - Residential Heating & Cooling Equipment	-15.0%	-15.6%	-15.6%	-4.4%
A2b - Residential Consumer Products	-16.6%	22.1%	24.0%	0.0%
A2c - Residential Lighting	-12.4%	88.3%	87.6%	-1.6%
B - Low-Income	-29.5%	6.3%	-33.1%	-5.9%
B1 - Low-Income Whole House	-29.7%	6.3%	-33.1%	-5.9%
B1a - Low-Income Single Family Retrofit	-31.3%	15.3%	-6.3%	-7.1%
B1b - Low-Income Multi-Family Retrofit	-26.2%	-19.4%	-66.0%	-1.7%
C - Commercial & Industrial	-39.6%	-37.1%	-38.0%	-0.2%
C1 - C&I New Construction	-30.4%	-65.8%	-55.9%	-0.9%
C1a - C&I New Buildings & Major Renovations	-23.7%	52.9%	25.6%	0.0%
C1b - C&I Initial Purchase & End of Useful Life	-42.1%	-78.7%	-71.1%	-1.6%
C2 - C&I Retrofit	-40.7%	-29.5%	-35.5%	-0.1%
C2a - C&I Existing Building Retrofit	-11.5%	59.6%	52.8%	0.0%
C2b - C&I Small Business	-55.3%	-65.0%	-71.1%	0.0%
C2c - C&I Multifamily Retrofit	-72.7%	-90.4%	-91.2%	-18.5%
C2d - C&I Upstream Lighting	-34.7%	-30.9%	-32.7%	-0.2%
Grand Total	-29.8%	-1.0%	-16.3%	-6.5%

Notes

- Significant variances, which require explanation, are defined as:
 - variances between *planned and actual* core initiative budget of 15 percent or greater;
 - variances between *planned and preliminary* core initiative *total lifetime savings* showing a decrease of 15 percent or greater;
 - variances between *planned and preliminary* core initiative *total benefits* showing a decrease of 15 percent or greater; and
 - variances between *preliminary and evaluated* core initiative *total resource benefits* showing a decrease of 15 percent or greater.
- Variances are calculated as a percent of the three-year goal, meaning variance are calculated as the percentage difference between the percentage of the Three-Year Plan goals planned to be achieved through the Plan Year Report year compared to the percentage of the Three-Year Plan goals actually achieved through the Plan Year Report year.
- Cells highlighted in the above tables indicate that a variance is significant enough to require explanation. Refer to the Program Administrator's Plan Year Report for explanations of significant variances.

2016 Plan-Year Report Variances

Total Program Cost Variances

Cape Light Compact
May 1, 2017

Total Program Cost Variances								
Program	Planned				Actual	Planned v. Actual (%)		
	2016	2017	2018	2016-2018	2016	Planned 2016 % Total Plan	Actual 2016 % Total Plan	Planned v Actual (%)
A - Residential	21,642,293	22,558,347	23,687,146	67,887,786	16,460,438	32%	24%	-23.9%
A1 - Residential Whole House	15,957,371	16,840,971	17,888,340	50,686,681	11,814,665	31%	23%	-26.0%
A1a - Residential New Construction	450,955	448,964	484,438	1,384,357	776,082	33%	56%	72.1%
A1b - Residential Multi-Family Retrofit	748,556	750,920	819,292	2,318,768	531,173	32%	23%	-29.0%
A1c - Residential Home Energy Services - Measures	12,753,248	13,569,883	14,430,591	40,753,722	9,248,469	31%	23%	-27.5%
A1d - Residential Home Energy Services - RCS	1,680,762	1,745,089	1,824,187	5,250,037	1,086,549	32%	21%	-35.4%
A1e - Residential Behavior/Feedback Program	323,850	326,115	329,832	979,797	172,392	33%	18%	-46.8%
A2 - Residential Products	4,237,564	4,205,485	4,219,506	12,662,554	3,651,100	33%	29%	-13.8%
A2a - Residential Heating & Cooling Equipment	1,733,864	1,923,467	2,134,905	5,792,237	1,472,942	30%	25%	-15.0%
A2b - Residential Consumer Products	378,068	386,422	350,095	1,114,585	315,466	34%	28%	-16.6%
A2c - Residential Lighting	2,125,632	1,895,596	1,734,505	5,755,733	1,862,692	37%	32%	-12.4%
B - Low-Income	4,040,498	4,460,916	4,965,362	13,466,775	2,849,163	30%	21%	-29.5%
B1 - Low-Income Whole House	3,938,279	4,354,065	4,853,328	13,145,672	2,767,940	30%	21%	-29.7%
B1a - Low-Income Single Family Retrofit	2,731,037	2,956,841	3,368,876	9,056,754	1,877,245	30%	21%	-31.3%
B1b - Low-Income Multi-Family Retrofit	1,207,242	1,397,224	1,484,452	4,088,918	890,694	30%	22%	-26.2%
C - Commercial & Industrial	13,162,821	15,216,941	17,586,749	45,966,511	7,943,839	29%	17%	-39.6%
C1 - C&I New Construction	1,679,273	1,368,025	1,354,976	4,402,273	1,169,283	38%	27%	-30.4%
C1a - C&I New Buildings & Major Renovations	1,069,334	1,052,858	1,044,413	3,166,606	816,317	34%	26%	-23.7%
C1b - C&I Initial Purchase & End of Useful Life	609,938	315,167	310,562	1,235,667	352,965	49%	29%	-42.1%
C2 - C&I Retrofit	11,134,552	13,516,904	15,896,567	40,548,023	6,605,103	27%	16%	-40.7%
C2a - C&I Existing Building Retrofit	3,222,186	3,691,013	3,882,093	10,795,292	2,850,166	30%	26%	-11.5%
C2b - C&I Small Business	5,464,819	7,408,747	9,548,266	22,421,832	2,442,122	24%	11%	-55.3%
C2c - C&I Multifamily Retrofit	753,420	750,216	814,252	2,317,888	205,948	33%	9%	-72.7%
C2d - C&I Upstream Lighting	1,694,127	1,666,927	1,651,957	5,013,011	1,106,866	34%	22%	-34.7%
Grand Total	38,845,613	42,236,204	46,239,256	127,321,073	27,253,441	31%	21%	-29.8%

Notes

Plan year core initiative significant variance explanations are required for: (1) variances between planned and actual core initiative budget of 15 percent or greater.

2016 Plan-Year Report Variances
Lifetime Electric Savings (MWh) Variances
Cape Light Compact
May 1, 2017

Lifetime Electric Savings (MWh) Variances								
Program	Planned				Preliminary	Planned v. Preliminary (%)		
	2016	2017	2018	2016-2018	2016	Planned 2016 % Total Plan	Preliminary 2016 % Total Plan	Planned v Preliminary (%)
A - Residential	213,456	201,747	195,123	610,325	326,230	35%	53%	52.8%
A1 - Residential Whole House	90,499	91,469	95,321	277,289	119,254	33%	43%	31.8%
A1a - Residential New Construction	11,845	10,994	12,767	35,606	22,778	33%	64%	92.3%
A1b - Residential Multi-Family Retrofit	5,711	5,024	5,181	15,917	5,882	36%	37%	3.0%
A1c - Residential Home Energy Services - Measures	71,722	74,266	76,240	222,228	90,291	32%	41%	25.9%
A1d - Residential Home Energy Services - RCS	-	-	-	-	-			
A1e - Residential Behavior/Feedback Program	1,220	1,184	1,133	3,537	304	34%	9%	-75.1%
A2 - Residential Products	122,957	110,278	99,802	333,037	206,976	37%	62%	68.3%
A2a - Residential Heating & Cooling Equipment	19,120	20,543	22,036	61,699	16,138	31%	26%	-15.6%
A2b - Residential Consumer Products	7,075	7,173	6,463	20,711	8,639	34%	42%	22.1%
A2c - Residential Lighting	96,762	82,562	71,302	250,627	182,199	39%	73%	88.3%
B - Low-Income	16,707	18,219	20,543	55,469	17,760	30%	32%	6.3%
B1 - Low-Income Whole House	16,707	18,219	20,543	55,469	17,760	30%	32%	6.3%
B1a - Low-Income Single Family Retrofit	12,387	13,370	15,251	41,008	14,279	30%	35%	15.3%
B1b - Low-Income Multi-Family Retrofit	4,320	4,849	5,292	14,461	3,481	30%	24%	-19.4%
C - Commercial & Industrial	322,580	331,257	372,130	1,025,967	203,002	31%	20%	-37.1%
C1 - C&I New Construction	67,142	32,961	34,496	134,599	22,976	50%	17%	-65.8%
C1a - C&I New Buildings & Major Renovations	6,610	9,109	11,627	27,346	10,110	24%	37%	52.9%
C1b - C&I Initial Purchase & End of Useful Life	60,532	23,852	22,869	107,253	12,867	56%	12%	-78.7%
C2 - C&I Retrofit	255,439	298,296	337,634	891,368	180,025	29%	20%	-29.5%
C2a - C&I Existing Building Retrofit	44,426	63,955	72,955	181,336	70,925	24%	39%	59.6%
C2b - C&I Small Business	97,761	129,273	166,972	394,006	34,221	25%	9%	-65.0%
C2c - C&I Multifamily Retrofit	5,734	5,052	5,190	15,976	548	36%	3%	-90.4%
C2d - C&I Upstream Lighting	107,517	100,017	92,517	300,050	74,331	36%	25%	-30.9%
Grand Total	552,743	551,223	587,796	1,691,761	546,992	33%	32%	-1.0%

Notes

Plan year core initiative significant variance explanations are required for: (2) variances between planned and preliminary core initiative total lifetime savings showing a decrease of 15 percent or greater.

2016 Plan-Year Report Variances

Total Benefits (2016\$) Variances

Cape Light Compact
May 1, 2017

Total Benefits (2016\$) Variances								
Program	Planned				Preliminary	Planned v. Preliminary (%)		
	2016	2017	2018	2016-2018	2016	Planned 2016 % Total Plan	Preliminary 2016 % Total Plan	Planned v Preliminary (%)
A - Residential	60,058,844	61,650,073	63,721,865	185,430,783	63,508,438	32%	34%	5.7%
A1 - Residential Whole House	45,800,226	49,098,091	52,405,426	147,303,743	40,036,260	31%	27%	-12.6%
A1a - Residential New Construction	2,942,867	2,816,632	3,074,075	8,833,573	6,553,422	33%	74%	122.7%
A1b - Residential Multi-Family Retrofit	950,225	866,759	902,469	2,719,453	937,188	35%	34%	-1.4%
A1c - Residential Home Energy Services - Measures	41,662,094	45,178,204	48,203,864	135,044,163	32,479,353	31%	24%	-22.0%
A1d - Residential Home Energy Services - RCS	-	-	-	-	-			
A1e - Residential Behavior/Feedback Program	245,040	236,496	225,018	706,554	66,297	35%	9%	-72.9%
A2 - Residential Products	14,258,618	12,551,983	11,316,439	38,127,040	23,472,178	37%	62%	64.6%
A2a - Residential Heating & Cooling Equipment	2,530,518	2,717,001	2,935,257	8,182,775	2,134,710	31%	26%	-15.6%
A2b - Residential Consumer Products	1,038,255	1,030,545	932,249	3,001,049	1,287,927	35%	43%	24.0%
A2c - Residential Lighting	10,689,845	8,804,437	7,448,933	26,943,215	20,049,541	40%	74%	87.6%
B - Low-Income	9,767,299	11,084,297	11,846,681	32,698,277	6,530,823	30%	20%	-33.1%
B1 - Low-Income Whole House	9,767,299	11,084,297	11,846,681	32,698,277	6,530,823	30%	20%	-33.1%
B1a - Low-Income Single Family Retrofit	5,377,221	5,870,457	6,718,730	17,966,408	5,039,913	30%	28%	-6.3%
B1b - Low-Income Multi-Family Retrofit	4,390,078	5,213,840	5,127,950	14,731,869	1,490,910	30%	10%	-66.0%
C - Commercial & Industrial	53,598,354	57,506,827	67,166,111	178,271,292	33,215,373	30%	19%	-38.0%
C1 - C&I New Construction	6,723,767	3,232,003	3,827,292	13,783,062	2,964,423	49%	22%	-55.9%
C1a - C&I New Buildings & Major Renovations	1,058,180	1,291,476	1,524,627	3,874,283	1,328,574	27%	34%	25.6%
C1b - C&I Initial Purchase & End of Useful Life	5,665,587	1,940,527	2,302,665	9,908,779	1,635,849	57%	17%	-71.1%
C2 - C&I Retrofit	46,874,587	54,274,824	63,338,819	164,488,230	30,250,950	28%	18%	-35.5%
C2a - C&I Existing Building Retrofit	8,070,409	10,602,558	11,720,659	30,393,626	12,327,753	27%	41%	52.8%
C2b - C&I Small Business	20,095,558	27,147,660	36,857,059	84,100,277	5,804,734	24%	7%	-71.1%
C2c - C&I Multifamily Retrofit	817,318	742,465	769,315	2,329,097	71,823	35%	3%	-91.2%
C2d - C&I Upstream Lighting	17,891,302	15,782,141	13,991,787	47,665,230	12,046,640	38%	25%	-32.7%
Grand Total	123,424,497	130,241,198	142,734,656	396,400,351	103,254,633	31%	26%	-16.3%

Notes

Plan year core initiative significant variance explanations are required for: (3) variances between planned and preliminary core initiative total benefits showing a decrease of 15 percent or greater.

2016 Plan-Year Report Variances
Total Resource Benefits (2016\$) Variances
Cape Light Compact
May 1, 2017

Total Resource Benefits (2016\$) Variances			
Program	2016		
	Preliminary	Evaluated	Preliminary v Evaluated (%)
A - Residential	54,564,031	49,275,772	-9.7%
A1 - Residential Whole House	32,959,219	28,047,145	-14.9%
A1a - Residential New Construction	5,988,968	2,822,230	-52.9%
A1b - Residential Multi-Family Retrofit	676,782	860,348	27.1%
A1c - Residential Home Energy Services - Measures	26,227,172	24,297,847	-7.4%
A1d - Residential Home Energy Services - RCS	-	-	
A1e - Residential Behavior/Feedback Program	66,297	66,720	0.6%
A2 - Residential Products	21,604,812	21,228,627	-1.7%
A2a - Residential Heating & Cooling Equipment	1,989,077	1,902,291	-4.4%
A2b - Residential Consumer Products	1,287,927	1,287,927	0.0%
A2c - Residential Lighting	18,327,808	18,038,410	-1.6%
B - Low-Income	5,279,175	4,965,091	-5.9%
B1 - Low-Income Whole House	5,279,175	4,965,091	-5.9%
B1a - Low-Income Single Family Retrofit	4,172,755	3,877,423	-7.1%
B1b - Low-Income Multi-Family Retrofit	1,106,420	1,087,668	-1.7%
C - Commercial & Industrial	26,996,836	26,938,917	-0.2%
C1 - C&I New Construction	2,964,423	2,938,227	-0.9%
C1a - C&I New Buildings & Major Renovations	1,328,574	1,328,574	0.0%
C1b - C&I Initial Purchase & End of Useful Life	1,635,849	1,609,653	-1.6%
C2 - C&I Retrofit	24,032,413	24,000,690	-0.1%
C2a - C&I Existing Building Retrofit	8,860,555	8,860,555	0.0%
C2b - C&I Small Business	4,879,140	4,879,121	0.0%
C2c - C&I Multifamily Retrofit	60,826	49,576	-18.5%
C2d - C&I Upstream Lighting	10,231,893	10,211,438	-0.2%
Grand Total	86,840,042	81,179,780	-6.5%

Notes

Plan year core initiative significant variance explanations are required for: (4) variances between preliminary and evaluated core initiative total resource benefits showing a decrease of 15 percent or greater.

Program Administrator Budgets, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,268,568	477,634	14,566,274	4,559,869	769,948	21,642,293	-	21,642,293	236	2.45
A1 - Residential Whole House	815,400	176,447	10,548,164	3,801,241	616,118	15,957,371	-	15,957,371	4,752	2.48
A1a - Residential New Construction	23,099	6,994	321,481	83,011	16,370	450,955	-	450,955	4,956	5.42
A1b - Residential Multi-Family Retrofit	38,342	23,932	427,406	231,702	27,174	748,556	-	748,556	2,361	0.97
A1c - Residential Home Energy Services - Measures	656,565	92,833	9,634,746	1,868,725	500,378	12,753,248	-	12,753,248	4,905	2.84
A1d - Residential Home Energy Services - RCS	86,091	36,529	-	1,497,128	61,014	1,680,762	-	1,680,762	-	-
A1e - Residential Behavior/Feedback Program	11,303	16,159	164,531	120,675	11,182	323,850	-	323,850	925	0.76
A2 - Residential Products	217,054	139,010	3,145,610	582,061	153,829	4,237,564	-	4,237,564	48	3.17
A2a - Residential Heating & Cooling Equipment	88,811	27,608	1,364,500	190,004	62,942	1,733,864	-	1,733,864	383	1.37
A2b - Residential Consumer Products	19,365	25,736	158,788	160,454	13,724	378,068	-	378,068	150	2.75
A2c - Residential Lighting	108,878	85,666	1,622,322	231,603	77,163	2,125,632	-	2,125,632	26	4.72
A3 - Residential Hard-to-Measure	236,114	162,177	872,500	176,568	-	1,447,359	-	1,447,359	-	-
A3a - Residential Statewide Marketing	-	112,017	-	-	-	112,017	-	112,017	-	-
A3b - Residential Statewide Database	13,253	-	-	-	-	13,253	-	13,253	-	-
A3c - Residential DOER Assessment	145,089	-	-	-	-	145,089	-	145,089	-	-
A3d - Residential EEAC Consultants	-	-	-	-	-	-	-	-	-	-
A3e - Residential Sponsorships & Subscriptions	23,827	10,127	-	-	-	33,954	-	33,954	-	-
A3f - Residential HEAT Loan	53,945	11,532	850,000	99,468	-	1,014,945	-	1,014,945	-	-
A3g - Residential Workforce Development	-	-	-	19,600	-	19,600	-	19,600	-	-
A3h - Residential R&D and Demonstration	-	3,500	22,500	57,500	-	83,500	-	83,500	-	-
A3i - Residential Education	-	25,000	-	-	-	25,000	-	25,000	-	-
B - Low-Income	268,783	53,890	2,845,870	718,294	153,661	4,040,498	-	4,040,498	5,051	2.06
B1 - Low-Income Whole House	191,300	29,155	2,845,870	718,294	153,661	3,938,279	-	3,938,279	4,923	2.11
B1a - Low-Income Single Family Retrofit	132,659	22,670	1,933,450	535,701	106,558	2,731,037	-	2,731,037	4,877	1.62
B1b - Low-Income Multi-Family Retrofit	58,641	6,485	912,420	182,593	47,103	1,207,242	-	1,207,242	5,030	3.22
B2 - Low-Income Hard-to-Measure	77,483	24,736	-	-	-	102,219	-	102,219	-	-
B2a - Low-Income Statewide Marketing	-	22,684	-	-	-	22,684	-	22,684	-	-
B2b - Low-Income Statewide Database	2,684	-	-	-	-	2,684	-	2,684	-	-
B2c - Low-Income DOER Assessment	29,381	-	-	-	-	29,381	-	29,381	-	-
B2d - Low-Income Energy Affordability Network	36,070	-	-	-	-	36,070	-	36,070	-	-
B2e - Low-Income Sponsorships & Subscriptions	9,348	2,052	-	-	-	11,400	-	11,400	-	-
C - Commercial & Industrial	830,371	255,539	9,796,815	1,776,112	503,985	13,162,821	-	13,162,821	5,863	3.52
C1 - C&I New Construction	90,884	10,704	1,217,530	294,107	66,048	1,679,273	-	1,679,273	19,302	4.00
C1a - C&I New Buildings & Major Renovations	57,873	5,543	723,350	240,510	42,058	1,069,334	-	1,069,334	28,901	0.99
C1b - C&I Initial Purchase & End of Useful Life	33,010	5,162	494,180	53,597	23,990	609,938	-	609,938	12,199	9.29
C2 - C&I Retrofit	602,611	142,714	8,539,285	1,412,005	437,937	11,134,552	-	11,134,552	5,160	3.56
C2a - C&I Existing Building Retrofit	174,387	51,702	2,504,305	365,059	126,733	3,222,186	-	3,222,186	21,339	2.15
C2b - C&I Small Business	295,760	58,326	4,221,754	674,040	214,939	5,464,819	-	5,464,819	11,153	3.11
C2c - C&I Multifamily Retrofit	40,776	23,905	427,406	231,700	29,633	753,420	-	753,420	2,377	0.95
C2d - C&I Upstream Lighting	91,688	8,781	1,385,820	141,206	66,632	1,694,127	-	1,694,127	1,412	8.88
C3 - C&I Hard-to-Measure	136,877	102,120	40,000	70,000	-	348,996	-	348,996	-	-
C3a - C&I Statewide Marketing	-	75,299	-	-	-	75,299	-	75,299	-	-
C3b - C&I Statewide Database	8,909	-	-	-	-	8,909	-	8,909	-	-
C3c - C&I DOER Assessment	97,530	-	-	-	-	97,530	-	97,530	-	-
C3d - C&I EEAC Consultants	-	-	-	-	-	-	-	-	-	-
C3e - C&I Sponsorships & Subscriptions	30,438	6,821	-	-	-	37,259	-	37,259	-	-
C3f - C&I Workforce Development	-	20,000	-	60,000	-	80,000	-	80,000	-	-
C3g - C&I R&D and Demonstration	-	-	40,000	10,000	-	50,000	-	50,000	-	-
Grand Total	2,367,722	787,063	27,208,959	7,054,275	1,427,594	38,845,613	-	38,845,613	411	2.77

Program Administrator Budgets, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Evaluated Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,033,401	362,178	11,286,416	3,163,053	615,390	16,460,438		16,460,438	97	2.99
A1 - Residential Whole House	687,253	104,786	8,084,539	2,625,215	312,872	11,814,665		11,814,665	1,692	2.37
A1a - Residential New Construction	19,468	3,918	587,463	119,133	46,100	776,082		776,082	2,403	3.64
A1b - Residential Multi-Family Retrofit	32,316	4,440	384,082	86,343	23,992	531,173		531,173	968	1.62
A1c - Residential Home Energy Services - Measures	553,380	81,417	7,030,236	1,371,614	211,822	9,248,469		9,248,469	1,516	2.63
A1d - Residential Home Energy Services - RCS	72,561	13,702	3,135	974,100	23,051	1,086,549		1,086,549		-
A1e - Residential Behavior/Feedback Program	9,527	1,309	79,623	74,025	7,908	172,392		172,392	19,155	0.39
A2 - Residential Products	182,942	123,190	2,601,023	441,427	302,518	3,651,100		3,651,100	23	5.81
A2a - Residential Heating & Cooling Equipment	74,854	17,239	1,157,099	149,791	73,960	1,472,942		1,472,942	575	1.29
A2b - Residential Consumer Products	16,322	24,785	170,354	99,668	4,338	315,466		315,466	127	4.08
A2c - Residential Lighting	91,767	81,166	1,273,570	191,968	224,221	1,862,692		1,862,692	12	9.68
A3 - Residential Hard-to-Measure	163,206	134,202	600,853	96,411	-	994,673		994,673		-
A3a - Residential Statewide Marketing	-	107,139	-	-	-	107,139		107,139		-
A3b - Residential Statewide Database	2,704	-	-	-	-	2,704		2,704		-
A3c - Residential DOER Assessment	114,662	-	-	-	-	114,662		114,662		-
A3d - Residential EEAC Consultants	-	-	-	-	-	-		-		-
A3e - Residential Sponsorships & Subscriptions	374	-	-	-	-	374		374		-
A3f - Residential HEAT Loan	45,467	7,910	600,853	92,605	-	746,835		746,835		-
A3g - Residential Workforce Development	-	-	-	3,780	-	3,780		3,780		-
A3h - Residential R&D and Demonstration	-	-	-	26	-	26		26		-
A3i - Residential Education	-	19,154	-	-	-	19,154		19,154		-
B - Low-Income	216,965	48,767	2,140,346	381,001	62,084	2,849,163		2,849,163	2,115	1.74
B1 - Low-Income Whole House	157,450	27,058	2,140,346	381,001	62,084	2,767,940		2,767,940	2,055	1.79
B1a - Low-Income Single Family Retrofit	109,185	19,736	1,466,419	239,117	42,787	1,877,245		1,877,245	2,095	2.07
B1b - Low-Income Multi-Family Retrofit	48,265	7,322	673,927	141,884	19,297	890,694		890,694	1,975	1.22
B2 - Low-Income Hard-to-Measure	59,515	21,709	-	-	-	81,224		81,224		-
B2a - Low-Income Statewide Marketing	-	21,709	-	-	-	21,709		21,709		-
B2b - Low-Income Statewide Database	547	-	-	-	-	547		547		-
B2c - Low-Income DOER Assessment	29,381	-	-	-	-	29,381		29,381		-
B2d - Low-Income Energy Affordability Network	29,587	-	-	-	-	29,587		29,587		-
B2e - Low-Income Sponsorships & Subscriptions	-	-	-	-	-	-		-		-
C - Commercial & Industrial	689,945	152,256	5,551,310	1,128,694	421,633	7,943,839		7,943,839	4,399	3.39
C1 - C&I New Construction	77,920	11,065	711,127	271,527	97,643	1,169,283		1,169,283	7,495	2.51
C1a - C&I New Buildings & Major Renovations	49,618	6,411	473,048	212,198	75,043	816,317		816,317	15,698	1.63
C1b - C&I Initial Purchase & End of Useful Life	28,302	4,654	238,080	59,330	22,600	352,965		352,965	3,394	4.56
C2 - C&I Retrofit	516,656	68,978	4,840,182	855,296	323,990	6,605,103		6,605,103	4,003	3.63
C2a - C&I Existing Building Retrofit	149,513	19,315	2,251,275	329,054	101,009	2,850,166		2,850,166	10,517	3.11
C2b - C&I Small Business	253,574	35,102	1,656,633	364,830	131,984	2,442,122		2,442,122	9,429	2.00
C2c - C&I Multifamily Retrofit	34,960	4,409	112,656	37,585	16,339	205,948		205,948	11,442	0.24
C2d - C&I Upstream Lighting	78,609	10,152	819,619	123,827	74,659	1,106,866		1,106,866	1,004	9.23
C3 - C&I Hard-to-Measure	95,369	72,213	-	1,871	-	169,453		169,453		-
C3a - C&I Statewide Marketing	-	72,163	-	-	-	72,163		72,163		-
C3b - C&I Statewide Database	1,824	-	-	-	-	1,824		1,824		-
C3c - C&I DOER Assessment	91,978	-	-	-	-	91,978		91,978		-
C3d - C&I EEAC Consultants	-	-	-	-	-	-		-		-
C3e - C&I Sponsorships & Subscriptions	1,567	-	-	-	-	1,567		1,567		-
C3f - C&I Workforce Development	-	50	-	1,844	-	1,894		1,894		-
C3g - C&I R&D and Demonstration	-	-	-	27	-	27		27		-
Grand Total	1,940,312	563,202	18,978,071	4,672,748	1,099,108	27,253,441		27,253,441	158	2.98

Program Administrator Budgets, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
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2016 Planned v. Evaluated Program Administrator Budget Variances (%)											
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost	
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs					
A - Residential	-19%	-24%	-23%	-31%	-20%	-24%		-24%	-59%	22%	
A1 - Residential Whole House	-16%	-41%	-23%	-31%	-49%	-26%		-26%	-64%	-4%	
A1a - Residential New Construction	-16%	-44%	83%	44%	182%	72%		72%	-52%	-33%	
A1b - Residential Multi-Family Retrofit	-16%	-81%	-10%	-63%	-12%	-29%		-29%	-59%	68%	
A1c - Residential Home Energy Services - Measures	-16%	-12%	-27%	-27%	-58%	-27%		-27%	-69%	-7%	
A1d - Residential Home Energy Services - RCS	-16%	-62%		-35%	-62%	-35%		-35%			
A1e - Residential Behavior/Feedback Program	-16%	-92%	-52%	-39%	-29%	-47%		-47%	1970%	-49%	
A2 - Residential Products	-16%	-11%	-17%	-24%	97%	-14%		-14%	-53%	83%	
A2a - Residential Heating & Cooling Equipment	-16%	-38%	-15%	-21%	18%	-15%		-15%	50%	-6%	
A2b - Residential Consumer Products	-16%	-4%	7%	-38%	-68%	-17%		-17%	-15%	49%	
A2c - Residential Lighting	-16%	-5%	-21%	-17%	191%	-12%		-12%	-55%	105%	
A3 - Residential Hard-to-Measure	-31%	-17%	-31%	-45%		-31%		-31%			
A3a - Residential Statewide Marketing		-4%				-4%		-4%			
A3b - Residential Statewide Database	-80%					-80%		-80%			
A3c - Residential DOER Assessment	-21%					-21%		-21%			
A3d - Residential EEAC Consultants											
A3e - Residential Sponsorships & Subscriptions	-98%	-100%				-99%		-99%			
A3f - Residential HEAT Loan	-16%	-31%	-29%	-7%		-26%		-26%			
A3g - Residential Workforce Development				-81%		-81%		-81%			
A3h - Residential R&D and Demonstration		-100%	-100%	-100%		-100%		-100%			
A3i - Residential Education		-23%				-23%		-23%			
B - Low-Income	-19%	-10%	-25%	-47%	-60%	-29%		-29%	-58%	-15%	
B1 - Low-Income Whole House	-18%	-7%	-25%	-47%	-60%	-30%		-30%	-58%	-15%	
B1a - Low-Income Single Family Retrofit	-18%	-13%	-24%	-55%	-60%	-31%		-31%	-57%	27%	
B1b - Low-Income Multi-Family Retrofit	-18%	13%	-26%	-22%	-59%	-26%		-26%	-61%	-62%	
B2 - Low-Income Hard-to-Measure	-23%	-12%				-21%		-21%			
B2a - Low-Income Statewide Marketing		-4%				-4%		-4%			
B2b - Low-Income Statewide Database	-80%					-80%		-80%			
B2c - Low-Income DOER Assessment	0%					0%		0%			
B2d - Low-Income Energy Affordability Network	-18%					-18%		-18%			
B2e - Low-Income Sponsorships & Subscriptions	-100%	-100%				-100%		-100%			
C - Commercial & Industrial	-17%	-40%	-43%	-36%	-16%	-40%		-40%	-25%	-4%	
C1 - C&I New Construction	-14%	3%	-42%	-8%	48%	-30%		-30%	-61%	-37%	
C1a - C&I New Buildings & Major Renovations	-14%	16%	-35%	-12%	78%	-24%		-24%	-46%	64%	
C1b - C&I Initial Purchase & End of Useful Life	-14%	-10%	-52%	11%	-6%	-42%		-42%	-72%	-51%	
C2 - C&I Retrofit	-14%	-52%	-43%	-39%	-26%	-41%		-41%	-22%	2%	
C2a - C&I Existing Building Retrofit	-14%	-63%	-10%	-10%	-20%	-12%		-12%	-51%	45%	
C2b - C&I Small Business	-14%	-40%	-61%	-46%	-39%	-55%		-55%	-15%	-36%	
C2c - C&I Multifamily Retrofit	-14%	-82%	-74%	-84%	-45%	-73%		-73%	381%	-75%	
C2d - C&I Upstream Lighting	-14%	16%	-41%	-12%	12%	-35%		-35%	-29%	4%	
C3 - C&I Hard-to-Measure	-30%	-29%	-100%	-97%		-51%		-51%			
C3a - C&I Statewide Marketing		-4%				-4%		-4%			
C3b - C&I Statewide Database	-80%					-80%		-80%			
C3c - C&I DOER Assessment	-6%					-6%		-6%			
C3d - C&I EEAC Consultants											
C3e - C&I Sponsorships & Subscriptions	-95%	-100%				-96%		-96%			
C3f - C&I Workforce Development		-100%			-97%	-98%		-98%			
C3g - C&I R&D and Demonstration			-100%	-100%		-100%		-100%			
Grand Total	-18%	-28%	-30%	-34%	-23%	-30%		-30%	-61%	7%	

Notes

- Where not otherwise indicated, budgets for each year are represented in nominal dollars (2016\$, 2017\$, 2018\$).
- Refer to common definitions for allocation of costs.
- EEAC Consultant fees on the electric side do not get paid out of the Program Administrators' budgets, but are instead paid by the DOER out of the RGGI proceeds.
- The budgets in the above tables do not include costs associated with the Program Administrator's demand response activities.
- The plan year variances provided above are intended to indicate the Program Administrator's performance in the plan year only. The variances used to determine significant variances are provided separately. The variances above and the significant variances use different calculations to determine variances on an annual basis and over the three-year term, respectively.

Program Administrator Budgets, Three-Year Total
2016-2018 Program Administrator Budget
Cape Light Compact
May 1, 2017

2016 Evaluated Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,033,401	362,178	11,286,416	3,163,053	615,390	16,460,438		16,460,438	97	2.99
A1 - Residential Whole House	687,253	104,786	8,084,539	2,625,215	312,872	11,814,665		11,814,665	1,692	2.37
A1a - Residential New Construction	19,468	3,918	587,463	119,133	46,100	776,082		776,082	2,403	3.64
A1b - Residential Multi-Family Retrofit	32,316	4,440	384,082	86,343	23,992	531,173		531,173	968	1.62
A1c - Residential Home Energy Services - Measures	553,380	81,417	7,030,236	1,371,614	211,822	9,248,469		9,248,469	1,516	2.63
A1d - Residential Home Energy Services - RCS	72,561	13,702	3,135	974,100	23,051	1,086,549		1,086,549	-	-
A1e - Residential Behavior/Feedback Program	9,527	1,309	79,623	74,025	7,908	172,392		172,392	19,155	0.39
A2 - Residential Products	182,942	123,190	2,601,023	441,427	302,518	3,651,100		3,651,100	23	5.81
A2a - Residential Heating & Cooling Equipment	74,854	17,239	1,157,099	149,791	73,960	1,472,942		1,472,942	575	1.29
A2b - Residential Consumer Products	16,322	24,785	170,354	99,668	4,338	315,466		315,466	127	4.08
A2c - Residential Lighting	91,767	81,166	1,273,570	191,968	224,221	1,862,692		1,862,692	12	9.68
A3 - Residential Hard-to-Measure	163,206	134,202	600,853	96,411	-	994,673		994,673	-	-
A3a - Residential Statewide Marketing	-	107,139	-	-	-	107,139		107,139	-	-
A3b - Residential Statewide Database	2,704	-	-	-	-	2,704		2,704	-	-
A3c - Residential DOER Assessment	114,662	-	-	-	-	114,662		114,662	-	-
A3d - Residential EEAC Consultants	-	-	-	-	-	-		-	-	-
A3e - Residential Sponsorships & Subscriptions	374	-	-	-	-	374		374	-	-
A3f - Residential HEAT Loan	45,467	7,910	600,853	92,605	-	746,835		746,835	-	-
A3g - Residential Workforce Development	-	-	-	3,780	-	3,780		3,780	-	-
A3h - Residential R&D and Demonstration	-	-	-	26	-	26		26	-	-
A3i - Residential Education	-	19,154	-	-	-	19,154		19,154	-	-
B - Low-Income	216,965	48,767	2,140,346	381,001	62,084	2,849,163		2,849,163	2,115	1.74
B1 - Low-Income Whole House	157,450	27,058	2,140,346	381,001	62,084	2,767,940		2,767,940	2,055	1.79
B1a - Low-Income Single Family Retrofit	109,185	19,736	1,466,419	239,117	42,787	1,877,245		1,877,245	2,095	2.07
B1b - Low-Income Multi-Family Retrofit	48,265	7,322	673,927	141,884	19,297	890,694		890,694	1,975	1.22
B2 - Low-Income Hard-to-Measure	59,515	21,709	-	-	-	81,224		81,224	-	-
B2a - Low-Income Statewide Marketing	-	21,709	-	-	-	21,709		21,709	-	-
B2b - Low-Income Statewide Database	547	-	-	-	-	547		547	-	-
B2c - Low-Income DOER Assessment	29,381	-	-	-	-	29,381		29,381	-	-
B2d - Low-Income Energy Affordability Network	29,587	-	-	-	-	29,587		29,587	-	-
B2e - Low-Income Sponsorships & Subscriptions	-	-	-	-	-	-		-	-	-
C - Commercial & Industrial	689,945	152,256	5,551,310	1,128,694	421,633	7,943,839		7,943,839	4,399	3.39
C1 - C&I New Construction	77,920	11,065	711,127	271,527	97,643	1,169,283		1,169,283	7,495	2.51
C1a - C&I New Buildings & Major Renovations	49,618	6,411	473,048	212,198	75,043	816,317		816,317	15,698	1.63
C1b - C&I Initial Purchase & End of Useful Life	28,302	4,654	238,080	59,330	22,600	352,965		352,965	3,394	4.56
C2 - C&I Retrofit	516,656	68,978	4,840,182	855,296	323,990	6,605,103		6,605,103	4,003	3.63
C2a - C&I Existing Building Retrofit	149,513	19,315	2,251,275	329,054	101,009	2,850,166		2,850,166	10,517	3.11
C2b - C&I Small Business	253,574	35,102	1,656,633	364,830	131,984	2,442,122		2,442,122	9,429	2.00
C2c - C&I Multifamily Retrofit	34,960	4,409	112,656	37,585	16,339	205,948		205,948	11,442	0.24
C2d - C&I Upstream Lighting	78,609	10,152	819,619	123,827	74,659	1,106,866		1,106,866	1,004	9.23
C3 - C&I Hard-to-Measure	95,369	72,213	-	1,871	-	169,453		169,453	-	-
C3a - C&I Statewide Marketing	-	72,163	-	-	-	72,163		72,163	-	-
C3b - C&I Statewide Database	1,824	-	-	-	-	1,824		1,824	-	-
C3c - C&I DOER Assessment	91,978	-	-	-	-	91,978		91,978	-	-
C3d - C&I EEAC Consultants	-	-	-	-	-	-		-	-	-
C3e - C&I Sponsorships & Subscriptions	1,567	-	-	-	-	1,567		1,567	-	-
C3f - C&I Workforce Development	-	50	-	1,844	-	1,894		1,894	-	-
C3g - C&I R&D and Demonstration	-	-	-	27	-	27		27	-	-
Grand Total	1,940,312	563,202	18,978,071	4,672,748	1,099,108	27,253,441		27,253,441	158	2.98

Program Administrator Budgets, Three-Year Total
2016-2018 Program Administrator Budget
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2017 Planned Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,171,579	480,933	15,335,147	4,801,294	769,394	22,558,347	-	22,558,347	272	2.41
A1 - Residential Whole House	750,918	173,161	11,279,444	4,014,474	622,974	16,840,971	-	16,840,971	4,752	2.53
A1a - Residential New Construction	20,064	6,861	311,251	95,158	15,631	448,964	-	448,964	5,161	5.21
A1b - Residential Multi-Family Retrofit	33,558	18,739	399,808	272,670	26,144	750,920	-	750,920	2,303	0.88
A1c - Residential Home Energy Services - Measures	609,338	94,175	10,399,771	1,956,940	509,659	13,569,883	-	13,569,883	4,969	2.90
A1d - Residential Home Energy Services - RCS	77,987	37,275	-	1,569,069	60,758	1,745,089	-	1,745,089	-	-
A1e - Residential Behavior/Feedback Program	9,970	16,111	168,614	120,638	10,781	326,115	-	326,115	815	0.73
A2 - Residential Products	187,941	146,193	3,130,704	594,227	146,420	4,205,485	-	4,205,485	53	2.81
A2a - Residential Heating & Cooling Equipment	85,959	28,579	1,535,440	206,522	66,968	1,923,467	-	1,923,467	408	1.32
A2b - Residential Consumer Products	17,269	34,674	159,788	161,237	13,454	386,422	-	386,422	153	2.67
A2c - Residential Lighting	84,713	82,940	1,435,476	226,469	65,998	1,895,596	-	1,895,596	26	4.36
A3 - Residential Hard-to-Measure	232,720	161,579	925,000	192,592	-	1,511,892	-	1,511,892	-	-
A3a - Residential Statewide Marketing	-	112,017	-	-	-	112,017	-	112,017	-	-
A3b - Residential Statewide Database	13,253	-	-	-	-	13,253	-	13,253	-	-
A3c - Residential DOER Assessment	145,089	-	-	-	-	145,089	-	145,089	-	-
A3d - Residential EEAC Consultants	-	-	-	-	-	-	-	-	-	-
A3e - Residential Sponsorships & Subscriptions	25,662	10,633	-	-	-	36,296	-	36,296	-	-
A3f - Residential HEAT Loan	48,716	7,428	892,500	103,492	-	1,052,136	-	1,052,136	-	-
A3g - Residential Workforce Development	-	-	-	19,600	-	19,600	-	19,600	-	-
A3h - Residential R&D and Demonstration	-	6,500	32,500	69,500	-	108,500	-	108,500	-	-
A3i - Residential Education	-	25,000	-	-	-	25,000	-	25,000	-	-
B - Low-Income	264,628	55,051	3,201,910	783,640	155,687	4,460,916	-	4,460,916	4,647	2.12
B1 - Low-Income Whole House	182,616	30,212	3,201,910	783,640	155,687	4,354,065	-	4,354,065	4,535	2.17
B1a - Low-Income Single Family Retrofit	124,014	23,084	2,119,850	584,166	105,727	2,956,841	-	2,956,841	4,620	1.63
B1b - Low-Income Multi-Family Retrofit	58,602	7,128	1,082,060	199,474	49,960	1,397,224	-	1,397,224	4,366	3.32
B2 - Low-Income Hard-to-Measure	82,012	24,838	-	-	-	106,850	-	106,850	-	-
B2a - Low-Income Statewide Marketing	-	22,684	-	-	-	22,684	-	22,684	-	-
B2b - Low-Income Statewide Database	2,684	-	-	-	-	2,684	-	2,684	-	-
B2c - Low-Income DOER Assessment	29,381	-	-	-	-	29,381	-	29,381	-	-
B2d - Low-Income Energy Affordability Network	40,275	-	-	-	-	40,275	-	40,275	-	-
B2e - Low-Income Sponsorships & Subscriptions	9,672	2,155	-	-	-	11,827	-	11,827	-	-
C - Commercial & Industrial	840,154	223,154	11,656,472	1,980,424	516,737	15,216,941	-	15,216,941	6,156	3.20
C1 - C&I New Construction	64,390	8,773	968,340	279,030	47,492	1,368,025	-	1,368,025	15,724	2.36
C1a - C&I New Buildings & Major Renovations	49,556	5,213	725,100	236,440	36,550	1,052,858	-	1,052,858	28,456	1.23
C1b - C&I Initial Purchase & End of Useful Life	14,834	3,560	243,240	42,591	10,941	315,167	-	315,167	6,303	6.16
C2 - C&I Retrofit	636,212	126,920	10,618,132	1,666,393	469,246	13,516,904	-	13,516,904	5,667	3.36
C2a - C&I Existing Building Retrofit	173,728	43,274	2,936,305	409,571	128,135	3,691,013	-	3,691,013	23,214	2.42
C2b - C&I Small Business	348,714	56,680	5,896,199	849,956	257,198	7,408,747	-	7,408,747	10,584	3.07
C2c - C&I Multifamily Retrofit	35,311	18,714	399,808	270,339	26,044	750,216	-	750,216	2,301	0.87
C2d - C&I Upstream Lighting	78,459	8,253	1,385,820	136,527	57,868	1,666,927	-	1,666,927	1,389	7.88
C3 - C&I Hard-to-Measure	139,552	87,461	70,000	35,000	-	332,013	-	332,013	-	-
C3a - C&I Statewide Marketing	-	75,299	-	-	-	75,299	-	75,299	-	-
C3b - C&I Statewide Database	8,909	-	-	-	-	8,909	-	8,909	-	-
C3c - C&I DOER Assessment	97,530	-	-	-	-	97,530	-	97,530	-	-
C3d - C&I EEAC Consultants	-	-	-	-	-	-	-	-	-	-
C3e - C&I Sponsorships & Subscriptions	33,113	7,162	-	-	-	40,275	-	40,275	-	-
C3f - C&I Workforce Development	-	5,000	-	20,000	-	25,000	-	25,000	-	-
C3g - C&I R&D and Demonstration	-	-	70,000	15,000	-	85,000	-	85,000	-	-
Grand Total	2,276,360	759,138	30,193,530	7,565,358	1,441,817	42,236,204	-	42,236,204	488	2.67

Program Administrator Budgets, Three-Year Total
2016-2018 Program Administrator Budget
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2018 Planned Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,193,495	499,692	16,195,391	5,032,146	766,421	23,687,146	-	23,687,146	306	2.38
A1 - Residential Whole House	774,930	189,307	12,062,890	4,234,120	627,094	17,888,340	-	17,888,340	4,779	2.55
A1a - Residential New Construction	21,030	7,422	343,630	96,359	15,996	484,438	-	484,438	5,383	5.33
A1b - Residential Multi-Family Retrofit	35,567	14,731	418,353	323,588	27,053	819,292	-	819,292	2,438	0.84
A1c - Residential Home Energy Services - Measures	629,288	110,795	11,128,209	2,048,843	513,456	14,430,591	-	14,430,591	5,033	2.92
A1d - Residential Home Energy Services - RCS	79,191	40,048	-	1,644,713	60,234	1,824,187	-	1,824,187	-	-
A1e - Residential Behavior/Feedback Program	9,853	16,311	172,698	120,616	10,355	329,832	-	329,832	733	0.68
A2 - Residential Products	183,176	141,116	3,160,377	595,510	139,327	4,219,506	-	4,219,506	57	2.53
A2a - Residential Heating & Cooling Equipment	92,680	31,828	1,712,940	226,963	70,494	2,134,905	-	2,134,905	435	1.28
A2b - Residential Consumer Products	15,198	25,772	152,288	145,277	11,560	350,095	-	350,095	148	2.66
A2c - Residential Lighting	75,298	83,516	1,295,149	223,270	57,273	1,734,505	-	1,734,505	26	4.03
A3 - Residential Hard-to-Measure	235,389	169,270	972,125	202,516	-	1,579,300	-	1,579,300	-	-
A3a - Residential Statewide Marketing	-	112,017	-	-	-	112,017	-	112,017	-	-
A3b - Residential Statewide Database	13,253	-	-	-	-	13,253	-	13,253	-	-
A3c - Residential DOER Assessment	145,089	-	-	-	-	145,089	-	145,089	-	-
A3d - Residential EEAC Consultants	-	-	-	-	-	-	-	-	-	-
A3e - Residential Sponsorships & Subscriptions	27,522	11,165	-	-	-	38,687	-	38,687	-	-
A3f - Residential HEAT Loan	49,525	8,588	937,125	107,916	-	1,103,154	-	1,103,154	-	-
A3g - Residential Workforce Development	-	-	-	19,600	-	19,600	-	19,600	-	-
A3h - Residential R&D and Demonstration	-	12,500	35,000	75,000	-	122,500	-	122,500	-	-
A3i - Residential Education	-	25,000	-	-	-	25,000	-	25,000	-	-
B - Low-Income	284,526	61,698	3,564,650	897,183	157,304	4,965,362	-	4,965,362	4,433	2.03
B1 - Low-Income Whole House	197,438	36,752	3,564,650	897,183	157,304	4,853,328	-	4,853,328	4,333	2.07
B1a - Low-Income Single Family Retrofit	137,049	27,958	2,424,950	669,728	109,191	3,368,876	-	3,368,876	4,679	1.63
B1b - Low-Income Multi-Family Retrofit	60,389	8,794	1,139,700	227,455	48,114	1,484,452	-	1,484,452	3,711	3.08
B2 - Low-Income Hard-to-Measure	87,088	24,946	-	-	-	112,034	-	112,034	-	-
B2a - Low-Income Statewide Marketing	-	22,684	-	-	-	22,684	-	22,684	-	-
B2b - Low-Income Statewide Database	2,684	-	-	-	-	2,684	-	2,684	-	-
B2c - Low-Income DOER Assessment	29,381	-	-	-	-	29,381	-	29,381	-	-
B2d - Low-Income Energy Affordability Network	45,027	-	-	-	-	45,027	-	45,027	-	-
B2e - Low-Income Sponsorships & Subscriptions	9,996	2,262	-	-	-	12,259	-	12,259	-	-
C - Commercial & Industrial	923,533	244,437	13,739,420	2,151,735	527,625	17,586,749	-	17,586,749	6,393	3.21
C1 - C&I New Construction	61,353	9,824	966,760	275,598	41,441	1,354,976	-	1,354,976	15,574	2.82
C1a - C&I New Buildings & Major Renovations	47,291	6,031	725,100	234,049	31,943	1,044,413	-	1,044,413	28,227	1.46
C1b - C&I Initial Purchase & End of Useful Life	14,062	3,793	241,660	41,549	9,498	310,562	-	310,562	6,211	7.41
C2 - C&I Retrofit	719,793	146,793	12,702,660	1,841,138	486,184	15,896,567	-	15,896,567	5,967	3.31
C2a - C&I Existing Building Retrofit	175,780	47,417	3,127,055	413,110	118,731	3,882,093	-	3,882,093	23,817	2.52
C2b - C&I Small Business	432,343	75,136	7,771,431	977,329	292,026	9,548,266	-	9,548,266	9,895	3.21
C2c - C&I Multifamily Retrofit	36,869	14,702	418,353	319,424	24,903	814,252	-	814,252	2,423	0.83
C2d - C&I Upstream Lighting	74,800	9,539	1,385,820	131,274	50,524	1,651,957	-	1,651,957	1,377	6.99
C3 - C&I Hard-to-Measure	142,387	87,819	70,000	35,000	-	335,206	-	335,206	-	-
C3a - C&I Statewide Marketing	-	75,299	-	-	-	75,299	-	75,299	-	-
C3b - C&I Statewide Database	8,909	-	-	-	-	8,909	-	8,909	-	-
C3c - C&I DOER Assessment	97,530	-	-	-	-	97,530	-	97,530	-	-
C3d - C&I EEAC Consultants	-	-	-	-	-	-	-	-	-	-
C3e - C&I Sponsorships & Subscriptions	35,948	7,520	-	-	-	43,468	-	43,468	-	-
C3f - C&I Workforce Development	-	5,000	-	20,000	-	25,000	-	25,000	-	-
C3g - C&I R&D and Demonstration	-	-	70,000	15,000	-	85,000	-	85,000	-	-
Grand Total	2,401,554	805,827	33,499,461	8,081,065	1,451,350	46,239,256	-	46,239,256	569	2.66

Program Administrator Budgets, Three-Year Total
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2016-2018 Program Administrator Budget										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	3,398,476	1,342,804	42,816,954	12,996,493	2,151,205	62,705,931	-	62,705,931	190	2.55
A1 - Residential Whole House	2,213,101	467,254	31,426,873	10,873,808	1,562,940	46,543,976	-	46,543,976	3,262	2.50
A1a - Residential New Construction	60,563	18,201	1,242,343	310,650	77,727	1,709,484	-	1,709,484	3,419	4.53
A1b - Residential Multi-Family Retrofit	101,441	37,910	1,202,244	682,601	77,189	2,101,385	-	2,101,385	1,735	1.05
A1c - Residential Home Energy Services - Measures	1,792,007	286,387	28,558,216	5,377,396	1,234,937	37,248,943	-	37,248,943	3,184	2.84
A1d - Residential Home Energy Services - RCS	229,739	91,025	3,135	4,187,882	144,043	4,655,825	-	4,655,825	-	-
A1e - Residential Behavior/Feedback Program	29,351	33,730	420,935	315,279	29,044	828,340	-	828,340	964	0.64
A2 - Residential Products	554,059	410,498	8,892,103	1,631,165	588,265	12,076,090	-	12,076,090	38	3.62
A2a - Residential Heating & Cooling Equipment	253,492	77,645	4,405,479	583,276	211,422	5,531,314	-	5,531,314	454	1.29
A2b - Residential Consumer Products	48,789	85,231	482,430	406,182	29,351	1,051,983	-	1,051,983	143	3.09
A2c - Residential Lighting	251,778	247,622	4,004,194	641,707	347,492	5,492,793	-	5,492,793	19	6.06
A3 - Residential Hard-to-Measure	631,315	465,052	2,497,978	491,520	-	4,085,865	-	4,085,865	-	-
A3a - Residential Statewide Marketing	-	331,174	-	-	-	331,174	-	331,174	-	-
A3b - Residential Statewide Database	29,210	-	-	-	-	29,210	-	29,210	-	-
A3c - Residential DOER Assessment	404,840	-	-	-	-	404,840	-	404,840	-	-
A3d - Residential EEAC Consultants	-	-	-	-	-	-	-	-	-	-
A3e - Residential Sponsorships & Subscriptions	53,557	21,798	-	-	-	75,356	-	75,356	-	-
A3f - Residential HEAT Loan	143,708	23,926	2,430,478	304,013	-	2,902,126	-	2,902,126	-	-
A3g - Residential Workforce Development	-	-	-	42,980	-	42,980	-	42,980	-	-
A3h - Residential R&D and Demonstration	-	19,000	67,500	144,526	-	231,026	-	231,026	-	-
A3i - Residential Education	-	69,154	-	-	-	69,154	-	69,154	-	-
B - Low-Income	766,118	165,516	8,906,906	2,061,825	375,075	12,275,441	-	12,275,441	3,582	1.99
B1 - Low-Income Whole House	537,504	94,022	8,906,906	2,061,825	375,075	11,975,333	-	11,975,333	3,494	2.04
B1a - Low-Income Single Family Retrofit	370,249	70,779	6,011,219	1,493,011	257,705	8,202,963	-	8,202,963	3,636	1.73
B1b - Low-Income Multi-Family Retrofit	167,255	23,244	2,895,687	568,814	117,370	3,772,370	-	3,772,370	3,221	2.73
B2 - Low-Income Hard-to-Measure	228,614	71,494	-	-	-	300,108	-	300,108	-	-
B2a - Low-Income Statewide Marketing	-	67,077	-	-	-	67,077	-	67,077	-	-
B2b - Low-Income Statewide Database	5,914	-	-	-	-	5,914	-	5,914	-	-
B2c - Low-Income DOER Assessment	88,143	-	-	-	-	88,143	-	88,143	-	-
B2d - Low-Income Energy Affordability Network	114,888	-	-	-	-	114,888	-	114,888	-	-
B2e - Low-Income Sponsorships & Subscriptions	19,669	4,417	-	-	-	24,086	-	24,086	-	-
C - Commercial & Industrial	2,453,631	619,848	30,947,202	5,260,853	1,465,995	40,747,529	-	40,747,529	5,797	3.24
C1 - C&I New Construction	203,663	29,662	2,646,227	826,156	186,575	3,892,283	-	3,892,283	11,795	2.57
C1a - C&I New Buildings & Major Renovations	146,465	17,654	1,923,248	682,686	143,536	2,913,589	-	2,913,589	23,124	1.42
C1b - C&I Initial Purchase & End of Useful Life	57,198	12,008	722,980	143,469	43,039	978,694	-	978,694	4,798	5.98
C2 - C&I Retrofit	1,872,660	342,692	28,160,974	4,362,827	1,279,420	36,018,574	-	36,018,574	5,377	3.39
C2a - C&I Existing Building Retrofit	499,021	110,006	8,314,635	1,151,735	347,875	10,423,272	-	10,423,272	17,577	2.64
C2b - C&I Small Business	1,034,631	166,917	15,324,263	2,192,115	681,209	19,399,135	-	19,399,135	10,083	3.00
C2c - C&I Multifamily Retrofit	107,140	37,825	930,817	627,348	67,286	1,770,416	-	1,770,416	2,604	0.78
C2d - C&I Upstream Lighting	231,868	27,944	3,591,259	391,629	183,050	4,425,750	-	4,425,750	1,264	7.88
C3 - C&I Hard-to-Measure	377,308	247,493	140,000	71,871	-	836,672	-	836,672	-	-
C3a - C&I Statewide Marketing	-	222,761	-	-	-	222,761	-	222,761	-	-
C3b - C&I Statewide Database	19,641	-	-	-	-	19,641	-	19,641	-	-
C3c - C&I DOER Assessment	287,038	-	-	-	-	287,038	-	287,038	-	-
C3d - C&I EEAC Consultants	-	-	-	-	-	-	-	-	-	-
C3e - C&I Sponsorships & Subscriptions	70,628	14,682	-	-	-	85,311	-	85,311	-	-
C3f - C&I Workforce Development	-	10,050	-	41,844	-	51,894	-	51,894	-	-
C3g - C&I R&D and Demonstration	-	-	140,000	30,027	-	170,027	-	170,027	-	-
Grand Total	6,618,225	2,128,167	82,671,062	20,319,171	3,992,275	115,728,900	-	115,728,900	341	2.74

Notes

- Where not otherwise indicated, budgets for each year are represented in nominal dollars (2016\$, 2017\$, 2018\$).
- Refer to common definitions for allocation of costs.
- EEAC Consultant fees on the electric side do not get paid out of the Program Administrators' budgets, but are instead paid by the DOER out of the RGGI proceeds.
- The budgets in the above tables do not include costs associated with the Program Administrator's demand response activities.

Program Administrator Budgets, Plan-Year Summary

Demand Response

Cape Light Compact

May 1, 2017

Cape Light Compact

D.P.U. 17-100

Section II

May 1, 2017

Jeffrey Leupold

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2016 Planned Demand Response Budget						
Sector	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs
A - Residential	\$ -	\$ 4,500	\$ 5,850	\$ 156,957	\$ -	\$ 167,307
B - Low-Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C - Commercial & Industrial	\$ -	\$ 500	\$ 650	\$ 17,440	\$ -	\$ 18,590
Grand Total	\$ -	\$ 5,000	\$ 6,500	\$ 174,397	\$ -	\$ 185,897

2016 Actual Demand Response Budget						
Sector	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs
A - Residential	\$ -	\$ 1,384	\$ 47,979	\$ 112,716	\$ 7,290	\$ 169,370
B - Low-Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C - Commercial & Industrial	\$ -	\$ 104	\$ 5,279	\$ 12,524	\$ -	\$ 17,907
Grand Total	\$ -	\$ 1,488	\$ 53,258	\$ 125,240	\$ 7,290	\$ 187,277

2016 Planned v. Actual Demand Response Budget Variances (%)						
Sector	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs
A - Residential		-69%	720%	-28%		1%
B - Low-Income						
C - Commercial & Industrial		-79%	712%	-28%		-4%
Grand Total		-70%	719%	-28%		1%

Program Savings, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned Net Savings													
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings	
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	91,578	2,844	3,912	21,103	213,456	(122,027)	(1,126,253)	46,162	992,201	6,924	158,519	3,235,197	28,669,127
A1 - Residential Whole House	3,358	1,279	1,851	8,084	90,499	3,481	31,348	53,531	1,058,016	8,810	175,394	3,089,477	27,649,087
A1a - Residential New Construction	91	89	183	603	11,845	121	1,809	49	1,229	1,390	33,681	-	-
A1b - Residential Multi-Family Retrofit	317	14	155	387	5,711	281	2,260	319	5,369	13	224	143,053	1,001,373
A1c - Residential Home Energy Services - Measures	2,600	1,147	1,474	6,915	71,722	1,812	14,604	53,124	1,051,021	7,396	141,372	2,448,092	21,664,394
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-
A1e - Residential Behavior/Feedback Program	350	28	38	179	1,220	1,268	12,675	40	398	12	117	498,332	4,983,320
A2 - Residential Products	88,220	1,566	2,061	13,019	122,957	(125,508)	(1,157,601)	(7,369)	(65,815)	(1,886)	(16,875)	145,720	1,020,040
A2a - Residential Heating & Cooling Equipment	4,530	161	353	1,347	19,120	(4,082)	(73,483)	-	-	-	-	-	-
A2b - Residential Consumer Products	2,520	145	88	829	7,075	222	1,554	25	176	22	155	145,720	1,020,040
A2c - Residential Lighting	81,170	1,260	1,620	10,842	96,762	(121,647)	(1,085,672)	(7,394)	(65,992)	(1,908)	(17,030)	-	-
B - Low-Income	800	270	504	1,640	16,707	-	-	11,487	260,639	848	16,548	2,122,560	10,612,800
B1 - Low-Income Whole House	800	270	504	1,640	16,707	-	-	11,487	260,639	848	16,548	2,122,560	10,612,800
B1a - Low-Income Single Family Retrofit	560	212	241	1,282	12,387	-	-	5,221	103,981	848	16,548	1,530,480	7,652,400
B1b - Low-Income Multi-Family Retrofit	240	59	263	358	4,320	-	-	6,266	156,658	-	-	592,080	2,960,400
C - Commercial & Industrial	2,245	7,455	6,130	36,732	322,580	(247,988)	(3,740,761)	(9,364)	1,163	1,872	22,819	362,381	1,685,468
C1 - C&I New Construction	87	552	759	3,477	67,142	(153,231)	(3,067,450)	107	1,683	-	-	-	-
C1a - C&I New Buildings & Major Renovations	37	97	53	433	6,610	644	10,064	107	1,683	-	-	-	-
C1b - C&I Initial Purchase & End of Useful Life	50	455	705	3,045	60,532	(153,876)	(3,077,514)	-	-	-	-	-	-
C2 - C&I Retrofit	2,158	6,903	5,371	33,255	255,439	(94,756)	(673,311)	(9,471)	(520)	1,872	22,819	362,381	1,685,468
C2a - C&I Existing Building Retrofit	151	716	644	3,917	44,426	14,232	96,741	456	1,883	494	5,235	8,665	64,989
C2b - C&I Small Business	490	1,780	1,337	7,556	97,761	(27,978)	(364,347)	5,376	69,829	1,365	17,335	57,512	287,559
C2c - C&I Multifamily Retrofit	317	14	157	387	5,734	290	2,858	315	6,255	13	249	296,204	1,332,920
C2d - C&I Upstream Lighting	1,200	4,392	3,233	21,395	107,517	(81,300)	(408,564)	(15,618)	(78,487)	-	-	-	-
Grand Total	94,623	10,570	10,546	59,475	552,743	(370,015)	(4,867,014)	48,285	1,254,002	9,644	197,886	5,720,139	40,967,395

2016 Evaluated Net Savings														
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings		
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)		
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	
A - Residential	168,948	5,543	6,164	40,193	288,384	(326,532)	(935,368)	(3,420)	322,851	4,556	122,429	2,562,146	19,057,903	
A1 - Residential Whole House	6,982	1,342	2,023	9,453	94,860	56,367	1,345,730	22,240	474,226	6,526	134,054	2,038,796	15,394,453	
A1a - Residential New Construction	323	255	201	1,012	10,048	(10,538)	(63,188)	(697)	(3,995)	1,497	35,361	-	-	
A1b - Residential Multi-Family Retrofit	549	34	198	571	7,669	118	1,305	-	-	1	7	208,982	1,462,873	
A1c - Residential Home Energy Services - Measures	6,101	1,046	1,615	7,825	76,835	66,194	1,403,454	22,901	477,969	5,013	98,580	1,645,222	12,639,436	
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-	
A1e - Residential Behavior/Feedback Program	9	7	9	44	308	594	4,158	36	252	15	106	184,592	1,292,144	
A2 - Residential Products	161,966	4,201	4,140	30,739	193,524	(382,900)	(2,281,097)	(25,660)	(151,375)	(1,970)	(11,625)	523,350	3,663,450	
A2a - Residential Heating & Cooling Equipment	2,561	123	178	939	14,598	(2,198)	(38,681)	(55)	(550)	(8)	(77)	-	-	
A2b - Residential Consumer Products	2,478	166	64	894	8,639	262	1,835	12	81	9	60	523,350	3,663,450	
A2c - Residential Lighting	156,927	3,912	3,898	28,906	170,287	(380,964)	(2,244,251)	(25,617)	(150,907)	(1,971)	(11,608)	-	-	
B - Low-Income	1,347	310	519	1,668	14,667	-	-	4,840	96,762	1,330	26,583	3,078,103	15,390,515	
B1 - Low-Income Whole House	1,347	310	519	1,668	14,667	-	-	4,840	96,762	1,330	26,583	3,078,103	15,390,515	
B1a - Low-Income Single Family Retrofit	896	230	218	1,316	11,767	-	-	4,184	83,658	561	11,211	1,995,090	9,975,450	
B1b - Low-Income Multi-Family Retrofit	451	80	301	352	2,900	-	-	655	13,104	769	15,372	1,083,013	5,415,065	
C - Commercial & Industrial	1,806	4,164	3,141	23,749	202,839	(100,162)	(938,576)	(9,620)	(41,581)	141	1,665	452,825	3,356,442	
C1 - C&I New Construction	156	255	190	1,530	22,899	(20,624)	(309,084)	(18)	(211)	-	-	157,900	1,412,848	
C1a - C&I New Buildings & Major Renovations	52	100	90	673	10,110	(1,046)	(15,426)	(154)	(2,257)	-	-	157,900	1,412,848	
C1b - C&I Initial Purchase & End of Useful Life	104	155	100	856	12,790	(19,577)	(293,659)	136	2,046	-	-	-	-	
C2 - C&I Retrofit	1,650	3,909	2,951	22,220	179,940	(79,538)	(629,491)	(9,603)	(41,370)	141	1,665	294,925	1,943,594	
C2a - C&I Existing Building Retrofit	271	584	559	5,338	70,925	(1,960)	(26,525)	715	14,282	90	1,060	138,890	1,319,455	
C2b - C&I Small Business	259	534	331	2,694	34,221	(23,917)	(321,198)	(9)	(1,522)	51	605	156,035	624,139	
C2c - C&I Multifamily Retrofit	18	4	10	48	462	-	-	-	-	-	-	-	-	
C2d - C&I Upstream Lighting	1,102	2,787	2,051	14,140	74,331	(53,661)	(281,768)	(10,309)	(54,129)	-	-	-	-	
Grand Total	172,101	10,017	9,824	65,610	505,890	(426,694)	(1,873,944)	(8,201)	378,032	6,028	150,676	6,093,074	37,804,860	

Program Savings, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned v. Evaluated Net Savings Variances (%)															
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings			
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)			
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime		
A - Residential	84%	95%	58%	90%	35%	168%	-17%	-107%	-67%	-34%	-23%	-21%	-34%		
A1 - Residential Whole House	108%	5%	9%	17%	5%	1519%	4193%	-58%	-55%	-26%	-24%	-34%	-44%		
A1a - Residential New Construction	255%	186%	10%	68%	-15%	-8838%	-3593%	-1518%	-425%	8%	5%				
A1b - Residential Multi-Family Retrofit	73%	136%	28%	48%	34%	-58%	-42%	-100%	-100%	-92%	-97%	46%	46%		
A1c - Residential Home Energy Services - Measures	135%	-9%	10%	13%	7%	3553%	9510%	-57%	-55%	-32%	-30%	-33%	-42%		
A1d - Residential Home Energy Services - RCS															
A1e - Residential Behavior/Feedback Program	-97%	-77%	-77%	-75%	-75%	-53%	-67%	-10%	-37%	30%	-9%	-63%	-74%		
A2 - Residential Products	84%	168%	101%	136%	57%	205%	97%	248%	130%	4%	-31%	259%	259%		
A2a - Residential Heating & Cooling Equipment	-43%	-23%	-49%	-30%	-24%	-46%	-47%								
A2b - Residential Consumer Products	-2%	15%	-27%	8%	22%	18%	18%	-54%	-54%	-61%	-61%	259%	259%		
A2c - Residential Lighting	93%	210%	141%	167%	76%	213%	107%	246%	129%	3%	-32%				
B - Low-Income	68%	15%	3%	2%	-12%			-58%	-63%	57%	61%	45%	45%		
B1 - Low-Income Whole House	68%	15%	3%	2%	-12%			-58%	-63%	57%	61%	45%	45%		
B1a - Low-Income Single Family Retrofit	60%	9%	-10%	3%	-5%			-20%	-20%	-34%	-32%	30%	30%		
B1b - Low-Income Multi-Family Retrofit	88%	36%	14%	-2%	-33%			-90%	-92%			83%	83%		
C - Commercial & Industrial	-20%	-44%	-49%	-35%	-37%	-60%	-75%	3%	-3676%	-92%	-93%	25%	99%		
C1 - C&I New Construction	79%	-54%	-75%	-56%	-66%	-87%	-90%	-117%	-113%						
C1a - C&I New Buildings & Major Renovations	41%	4%	69%	56%	53%	-262%	-253%	-244%	-234%						
C1b - C&I Initial Purchase & End of Useful Life	108%	-66%	-86%	-72%	-79%	-87%	-90%								
C2 - C&I Retrofit	-24%	-43%	-45%	-33%	-30%	-16%	-7%	1%	7857%	-92%	-93%	-19%	15%		
C2a - C&I Existing Building Retrofit	79%	-18%	-13%	36%	60%	-114%	-127%	57%	658%	-82%	-80%	1503%	1930%		
C2b - C&I Small Business	-47%	-70%	-75%	-64%	-65%	-15%	-12%	-100%	-102%	-96%	-97%	171%	117%		
C2c - C&I Multifamily Retrofit	-94%	-75%	-93%	-88%	-92%	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-100%		
C2d - C&I Upstream Lighting	-8%	-37%	-37%	-34%	-31%	-34%	-31%	-34%	-31%						
Grand Total	82%	-5%	-7%	10%	-8%	15%	-61%	-117%	-70%	-37%	-24%	7%	-8%		

Notes

- The plan year variances provided above are intended to indicate the Program Administrator's performance in the plan year only. The variances used to determine significant variances are provided separately. The variances above and the significant variances use different calculations to determine variances on an annual basis and over the three-year term, respectively.

Program Savings, Three-Year Total
2016-2018 Net Savings
Cape Light Compact
May 1, 2017

2016 Evaluated Net Savings													
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings	
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	168,948	5,543	6,164	40,193	288,384	(326,532)	(935,368)	(3,420)	322,851	4,556	122,429	2,562,146	19,057,903
A1 - Residential Whole House	6,982	1,342	2,023	9,453	94,860	56,367	1,345,730	22,240	474,226	6,526	134,054	2,038,796	15,394,453
A1a - Residential New Construction	323	255	201	1,012	10,048	(10,538)	(63,188)	(697)	(3,995)	1,497	35,361	-	-
A1b - Residential Multi-Family Retrofit	549	34	198	571	7,669	118	1,305	-	-	1	7	208,982	1,462,873
A1c - Residential Home Energy Services - Measures	6,101	1,046	1,615	7,825	76,835	66,194	1,403,454	22,901	477,969	5,013	98,580	1,645,222	12,639,436
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-
A1e - Residential Behavior/Feedback Program	9	7	9	44	308	594	4,158	36	252	15	106	184,592	1,292,144
A2 - Residential Products	161,966	4,201	4,140	30,739	193,524	(382,900)	(2,281,097)	(25,660)	(151,375)	(1,970)	(11,625)	523,350	3,663,450
A2a - Residential Heating & Cooling Equipment	2,561	123	178	939	14,598	(2,198)	(38,681)	(55)	(550)	(8)	(77)	-	-
A2b - Residential Consumer Products	2,478	166	64	894	8,639	262	1,835	12	81	9	60	523,350	3,663,450
A2c - Residential Lighting	156,927	3,912	3,898	28,906	170,287	(380,964)	(2,244,251)	(25,617)	(150,907)	(1,971)	(11,608)	-	-
B - Low-Income	1,347	310	519	1,668	14,667	-	-	4,840	96,762	1,330	26,583	3,078,103	15,390,515
B1 - Low-Income Whole House	1,347	310	519	1,668	14,667	-	-	4,840	96,762	1,330	26,583	3,078,103	15,390,515
B1a - Low-Income Single Family Retrofit	896	230	218	1,316	11,767	-	-	4,184	83,658	561	11,211	1,995,090	9,975,450
B1b - Low-Income Multi-Family Retrofit	451	80	301	352	2,900	-	-	655	13,104	769	15,372	1,083,013	5,415,065
C - Commercial & Industrial	1,806	4,164	3,141	23,749	202,839	(100,162)	(938,576)	(9,620)	(41,581)	141	1,665	452,825	3,356,442
C1 - C&I New Construction	156	255	190	1,530	22,899	(20,624)	(309,084)	(18)	(211)	-	-	157,900	1,412,848
C1a - C&I New Buildings & Major Renovations	52	100	90	673	10,110	(1,046)	(15,426)	(154)	(2,257)	-	-	157,900	1,412,848
C1b - C&I Initial Purchase & End of Useful Life	104	155	100	856	12,790	(19,577)	(293,659)	136	2,046	-	-	-	-
C2 - C&I Retrofit	1,650	3,909	2,951	22,220	179,940	(79,538)	(629,491)	(9,603)	(41,370)	141	1,665	294,925	1,943,594
C2a - C&I Existing Building Retrofit	271	584	559	5,338	70,925	(1,960)	(26,525)	715	14,282	90	1,060	138,890	1,319,455
C2b - C&I Small Business	259	534	331	2,694	34,221	(23,917)	(321,198)	(9)	(1,522)	51	605	156,035	624,139
C2c - C&I Multifamily Retrofit	18	4	10	48	462	-	-	-	-	-	-	-	-
C2d - C&I Upstream Lighting	1,102	2,787	2,051	14,140	74,331	(53,661)	(281,768)	(10,309)	(54,129)	-	-	-	-
Grand Total	172,101	10,017	9,824	65,610	505,890	(426,694)	(1,873,944)	(8,201)	378,032	6,028	150,676	6,093,074	37,804,860

2017 Planned Net Savings													
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings	
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	83,043	2,677	3,621	18,921	201,747	(96,360)	(967,062)	52,623	1,086,921	8,189	174,696	4,137,458	38,607,152
A1 - Residential Whole House	3,544	1,366	1,844	8,092	91,469	3,472	31,213	58,431	1,143,052	9,672	189,071	3,991,738	37,587,112
A1a - Residential New Construction	87	85	169	540	10,994	112	1,674	47	1,175	1,326	32,152	-	-
A1b - Residential Multi-Family Retrofit	326	16	136	345	5,024	281	2,260	328	5,544	14	236	127,914	895,398
A1c - Residential Home Energy Services - Measures	2,731	1,237	1,499	7,023	74,266	1,812	14,604	58,016	1,135,935	8,321	156,567	3,365,492	31,708,394
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-
A1e - Residential Behavior/Feedback Program	400	29	39	184	1,184	1,268	12,675	40	398	12	117	498,332	4,983,320
A2 - Residential Products	79,499	1,311	1,777	10,829	110,278	(99,831)	(998,275)	(5,808)	(56,131)	(1,483)	(14,376)	145,720	1,020,040
A2a - Residential Heating & Cooling Equipment	4,718	169	406	1,426	20,543	(4,082)	(73,483)	-	-	-	-	-	-
A2b - Residential Consumer Products	2,520	148	92	849	7,173	222	1,554	25	176	22	155	145,720	1,020,040
A2c - Residential Lighting	72,262	994	1,278	8,554	82,562	(95,971)	(926,346)	(5,834)	(56,307)	(1,505)	(14,531)	-	-
B - Low-Income	960	285	545	1,750	18,219	-	-	13,117	299,136	927	18,126	2,538,560	12,692,800
B1 - Low-Income Whole House	960	285	545	1,750	18,219	-	-	13,117	299,136	927	18,126	2,538,560	12,692,800
B1a - Low-Income Single Family Retrofit	640	221	256	1,329	13,370	-	-	5,670	112,973	927	18,126	1,749,120	8,745,600
B1b - Low-Income Multi-Family Retrofit	320	64	289	421	4,849	-	-	7,447	186,163	-	-	789,440	3,947,200
C - Commercial & Industrial	2,472	7,381	5,746	37,138	331,257	(174,146)	(2,275,491)	(3,611)	71,244	3,117	39,328	395,141	1,743,320
C1 - C&I New Construction	87	288	323	1,770	32,961	(81,556)	(1,634,262)	117	1,830	-	-	-	-
C1a - C&I New Buildings & Major Renovations	37	97	53	558	9,109	698	10,810	117	1,830	-	-	-	-
C1b - C&I Initial Purchase & End of Useful Life	50	191	269	1,212	23,852	(82,254)	(1,645,071)	-	-	-	-	-	-
C2 - C&I Retrofit	2,385	7,092	5,423	35,369	298,296	(92,590)	(641,229)	(3,729)	69,414	3,117	39,328	395,141	1,743,320
C2a - C&I Existing Building Retrofit	159	812	675	5,210	63,955	14,900	155,837	318	2,668	465	5,715	8,665	64,989
C2b - C&I Small Business	700	2,180	1,604	9,913	129,273	(32,218)	(420,568)	10,343	134,179	2,639	33,348	121,619	486,474
C2c - C&I Multifamily Retrofit	326	15	137	345	5,052	290	2,858	325	6,447	14	265	264,857	1,191,857
C2d - C&I Upstream Lighting	1,200	4,085	3,007	19,900	100,017	(75,562)	(379,356)	(14,715)	(73,880)	-	-	-	-
Grand Total	86,475	10,343	9,912	57,809	551,223	(270,505)	(3,242,553)	62,128	1,457,301	12,233	232,150	7,071,159	53,043,272

Program Savings, Three-Year Total
2016-2018 Net Savings
Cape Light Compact
May 1, 2017

2018 Planned Net Savings													
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings	
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	77,345	2,485	3,420	17,211	195,123	(84,691)	(894,824)	57,929	1,169,331	9,517	194,031	5,059,487	48,683,555
A1 - Residential Whole House	3,743	1,376	1,856	8,128	95,321	3,485	31,335	62,542	1,217,783	10,692	206,424	4,913,767	47,663,515
A1a - Residential New Construction	90	87	172	618	12,767	115	1,728	49	1,215	1,371	33,257	-	-
A1b - Residential Multi-Family Retrofit	336	18	140	354	5,181	290	2,328	338	5,719	14	236	132,543	927,801
A1c - Residential Home Energy Services - Measures	2,867	1,243	1,504	6,970	76,240	1,812	14,604	62,116	1,210,450	9,295	172,814	4,282,892	41,752,394
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-
A1e - Residential Behavior/Feedback Program	450	29	40	187	1,133	1,268	12,675	40	398	12	117	498,332	4,983,320
A2 - Residential Products	73,602	1,108	1,564	9,083	99,802	(88,176)	(926,159)	(4,613)	(48,452)	(1,175)	(12,394)	145,720	1,020,040
A2a - Residential Heating & Cooling Equipment	4,905	178	462	1,511	22,036	(4,082)	(73,483)	-	-	-	-	-	-
A2b - Residential Consumer Products	2,370	139	86	771	6,463	222	1,554	25	176	22	155	145,720	1,020,040
A2c - Residential Lighting	66,327	790	1,016	6,801	71,302	(84,316)	(854,230)	(4,638)	(48,628)	(1,197)	(12,549)	-	-
B - Low-Income	1,120	317	642	1,925	20,543	-	-	13,398	302,789	1,137	22,334	2,954,560	14,772,800
B1 - Low-Income Whole House	1,120	317	642	1,925	20,543	-	-	13,398	302,789	1,137	22,334	2,954,560	14,772,800
B1a - Low-Income Single Family Retrofit	720	241	291	1,450	15,251	-	-	6,345	126,461	1,137	22,334	1,967,760	9,838,800
B1b - Low-Income Multi-Family Retrofit	400	76	351	475	5,292	-	-	7,053	176,328	-	-	986,800	4,934,000
C - Commercial & Industrial	2,751	7,540	5,840	39,373	372,130	(143,780)	(1,743,673)	6,792	198,289	5,405	69,152	426,095	1,943,422
C1 - C&I New Construction	87	283	310	1,848	34,496	(55,316)	(1,109,107)	106	1,668	-	-	-	-
C1a - C&I New Buildings & Major Renovations	37	97	53	684	11,627	639	9,989	106	1,668	-	-	-	-
C1b - C&I Initial Purchase & End of Useful Life	50	187	257	1,164	22,869	(55,955)	(1,119,096)	-	-	-	-	-	-
C2 - C&I Retrofit	2,664	7,256	5,530	37,525	337,634	(88,464)	(634,566)	6,686	196,621	5,405	69,152	426,095	1,943,422
C2a - C&I Existing Building Retrofit	163	857	720	5,934	72,955	15,057	156,357	167	777	444	5,512	8,665	64,989
C2b - C&I Small Business	965	2,604	1,889	12,833	166,972	(33,936)	(442,978)	19,794	257,541	4,947	63,374	142,987	643,443
C2c - C&I Multifamily Retrofit	336	16	139	354	5,190	300	2,948	335	6,639	14	265	274,442	1,234,989
C2d - C&I Upstream Lighting	1,200	3,778	2,781	18,406	92,517	(69,885)	(350,893)	(13,610)	(68,337)	-	-	-	-
Grand Total	81,216	10,341	9,902	58,509	587,796	(228,471)	(2,638,497)	78,119	1,670,409	16,060	285,516	8,440,142	65,399,777

2016-2018 Net Savings													
Program	# of Participants	Electric Savings				Natural Gas Savings		Deliverable Fuel Savings				Other Savings	
		Annual Capacity (kW)		Energy (MWh)		(Therms)		Oil (MMBTU)		Propane (MMBTU)		Water (Gallons)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	329,337	10,705	13,205	76,324	685,254	(507,583)	(2,797,254)	107,132	2,579,102	22,262	491,156	11,759,091	106,348,610
A1 - Residential Whole House	14,269	4,084	5,724	25,673	281,650	63,324	1,408,278	143,214	2,835,060	26,890	529,550	10,944,301	100,645,080
A1a - Residential New Construction	500	426	543	2,170	33,809	(10,311)	(59,786)	(601)	(1,606)	4,193	100,770	-	-
A1b - Residential Multi-Family Retrofit	1,211	67	475	1,270	17,875	689	5,893	666	11,264	28	479	469,439	3,286,072
A1c - Residential Home Energy Services - Measures	11,699	3,526	4,618	21,818	227,341	69,818	1,432,662	143,033	2,824,355	22,629	427,961	9,293,606	86,100,224
A1d - Residential Home Energy Services - RCS	-	-	-	-	-	-	-	-	-	-	-	-	-
A1e - Residential Behavior/Feedback Program	859	64	88	415	2,625	3,129	29,508	116	1,048	39	340	1,181,256	11,258,784
A2 - Residential Products	315,068	6,620	7,481	50,651	403,604	(570,907)	(4,205,531)	(36,081)	(255,958)	(4,628)	(38,395)	814,790	5,703,530
A2a - Residential Heating & Cooling Equipment	12,184	470	1,046	3,877	57,177	(10,363)	(185,648)	(55)	(550)	(8)	(77)	-	-
A2b - Residential Consumer Products	7,368	454	243	2,513	22,275	706	4,943	62	434	53	371	814,790	5,703,530
A2c - Residential Lighting	295,516	5,696	6,192	44,261	324,152	(561,251)	(4,024,827)	(36,088)	(255,842)	(4,673)	(38,688)	-	-
B - Low-Income	3,427	912	1,706	5,343	53,429	-	-	31,354	698,686	3,394	67,043	8,571,223	42,856,115
B1 - Low-Income Whole House	3,427	912	1,706	5,343	53,429	-	-	31,354	698,686	3,394	67,043	8,571,223	42,856,115
B1a - Low-Income Single Family Retrofit	2,256	692	765	4,094	40,388	-	-	16,199	323,092	2,626	51,671	5,711,970	28,559,850
B1b - Low-Income Multi-Family Retrofit	1,171	220	941	1,248	13,041	-	-	15,155	375,594	769	15,372	2,859,253	14,296,265
C - Commercial & Industrial	7,029	19,084	14,727	100,261	906,226	(418,087)	(4,957,740)	(6,440)	227,953	8,664	110,144	1,274,060	7,043,184
C1 - C&I New Construction	330	827	822	5,147	90,356	(157,495)	(3,052,453)	206	3,287	-	-	157,900	1,412,848
C1a - C&I New Buildings & Major Renovations	126	294	197	1,915	30,845	290	5,373	69	1,241	-	-	157,900	1,412,848
C1b - C&I Initial Purchase & End of Useful Life	204	533	626	3,233	59,511	(157,786)	(3,057,826)	136	2,046	-	-	-	-
C2 - C&I Retrofit	6,699	18,257	13,904	95,114	815,869	(260,592)	(1,905,287)	(6,645)	224,666	8,664	110,144	1,116,160	5,630,336
C2a - C&I Existing Building Retrofit	593	2,253	1,954	16,482	207,835	27,996	285,669	1,200	17,727	999	12,287	156,220	1,449,433
C2b - C&I Small Business	1,924	5,318	3,825	25,440	330,466	(90,070)	(1,184,745)	30,128	390,198	7,637	97,326	420,641	1,754,057
C2c - C&I Multifamily Retrofit	680	35	286	747	10,704	590	5,807	660	13,086	28	531	539,299	2,426,846
C2d - C&I Upstream Lighting	3,502	10,651	7,840	52,445	266,865	(199,108)	(1,012,017)	(38,633)	(196,346)	-	-	-	-
Grand Total	339,793	30,701	29,637	181,928	1,644,908	(925,671)	(7,754,993)	132,046	3,505,741	34,320	668,342	21,604,374	156,247,909

Program Benefits, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 4,878,918	\$ 1,263,875	\$ 4,232,754	\$ -	\$ 10,375,546	\$ 17,033,673	\$ 2,936,636	\$ 19,970,310
A1 - Residential Whole House	\$ 2,710,005	\$ 678,838	\$ 2,273,449	\$ -	\$ 5,662,292	\$ 7,407,823	\$ 1,139,101	\$ 8,546,924
A1a - Residential New Construction	\$ 303,808	\$ 71,786	\$ 240,415	\$ -	\$ 616,009	\$ 1,066,293	\$ 90,665	\$ 1,156,958
A1b - Residential Multi-Family Retrofit	\$ 20,887	\$ 5,602	\$ 18,762	\$ -	\$ 45,251	\$ 495,341	\$ 56,378	\$ 551,719
A1c - Residential Home Energy Services - Measures	\$ 2,357,969	\$ 593,854	\$ 1,988,835	\$ -	\$ 4,940,658	\$ 5,755,757	\$ 972,518	\$ 6,728,275
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 27,341	\$ 7,596	\$ 25,438	\$ -	\$ 60,374	\$ 90,432	\$ 19,541	\$ 109,973
A2 - Residential Products	\$ 2,168,913	\$ 585,037	\$ 1,959,304	\$ -	\$ 4,713,254	\$ 9,625,850	\$ 1,797,535	\$ 11,423,385
A2a - Residential Heating & Cooling Equipment	\$ 347,471	\$ 86,969	\$ 291,261	\$ -	\$ 725,701	\$ 1,526,273	\$ 190,953	\$ 1,717,226
A2b - Residential Consumer Products	\$ 185,789	\$ 51,392	\$ 172,115	\$ -	\$ 409,296	\$ 502,272	\$ 108,144	\$ 610,416
A2c - Residential Lighting	\$ 1,635,653	\$ 446,676	\$ 1,495,929	\$ -	\$ 3,578,257	\$ 7,597,305	\$ 1,498,438	\$ 9,095,743
B - Low-Income	\$ 444,110	\$ 116,471	\$ 390,063	\$ -	\$ 950,644	\$ 1,301,368	\$ 227,515	\$ 1,528,883
B1 - Low-Income Whole House	\$ 444,110	\$ 116,471	\$ 390,063	\$ -	\$ 950,644	\$ 1,301,368	\$ 227,515	\$ 1,528,883
B1a - Low-Income Single Family Retrofit	\$ 367,401	\$ 95,319	\$ 319,227	\$ -	\$ 781,947	\$ 946,056	\$ 177,457	\$ 1,123,512
B1b - Low-Income Multi-Family Retrofit	\$ 76,709	\$ 21,151	\$ 70,836	\$ -	\$ 168,697	\$ 355,313	\$ 50,058	\$ 405,371
C - Commercial & Industrial	\$ 9,012,230	\$ 2,486,570	\$ 8,327,594	\$ -	\$ 19,826,394	\$ 24,222,635	\$ 5,086,843	\$ 29,309,478
C1 - C&I New Construction	\$ 1,633,810	\$ 390,741	\$ 1,308,603	\$ -	\$ 3,333,154	\$ 5,540,424	\$ 502,395	\$ 6,042,819
C1a - C&I New Buildings & Major Renovations	\$ 212,004	\$ 52,843	\$ 176,971	\$ -	\$ 441,818	\$ 514,318	\$ 62,358	\$ 576,676
C1b - C&I Initial Purchase & End of Useful Life	\$ 1,421,806	\$ 337,898	\$ 1,131,632	\$ -	\$ 2,891,336	\$ 5,026,106	\$ 440,037	\$ 5,466,144
C2 - C&I Retrofit	\$ 7,378,420	\$ 2,095,829	\$ 7,018,991	\$ -	\$ 16,493,241	\$ 18,682,211	\$ 4,584,448	\$ 23,266,659
C2a - C&I Existing Building Retrofit	\$ 1,368,140	\$ 349,754	\$ 1,171,335	\$ -	\$ 2,889,229	\$ 3,268,164	\$ 548,824	\$ 3,816,988
C2b - C&I Small Business	\$ 3,446,073	\$ 879,281	\$ 2,944,737	\$ -	\$ 7,270,091	\$ 7,355,084	\$ 1,085,680	\$ 8,440,764
C2c - C&I Multifamily Retrofit	\$ 25,091	\$ 6,475	\$ 21,686	\$ -	\$ 53,252	\$ 468,271	\$ 56,108	\$ 524,379
C2d - C&I Upstream Lighting	\$ 2,539,116	\$ 860,319	\$ 2,881,233	\$ -	\$ 6,280,669	\$ 7,590,691	\$ 2,893,836	\$ 10,484,528
Grand Total	\$ 14,335,258	\$ 3,866,916	\$ 12,950,411	\$ -	\$ 31,152,585	\$ 42,557,676	\$ 8,250,994	\$ 50,808,671

2016 Evaluated Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 5,986,508	\$ 1,704,630	\$ 5,708,855	\$ -	\$ 13,399,994	\$ 21,890,516	\$ 5,516,011	\$ 27,406,526
A1 - Residential Whole House	\$ 2,483,633	\$ 634,030	\$ 2,123,386	\$ -	\$ 5,241,049	\$ 7,700,949	\$ 1,329,680	\$ 9,030,628
A1a - Residential New Construction	\$ 631,144	\$ 154,233	\$ 516,530	\$ -	\$ 1,301,907	\$ 843,326	\$ 141,645	\$ 984,971
A1b - Residential Multi-Family Retrofit	\$ 46,191	\$ 12,540	\$ 41,997	\$ -	\$ 100,728	\$ 659,164	\$ 83,605	\$ 742,769
A1c - Residential Home Energy Services - Measures	\$ 1,800,087	\$ 465,419	\$ 1,558,700	\$ -	\$ 3,824,206	\$ 6,176,369	\$ 1,098,570	\$ 7,274,939
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 6,211	\$ 1,839	\$ 6,159	\$ -	\$ 14,209	\$ 22,089	\$ 5,860	\$ 27,949
A2 - Residential Products	\$ 3,502,876	\$ 1,070,600	\$ 3,585,469	\$ -	\$ 8,158,945	\$ 14,189,567	\$ 4,186,331	\$ 18,375,898
A2a - Residential Heating & Cooling Equipment	\$ 303,539	\$ 74,564	\$ 249,715	\$ -	\$ 627,818	\$ 1,187,657	\$ 134,690	\$ 1,322,347
A2b - Residential Consumer Products	\$ 238,222	\$ 64,446	\$ 215,832	\$ -	\$ 518,499	\$ 610,167	\$ 115,747	\$ 725,914
A2c - Residential Lighting	\$ 2,961,115	\$ 931,590	\$ 3,119,922	\$ -	\$ 7,012,628	\$ 12,391,743	\$ 3,935,895	\$ 16,327,638
B - Low-Income	\$ 448,344	\$ 120,017	\$ 401,942	\$ -	\$ 970,303	\$ 1,119,182	\$ 228,567	\$ 1,347,749
B1 - Low-Income Whole House	\$ 448,344	\$ 120,017	\$ 401,942	\$ -	\$ 970,303	\$ 1,119,182	\$ 228,567	\$ 1,347,749
B1a - Low-Income Single Family Retrofit	\$ 354,285	\$ 93,648	\$ 313,629	\$ -	\$ 761,562	\$ 903,944	\$ 181,609	\$ 1,085,552
B1b - Low-Income Multi-Family Retrofit	\$ 94,058	\$ 26,370	\$ 88,313	\$ -	\$ 208,741	\$ 215,238	\$ 46,958	\$ 262,196
C - Commercial & Industrial	\$ 4,513,953	\$ 1,276,508	\$ 4,275,063	\$ -	\$ 10,065,524	\$ 15,032,178	\$ 3,301,987	\$ 18,334,166
C1 - C&I New Construction	\$ 582,466	\$ 144,086	\$ 482,547	\$ -	\$ 1,209,098	\$ 1,767,388	\$ 219,908	\$ 1,987,295
C1a - C&I New Buildings & Major Renovations	\$ 231,015	\$ 57,068	\$ 191,123	\$ -	\$ 479,205	\$ 790,485	\$ 98,891	\$ 889,376
C1b - C&I Initial Purchase & End of Useful Life	\$ 351,451	\$ 87,018	\$ 291,424	\$ -	\$ 729,893	\$ 976,903	\$ 121,017	\$ 1,097,920
C2 - C&I Retrofit	\$ 3,931,487	\$ 1,132,423	\$ 3,792,516	\$ -	\$ 8,856,426	\$ 13,264,791	\$ 3,082,080	\$ 16,346,870
C2a - C&I Existing Building Retrofit	\$ 1,161,226	\$ 294,861	\$ 987,497	\$ -	\$ 2,443,584	\$ 5,370,249	\$ 767,917	\$ 6,138,166
C2b - C&I Small Business	\$ 1,038,171	\$ 264,710	\$ 886,520	\$ -	\$ 2,189,401	\$ 2,591,186	\$ 391,172	\$ 2,982,358
C2c - C&I Multifamily Retrofit	\$ 4,703	\$ 1,291	\$ 4,323	\$ -	\$ 10,317	\$ 32,901	\$ 6,358	\$ 39,260
C2d - C&I Upstream Lighting	\$ 1,727,387	\$ 571,562	\$ 1,914,176	\$ -	\$ 4,213,124	\$ 5,270,455	\$ 1,916,632	\$ 7,187,087
Grand Total	\$ 10,948,805	\$ 3,101,156	\$ 10,385,859	\$ -	\$ 24,435,820	\$ 38,041,875	\$ 9,046,565	\$ 47,088,441

Program Benefits, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned v. Evaluated Benefit Variances (%)								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	23%	35%	35%		29%	29%	88%	37%
A1 - Residential Whole House	-8%	-7%	-7%		-7%	4%	17%	6%
A1a - Residential New Construction	108%	115%	115%		111%	-21%	56%	-15%
A1b - Residential Multi-Family Retrofit	121%	124%	124%		123%	33%	48%	35%
A1c - Residential Home Energy Services - Measures	-24%	-22%	-22%		-23%	7%	13%	8%
A1d - Residential Home Energy Services - RCS								
A1e - Residential Behavior/Feedback Program	-77%	-76%	-76%		-76%	-76%	-70%	-75%
A2 - Residential Products	62%	83%	83%		73%	47%	133%	61%
A2a - Residential Heating & Cooling Equipment	-13%	-14%	-14%		-13%	-22%	-29%	-23%
A2b - Residential Consumer Products	28%	25%	25%		27%	21%	7%	19%
A2c - Residential Lighting	81%	109%	109%		96%	63%	163%	80%
B - Low-Income	1%	3%	3%		2%	-14%	0%	-12%
B1 - Low-Income Whole House	1%	3%	3%		2%	-14%	0%	-12%
B1a - Low-Income Single Family Retrofit	-4%	-2%	-2%		-3%	-4%	2%	-3%
B1b - Low-Income Multi-Family Retrofit	23%	25%	25%		24%	-39%	-6%	-35%
C - Commercial & Industrial	-50%	-49%	-49%		-49%	-38%	-35%	-37%
C1 - C&I New Construction	-64%	-63%	-63%		-64%	-68%	-56%	-67%
C1a - C&I New Buildings & Major Renovations	9%	8%	8%		8%	54%	59%	54%
C1b - C&I Initial Purchase & End of Useful Life	-75%	-74%	-74%		-75%	-81%	-72%	-80%
C2 - C&I Retrofit	-47%	-46%	-46%		-46%	-29%	-33%	-30%
C2a - C&I Existing Building Retrofit	-15%	-16%	-16%		-15%	64%	40%	61%
C2b - C&I Small Business	-70%	-70%	-70%		-70%	-65%	-64%	-65%
C2c - C&I Multifamily Retrofit	-81%	-80%	-80%		-81%	-93%	-89%	-93%
C2d - C&I Upstream Lighting	-32%	-34%	-34%		-33%	-31%	-34%	-31%
Grand Total	-24%	-20%	-20%		-22%	-11%	10%	-7%

Notes

- Total Resource Benefits is the sum of electric benefits, natural gas benefits, and other resource benefits.

- The plan year variances provided above are intended to indicate the Program Administrator's performance in the plan year only. The variances used to determine significant variances are provided separately. The variances above and the significant variances use different calculations to determine variances on an annual basis and over the three-year term, respectively.

Program Benefits, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

Program	2016 Planned Benefits										
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant
	Natural Gas Benefits			Other Resource Benefits							
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits				
A - Residential	\$ (921,334)	\$ (171,222)	\$ (1,092,556)	\$ 20,473,318	\$ 3,010,357	\$ 304,167	\$ 23,787,842	\$ 53,041,142	\$ 7,017,702	\$ 60,058,844	\$ 579.19
A1 - Residential Whole House	\$ 24,489	\$ 5,047	\$ 29,536	\$ 21,748,024	\$ 3,320,666	\$ 293,285	\$ 25,361,974	\$ 39,600,727	\$ 6,199,498	\$ 45,800,226	\$ 11,792.95
A1a - Residential New Construction	\$ 1,419	\$ 194	\$ 1,614	\$ 25,772	\$ 642,014	\$ -	\$ 667,786	\$ 2,442,366	\$ 500,500	\$ 2,942,867	\$ 26,839.19
A1b - Residential Multi-Family Retrofit	\$ 1,745	\$ 403	\$ 2,148	\$ 108,675	\$ 4,211	\$ 10,683	\$ 123,569	\$ 722,687	\$ 227,538	\$ 950,225	\$ 2,279.77
A1c - Residential Home Energy Services - Measures	\$ 11,103	\$ 2,613	\$ 13,715	\$ 21,605,913	\$ 2,672,289	\$ 229,784	\$ 24,507,986	\$ 36,190,634	\$ 5,471,460	\$ 41,662,094	\$ 13,919.47
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 10,223	\$ 1,837	\$ 12,059	\$ 7,665	\$ 2,151	\$ 52,817	\$ 62,633	\$ 245,040	\$ -	\$ 245,040	\$ 700.11
A2 - Residential Products	\$ (945,823)	\$ (176,269)	\$ (1,122,092)	\$ (1,274,706)	\$ (310,309)	\$ 10,882	\$ (1,574,133)	\$ 13,440,415	\$ 818,203	\$ 14,258,618	\$ 152.35
A2a - Residential Heating & Cooling Equipment	\$ (61,803)	\$ (6,610)	\$ (68,413)	\$ -	\$ -	\$ -	\$ -	\$ 2,374,514	\$ 156,004	\$ 2,530,518	\$ 524.18
A2b - Residential Consumer Products	\$ 1,237	\$ 307	\$ 1,544	\$ 3,304	\$ 2,813	\$ 10,882	\$ 17,000	\$ 1,038,255	\$ -	\$ 1,038,255	\$ 412.01
A2c - Residential Lighting	\$ (885,257)	\$ (169,966)	\$ (1,055,222)	\$ (1,278,011)	\$ (313,122)	\$ -	\$ (1,591,132)	\$ 10,027,646	\$ 662,199	\$ 10,689,845	\$ 123.54
B - Low-Income	\$ -	\$ -	\$ -	\$ 5,412,969	\$ 312,557	\$ 113,718	\$ 5,839,244	\$ 8,318,772	\$ 1,448,528	\$ 9,767,299	\$ 10,398.46
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 5,412,969	\$ 312,557	\$ 113,718	\$ 5,839,244	\$ 8,318,772	\$ 1,448,528	\$ 9,767,299	\$ 10,398.46
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 2,126,501	\$ 312,557	\$ 81,996	\$ 2,521,055	\$ 4,426,515	\$ 950,706	\$ 5,377,221	\$ 7,904.49
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 3,286,468	\$ -	\$ 31,721	\$ 3,318,189	\$ 3,892,257	\$ 497,821	\$ 4,390,078	\$ 16,217.74
C - Commercial & Industrial	\$ (2,916,746)	\$ (399,347)	\$ (3,316,093)	\$ 126,950	\$ 423,401	\$ 17,887	\$ 568,238	\$ 46,388,018	\$ 7,210,336	\$ 53,598,354	\$ 20,662.81
C1 - C&I New Construction	\$ (2,417,969)	\$ (265,168)	\$ (2,683,136)	\$ 30,930	\$ -	\$ -	\$ 30,930	\$ 6,723,767	\$ -	\$ 6,723,767	\$ 77,284.68
C1a - C&I New Buildings & Major Renovations	\$ 7,708	\$ 1,048	\$ 8,756	\$ 30,930	\$ -	\$ -	\$ 30,930	\$ 1,058,180	\$ -	\$ 1,058,180	\$ 28,599.46
C1b - C&I Initial Purchase & End of Useful Life	\$ (2,425,677)	\$ (266,216)	\$ (2,691,892)	\$ -	\$ -	\$ -	\$ -	\$ 5,665,587	\$ -	\$ 5,665,587	\$ 113,311.74
C2 - C&I Retrofit	\$ (498,777)	\$ (134,180)	\$ (632,957)	\$ 96,020	\$ 423,401	\$ 17,887	\$ 537,308	\$ 39,664,251	\$ 7,210,336	\$ 46,874,587	\$ 18,380.10
C2a - C&I Existing Building Retrofit	\$ 69,771	\$ 20,103	\$ 89,873	\$ 29,567	\$ 96,718	\$ 681	\$ 126,967	\$ 6,923,056	\$ 1,147,353	\$ 8,070,409	\$ 45,848.05
C2b - C&I Small Business	\$ (274,771)	\$ (43,726)	\$ (318,498)	\$ 1,262,273	\$ 321,984	\$ 3,048	\$ 1,587,304	\$ 16,979,662	\$ 3,115,896	\$ 20,095,558	\$ 34,652.37
C2c - C&I Multifamily Retrofit	\$ 1,922	\$ 451	\$ 2,372	\$ 117,826	\$ 4,699	\$ 14,158	\$ 136,683	\$ 716,687	\$ 100,631	\$ 817,318	\$ 2,260.84
C2d - C&I Upstream Lighting	\$ (295,698)	\$ (111,007)	\$ (406,705)	\$ (1,313,646)	\$ -	\$ -	\$ (1,313,646)	\$ 15,044,846	\$ 2,846,456	\$ 17,891,302	\$ 12,537.37
Grand Total	\$ (3,838,079)	\$ (570,569)	\$ (4,408,648)	\$ 26,013,237	\$ 3,746,315	\$ 435,772	\$ 30,195,324	\$ 107,747,932	\$ 15,676,565	\$ 123,424,497	\$ 1,138.70

Program	2016 Evaluated Benefits										
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits				
A - Residential	\$ (647,501)	\$ (422,706)	\$ (1,070,207)	\$ 7,004,981	\$ 2,331,493	\$ 202,985	\$ 9,539,459	\$ 49,275,772	\$ 8,940,381	\$ 58,216,153	\$ 291.66
A1 - Residential Whole House	\$ 1,163,150	\$ 98,217	\$ 1,261,367	\$ 9,809,989	\$ 2,540,211	\$ 163,902	\$ 12,514,101	\$ 28,047,145	\$ 7,073,015	\$ 35,120,160	\$ 4,017.06
A1a - Residential New Construction	\$ (50,098)	\$ (14,346)	\$ (64,444)	\$ (73,463)	\$ 673,260	\$ -	\$ 599,797	\$ 2,822,230	\$ 564,454	\$ 3,386,684	\$ 8,737.56
A1b - Residential Multi-Family Retrofit	\$ 936	\$ 186	\$ 1,121	\$ -	\$ 123	\$ 15,607	\$ 15,729	\$ 860,348	\$ 256,380	\$ 1,116,727	\$ 1,567.12
A1c - Residential Home Energy Services - Measures	\$ 1,209,004	\$ 111,555	\$ 1,320,559	\$ 9,878,732	\$ 1,864,901	\$ 134,510	\$ 11,878,143	\$ 24,297,847	\$ 6,252,182	\$ 30,550,028	\$ 3,982.60
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 3,309	\$ 822	\$ 4,131	\$ 4,721	\$ 1,926	\$ 13,785	\$ 20,432	\$ 66,720	\$ -	\$ 66,720	\$ 7,413.35
A2 - Residential Products	\$ (1,810,650)	\$ (520,923)	\$ (2,331,574)	\$ (2,805,008)	\$ (208,717)	\$ 39,083	\$ (2,974,642)	\$ 21,228,627	\$ 1,867,366	\$ 23,095,993	\$ 131.07
A2a - Residential Heating & Cooling Equipment	\$ (32,307)	\$ (3,559)	\$ (35,866)	\$ (10,592)	\$ (1,416)	\$ -	\$ (12,008)	\$ 1,902,291	\$ 145,633	\$ 2,047,924	\$ 742.79
A2b - Residential Consumer Products	\$ 1,461	\$ 363	\$ 1,823	\$ 1,522	\$ 1,085	\$ 39,083	\$ 41,690	\$ 1,287,927	\$ -	\$ 1,287,927	\$ 519.74
A2c - Residential Lighting	\$ (1,779,804)	\$ (517,727)	\$ (2,297,531)	\$ (2,795,939)	\$ (208,386)	\$ -	\$ (3,004,325)	\$ 18,038,410	\$ 1,721,733	\$ 19,760,142	\$ 114.95
B - Low-Income	\$ -	\$ -	\$ -	\$ 1,979,582	\$ 502,545	\$ 164,911	\$ 2,647,039	\$ 4,965,091	\$ 2,667,407	\$ 7,632,498	\$ 3,686.04
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 1,979,582	\$ 502,545	\$ 164,911	\$ 2,647,039	\$ 4,965,091	\$ 2,667,407	\$ 7,632,498	\$ 3,686.04
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 1,711,491	\$ 211,929	\$ 106,888	\$ 2,030,309	\$ 3,877,423	\$ 2,285,849	\$ 6,163,272	\$ 4,327.48
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 268,092	\$ 290,616	\$ 58,023	\$ 616,731	\$ 1,087,668	\$ 381,558	\$ 1,469,226	\$ 2,411.68
C - Commercial & Industrial	\$ (704,158)	\$ (147,368)	\$ (851,526)	\$ (675,125)	\$ 30,836	\$ 35,041	\$ (609,247)	\$ 26,938,917	\$ 6,320,257	\$ 33,259,173	\$ 14,916.34
C1 - C&I New Construction	\$ (235,825)	\$ (33,223)	\$ (269,048)	\$ (3,802)	\$ -	\$ 14,683	\$ 10,881	\$ 2,938,227	\$ 104,149	\$ 3,042,375	\$ 18,834.79
C1a - C&I New Buildings & Major Renovations	\$ (11,759)	\$ (1,679)	\$ (13,438)	\$ (41,253)	\$ -	\$ 14,683	\$ (26,569)	\$ 1,328,574	\$ 104,149	\$ 1,432,722	\$ 25,549.49
C1b - C&I Initial Purchase & End of Useful Life	\$ (224,067)	\$ (31,543)	\$ (255,610)	\$ 37,451	\$ -	\$ -	\$ 37,451	\$ 1,609,653	\$ -	\$ 1,609,653	\$ 15,477.43
C2 - C&I Retrofit	\$ (468,333)	\$ (114,145)	\$ (582,477)	\$ (671,323)	\$ 30,836	\$ 20,358	\$ (620,129)	\$ 24,000,690	\$ 6,216,108	\$ 30,216,798	\$ 14,545.87
C2a - C&I Existing Building Retrofit	\$ (20,013)	\$ (3,089)	\$ (23,102)	\$ 268,563	\$ 19,630	\$ 13,714	\$ 301,907	\$ 8,860,555	\$ 3,468,379	\$ 12,328,934	\$ 32,695.77
C2b - C&I Small Business	\$ (243,855)	\$ (37,486)	\$ (281,341)	\$ (29,148)	\$ 11,207	\$ 6,644	\$ (11,298)	\$ 4,879,121	\$ 925,586	\$ 5,804,707	\$ 18,838.30
C2c - C&I Multifamily Retrofit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 49,576	\$ 7,396	\$ 56,972	\$ 2,754.24
C2d - C&I Upstream Lighting	\$ (204,465)	\$ (73,570)	\$ (278,035)	\$ (910,738)	\$ -	\$ -	\$ (910,738)	\$ 10,211,438	\$ 1,814,747	\$ 12,026,185	\$ 9,266.28
Grand Total	\$ (1,351,659)	\$ (570,074)	\$ (1,921,733)	\$ 8,309,439	\$ 2,864,875	\$ 402,938	\$ 11,577,252	\$ 81,179,780	\$ 17,928,045	\$ 99,107,824	\$ 471.70

Program Benefits, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

Program	2016 Planned v. Evaluated Benefit Variances (%)											
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant	
	Natural Gas Benefits			Other Resource Benefits								
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits					
A - Residential	-30%	147%	-2%	-66%	-23%	-33%	-60%	-7%	27%	-3%	-50%	
A1 - Residential Whole House	4650%	1846%	4171%	-55%	-24%	-44%	-51%	-29%	14%	-23%	-66%	
A1a - Residential New Construction	-3630%	-7476%	-4094%	-385%	5%		-10%	16%	13%	15%	-67%	
A1b - Residential Multi-Family Retrofit	-46%	-54%	-48%	-100%	-97%	46%	-87%	19%	13%	18%	-31%	
A1c - Residential Home Energy Services - Measures	10789%	4169%	9528%	-54%	-30%	-41%	-52%	-33%	14%	-27%	-71%	
A1d - Residential Home Energy Services - RCS												
A1e - Residential Behavior/Feedback Program	-68%	-55%	-66%	-38%	-10%	-74%	-67%	-73%		-73%	959%	
A2 - Residential Products	91%	196%	108%	120%	-33%	259%	89%	58%	128%	62%	-14%	
A2a - Residential Heating & Cooling Equipment	-48%	-46%	-48%					-20%	-7%	-19%	42%	
A2b - Residential Consumer Products	18%	18%	18%	-54%	-61%	259%	145%	24%		24%	26%	
A2c - Residential Lighting	101%	205%	118%	119%	-33%		89%	80%	160%	85%	-7%	
B - Low-Income				-63%	61%	45%	-55%	-40%	84%	-22%	-65%	
B1 - Low-Income Whole House				-63%	61%	45%	-55%	-40%	84%	-22%	-65%	
B1a - Low-Income Single Family Retrofit				-20%	-32%	30%	-19%	-12%	140%	15%	-45%	
B1b - Low-Income Multi-Family Retrofit				-92%		83%	-81%	-72%	-23%	-67%	-85%	
C - Commercial & Industrial	-76%	-63%	-74%	-632%	-93%	96%	-207%	-42%	-12%	-38%	-28%	
C1 - C&I New Construction	-90%	-87%	-90%	-112%			-65%	-56%		-55%	-76%	
C1a - C&I New Buildings & Major Renovations	-253%	-260%	-253%	-233%			-186%	26%		35%	-11%	
C1b - C&I Initial Purchase & End of Useful Life	-91%	-88%	-91%					-72%		-72%	-86%	
C2 - C&I Retrofit	-6%	-15%	-8%	-799%	-93%	14%	-215%	-39%	-14%	-36%	-21%	
C2a - C&I Existing Building Retrofit	-129%	-115%	-126%	808%	-80%	1913%	138%	28%	202%	53%	-29%	
C2b - C&I Small Business	-11%	-14%	-12%	-102%	-97%	118%	-101%	-71%	-70%	-71%	-46%	
C2c - C&I Multifamily Retrofit	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-93%	-93%	-93%	22%	
C2d - C&I Upstream Lighting	-31%	-34%	-32%	-31%			-31%	-32%	-36%	-33%	-26%	
Grand Total	-65%	0%	-56%	-68%	-24%	-8%	-62%	-25%	14%	-20%	-59%	

Program Benefits, Three-Year Total
2016-2018 Benefits
Cape Light Compact
May 1, 2017

2016 Evaluated Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 5,986,508	\$ 1,704,630	\$ 5,708,855	\$ -	\$ 13,399,994	\$ 21,890,516	\$ 5,516,011	\$ 27,406,526
A1 - Residential Whole House	\$ 2,483,633	\$ 634,030	\$ 2,123,386	\$ -	\$ 5,241,049	\$ 7,700,949	\$ 1,329,680	\$ 9,030,628
A1a - Residential New Construction	\$ 631,144	\$ 154,233	\$ 516,530	\$ -	\$ 1,301,907	\$ 843,326	\$ 141,645	\$ 984,971
A1b - Residential Multi-Family Retrofit	\$ 46,191	\$ 12,540	\$ 41,997	\$ -	\$ 100,728	\$ 659,164	\$ 83,605	\$ 742,769
A1c - Residential Home Energy Services - Measures	\$ 1,800,087	\$ 465,419	\$ 1,558,700	\$ -	\$ 3,824,206	\$ 6,176,369	\$ 1,098,570	\$ 7,274,939
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 6,211	\$ 1,839	\$ 6,159	\$ -	\$ 14,209	\$ 22,089	\$ 5,860	\$ 27,949
A2 - Residential Products	\$ 3,502,876	\$ 1,070,600	\$ 3,585,469	\$ -	\$ 8,158,945	\$ 14,189,567	\$ 4,186,331	\$ 18,375,898
A2a - Residential Heating & Cooling Equipment	\$ 303,539	\$ 74,564	\$ 249,715	\$ -	\$ 627,818	\$ 1,187,657	\$ 134,690	\$ 1,322,347
A2b - Residential Consumer Products	\$ 238,222	\$ 64,446	\$ 215,832	\$ -	\$ 518,499	\$ 610,167	\$ 115,747	\$ 725,914
A2c - Residential Lighting	\$ 2,961,115	\$ 931,590	\$ 3,119,922	\$ -	\$ 7,012,628	\$ 12,391,743	\$ 3,935,895	\$ 16,327,638
B - Low-Income	\$ 448,344	\$ 120,017	\$ 401,942	\$ -	\$ 970,303	\$ 1,119,182	\$ 228,567	\$ 1,347,749
B1 - Low-Income Whole House	\$ 448,344	\$ 120,017	\$ 401,942	\$ -	\$ 970,303	\$ 1,119,182	\$ 228,567	\$ 1,347,749
B1a - Low-Income Single Family Retrofit	\$ 354,285	\$ 93,648	\$ 313,629	\$ -	\$ 761,562	\$ 903,944	\$ 181,609	\$ 1,085,552
B1b - Low-Income Multi-Family Retrofit	\$ 94,058	\$ 26,370	\$ 88,313	\$ -	\$ 208,741	\$ 215,238	\$ 46,958	\$ 262,196
C - Commercial & Industrial	\$ 4,513,953	\$ 1,276,508	\$ 4,275,063	\$ -	\$ 10,065,524	\$ 15,032,178	\$ 3,301,987	\$ 18,334,166
C1 - C&I New Construction	\$ 582,466	\$ 144,086	\$ 482,547	\$ -	\$ 1,209,098	\$ 1,767,388	\$ 219,908	\$ 1,987,295
C1a - C&I New Buildings & Major Renovations	\$ 231,015	\$ 57,068	\$ 191,123	\$ -	\$ 479,205	\$ 790,485	\$ 98,891	\$ 889,376
C1b - C&I Initial Purchase & End of Useful Life	\$ 351,451	\$ 87,018	\$ 291,424	\$ -	\$ 729,893	\$ 976,903	\$ 121,017	\$ 1,097,920
C2 - C&I Retrofit	\$ 3,931,487	\$ 1,132,423	\$ 3,792,516	\$ -	\$ 8,856,426	\$ 13,264,791	\$ 3,082,080	\$ 16,346,870
C2a - C&I Existing Building Retrofit	\$ 1,161,226	\$ 294,861	\$ 987,497	\$ -	\$ 2,443,584	\$ 5,370,249	\$ 767,917	\$ 6,138,166
C2b - C&I Small Business	\$ 1,038,171	\$ 264,710	\$ 886,520	\$ -	\$ 2,189,401	\$ 2,591,186	\$ 391,172	\$ 2,982,358
C2c - C&I Multifamily Retrofit	\$ 4,703	\$ 1,291	\$ 4,323	\$ -	\$ 10,317	\$ 32,901	\$ 6,358	\$ 39,260
C2d - C&I Upstream Lighting	\$ 1,727,387	\$ 571,562	\$ 1,914,176	\$ -	\$ 4,213,124	\$ 5,270,455	\$ 1,916,632	\$ 7,187,087
Grand Total	\$ 10,948,805	\$ 3,101,156	\$ 10,385,859	\$ -	\$ 24,435,820	\$ 38,041,875	\$ 9,046,565	\$ 47,088,441

2017 Planned Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 5,274,710	\$ 1,265,444	\$ 4,238,008	\$ -	\$ 10,778,161	\$ 16,437,351	\$ 1,560,346	\$ 17,997,696
A1 - Residential Whole House	\$ 3,134,795	\$ 740,150	\$ 2,478,784	\$ -	\$ 6,353,729	\$ 7,613,718	\$ 673,298	\$ 8,287,016
A1a - Residential New Construction	\$ 312,330	\$ 70,917	\$ 237,501	\$ -	\$ 620,748	\$ 1,021,333	\$ 50,706	\$ 1,072,038
A1b - Residential Multi-Family Retrofit	\$ 26,595	\$ 6,495	\$ 21,751	\$ -	\$ 54,841	\$ 442,628	\$ 30,362	\$ 472,991
A1c - Residential Home Energy Services - Measures	\$ 2,766,671	\$ 655,366	\$ 2,194,838	\$ -	\$ 5,616,874	\$ 6,060,977	\$ 580,226	\$ 6,641,203
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 29,200	\$ 7,373	\$ 24,693	\$ -	\$ 61,266	\$ 88,780	\$ 12,004	\$ 100,784
A2 - Residential Products	\$ 2,139,914	\$ 525,294	\$ 1,759,224	\$ -	\$ 4,424,432	\$ 8,823,633	\$ 887,048	\$ 9,710,680
A2a - Residential Heating & Cooling Equipment	\$ 393,039	\$ 92,774	\$ 310,703	\$ -	\$ 796,515	\$ 1,683,651	\$ 121,720	\$ 1,805,371
A2b - Residential Consumer Products	\$ 205,754	\$ 52,008	\$ 174,176	\$ -	\$ 431,938	\$ 516,170	\$ 63,794	\$ 579,964
A2c - Residential Lighting	\$ 1,541,121	\$ 380,512	\$ 1,274,345	\$ -	\$ 3,195,979	\$ 6,623,812	\$ 701,533	\$ 7,325,345
B - Low-Income	\$ 516,645	\$ 125,614	\$ 420,685	\$ -	\$ 1,062,944	\$ 1,439,719	\$ 142,655	\$ 1,582,374
B1 - Low-Income Whole House	\$ 516,645	\$ 125,614	\$ 420,685	\$ -	\$ 1,062,944	\$ 1,439,719	\$ 142,655	\$ 1,582,374
B1a - Low-Income Single Family Retrofit	\$ 425,762	\$ 102,690	\$ 343,911	\$ -	\$ 872,363	\$ 1,039,559	\$ 107,967	\$ 1,147,525
B1b - Low-Income Multi-Family Retrofit	\$ 90,883	\$ 22,924	\$ 76,774	\$ -	\$ 190,581	\$ 400,160	\$ 34,688	\$ 434,848
C - Commercial & Industrial	\$ 9,875,282	\$ 2,478,040	\$ 8,299,025	\$ -	\$ 20,652,346	\$ 24,886,969	\$ 2,978,306	\$ 27,865,274
C1 - C&I New Construction	\$ 833,004	\$ 192,161	\$ 643,553	\$ -	\$ 1,668,718	\$ 2,780,839	\$ 156,138	\$ 2,936,977
C1a - C&I New Buildings & Major Renovations	\$ 225,173	\$ 52,993	\$ 177,476	\$ -	\$ 455,642	\$ 744,092	\$ 48,185	\$ 792,277
C1b - C&I Initial Purchase & End of Useful Life	\$ 607,832	\$ 139,168	\$ 466,077	\$ -	\$ 1,213,077	\$ 2,036,747	\$ 107,953	\$ 2,144,700
C2 - C&I Retrofit	\$ 9,042,277	\$ 2,285,879	\$ 7,655,472	\$ -	\$ 18,983,628	\$ 22,106,129	\$ 2,822,168	\$ 24,928,297
C2a - C&I Existing Building Retrofit	\$ 1,666,227	\$ 398,787	\$ 1,335,549	\$ -	\$ 3,400,563	\$ 4,815,235	\$ 427,391	\$ 5,242,626
C2b - C&I Small Business	\$ 4,517,141	\$ 1,079,552	\$ 3,615,451	\$ -	\$ 9,212,145	\$ 9,934,835	\$ 845,670	\$ 10,780,505
C2c - C&I Multifamily Retrofit	\$ 30,266	\$ 7,236	\$ 24,233	\$ -	\$ 61,736	\$ 419,239	\$ 30,221	\$ 449,460
C2d - C&I Upstream Lighting	\$ 2,828,642	\$ 800,303	\$ 2,680,238	\$ -	\$ 6,309,184	\$ 6,936,820	\$ 1,518,887	\$ 8,455,706
Grand Total	\$ 15,666,636	\$ 3,869,098	\$ 12,957,717	\$ -	\$ 32,493,451	\$ 42,764,038	\$ 4,681,306	\$ 47,445,345

Program Benefits, Three-Year Total
2016-2018 Benefits
Cape Light Compact
May 1, 2017

2018 Planned Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 5,381,401	\$ 1,242,065	\$ 4,159,712	\$ -	\$ 10,783,178	\$ 16,383,662	\$ 702,623	\$ 17,086,285
A1 - Residential Whole House	\$ 3,347,881	\$ 766,029	\$ 2,565,454	\$ -	\$ 6,679,365	\$ 8,141,381	\$ 338,770	\$ 8,480,151
A1a - Residential New Construction	\$ 333,163	\$ 74,131	\$ 248,267	\$ -	\$ 655,561	\$ 1,217,195	\$ 33,080	\$ 1,250,275
A1b - Residential Multi-Family Retrofit	\$ 32,872	\$ 7,682	\$ 25,727	\$ -	\$ 66,280	\$ 466,913	\$ 16,819	\$ 483,733
A1c - Residential Home Energy Services - Measures	\$ 2,952,816	\$ 677,164	\$ 2,267,840	\$ -	\$ 5,897,819	\$ 6,371,767	\$ 283,406	\$ 6,655,173
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 29,031	\$ 7,053	\$ 23,621	\$ -	\$ 59,704	\$ 85,506	\$ 5,464	\$ 90,970
A2 - Residential Products	\$ 2,033,520	\$ 476,036	\$ 1,594,258	\$ -	\$ 4,103,814	\$ 8,242,281	\$ 363,853	\$ 8,606,134
A2a - Residential Heating & Cooling Equipment	\$ 433,391	\$ 99,225	\$ 332,307	\$ -	\$ 864,923	\$ 1,859,708	\$ 67,418	\$ 1,927,127
A2b - Residential Consumer Products	\$ 202,032	\$ 48,680	\$ 163,031	\$ -	\$ 413,743	\$ 473,784	\$ 26,005	\$ 499,788
A2c - Residential Lighting	\$ 1,398,097	\$ 328,131	\$ 1,098,919	\$ -	\$ 2,825,148	\$ 5,908,789	\$ 270,430	\$ 6,179,219
B - Low-Income	\$ 608,346	\$ 142,208	\$ 476,258	\$ -	\$ 1,226,812	\$ 1,659,541	\$ 77,312	\$ 1,736,853
B1 - Low-Income Whole House	\$ 608,346	\$ 142,208	\$ 476,258	\$ -	\$ 1,226,812	\$ 1,659,541	\$ 77,312	\$ 1,736,853
B1a - Low-Income Single Family Retrofit	\$ 496,622	\$ 115,311	\$ 386,178	\$ -	\$ 998,111	\$ 1,218,141	\$ 57,732	\$ 1,275,873
B1b - Low-Income Multi-Family Retrofit	\$ 111,725	\$ 26,897	\$ 90,080	\$ -	\$ 228,702	\$ 441,401	\$ 19,579	\$ 460,980
C - Commercial & Industrial	\$ 11,124,929	\$ 2,643,972	\$ 8,854,737	\$ -	\$ 22,623,639	\$ 28,707,057	\$ 1,456,204	\$ 30,163,261
C1 - C&I New Construction	\$ 834,193	\$ 187,953	\$ 629,461	\$ -	\$ 1,651,607	\$ 3,008,620	\$ 85,944	\$ 3,094,563
C1a - C&I New Buildings & Major Renovations	\$ 231,942	\$ 52,993	\$ 177,476	\$ -	\$ 462,411	\$ 992,068	\$ 29,813	\$ 1,021,881
C1b - C&I Initial Purchase & End of Useful Life	\$ 602,251	\$ 134,960	\$ 451,985	\$ -	\$ 1,189,196	\$ 2,016,551	\$ 56,131	\$ 2,072,682
C2 - C&I Retrofit	\$ 10,290,736	\$ 2,456,019	\$ 8,225,277	\$ -	\$ 20,972,032	\$ 25,698,437	\$ 1,370,261	\$ 27,068,698
C2a - C&I Existing Building Retrofit	\$ 1,825,665	\$ 421,220	\$ 1,410,677	\$ -	\$ 3,657,562	\$ 5,648,223	\$ 218,924	\$ 5,867,147
C2b - C&I Small Business	\$ 5,581,675	\$ 1,286,358	\$ 4,308,048	\$ -	\$ 11,176,081	\$ 13,217,351	\$ 528,051	\$ 13,745,402
C2c - C&I Multifamily Retrofit	\$ 35,371	\$ 8,154	\$ 27,308	\$ -	\$ 70,832	\$ 441,098	\$ 16,840	\$ 457,938
C2d - C&I Upstream Lighting	\$ 2,848,026	\$ 740,287	\$ 2,479,243	\$ -	\$ 6,067,557	\$ 6,391,765	\$ 606,446	\$ 6,998,211
Grand Total	\$ 17,114,677	\$ 4,028,245	\$ 13,490,707	\$ -	\$ 34,633,630	\$ 46,750,260	\$ 2,236,139	\$ 48,986,399

2016-2018 Benefits								
Program	Electric Benefits							
	Capacity					Energy		
	Summer Generation	Trans.	Distrib.	Electric Capacity DRIPE	Total Capacity Benefits	Electric	Electric Energy DRIPE	Total Energy Benefits
A - Residential	\$ 16,642,619	\$ 4,212,140	\$ 14,106,574	\$ -	\$ 34,961,333	\$ 54,711,528	\$ 7,778,979	\$ 62,490,508
A1 - Residential Whole House	\$ 8,966,309	\$ 2,140,210	\$ 7,167,624	\$ -	\$ 18,274,143	\$ 23,456,048	\$ 2,341,748	\$ 25,797,796
A1a - Residential New Construction	\$ 1,276,637	\$ 299,280	\$ 1,002,298	\$ -	\$ 2,578,215	\$ 3,081,854	\$ 225,431	\$ 3,307,285
A1b - Residential Multi-Family Retrofit	\$ 105,657	\$ 26,717	\$ 89,475	\$ -	\$ 221,849	\$ 1,568,706	\$ 130,787	\$ 1,699,492
A1c - Residential Home Energy Services - Measures	\$ 7,519,573	\$ 1,797,948	\$ 6,021,378	\$ -	\$ 15,338,899	\$ 18,609,112	\$ 1,962,202	\$ 20,571,314
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 64,442	\$ 16,265	\$ 54,473	\$ -	\$ 135,179	\$ 196,375	\$ 23,328	\$ 219,704
A2 - Residential Products	\$ 7,676,310	\$ 2,071,930	\$ 6,938,951	\$ -	\$ 16,687,190	\$ 31,255,481	\$ 5,437,232	\$ 36,692,712
A2a - Residential Heating & Cooling Equipment	\$ 1,129,969	\$ 266,562	\$ 892,725	\$ -	\$ 2,289,256	\$ 4,731,016	\$ 323,828	\$ 5,054,844
A2b - Residential Consumer Products	\$ 646,007	\$ 165,134	\$ 553,038	\$ -	\$ 1,364,180	\$ 1,600,121	\$ 205,546	\$ 1,805,666
A2c - Residential Lighting	\$ 5,900,334	\$ 1,640,233	\$ 5,493,187	\$ -	\$ 13,033,754	\$ 24,924,344	\$ 4,907,858	\$ 29,832,202
B - Low-Income	\$ 1,573,335	\$ 387,839	\$ 1,298,885	\$ -	\$ 3,260,059	\$ 4,218,442	\$ 448,534	\$ 4,666,976
B1 - Low-Income Whole House	\$ 1,573,335	\$ 387,839	\$ 1,298,885	\$ -	\$ 3,260,059	\$ 4,218,442	\$ 448,534	\$ 4,666,976
B1a - Low-Income Single Family Retrofit	\$ 1,276,669	\$ 311,648	\$ 1,043,719	\$ -	\$ 2,632,036	\$ 3,161,643	\$ 347,308	\$ 3,508,951
B1b - Low-Income Multi-Family Retrofit	\$ 296,666	\$ 76,191	\$ 255,166	\$ -	\$ 628,023	\$ 1,056,799	\$ 101,226	\$ 1,158,025
C - Commercial & Industrial	\$ 25,514,163	\$ 6,398,520	\$ 21,428,825	\$ -	\$ 53,341,509	\$ 68,626,204	\$ 7,736,497	\$ 76,362,701
C1 - C&I New Construction	\$ 2,249,663	\$ 524,200	\$ 1,755,560	\$ -	\$ 4,529,423	\$ 7,556,847	\$ 461,989	\$ 8,018,835
C1a - C&I New Buildings & Major Renovations	\$ 688,129	\$ 163,055	\$ 546,074	\$ -	\$ 1,397,258	\$ 2,526,645	\$ 176,889	\$ 2,703,534
C1b - C&I Initial Purchase & End of Useful Life	\$ 1,561,534	\$ 361,145	\$ 1,209,486	\$ -	\$ 3,132,165	\$ 5,030,201	\$ 285,100	\$ 5,315,302
C2 - C&I Retrofit	\$ 23,264,501	\$ 5,874,320	\$ 19,673,265	\$ -	\$ 48,812,086	\$ 61,069,357	\$ 7,274,508	\$ 68,343,865
C2a - C&I Existing Building Retrofit	\$ 4,653,118	\$ 1,114,868	\$ 3,733,724	\$ -	\$ 9,501,709	\$ 15,833,707	\$ 1,414,232	\$ 17,247,939
C2b - C&I Small Business	\$ 11,136,988	\$ 2,630,620	\$ 8,810,020	\$ -	\$ 22,577,627	\$ 25,743,373	\$ 1,764,893	\$ 27,508,266
C2c - C&I Multifamily Retrofit	\$ 70,340	\$ 16,681	\$ 55,864	\$ -	\$ 142,885	\$ 893,238	\$ 53,419	\$ 946,657
C2d - C&I Upstream Lighting	\$ 7,404,055	\$ 2,112,152	\$ 7,073,657	\$ -	\$ 16,589,865	\$ 18,599,040	\$ 4,041,964	\$ 22,641,004
Grand Total	\$ 43,730,118	\$ 10,998,499	\$ 36,834,284	\$ -	\$ 91,562,901	\$ 127,556,174	\$ 15,964,010	\$ 143,520,184

Notes

• Total Resource Benefits is the sum of electric benefits, natural gas benefits, and other resource benefits.

Program Benefits, Three-Year Total
2016-2018 Benefits
Cape Light Compact
May 1, 2017

Program	2016 Evaluated Benefits											
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant	
	Natural Gas Benefits			Other Resource Benefits								
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits					
A - Residential	\$ (647,501)	\$ (422,706)	\$ (1,070,207)	\$ 7,004,981	\$ 2,331,493	\$ 202,985	\$ 9,539,459	\$ 49,275,772	\$ 8,940,381	\$ 58,216,153	\$ 291.66	
A1 - Residential Whole House	\$ 1,163,150	\$ 98,217	\$ 1,261,367	\$ 9,809,989	\$ 2,540,211	\$ 163,902	\$ 12,514,101	\$ 28,047,145	\$ 7,073,015	\$ 35,120,160	\$ 4,017.06	
A1a - Residential New Construction	\$ (50,098)	\$ (14,346)	\$ (64,444)	\$ (73,463)	\$ 673,260	\$ -	\$ 599,797	\$ 2,822,230	\$ 564,454	\$ 3,386,684	\$ 8,737.56	
A1b - Residential Multi-Family Retrofit	\$ 936	\$ 186	\$ 1,121	\$ -	\$ 123	\$ 15,607	\$ 15,729	\$ 860,348	\$ 256,380	\$ 1,116,727	\$ 1,567.12	
A1c - Residential Home Energy Services - Measures	\$ 1,209,004	\$ 111,555	\$ 1,320,559	\$ 9,878,732	\$ 1,864,901	\$ 134,510	\$ 11,878,143	\$ 24,297,847	\$ 6,252,182	\$ 30,550,028	\$ 3,982.60	
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A1e - Residential Behavior/Feedback Program	\$ 3,309	\$ 822	\$ 4,131	\$ 4,721	\$ 1,926	\$ 13,785	\$ 20,432	\$ 66,720	\$ -	\$ 66,720	\$ 7,413.35	
A2 - Residential Products	\$ (1,810,650)	\$ (520,923)	\$ (2,331,574)	\$ (2,805,008)	\$ (208,717)	\$ 39,083	\$ (2,974,642)	\$ 21,228,627	\$ 1,867,366	\$ 23,095,993	\$ 131.07	
A2a - Residential Heating & Cooling Equipment	\$ (32,307)	\$ (3,559)	\$ (35,866)	\$ (10,592)	\$ (1,416)	\$ -	\$ (12,008)	\$ 1,902,291	\$ 145,633	\$ 2,047,924	\$ 742.79	
A2b - Residential Consumer Products	\$ 1,461	\$ 363	\$ 1,823	\$ 1,522	\$ 1,085	\$ 39,083	\$ 41,690	\$ 1,287,927	\$ -	\$ 1,287,927	\$ 519.74	
A2c - Residential Lighting	\$ (1,779,804)	\$ (517,727)	\$ (2,297,531)	\$ (2,795,939)	\$ (208,386)	\$ -	\$ (3,004,325)	\$ 18,038,410	\$ 1,721,733	\$ 19,760,142	\$ 114.95	
B - Low-Income	\$ -	\$ -	\$ -	\$ 1,979,582	\$ 502,545	\$ 164,911	\$ 2,647,039	\$ 4,965,091	\$ 2,667,407	\$ 7,632,498	\$ 3,686.04	
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 1,979,582	\$ 502,545	\$ 164,911	\$ 2,647,039	\$ 4,965,091	\$ 2,667,407	\$ 7,632,498	\$ 3,686.04	
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 1,711,491	\$ 211,929	\$ 106,888	\$ 2,030,309	\$ 3,877,423	\$ 2,285,849	\$ 6,163,272	\$ 4,327.48	
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 268,092	\$ 290,616	\$ 58,023	\$ 616,731	\$ 1,087,668	\$ 381,558	\$ 1,469,226	\$ 2,411.68	
C - Commercial & Industrial	\$ (704,158)	\$ (147,368)	\$ (851,526)	\$ (675,125)	\$ 30,836	\$ 35,041	\$ (609,247)	\$ 26,938,917	\$ 6,320,257	\$ 33,259,173	\$ 14,916.34	
C1 - C&I New Construction	\$ (235,825)	\$ (33,223)	\$ (269,048)	\$ (3,802)	\$ -	\$ 14,683	\$ 10,881	\$ 2,938,227	\$ 104,149	\$ 3,042,375	\$ 18,834.79	
C1a - C&I New Buildings & Major Renovations	\$ (11,759)	\$ (1,679)	\$ (13,438)	\$ (41,253)	\$ -	\$ 14,683	\$ (26,569)	\$ 1,328,574	\$ 104,149	\$ 1,432,722	\$ 25,549.49	
C1b - C&I Initial Purchase & End of Useful Life	\$ (224,067)	\$ (31,543)	\$ (255,610)	\$ 37,451	\$ -	\$ -	\$ 37,451	\$ 1,609,653	\$ -	\$ 1,609,653	\$ 15,477.43	
C2 - C&I Retrofit	\$ (468,333)	\$ (114,145)	\$ (582,477)	\$ (671,323)	\$ 30,836	\$ 20,358	\$ (620,129)	\$ 24,000,690	\$ 6,216,108	\$ 30,216,798	\$ 14,545.87	
C2a - C&I Existing Building Retrofit	\$ (20,013)	\$ (3,089)	\$ (23,102)	\$ 268,563	\$ 19,630	\$ 13,714	\$ 301,907	\$ 8,860,555	\$ 3,468,379	\$ 12,328,934	\$ 32,695.77	
C2b - C&I Small Business	\$ (243,855)	\$ (37,486)	\$ (281,341)	\$ (29,148)	\$ 11,207	\$ 6,644	\$ (11,298)	\$ 4,879,121	\$ 925,586	\$ 5,804,707	\$ 18,838.30	
C2c - C&I Multifamily Retrofit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 49,576	\$ 7,396	\$ 56,972	\$ 2,754.24	
C2d - C&I Upstream Lighting	\$ (204,465)	\$ (73,570)	\$ (278,035)	\$ (910,738)	\$ -	\$ -	\$ (910,738)	\$ 10,211,438	\$ 1,814,747	\$ 12,026,185	\$ 9,266.28	
Grand Total	\$ (1,351,659)	\$ (570,074)	\$ (1,921,733)	\$ 8,309,439	\$ 2,864,875	\$ 402,938	\$ 11,577,252	\$ 81,179,780	\$ 17,928,045	\$ 99,107,824	\$ 471.70	

Program	2017 Planned Benefits										
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant
	Natural Gas Benefits			Other Resource Benefits							
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits				
A - Residential	\$ (811,502)	\$ (83,738)	\$ (895,241)	\$ 22,812,931	\$ 3,360,792	\$ 409,118	\$ 26,582,841	\$ 54,463,458	\$ 7,186,616	\$ 61,650,073	\$ 655.84
A1 - Residential Whole House	\$ 24,952	\$ 3,013	\$ 27,966	\$ 23,935,663	\$ 3,632,445	\$ 398,236	\$ 27,966,344	\$ 42,635,055	\$ 6,463,036	\$ 49,098,091	\$ 12,030.21
A1a - Residential New Construction	\$ 1,341	\$ 115	\$ 1,456	\$ 25,087	\$ 621,303	\$ -	\$ 646,390	\$ 2,340,632	\$ 476,000	\$ 2,816,632	\$ 26,903.82
A1b - Residential Multi-Family Retrofit	\$ 1,787	\$ 239	\$ 2,027	\$ 114,592	\$ 4,519	\$ 9,552	\$ 128,664	\$ 658,522	\$ 208,237	\$ 866,759	\$ 2,020.01
A1c - Residential Home Energy Services - Measures	\$ 11,377	\$ 1,556	\$ 12,932	\$ 23,788,110	\$ 3,004,419	\$ 335,866	\$ 27,128,395	\$ 39,399,404	\$ 5,778,799	\$ 45,178,204	\$ 14,426.73
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 10,447	\$ 1,103	\$ 11,550	\$ 7,874	\$ 2,203	\$ 52,817	\$ 62,895	\$ 236,496	\$ -	\$ 236,496	\$ 591.24
A2 - Residential Products	\$ (836,455)	\$ (86,751)	\$ (923,206)	\$ (1,122,733)	\$ (271,652)	\$ 10,882	\$ (1,383,503)	\$ 11,828,403	\$ 723,580	\$ 12,551,983	\$ 148.79
A2a - Residential Heating & Cooling Equipment	\$ (62,997)	\$ (4,248)	\$ (67,245)	\$ -	\$ -	\$ -	\$ -	\$ 2,534,641	\$ 182,359	\$ 2,717,001	\$ 537.28
A2b - Residential Consumer Products	\$ 1,267	\$ 179	\$ 1,445	\$ 3,414	\$ 2,901	\$ 10,882	\$ 17,198	\$ 1,030,545	\$ -	\$ 1,030,545	\$ 408.95
A2c - Residential Lighting	\$ (774,725)	\$ (82,682)	\$ (857,407)	\$ (1,126,147)	\$ (274,554)	\$ -	\$ (1,400,701)	\$ 8,263,217	\$ 541,221	\$ 8,804,437	\$ 114.35
B - Low-Income	\$ -	\$ -	\$ -	\$ 6,332,208	\$ 347,696	\$ 136,005	\$ 6,815,909	\$ 9,461,227	\$ 1,623,070	\$ 11,084,297	\$ 9,855.44
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 6,332,208	\$ 347,696	\$ 136,005	\$ 6,815,909	\$ 9,461,227	\$ 1,623,070	\$ 11,084,297	\$ 9,855.44
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 2,355,822	\$ 347,696	\$ 93,710	\$ 2,797,228	\$ 4,817,117	\$ 1,053,340	\$ 5,870,457	\$ 7,526.74
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 3,976,386	\$ -	\$ 42,295	\$ 4,018,681	\$ 4,644,110	\$ 569,730	\$ 5,213,840	\$ 14,512.84
C - Commercial & Industrial	\$ (1,802,087)	\$ (170,278)	\$ (1,972,365)	\$ 1,404,734	\$ 745,429	\$ 18,520	\$ 2,168,682	\$ 48,713,938	\$ 8,792,889	\$ 57,506,827	\$ 19,706.29
C1 - C&I New Construction	\$ (1,314,481)	\$ (93,589)	\$ (1,408,070)	\$ 34,378	\$ -	\$ -	\$ 34,378	\$ 3,232,003	\$ -	\$ 3,232,003	\$ 37,149.46
C1a - C&I New Buildings & Major Renovations	\$ 8,454	\$ 725	\$ 9,179	\$ 34,378	\$ -	\$ -	\$ 34,378	\$ 1,291,476	\$ -	\$ 1,291,476	\$ 34,904.76
C1b - C&I Initial Purchase & End of Useful Life	\$ (1,322,935)	\$ (94,315)	\$ (1,417,250)	\$ -	\$ -	\$ -	\$ -	\$ 1,940,527	\$ -	\$ 1,940,527	\$ 38,810.54
C2 - C&I Retrofit	\$ (487,606)	\$ (76,689)	\$ (564,295)	\$ 1,370,355	\$ 745,429	\$ 18,520	\$ 2,134,304	\$ 45,481,935	\$ 8,792,889	\$ 54,274,824	\$ 19,069.99
C2a - C&I Existing Building Retrofit	\$ 118,181	\$ 13,700	\$ 131,881	\$ 47,751	\$ 108,309	\$ 681	\$ 156,742	\$ 8,931,813	\$ 1,670,745	\$ 10,602,558	\$ 56,174.92
C2b - C&I Small Business	\$ (324,137)	\$ (31,580)	\$ (355,717)	\$ 2,486,090	\$ 632,027	\$ 5,179	\$ 3,123,295	\$ 22,760,229	\$ 4,387,431	\$ 27,147,660	\$ 32,514.61
C2c - C&I Multifamily Retrofit	\$ 1,973	\$ 279	\$ 2,252	\$ 123,954	\$ 5,093	\$ 12,660	\$ 141,707	\$ 655,154	\$ 87,310	\$ 742,465	\$ 2,009.68
C2d - C&I Upstream Lighting	\$ (283,624)	\$ (59,088)	\$ (342,711)	\$ (1,287,440)	\$ -	\$ -	\$ (1,287,440)	\$ 13,134,739	\$ 2,647,403	\$ 15,782,141	\$ 10,945.62
Grand Total	\$ (2,613,589)	\$ (254,016)	\$ (2,867,605)	\$ 30,549,872	\$ 4,453,918	\$ 563,643	\$ 35,567,432	\$ 112,638,623	\$ 17,602,576	\$ 130,241,198	\$ 1,302.55

Program Benefits, Three-Year Total
2016-2018 Benefits
Cape Light Compact
May 1, 2017

Program	2018 Planned Benefits											
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant	
	Natural Gas Benefits			Other Resource Benefits								
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits					
A - Residential	\$ (761,357)	\$ (46,439)	\$ (807,796)	\$ 24,925,909	\$ 3,768,797	\$ 515,545	\$ 29,210,250	\$ 56,271,918	\$ 7,449,948	\$ 63,721,865	\$ 727.54	
A1 - Residential Whole House	\$ 25,362	\$ 1,861	\$ 27,223	\$ 25,918,992	\$ 4,006,660	\$ 504,663	\$ 30,430,315	\$ 45,617,054	\$ 6,788,372	\$ 52,405,426	\$ 12,187.30	
A1a - Residential New Construction	\$ 1,405	\$ 80	\$ 1,485	\$ 26,366	\$ 649,012	\$ -	\$ 675,378	\$ 2,582,699	\$ 491,376	\$ 3,074,075	\$ 28,696.66	
A1b - Residential Multi-Family Retrofit	\$ 1,863	\$ 150	\$ 2,014	\$ 120,302	\$ 4,570	\$ 9,898	\$ 134,770	\$ 686,796	\$ 215,673	\$ 902,469	\$ 2,044.04	
A1c - Residential Home Energy Services - Measures	\$ 11,528	\$ 949	\$ 12,477	\$ 25,764,282	\$ 3,350,843	\$ 441,947	\$ 29,557,072	\$ 42,122,541	\$ 6,081,323	\$ 48,203,864	\$ 14,692.20	
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A1e - Residential Behavior/Feedback Program	\$ 10,565	\$ 682	\$ 11,247	\$ 8,044	\$ 2,235	\$ 52,817	\$ 63,096	\$ 225,018	\$ -	\$ 225,018	\$ 500.04	
A2 - Residential Products	\$ (786,719)	\$ (48,300)	\$ (835,019)	\$ (993,084)	\$ (237,863)	\$ 10,882	\$ (1,220,065)	\$ 10,654,863	\$ 661,576	\$ 11,316,439	\$ 144.76	
A2a - Residential Heating & Cooling Equipment	\$ (63,871)	\$ (2,892)	\$ (66,762)	\$ -	\$ -	\$ -	\$ -	\$ 2,725,287	\$ 209,970	\$ 2,935,257	\$ 555.61	
A2b - Residential Consumer Products	\$ 1,281	\$ 105	\$ 1,386	\$ 3,499	\$ 2,951	\$ 10,882	\$ 17,332	\$ 932,249	\$ -	\$ 932,249	\$ 393.35	
A2c - Residential Lighting	\$ (724,129)	\$ (45,513)	\$ (769,643)	\$ (996,583)	\$ (240,814)	\$ -	\$ (1,237,397)	\$ 6,997,327	\$ 451,606	\$ 7,448,933	\$ 105.50	
B - Low-Income	\$ -	\$ -	\$ -	\$ 6,507,685	\$ 433,019	\$ 158,293	\$ 7,098,996	\$ 10,062,661	\$ 1,784,019	\$ 11,846,681	\$ 8,984.52	
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 6,507,685	\$ 433,019	\$ 158,293	\$ 7,098,996	\$ 10,062,661	\$ 1,784,019	\$ 11,846,681	\$ 8,984.52	
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 2,681,358	\$ 433,019	\$ 105,424	\$ 3,219,801	\$ 5,493,785	\$ 1,224,946	\$ 6,718,730	\$ 7,630.26	
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 3,826,327	\$ -	\$ 52,868	\$ 3,879,195	\$ 4,568,877	\$ 559,073	\$ 5,127,950	\$ 11,422.19	
C - Commercial & Industrial	\$ (1,395,748)	\$ (89,146)	\$ (1,484,894)	\$ 3,815,687	\$ 1,327,678	\$ 20,634	\$ 5,163,999	\$ 56,466,004	\$ 10,700,106	\$ 67,166,111	\$ 20,525.63	
C1 - C&I New Construction	\$ (905,859)	\$ (44,964)	\$ (950,822)	\$ 31,944	\$ -	\$ -	\$ 31,944	\$ 3,827,292	\$ -	\$ 3,827,292	\$ 43,991.86	
C1a - C&I New Buildings & Major Renovations	\$ 7,939	\$ 452	\$ 8,391	\$ 31,944	\$ -	\$ -	\$ 31,944	\$ 1,524,627	\$ -	\$ 1,524,627	\$ 41,206.14	
C1b - C&I Initial Purchase & End of Useful Life	\$ (913,797)	\$ (45,416)	\$ (959,213)	\$ -	\$ -	\$ -	\$ -	\$ 2,302,665	\$ -	\$ 2,302,665	\$ 46,053.29	
C2 - C&I Retrofit	\$ (489,890)	\$ (44,182)	\$ (534,072)	\$ 3,783,743	\$ 1,327,678	\$ 20,634	\$ 5,132,055	\$ 52,638,713	\$ 10,700,106	\$ 63,338,819	\$ 19,759.28	
C2a - C&I Existing Building Retrofit	\$ 119,960	\$ 8,770	\$ 128,731	\$ 13,300	\$ 105,849	\$ 681	\$ 119,830	\$ 9,773,270	\$ 1,947,389	\$ 11,720,659	\$ 59,958.71	
C2b - C&I Small Business	\$ (346,764)	\$ (21,890)	\$ (368,654)	\$ 4,866,472	\$ 1,216,682	\$ 6,835	\$ 6,089,989	\$ 30,642,818	\$ 6,214,240	\$ 36,857,059	\$ 31,754.22	
C2c - C&I Multifamily Retrofit	\$ 2,067	\$ 187	\$ 2,254	\$ 129,899	\$ 5,147	\$ 13,118	\$ 148,164	\$ 679,188	\$ 90,127	\$ 769,315	\$ 2,021.39	
C2d - C&I Upstream Lighting	\$ (265,153)	\$ (31,249)	\$ (296,402)	\$ (1,225,929)	\$ -	\$ -	\$ (1,225,929)	\$ 11,543,437	\$ 2,448,350	\$ 13,991,787	\$ 9,619.53	
Grand Total	\$ (2,157,105)	\$ (135,585)	\$ (2,292,690)	\$ 35,249,280	\$ 5,529,494	\$ 694,471	\$ 41,473,245	\$ 122,800,584	\$ 19,934,073	\$ 142,734,656	\$ 1,512.02	

Program	2016-2018 Benefits										
	Non-Electric Resource Benefits							Total Resource Benefits (Electric + Non-Electric)	Non-Electric, Non-Resource Benefits	Total Benefits	Resource Benefits per Participant
	Natural Gas Benefits			Other Resource Benefits							
	Natural Gas	Natural Gas DRIPE	Total Gas Benefits	Oil	Propane	Water	Total Other Resource Benefits				
A - Residential	\$ (2,220,360)	\$ (552,884)	\$ (2,773,244)	\$ 54,743,820	\$ 9,461,083	\$ 1,127,648	\$ 65,332,551	\$ 160,011,148	\$ 23,576,944	\$ 183,588,092	\$ 485.86
A1 - Residential Whole House	\$ 1,213,464	\$ 103,091	\$ 1,316,555	\$ 59,664,645	\$ 10,179,316	\$ 1,066,800	\$ 70,910,761	\$ 116,299,255	\$ 20,324,423	\$ 136,623,677	\$ 8,150
A1a - Residential New Construction	\$ (47,351)	\$ (14,151)	\$ (61,503)	\$ (22,011)	\$ 1,943,575	\$ -	\$ 1,921,565	\$ 7,745,562	\$ 1,531,829	\$ 9,277,391	\$ 15,491
A1b - Residential Multi-Family Retrofit	\$ 4,586	\$ 575	\$ 5,162	\$ 234,894	\$ 9,212	\$ 35,057	\$ 279,163	\$ 2,205,666	\$ 680,289	\$ 2,885,956	\$ 1,821
A1c - Residential Home Energy Services - Measures	\$ 1,231,909	\$ 114,060	\$ 1,345,968	\$ 59,431,123	\$ 8,220,163	\$ 912,324	\$ 68,563,610	\$ 105,819,793	\$ 18,112,304	\$ 123,932,097	\$ 9,045
A1d - Residential Home Energy Services - RCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A1e - Residential Behavior/Feedback Program	\$ 24,320	\$ 2,607	\$ 26,928	\$ 20,638	\$ 6,365	\$ 119,420	\$ 146,423	\$ 528,234	\$ -	\$ 528,234	\$ 615
A2 - Residential Products	\$ (3,433,824)	\$ (655,975)	\$ (4,089,799)	\$ (4,920,825)	\$ (718,233)	\$ 60,848	\$ (5,578,210)	\$ 43,711,893	\$ 3,252,522	\$ 46,964,415	\$ 139
A2a - Residential Heating & Cooling Equipment	\$ (159,174)	\$ (10,699)	\$ (169,873)	\$ (10,592)	\$ (1,416)	\$ -	\$ (12,008)	\$ 7,162,219	\$ 537,962	\$ 7,700,181	\$ 588
A2b - Residential Consumer Products	\$ 4,008	\$ 646	\$ 4,655	\$ 8,435	\$ 6,937	\$ 60,848	\$ 76,220	\$ 3,250,721	\$ -	\$ 3,250,721	\$ 441
A2c - Residential Lighting	\$ (3,278,658)	\$ (645,923)	\$ (3,924,581)	\$ (4,918,668)	\$ (723,754)	\$ -	\$ (5,642,422)	\$ 33,298,953	\$ 2,714,560	\$ 36,013,513	\$ 113
B - Low-Income	\$ -	\$ -	\$ -	\$ 14,819,475	\$ 1,283,261	\$ 459,209	\$ 16,561,944	\$ 24,488,979	\$ 6,074,497	\$ 30,563,476	\$ 7,146
B1 - Low-Income Whole House	\$ -	\$ -	\$ -	\$ 14,819,475	\$ 1,283,261	\$ 459,209	\$ 16,561,944	\$ 24,488,979	\$ 6,074,497	\$ 30,563,476	\$ 7,146
B1a - Low-Income Single Family Retrofit	\$ -	\$ -	\$ -	\$ 6,748,670	\$ 992,645	\$ 306,023	\$ 8,047,337	\$ 14,188,324	\$ 4,564,135	\$ 18,752,459	\$ 6,289
B1b - Low-Income Multi-Family Retrofit	\$ -	\$ -	\$ -	\$ 8,070,804	\$ 290,616	\$ 153,186	\$ 8,514,607	\$ 10,300,654	\$ 1,510,362	\$ 11,811,016	\$ 8,796
C - Commercial & Industrial	\$ (3,901,993)	\$ (406,791)	\$ (4,308,785)	\$ 4,545,295	\$ 2,103,944	\$ 74,195	\$ 6,723,434	\$ 132,118,859	\$ 25,813,252	\$ 157,932,111	\$ 18,796
C1 - C&I New Construction	\$ (2,456,165)	\$ (171,776)	\$ (2,627,940)	\$ 62,520	\$ -	\$ 14,683	\$ 77,204	\$ 9,997,522	\$ 104,149	\$ 10,101,670	\$ 30,296
C1a - C&I New Buildings & Major Renovations	\$ 4,634	\$ (502)	\$ 4,132	\$ 25,070	\$ -	\$ 14,683	\$ 39,753	\$ 4,144,677	\$ 104,149	\$ 4,248,826	\$ 32,894
C1b - C&I Initial Purchase & End of Useful Life	\$ (2,460,799)	\$ (171,274)	\$ (2,632,073)	\$ 37,451	\$ -	\$ -	\$ 37,451	\$ 5,852,845	\$ -	\$ 5,852,845	\$ 28,690
C2 - C&I Retrofit	\$ (1,445,829)	\$ (235,015)	\$ (1,680,844)	\$ 4,482,775	\$ 2,103,944	\$ 59,512	\$ 6,646,230	\$ 122,121,337	\$ 25,709,104	\$ 147,830,441	\$ 18,230
C2a - C&I Existing Building Retrofit	\$ 218,129	\$ 19,381	\$ 237,510	\$ 329,615	\$ 233,788	\$ 15,077	\$ 578,479	\$ 27,565,637	\$ 7,086,513	\$ 34,652,151	\$ 46,485
C2b - C&I Small Business	\$ (914,756)	\$ (90,956)	\$ (1,005,711)	\$ 7,323,414	\$ 1,859,916	\$ 18,657	\$ 9,201,987	\$ 58,282,168	\$ 11,527,257	\$ 69,809,426	\$ 30,292
C2c - C&I Multifamily Retrofit	\$ 4,040	\$ 466	\$ 4,506	\$ 253,853	\$ 10,240	\$ 25,778	\$ 289,871	\$ 1,383,918	\$ 184,833	\$ 1,568,751	\$ 2,035
C2d - C&I Upstream Lighting	\$ (753,241)	\$ (163,907)	\$ (917,148)	\$ (3,424,107)	\$ -	\$ -	\$ (3,424,107)	\$ 34,889,613	\$ 6,910,500	\$ 41,800,113	\$ 9,963
Grand Total	\$ (6,122,353)	\$ (959,675)	\$ (7,082,028)	\$ 74,108,590	\$ 12,848,287	\$ 1,661,052	\$ 88,617,929	\$ 316,618,986	\$ 55,464,693	\$ 372,083,679	\$ 932

Cost-Effectiveness, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
May 1, 2017

2016 Planned Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.26	33,533,307	60,058,844	21,642,293	-	4,883,243	26,525,537
A1 - Residential Whole House	2.39	26,655,209	45,800,226	15,957,371	-	3,187,646	19,145,017
A1a - Residential New Construction	4.21	2,243,318	2,942,867	450,955	-	248,594	699,549
A1b - Residential Multi-Family Retrofit	1.25	191,690	950,225	748,556	-	9,978	758,535
A1c - Residential Home Energy Services - Measures	2.66	25,979,773	41,662,094	12,753,248	-	2,929,074	15,682,322
A1d - Residential Home Energy Services - RCS	0.00	(1,680,762)	-	1,680,762	-	-	1,680,762
A1e - Residential Behavior/Feedback Program	0.76	(78,810)	245,040	323,850	-	-	323,850
A2 - Residential Products	2.40	8,325,457	14,258,618	4,237,564	-	1,695,597	5,933,161
A2a - Residential Heating & Cooling Equipment	0.99	(32,995)	2,530,518	1,733,864	-	829,649	2,563,513
A2b - Residential Consumer Products	2.14	553,178	1,038,255	378,068	-	107,010	485,077
A2c - Residential Lighting	3.71	7,805,274	10,689,845	2,125,632	-	758,939	2,884,571
A3 - Residential Hard-to-Measure	0.00	(1,447,359)	-	1,447,359	-	-	1,447,359
B - Low-Income	2.42	5,726,801	9,767,299	4,040,498	-	-	4,040,498
B1 - Low-Income Whole House	2.48	5,829,020	9,767,299	3,938,279	-	-	3,938,279
B1a - Low-Income Single Family Retrofit	1.97	2,646,184	5,377,221	2,731,037	-	-	2,731,037
B1b - Low-Income Multi-Family Retrofit	3.64	3,182,836	4,390,078	1,207,242	-	-	1,207,242
B2 - Low-Income Hard-to-Measure	0.00	(102,219)	-	102,219	-	-	102,219
C - Commercial & Industrial	2.85	34,810,948	53,598,354	13,162,821	-	5,624,584	18,787,405
C1 - C&I New Construction	2.70	4,229,989	6,723,767	1,679,273	-	814,505	2,493,778
C1a - C&I New Buildings & Major Renovations	1.14	133,980	1,058,180	1,069,334	-	(145,134)	924,200
C1b - C&I Initial Purchase & End of Useful Life	3.61	4,096,010	5,665,587	609,938	-	959,639	1,569,577
C2 - C&I Retrofit	2.94	30,929,955	46,874,587	11,134,552	-	4,810,079	15,944,631
C2a - C&I Existing Building Retrofit	2.26	4,505,616	8,070,409	3,222,186	-	342,607	3,564,793
C2b - C&I Small Business	3.05	13,509,044	20,095,558	5,464,819	-	1,121,696	6,586,515
C2c - C&I Multifamily Retrofit	1.07	52,976	817,318	753,420	-	10,922	764,342
C2d - C&I Upstream Lighting	3.56	12,862,320	17,891,302	1,694,127	-	3,334,855	5,028,982
C3 - C&I Hard-to-Measure	0.00	(348,996)	-	348,996	-	-	348,996
Grand Total	2.50	74,071,056	123,424,497	38,845,613	-	10,507,827	49,353,440

2016 Evaluated Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.54	35,306,645	58,216,153	16,460,438	-	6,449,070	22,909,509
A1 - Residential Whole House	2.40	20,507,587	35,120,160	11,814,665	-	2,797,908	14,612,573
A1a - Residential New Construction	2.72	2,141,574	3,386,684	776,082	-	469,029	1,245,111
A1b - Residential Multi-Family Retrofit	2.31	633,423	1,116,727	531,173	-	(47,869)	483,304
A1c - Residential Home Energy Services - Measures	2.63	18,924,811	30,550,028	9,248,469	-	2,376,748	11,625,217
A1d - Residential Home Energy Services - RCS	0.00	(1,086,549)	-	1,086,549	-	-	1,086,549
A1e - Residential Behavior/Feedback Program	0.39	(105,672)	66,720	172,392	-	-	172,392
A2 - Residential Products	3.16	15,793,731	23,095,993	3,651,100	-	3,651,162	7,302,262
A2a - Residential Heating & Cooling Equipment	1.07	129,274	2,047,924	1,472,942	-	445,708	1,918,650
A2b - Residential Consumer Products	3.28	894,887	1,287,927	315,466	-	77,573	393,039
A2c - Residential Lighting	3.96	14,769,569	19,760,142	1,862,692	-	3,127,881	4,990,573
A3 - Residential Hard-to-Measure	0.00	(994,673)	-	994,673	-	-	994,673
B - Low-Income	2.68	4,783,334	7,632,498	2,849,163	-	-	2,849,163
B1 - Low-Income Whole House	2.76	4,864,558	7,632,498	2,767,940	-	-	2,767,940
B1a - Low-Income Single Family Retrofit	3.28	4,286,027	6,163,272	1,877,245	-	-	1,877,245
B1b - Low-Income Multi-Family Retrofit	1.65	578,531	1,469,226	890,694	-	-	890,694
B2 - Low-Income Hard-to-Measure	0.00	(81,224)	-	81,224	-	-	81,224
C - Commercial & Industrial	2.51	20,034,103	33,259,173	7,943,839	-	5,281,232	13,225,070
C1 - C&I New Construction	2.29	1,713,572	3,042,375	1,169,283	-	159,521	1,328,803
C1a - C&I New Buildings & Major Renovations	1.58	527,655	1,432,722	816,317	-	88,750	905,067
C1b - C&I Initial Purchase & End of Useful Life	3.80	1,185,917	1,609,653	352,965	-	70,771	423,736
C2 - C&I Retrofit	2.58	18,489,984	30,216,798	6,605,103	-	5,121,711	11,726,814
C2a - C&I Existing Building Retrofit	2.46	7,313,286	12,328,934	2,850,166	-	2,165,481	5,015,648
C2b - C&I Small Business	2.01	2,919,367	5,804,707	2,442,122	-	443,217	2,885,340
C2c - C&I Multifamily Retrofit	0.28	(143,853)	56,972	205,948	-	(5,122)	200,825
C2d - C&I Upstream Lighting	3.32	8,401,184	12,026,185	1,106,866	-	2,518,135	3,625,001
C3 - C&I Hard-to-Measure	0.00	(169,453)	-	169,453	-	-	169,453
Grand Total	2.54	60,124,082	99,107,824	27,253,441	-	11,730,302	38,983,742

Cost-Effectiveness, Plan-Year Summary
2016 Planned vs. Evaluated
Cape Light Compact
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2016 Planned v. Evaluated Total Resource Cost Test (2016\$) Variances (%)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	12%	5%	-3%	-24%		32%	-14%
A1 - Residential Whole House	0%	-23%	-23%	-26%		-12%	-24%
A1a - Residential New Construction	-35%	-5%	15%	72%		89%	78%
A1b - Residential Multi-Family Retrofit	84%	230%	18%	-29%		-580%	-36%
A1c - Residential Home Energy Services - Measures	-1%	-27%	-27%	-27%		-19%	-26%
A1d - Residential Home Energy Services - RCS		-35%		-35%			-35%
A1e - Residential Behavior/Feedback Program	-49%	34%	-73%	-47%			-47%
A2 - Residential Products	32%	90%	62%	-14%		115%	23%
A2a - Residential Heating & Cooling Equipment	8%	-492%	-19%	-15%		-46%	-25%
A2b - Residential Consumer Products	53%	62%	24%	-17%		-28%	-19%
A2c - Residential Lighting	7%	89%	85%	-12%		312%	73%
A3 - Residential Hard-to-Measure		-31%		-31%			-31%
B - Low-Income	11%	-16%	-22%	-29%			-29%
B1 - Low-Income Whole House	11%	-17%	-22%	-30%			-30%
B1a - Low-Income Single Family Retrofit	67%	62%	15%	-31%			-31%
B1b - Low-Income Multi-Family Retrofit	-55%	-82%	-67%	-26%			-26%
B2 - Low-Income Hard-to-Measure		-21%		-21%			-21%
C - Commercial & Industrial	-12%	-42%	-38%	-40%		-6%	-30%
C1 - C&I New Construction	-15%	-59%	-55%	-30%		-80%	-47%
C1a - C&I New Buildings & Major Renovations	38%	294%	35%	-24%		-161%	-2%
C1b - C&I Initial Purchase & End of Useful Life	5%	-71%	-72%	-42%		-93%	-73%
C2 - C&I Retrofit	-12%	-40%	-36%	-41%		6%	-26%
C2a - C&I Existing Building Retrofit	9%	62%	53%	-12%		532%	41%
C2b - C&I Small Business	-34%	-78%	-71%	-55%		-60%	-56%
C2c - C&I Multifamily Retrofit	-73%	-372%	-93%	-73%		-147%	-74%
C2d - C&I Upstream Lighting	-7%	-35%	-33%	-35%		-24%	-28%
C3 - C&I Hard-to-Measure		-51%		-51%			-51%
Grand Total	2%	-19%	-20%	-30%		12%	-21%

Notes

- The Green Communities Act requires that energy efficiency programs be cost-effective. G.L. c. 25, §§ 21(a), 21(b)(3). If a core initiative is not cost-effective, the Program Administrator has provided an explanation in its report filing.
- The plan year variances provided above are intended to indicate the Program Administrator's performance in the plan year only. The variances used to determine significant variances are provided separately. The variances above and the significant variances use different calculations to determine variances on an annual basis and over the three-year term, respectively.

Cost-Effectiveness, Three-Year Total
2016-2018 Total Resource Cost Test (2016\$)
Cape Light Compact
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2016 Evaluated Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.54	35,306,645	58,216,153	16,460,438	-	6,449,070	22,909,509
A1 - Residential Whole House	2.40	20,507,587	35,120,160	11,814,665	-	2,797,908	14,612,573
A1a - Residential New Construction	2.72	2,141,574	3,386,684	776,082	-	469,029	1,245,111
A1b - Residential Multi-Family Retrofit	2.31	633,423	1,116,727	531,173	-	(47,869)	483,304
A1c - Residential Home Energy Services - Measures	2.63	18,924,811	30,550,028	9,248,469	-	2,376,748	11,625,217
A1d - Residential Home Energy Services - RCS	0.00	(1,086,549)	-	1,086,549	-	-	1,086,549
A1e - Residential Behavior/Feedback Program	0.39	(105,672)	66,720	172,392	-	-	172,392
A2 - Residential Products	3.16	15,793,731	23,095,993	3,651,100	-	3,651,162	7,302,262
A2a - Residential Heating & Cooling Equipment	1.07	129,274	2,047,924	1,472,942	-	445,708	1,918,650
A2b - Residential Consumer Products	3.28	894,887	1,287,927	315,466	-	77,573	393,039
A2c - Residential Lighting	3.96	14,769,569	19,760,142	1,862,692	-	3,127,881	4,990,573
A3 - Residential Hard-to-Measure	0.00	(994,673)	-	994,673	-	-	994,673
B - Low-Income	2.68	4,783,334	7,632,498	2,849,163	-	-	2,849,163
B1 - Low-Income Whole House	2.76	4,864,558	7,632,498	2,767,940	-	-	2,767,940
B1a - Low-Income Single Family Retrofit	3.28	4,286,027	6,163,272	1,877,245	-	-	1,877,245
B1b - Low-Income Multi-Family Retrofit	1.65	578,531	1,469,226	890,694	-	-	890,694
B2 - Low-Income Hard-to-Measure	0.00	(81,224)	-	81,224	-	-	81,224
C - Commercial & Industrial	2.51	20,034,103	33,259,173	7,943,839	-	5,281,232	13,225,070
C1 - C&I New Construction	2.29	1,713,572	3,042,375	1,169,283	-	159,521	1,328,803
C1a - C&I New Buildings & Major Renovations	1.58	527,655	1,432,722	816,317	-	88,750	905,067
C1b - C&I Initial Purchase & End of Useful Life	3.80	1,185,917	1,609,653	352,965	-	70,771	423,736
C2 - C&I Retrofit	2.58	18,489,984	30,216,798	6,605,103	-	5,121,711	11,726,814
C2a - C&I Existing Building Retrofit	2.46	7,313,286	12,328,934	2,850,166	-	2,165,481	5,015,648
C2b - C&I Small Business	2.01	2,919,367	5,804,707	2,442,122	-	443,217	2,885,340
C2c - C&I Multifamily Retrofit	0.28	(143,853)	56,972	205,948	-	(5,122)	200,825
C2d - C&I Upstream Lighting	3.32	8,401,184	12,026,185	1,106,866	-	2,518,135	3,625,001
C3 - C&I Hard-to-Measure	0.00	(169,453)	-	169,453	-	-	169,453
Grand Total	2.54	60,124,082	99,107,824	27,253,441	-	11,730,302	38,983,742

2017 Planned Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.31	34,956,584	61,650,073	21,999,558	-	4,693,931	26,693,489
A1 - Residential Whole House	2.49	29,404,556	49,098,091	16,423,806	-	3,269,729	19,693,535
A1a - Residential New Construction	4.21	2,147,010	2,816,632	437,843	-	231,779	669,623
A1b - Residential Multi-Family Retrofit	1.16	117,526	866,759	732,319	-	16,915	749,233
A1c - Residential Home Energy Services - Measures	2.78	28,923,423	45,178,204	13,233,746	-	3,021,035	16,254,781
A1d - Residential Home Energy Services - RCS	0.00	(1,701,862)	-	1,701,862	-	-	1,701,862
A1e - Residential Behavior/Feedback Program	0.74	(81,541)	236,496	318,037	-	-	318,037
A2 - Residential Products	2.27	7,026,469	12,551,983	4,101,311	-	1,424,202	5,525,513
A2a - Residential Heating & Cooling Equipment	1.01	25,742	2,717,001	1,875,821	-	815,437	2,691,258
A2b - Residential Consumer Products	2.13	546,410	1,030,545	376,850	-	107,284	484,134
A2c - Residential Lighting	3.75	6,454,317	8,804,437	1,848,640	-	501,481	2,350,121
A3 - Residential Hard-to-Measure	0.00	(1,474,441)	-	1,474,441	-	-	1,474,441
B - Low-Income	2.55	6,733,882	11,084,297	4,350,415	-	-	4,350,415
B1 - Low-Income Whole House	2.61	6,838,086	11,084,297	4,246,211	-	-	4,246,211
B1a - Low-Income Single Family Retrofit	2.04	2,986,859	5,870,457	2,883,598	-	-	2,883,598
B1b - Low-Income Multi-Family Retrofit	3.83	3,851,227	5,213,840	1,362,614	-	-	1,362,614
B2 - Low-Income Hard-to-Measure	0.00	(104,204)	-	104,204	-	-	104,204
C - Commercial & Industrial	2.89	37,640,924	57,506,827	14,840,005	-	5,025,898	19,865,903
C1 - C&I New Construction	2.10	1,693,865	3,232,003	1,334,138	-	204,001	1,538,139
C1a - C&I New Buildings & Major Renovations	1.46	406,679	1,291,476	1,026,778	-	(141,981)	884,797
C1b - C&I Initial Purchase & End of Useful Life	2.97	1,287,186	1,940,527	307,360	-	345,982	653,341
C2 - C&I Retrofit	3.01	36,270,848	54,274,824	13,182,079	-	4,821,897	18,003,976
C2a - C&I Existing Building Retrofit	2.60	6,521,901	10,602,558	3,599,584	-	481,073	4,080,657
C2b - C&I Small Business	3.15	18,530,784	27,147,660	7,225,226	-	1,391,650	8,616,876
C2c - C&I Multifamily Retrofit	0.99	(5,775)	742,465	731,633	-	16,607	748,240
C2d - C&I Upstream Lighting	3.46	11,223,938	15,782,141	1,625,636	-	2,932,567	4,558,203
C3 - C&I Hard-to-Measure	0.00	(323,789)	-	323,789	-	-	323,789
Grand Total	2.56	79,331,391	130,241,198	41,189,978	-	9,719,829	50,909,807

Cost-Effectiveness, Three-Year Total
2016-2018 Total Resource Cost Test (2016\$)
Cape Light Compact
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2018 Planned Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.35	36,582,215	63,721,865	22,528,180	-	4,611,470	27,139,650
A1 - Residential Whole House	2.57	32,019,934	52,405,426	17,013,098	-	3,372,394	20,385,492
A1a - Residential New Construction	4.43	2,379,507	3,074,075	460,735	-	233,832	694,568
A1b - Residential Multi-Family Retrofit	1.13	102,528	902,469	779,206	-	20,736	799,941
A1c - Residential Home Energy Services - Measures	2.86	31,361,508	48,203,864	13,724,530	-	3,117,826	16,842,356
A1d - Residential Home Energy Services - RCS	0.00	(1,734,933)	-	1,734,933	-	-	1,734,933
A1e - Residential Behavior/Feedback Program	0.72	(88,677)	225,018	313,694	-	-	313,694
A2 - Residential Products	2.15	6,064,309	11,316,439	4,013,054	-	1,239,077	5,252,130
A2a - Residential Heating & Cooling Equipment	1.04	102,467	2,935,257	2,030,449	-	802,340	2,832,789
A2b - Residential Consumer Products	2.19	507,116	932,249	332,966	-	92,168	425,134
A2c - Residential Lighting	3.74	5,454,726	7,448,933	1,649,639	-	344,568	1,994,207
A3 - Residential Hard-to-Measure	0.00	(1,502,028)	-	1,502,028	-	-	1,502,028
B - Low-Income	2.51	7,124,264	11,846,681	4,722,416	-	-	4,722,416
B1 - Low-Income Whole House	2.57	7,230,817	11,846,681	4,615,864	-	-	4,615,864
B1a - Low-Income Single Family Retrofit	2.10	3,514,687	6,718,730	3,204,043	-	-	3,204,043
B1b - Low-Income Multi-Family Retrofit	3.63	3,716,130	5,127,950	1,411,821	-	-	1,411,821
B2 - Low-Income Hard-to-Measure	0.00	(106,552)	-	106,552	-	-	106,552
C - Commercial & Industrial	3.09	45,418,716	67,166,111	16,726,264	-	5,021,131	21,747,394
C1 - C&I New Construction	2.60	2,357,762	3,827,292	1,288,679	-	180,851	1,469,530
C1a - C&I New Buildings & Major Renovations	1.78	669,779	1,524,627	993,312	-	(138,464)	854,848
C1b - C&I Initial Purchase & End of Useful Life	3.75	1,687,983	2,302,665	295,367	-	319,315	614,682
C2 - C&I Retrofit	3.17	43,379,759	63,338,819	15,118,779	-	4,840,280	19,959,059
C2a - C&I Existing Building Retrofit	2.76	7,475,743	11,720,659	3,692,150	-	552,766	4,244,916
C2b - C&I Small Business	3.41	26,056,301	36,857,059	9,081,088	-	1,719,670	10,800,758
C2c - C&I Multifamily Retrofit	0.97	(24,778)	769,315	774,412	-	19,680	794,093
C2d - C&I Upstream Lighting	3.40	9,872,493	13,991,787	1,571,130	-	2,548,164	4,119,293
C3 - C&I Hard-to-Measure	0.00	(318,805)	-	318,805	-	-	318,805
Grand Total	2.66	89,125,196	142,734,656	43,976,860	-	9,632,601	53,609,461

2016-2018 Total Resource Cost Test (2016\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.39	106,845,444	183,588,092	60,988,176	-	15,754,472	76,742,648
A1 - Residential Whole House	2.50	81,932,077	136,623,677	45,251,569	-	9,440,031	54,691,600
A1a - Residential New Construction	3.56	6,668,090	9,277,391	1,674,660	-	934,641	2,609,301
A1b - Residential Multi-Family Retrofit	1.42	853,477	2,885,956	2,042,697	-	(10,219)	2,032,479
A1c - Residential Home Energy Services - Measures	2.77	79,209,743	123,932,097	36,206,745	-	8,515,609	44,722,354
A1d - Residential Home Energy Services - RCS	0.00	(4,523,343)	-	4,523,343	-	-	4,523,343
A1e - Residential Behavior/Feedback Program	0.66	(275,890)	528,234	804,123	-	-	804,123
A2 - Residential Products	2.60	28,884,509	46,964,415	11,765,465	-	6,314,441	18,079,906
A2a - Residential Heating & Cooling Equipment	1.03	257,484	7,700,181	5,379,212	-	2,063,485	7,442,697
A2b - Residential Consumer Products	2.50	1,948,414	3,250,721	1,025,282	-	277,025	1,302,307
A2c - Residential Lighting	3.86	26,678,612	36,013,513	5,360,971	-	3,973,930	9,334,901
A3 - Residential Hard-to-Measure	0.00	(3,971,142)	-	3,971,142	-	-	3,971,142
B - Low-Income	2.56	18,641,481	30,563,476	11,921,995	-	-	11,921,995
B1 - Low-Income Whole House	2.63	18,933,460	30,563,476	11,630,015	-	-	11,630,015
B1a - Low-Income Single Family Retrofit	2.35	10,787,573	18,752,459	7,964,887	-	-	7,964,887
B1b - Low-Income Multi-Family Retrofit	3.22	8,145,888	11,811,016	3,665,129	-	-	3,665,129
B2 - Low-Income Hard-to-Measure	0.00	(291,979)	-	291,979	-	-	291,979
C - Commercial & Industrial	2.88	103,093,744	157,932,111	39,510,107	-	15,328,260	54,838,368
C1 - C&I New Construction	2.33	5,765,199	10,101,670	3,792,100	-	544,372	4,336,472
C1a - C&I New Buildings & Major Renovations	1.61	1,604,113	4,248,826	2,836,408	-	(191,695)	2,644,712
C1b - C&I Initial Purchase & End of Useful Life	3.46	4,161,085	5,852,845	955,692	-	736,067	1,691,760
C2 - C&I Retrofit	2.98	98,140,592	147,830,441	34,905,961	-	14,783,888	49,689,849
C2a - C&I Existing Building Retrofit	2.60	21,310,931	34,652,151	10,141,900	-	3,199,320	13,341,220
C2b - C&I Small Business	3.13	47,506,452	69,809,426	18,748,436	-	3,554,537	22,302,974
C2c - C&I Multifamily Retrofit	0.90	(174,407)	1,568,751	1,711,993	-	31,165	1,743,158
C2d - C&I Upstream Lighting	3.40	29,497,615	41,800,113	4,303,632	-	7,998,866	12,302,498
C3 - C&I Hard-to-Measure	0.00	(812,047)	-	812,047	-	-	812,047
Grand Total	2.59	228,580,669	372,083,679	112,420,278	-	31,082,732	143,503,010

Notes

• The Green Communities Act requires that energy efficiency programs be cost-effective. G.L. c. 25, §§ 21(a), 21(b)(3). If a core initiative is not cost-effective, the Program Administrator has provided an explanation in its report filing.

Core Initiatives, Plan-Year Summary

Residential Programs

Cape Light Compact

May 1, 2017

A1 - Residential Whole, 2016 Summary							
A1a - Residential New Construction							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	603	1,486	1,012	146%	68%	-32%
Lifetime Energy	MWh	11,845	22,778	10,048	92%	-15%	-56%
Annual Natural Gas	Therms	121	(8,511)	(10,538)	-7157%	-8838%	24%
Lifetime Natural Gas	Therms	1,809	(76,441)	(63,188)	-4326%	-3593%	-17%
Total Benefits	2016\$	2,942,867	6,553,422	3,386,684	123%	15%	-48%
Total Program Costs	nominal\$	450,955	776,082	776,082	72%	72%	0%
Total Resource Costs	2016\$	699,549	1,245,111	1,245,111	78%	78%	0%
Benefit Cost Ratio	B/C	4.21	5.26	2.72	25%	-35%	-48%

A1b - Residential Multi-Family Retrofit							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	387	457	571	18%	48%	25%
Lifetime Energy	MWh	5,711	5,882	7,669	3%	34%	30%
Annual Natural Gas	Therms	281	119	118	-58%	-58%	-1%
Lifetime Natural Gas	Therms	2,260	1,334	1,305	-41%	-42%	-2%
Total Benefits	2016\$	950,225	937,188	1,116,727	-1%	18%	19%
Total Program Costs	nominal\$	748,556	531,173	531,173	-29%	-29%	0%
Total Resource Costs	2016\$	758,535	483,304	483,304	-36%	-36%	0%
Benefit Cost Ratio	B/C	1.25	1.94	2.31	55%	84%	19%

A1c - Residential Home Energy Services - Measures							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	6,915	8,703	7,825	26%	13%	-10%
Lifetime Energy	MWh	71,722	90,291	76,835	26%	7%	-15%
Annual Natural Gas	Therms	1,812	66,194	66,194	3553%	3553%	0%
Lifetime Natural Gas	Therms	14,604	1,403,454	1,403,454	9510%	9510%	0%
Total Benefits	2016\$	41,662,094	32,479,353	30,550,028	-22%	-27%	-6%
Total Program Costs	nominal\$	12,753,248	9,248,469	9,248,469	-27%	-27%	0%
Total Resource Costs	2016\$	15,682,322	11,625,217	11,625,217	-26%	-26%	0%
Benefit Cost Ratio	B/C	2.66	2.79	2.63	5%	-1%	-6%

A1e - Residential Behavior/Feedback Program							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	179	43	44	-76%	-75%	2%
Lifetime Energy	MWh	1,220	304	308	-75%	-75%	2%
Annual Natural Gas	Therms	1,268	594	594	-53%	-53%	0%
Lifetime Natural Gas	Therms	12,675	4,158	4,158	-67%	-67%	0%
Total Benefits	2016\$	245,040	66,297	66,720	-73%	-73%	1%
Total Program Costs	nominal\$	323,850	172,392	172,392	-47%	-47%	0%
Total Resource Costs	2016\$	323,850	172,392	172,392	-47%	-47%	0%
Benefit Cost Ratio	B/C	0.76	0.38	0.39	-49%	-49%	1%

Notes

- The plan year variances provided above are intended to indicate the Program Administrator's performance in the plan year only. The variances used to determine significant variances are provided separately. The variances above and the significant variances use different calculations to determine variances on an annual basis and over the three-year term, respectively.

A2 - Residential Products, 2016 Summary							
A2a - Residential Heating & Cooling Equipment							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	1,347	1,025	939	-24%	-30%	-8%
Lifetime Energy	MWh	19,120	16,138	14,598	-16%	-24%	-10%
Annual Natural Gas	Therms	(4,082)	(2,088)	(2,198)	-49%	-46%	5%
Lifetime Natural Gas	Therms	(73,483)	(37,581)	(38,681)	-49%	-47%	3%
Total Benefits	2016\$	2,530,518	2,134,710	2,047,924	-16%	-19%	-4%
Total Program Costs	nominal\$	1,733,864	1,472,942	1,472,942	-15%	-15%	0%
Total Resource Costs	2016\$	2,563,513	1,918,650	1,918,650	-25%	-25%	0%
Benefit Cost Ratio	B/C	0.99	1.11	1.07	13%	8%	-4%

A2b - Residential Consumer Products							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	829	894	894	8%	8%	0%
Lifetime Energy	MWh	7,075	8,639	8,639	22%	22%	0%
Annual Natural Gas	Therms	222	262	262	18%	18%	0%
Lifetime Natural Gas	Therms	1,554	1,835	1,835	18%	18%	0%
Total Benefits	2016\$	1,038,255	1,287,927	1,287,927	24%	24%	0%
Total Program Costs	nominal\$	378,068	315,466	315,466	-17%	-17%	0%
Total Resource Costs	2016\$	485,077	393,039	393,039	-19%	-19%	0%
Benefit Cost Ratio	B/C	2.14	3.28	3.28	53%	53%	0%

A2c - Residential Lighting							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	10,842	26,483	28,906	144%	167%	9%
Lifetime Energy	MWh	96,762	182,199	170,287	88%	76%	-7%
Annual Natural Gas	Therms	(121,647)	(301,924)	(380,964)	148%	213%	26%
Lifetime Natural Gas	Therms	(1,085,672)	(2,076,432)	(2,244,251)	91%	107%	8%
Total Benefits	2016\$	10,689,845	20,049,541	19,760,142	88%	85%	-1%
Total Program Costs	nominal\$	2,125,632	1,862,692	1,862,692	-12%	-12%	0%
Total Resource Costs	2016\$	2,884,571	4,990,573	4,990,573	73%	73%	0%
Benefit Cost Ratio	B/C	3.71	4.02	3.96	8%	7%	-1%

Core Initiatives, Plan-Year Summary

Low-Income Programs

Cape Light Compact

May 1, 2017

B1 - Low-Income Whole House, 2016 Summary							
B1a - Low-Income Single Family Retrofit							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	1,282	1,450	1,316	13%	3%	-9%
Lifetime Energy	MWh	12,387	14,279	11,767	15%	-5%	-18%
Annual Natural Gas	Therms	-	-	-			
Lifetime Natural Gas	Therms	-	-	-			
Total Benefits	2016\$	5,377,221	5,039,913	6,163,272	-6%	15%	22%
Total Program Costs	nominal\$	2,731,037	1,877,245	1,877,245	-31%	-31%	0%
Total Resource Costs	2016\$	2,731,037	1,877,245	1,877,245	-31%	-31%	0%
Benefit Cost Ratio	B/C	1.97	2.68	3.28	36%	67%	22%

B1b - Low-Income Multi-Family Retrofit							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	358	396	352	11%	-2%	-11%
Lifetime Energy	MWh	4,320	3,481	2,900	-19%	-33%	-17%
Annual Natural Gas	Therms	-	-	-			
Lifetime Natural Gas	Therms	-	-	-			
Total Benefits	2016\$	4,390,078	1,490,910	1,469,226	-66%	-67%	-1%
Total Program Costs	nominal\$	1,207,242	890,694	890,694	-26%	-26%	0%
Total Resource Costs	2016\$	1,207,242	890,694	890,694	-26%	-26%	0%
Benefit Cost Ratio	B/C	3.64	1.67	1.65	-54%	-55%	-1%

Notes

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Core Initiatives, Plan-Year Summary

C&I Programs

Cape Light Compact
May 1, 2017

C1 - C&I New Construction, 2016 Summary							
C1a - C&I New Buildings & Major Renovations							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	433	673	673	56%	56%	0%
Lifetime Energy	MWh	6,610	10,110	10,110	53%	53%	0%
Annual Natural Gas	Therms	644	(1,046)	(1,046)	-262%	-262%	0%
Lifetime Natural Gas	Therms	10,064	(15,426)	(15,426)	-253%	-253%	0%
Total Benefits	2016\$	1,058,180	1,328,574	1,432,722	26%	35%	8%
Total Program Costs	nominal\$	1,069,334	816,317	816,317	-24%	-24%	0%
Total Resource Costs	2016\$	924,200	905,067	905,067	-2%	-2%	0%
Benefit Cost Ratio	B/C	1.14	1.47	1.58	28%	38%	8%

C1b - C&I Initial Purchase & End of Useful Life							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	3,045	862	856	-72%	-72%	-1%
Lifetime Energy	MWh	60,532	12,867	12,790	-79%	-79%	-1%
Annual Natural Gas	Therms	(153,876)	(19,577)	(19,577)	-87%	-87%	0%
Lifetime Natural Gas	Therms	(3,077,514)	(293,659)	(293,659)	-90%	-90%	0%
Total Benefits	2016\$	5,665,587	1,635,849	1,609,653	-71%	-72%	-2%
Total Program Costs	nominal\$	609,938	352,965	352,965	-42%	-42%	0%
Total Resource Costs	2016\$	1,569,577	423,736	423,736	-73%	-73%	0%
Benefit Cost Ratio	B/C	3.61	3.86	3.80	7%	5%	-2%

Notes

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C2 - C&I Retrofit, 2016 Summary							
C2a - C&I Existing Building Retrofit							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	3,917	5,338	5,338	36%	36%	0%
Lifetime Energy	MWh	44,426	70,925	70,925	60%	60%	0%
Annual Natural Gas	Therms	14,232	(1,960)	(1,960)	-114%	-114%	0%
Lifetime Natural Gas	Therms	96,741	(26,525)	(26,525)	-127%	-127%	0%
Total Benefits	2016\$	8,070,409	12,327,753	12,328,934	53%	53%	0%
Total Program Costs	nominal\$	3,222,186	2,850,166	2,850,166	-12%	-12%	0%
Total Resource Costs	2016\$	3,564,793	5,015,648	5,015,648	41%	41%	0%
Benefit Cost Ratio	B/C	2.26	2.46	2.46	9%	9%	0%

C2b - C&I Small Business							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	7,556	2,694	2,694	-64%	-64%	0%
Lifetime Energy	MWh	97,761	34,221	34,221	-65%	-65%	0%
Annual Natural Gas	Therms	(27,978)	(23,917)	(23,917)	-15%	-15%	0%
Lifetime Natural Gas	Therms	(364,347)	(321,198)	(321,198)	-12%	-12%	0%
Total Benefits	2016\$	20,095,558	5,804,734	5,804,707	-71%	-71%	0%
Total Program Costs	nominal\$	5,464,819	2,442,122	2,442,122	-55%	-55%	0%
Total Resource Costs	2016\$	6,586,515	2,885,340	2,885,340	-56%	-56%	0%
Benefit Cost Ratio	B/C	3.05	2.01	2.01	-34%	-34%	0%

C2c - C&I Multifamily Retrofit							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	387	54	48	-86%	-88%	-12%
Lifetime Energy	MWh	5,734	548	462	-90%	-92%	-16%
Annual Natural Gas	Therms	290	-	-	-100%	-100%	
Lifetime Natural Gas	Therms	2,858	-	-	-100%	-100%	
Total Benefits	2016\$	817,318	71,823	56,972	-91%	-93%	-21%
Total Program Costs	nominal\$	753,420	205,948	205,948	-73%	-73%	0%
Total Resource Costs	2016\$	764,342	200,825	200,825	-74%	-74%	0%
Benefit Cost Ratio	B/C	1.07	0.36	0.28	-67%	-73%	-21%

C2d - C&I Upstream Lighting							
Metric	Units	Planned	Preliminary	Evaluated	Plan v Preliminary	Plan v Evaluated	Preliminary v Evaluated
Annual Energy	MWh	21,395	14,140	14,140	-34%	-34%	0%
Lifetime Energy	MWh	107,517	74,331	74,331	-31%	-31%	0%
Annual Natural Gas	Therms	(81,300)	(53,661)	(53,661)	-34%	-34%	0%
Lifetime Natural Gas	Therms	(408,564)	(281,768)	(281,768)	-31%	-31%	0%
Total Benefits	2016\$	17,891,302	12,046,640	12,026,185	-33%	-33%	0%
Total Program Costs	nominal\$	1,694,127	1,106,866	1,106,866	-35%	-35%	0%
Total Resource Costs	2016\$	5,028,982	3,625,001	3,625,001	-28%	-28%	0%
Benefit Cost Ratio	B/C	3.56	3.32	3.32	-7%	-7%	0%

Core Initiatives, Three-Year Total

Residential Programs

Cape Light Compact
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A1 - Residential Whole, 2016-2018 Summary					
A1a - Residential New Construction					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	1,012	540	618	2,170
Lifetime Energy	MWh	10,048	10,994	12,767	33,809
Annual Natural Gas	Therms	(10,538)	112	115	(10,311)
Lifetime Natural Gas	Therms	(63,188)	1,674	1,728	(59,786)
Total Benefits	2016\$	3,386,684	2,816,632	3,074,075	9,277,391
Total Program Costs	nominal\$	776,082	448,964	484,438	1,709,484
Total Resource Costs	2016\$	1,245,111	669,623	694,568	2,609,301
Benefit Cost Ratio	B/C	2.72	4.21	4.43	3.56

A1b - Residential Multi-Family Retrofit					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	571	345	354	1,270
Lifetime Energy	MWh	7,669	5,024	5,181	17,875
Annual Natural Gas	Therms	118	281	290	689
Lifetime Natural Gas	Therms	1,305	2,260	2,328	5,893
Total Benefits	2016\$	1,116,727	866,759	902,469	2,885,956
Total Program Costs	nominal\$	531,173	750,920	819,292	2,101,385
Total Resource Costs	2016\$	483,304	749,233	799,941	2,032,479
Benefit Cost Ratio	B/C	2.31	1.16	1.13	1.42

A1c - Residential Home Energy Services - Measures					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	7,825	7,023	6,970	21,818
Lifetime Energy	MWh	76,835	74,266	76,240	227,341
Annual Natural Gas	Therms	66,194	1,812	1,812	69,818
Lifetime Natural Gas	Therms	1,403,454	14,604	14,604	1,432,662
Total Benefits	2016\$	30,550,028	45,178,204	48,203,864	123,932,097
Total Program Costs	nominal\$	9,248,469	13,569,883	14,430,591	37,248,943
Total Resource Costs	2016\$	11,625,217	16,254,781	16,842,356	44,722,354
Benefit Cost Ratio	B/C	2.63	2.78	2.86	2.77

A1e - Residential Behavior/Feedback Program					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	44	184	187	415
Lifetime Energy	MWh	308	1,184	1,133	2,625
Annual Natural Gas	Therms	594	1,268	1,268	3,129
Lifetime Natural Gas	Therms	4,158	12,675	12,675	29,508
Total Benefits	2016\$	66,720	236,496	225,018	528,234
Total Program Costs	nominal\$	172,392	326,115	329,832	828,340
Total Resource Costs	2016\$	172,392	318,037	313,694	804,123
Benefit Cost Ratio	B/C	0.39	0.74	0.72	0.66

A2 - Residential Products, 2016-2018 Summary					
A2a - Residential Heating & Cooling Equipment					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	939	1,426	1,511	3,877
Lifetime Energy	MWh	14,598	20,543	22,036	57,177
Annual Natural Gas	Therms	(2,198)	(4,082)	(4,082)	(10,363)
Lifetime Natural Gas	Therms	(38,681)	(73,483)	(73,483)	(185,648)
Total Benefits	2016\$	2,047,924	2,717,001	2,935,257	7,700,181
Total Program Costs	nominal\$	1,472,942	1,923,467	2,134,905	5,531,314
Total Resource Costs	2016\$	1,918,650	2,691,258	2,832,789	7,442,697
Benefit Cost Ratio	B/C	1.07	1.01	1.04	1.03

A2b - Residential Consumer Products					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	894	849	771	2,513
Lifetime Energy	MWh	8,639	7,173	6,463	22,275
Annual Natural Gas	Therms	262	222	222	706
Lifetime Natural Gas	Therms	1,835	1,554	1,554	4,943
Total Benefits	2016\$	1,287,927	1,030,545	932,249	3,250,721
Total Program Costs	nominal\$	315,466	386,422	350,095	1,051,983
Total Resource Costs	2016\$	393,039	484,134	425,134	1,302,307
Benefit Cost Ratio	B/C	3.28	2.13	2.19	2.50

A2c - Residential Lighting					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	28,906	8,554	6,801	44,261
Lifetime Energy	MWh	170,287	82,562	71,302	324,152
Annual Natural Gas	Therms	(380,964)	(95,971)	(84,316)	(561,251)
Lifetime Natural Gas	Therms	(2,244,251)	(926,346)	(854,230)	(4,024,827)
Total Benefits	2016\$	19,760,142	8,804,437	7,448,933	36,013,513
Total Program Costs	nominal\$	1,862,692	1,895,596	1,734,505	5,492,793
Total Resource Costs	2016\$	4,990,573	2,350,121	1,994,207	9,334,901
Benefit Cost Ratio	B/C	3.96	3.75	3.74	3.86

Core Initiatives, Three-Year Total

Low-Income Programs

Cape Light Compact

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B1 - Low-Income Whole House, 2016-2018 Summary					
B1a - Low-Income Single Family Retrofit					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	1,316	1,329	1,450	4,094
Lifetime Energy	MWh	11,767	13,370	15,251	40,388
Annual Natural Gas	Therms	-	-	-	-
Lifetime Natural Gas	Therms	-	-	-	-
Total Benefits	2016\$	6,163,272	5,870,457	6,718,730	18,752,459
Total Program Costs	nominal\$	1,877,245	2,956,841	3,368,876	8,202,963
Total Resource Costs	2016\$	1,877,245	2,883,598	3,204,043	7,964,887
Benefit Cost Ratio	B/C	3.28	2.04	2.10	2.35

B1b - Low-Income Multi-Family Retrofit					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	352	421	475	1,248
Lifetime Energy	MWh	2,900	4,849	5,292	13,041
Annual Natural Gas	Therms	-	-	-	-
Lifetime Natural Gas	Therms	-	-	-	-
Total Benefits	2016\$	1,469,226	5,213,840	5,127,950	11,811,016
Total Program Costs	nominal\$	890,694	1,397,224	1,484,452	3,772,370
Total Resource Costs	2016\$	890,694	1,362,614	1,411,821	3,665,129
Benefit Cost Ratio	B/C	1.65	3.83	3.63	3.22

Core Initiatives, Three-Year Total

C&I Programs

Cape Light Compact
May 1, 2017

C1 - C&I New Construction, 2016-2018 Summary					
C1a - C&I New Buildings & Major Renovations					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	673	558	684	1,915
Lifetime Energy	MWh	10,110	9,109	11,627	30,845
Annual Natural Gas	Therms	(1,046)	698	639	290
Lifetime Natural Gas	Therms	(15,426)	10,810	9,989	5,373
Total Benefits	2016\$	1,432,722	1,291,476	1,524,627	4,248,826
Total Program Costs	nominal\$	816,317	1,052,858	1,044,413	2,913,589
Total Resource Costs	2016\$	905,067	884,797	854,848	2,644,712
Benefit Cost Ratio	B/C	1.58	1.46	1.78	1.61

C1b - C&I Initial Purchase & End of Useful Life					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	856	1,212	1,164	3,233
Lifetime Energy	MWh	12,790	23,852	22,869	59,511
Annual Natural Gas	Therms	(19,577)	(82,254)	(55,955)	(157,786)
Lifetime Natural Gas	Therms	(293,659)	(1,645,071)	(1,119,096)	(3,057,826)
Total Benefits	2016\$	1,609,653	1,940,527	2,302,665	5,852,845
Total Program Costs	nominal\$	352,965	315,167	310,562	978,694
Total Resource Costs	2016\$	423,736	653,341	614,682	1,691,760
Benefit Cost Ratio	B/C	3.80	2.97	3.75	3.46

C2 - C&I Retrofit, 2016-2018 Summary					
C2a - C&I Existing Building Retrofit					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	5,338	5,210	5,934	16,482
Lifetime Energy	MWh	70,925	63,955	72,955	207,835
Annual Natural Gas	Therms	(1,960)	14,900	15,057	27,996
Lifetime Natural Gas	Therms	(26,525)	155,837	156,357	285,669
Total Benefits	2016\$	12,328,934	10,602,558	11,720,659	34,652,151
Total Program Costs	nominal\$	2,850,166	3,691,013	3,882,093	10,423,272
Total Resource Costs	2016\$	5,015,648	4,080,657	4,244,916	13,341,220
Benefit Cost Ratio	B/C	2.46	2.60	2.76	2.60

C2b - C&I Small Business					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	2,694	9,913	12,833	25,440
Lifetime Energy	MWh	34,221	129,273	166,972	330,466
Annual Natural Gas	Therms	(23,917)	(32,218)	(33,936)	(90,070)
Lifetime Natural Gas	Therms	(321,198)	(420,568)	(442,978)	(1,184,745)
Total Benefits	2016\$	5,804,707	27,147,660	36,857,059	69,809,426
Total Program Costs	nominal\$	2,442,122	7,408,747	9,548,266	19,399,135
Total Resource Costs	2016\$	2,885,340	8,616,876	10,800,758	22,302,974
Benefit Cost Ratio	B/C	2.01	3.15	3.41	3.13

C2c - C&I Multifamily Retrofit					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	48	345	354	747
Lifetime Energy	MWh	462	5,052	5,190	10,704
Annual Natural Gas	Therms	-	290	300	590
Lifetime Natural Gas	Therms	-	2,858	2,948	5,807
Total Benefits	2016\$	56,972	742,465	769,315	1,568,751
Total Program Costs	nominal\$	205,948	750,216	814,252	1,770,416
Total Resource Costs	2016\$	200,825	748,240	794,093	1,743,158
Benefit Cost Ratio	B/C	0.28	0.99	0.97	0.90

C2d - C&I Upstream Lighting					
Metric	Units	2016 Evaluated	2017 Planned	2018 Planned	2016-2018 Total
Annual Energy	MWh	14,140	19,900	18,406	52,445
Lifetime Energy	MWh	74,331	100,017	92,517	266,865
Annual Natural Gas	Therms	(53,661)	(75,562)	(69,885)	(199,108)
Lifetime Natural Gas	Therms	(281,768)	(379,356)	(350,893)	(1,012,017)
Total Benefits	2016\$	12,026,185	15,782,141	13,991,787	41,800,113
Total Program Costs	nominal\$	1,106,866	1,666,927	1,651,957	4,425,750
Total Resource Costs	2016\$	3,625,001	4,558,203	4,119,293	12,302,498
Benefit Cost Ratio	B/C	3.32	3.46	3.40	3.40

Greenhouse Gas Reductions, Plan-Year Summary

GHG reductions are provided for information purposes only. They are not included in the TRC test.

Cape Light Compact

May 1, 2017

2016 Planned Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	24,716	(156,730)	34,593	0.000185578	0.000090138	0.396076	0.005850	0.080693	4.6	2.2	11,664
B - Low-Income	1,640	-	11,487	0.000185578	0.000090138	0.396076	0.005850	0.080693	0.3	0.1	1,576
C - Commercial & Industrial	30,656	(222,114)	(4,464)	0.000185578	0.000090138	0.396076	0.005850	0.080693	5.7	2.8	10,482
Grand Total	57,012	(378,845)	41,616	0.000185578	0.000090138	0.396076	0.005850	0.080693	10.6	5.1	23,723

2016 Evaluated Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	47,225	(426,369)	(12,849)	0.000185578	0.000090138	0.396076	0.005850	0.080693	8.8	4.3	15,174
B - Low-Income	1,668	-	4,840	0.000185578	0.000090138	0.396076	0.005850	0.080693	0.3	0.2	1,051
C - Commercial & Industrial	20,609	(97,224)	(6,625)	0.000185578	0.000090138	0.396076	0.005850	0.080693	3.8	1.9	7,059
Grand Total	69,502	(523,592)	(14,634)	0.000185578	0.000090138	0.396076	0.005850	0.080693	12.9	6.3	23,284

2016 Planned v. Evaluated Greenhouse Gas Reductions Variances (%)											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	91%	172%	-137%	0%	0%	0%	0%	0%	91%	91%	30%
B - Low-Income	2%		-58%	0%	0%	0%	0%	0%	2%	2%	-33%
C - Commercial & Industrial	-33%	-56%	48%	0%	0%	0%	0%	0%	-33%	-33%	-33%
Grand Total	22%	38%	-135%	0%	0%	0%	0%	0%	22%	22%	-2%

Notes

- The GHG factors have been updated since the 2016-2018 Plan in coordination with the Department of Environmental Protection to reflect the most up to date information available.

Greenhouse Gas Reductions, Three-Year Total

GHG reductions are provided for information purposes only. They are not included in the TRC test.

Cape Light Compact
May 1, 2017

2016 Evaluated Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	47,225	(426,369)	(12,849)	0.000185578	0.000090138	0.396076	0.005850	0.080693	8.8	4.3	15,174
B - Low-Income	1,668	-	4,840	0.000185578	0.000090138	0.396076	0.005850	0.080693	0.3	0.2	1,051
C - Commercial & Industrial	20,609	(97,224)	(6,625)	0.000185578	0.000090138	0.396076	0.005850	0.080693	3.8	1.9	7,059
Grand Total	69,502	(523,592)	(14,634)	0.000185578	0.000090138	0.396076	0.005850	0.080693	12.9	6.3	23,284

2017 Planned Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	22,355	(127,242)	40,809	0.000185578	0.000090138	0.396076	0.005850	0.080693	4.1	2.0	11,403
B - Low-Income	1,750	-	13,117	0.000185578	0.000090138	0.396076	0.005850	0.080693	0.3	0.2	1,752
C - Commercial & Industrial	32,541	(152,727)	224	0.000185578	0.000090138	0.396076	0.005850	0.080693	6.0	2.9	12,013
Grand Total	56,646	(279,969)	54,149	0.000185578	0.000090138	0.396076	0.005850	0.080693	10.5	5.1	25,168

2018 Planned Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	20,605	(115,768)	45,738	0.000185578	0.000090138	0.396076	0.005850	0.080693	3.8	1.9	11,175
B - Low-Income	1,925	-	13,398	0.000185578	0.000090138	0.396076	0.005850	0.080693	0.4	0.2	1,843
C - Commercial & Industrial	36,242	(127,224)	9,447	0.000185578	0.000090138	0.396076	0.005850	0.080693	6.7	3.3	14,373
Grand Total	58,772	(242,992)	68,583	0.000185578	0.000090138	0.396076	0.005850	0.080693	10.9	5.3	27,391

2016-2018 Greenhouse Gas Reductions											
Sector	Adjusted Gross Annual Savings			GHG Factors					Annual Emissions Reductions (Short Tons)		
	Electric Energy	Natural Gas	Oil	NOX	SO2	CO2			NOX	SO2	CO2
	(MWh)	(Therms)	(MMBTU)	Electric Energy	Electric Energy	Electric Energy	Natural Gas	Oil			
A - Residential	90,185	(669,378)	73,697	0.000185578	0.000090138	0.396076	0.005850	0.080693	17	8	37,751
B - Low-Income	5,343	-	31,354	0.000185578	0.000090138	0.396076	0.005850	0.080693	1	0	4,646
C - Commercial & Industrial	89,392	(377,175)	3,046	0.000185578	0.000090138	0.396076	0.005850	0.080693	17	8	33,445
Grand Total	184,920	(1,046,554)	108,097	0.000185578	0.000090138	0.396076	0.005850	0.080693	34	17	75,843

Notes

- The GHG factors have been updated since the 2016-2018 Plan in coordination with the Department of Environmental Protection to reflect the most up to date information available.

APPENDIX 1
SIGNIFICANT CORE INITIATIVE VARIANCES
& COST-EFFECTIVENESS

Program Administrator-Specific Narrative Explanations for the Cape Light Compact are as follows.

I. Residential Programs

A. Residential Whole House

For the Residential Whole House program, the 2016 actual benefit-cost ratio is 2.40, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.50.

1. Residential New Construction

a. Significant Variances

A significant variance exists between the planned and actual budget. The primary reason for this increase is higher than planned participation, resulting in higher incentive and sales, technical assistance and training (“STAT”) costs. The Compact has a history of significant variances between planned and actual costs, savings, and benefits for its Residential New Construction core initiative. This is due to the relatively small number of participants and the difficulty in predicting participant decisions in this core initiative. There is a wide variation in savings and benefits achieved by home, and the choices made by each participant greatly impacts the core initiative’s results.

A significant variance also exists between the preliminary and evaluated total resource benefits. The decrease in benefits was caused by lower energy savings due to the 2015-2016 Massachusetts Single-Family Code Compliance Baseline Study, which is included as Attachment 4D, Study 16-16. This study updated the User Defined Reference Home (“UDRH”), last updated in 2011, based on current common installation practices for non-participating homes. This study found significant increases in energy efficiency for several measures in non-participating homes. Some of these measures included duct leakage, air leakage, and ceiling insulation. These updates decreased the total benefits claimable for the non-lighting, low-rise portion of the core initiative.

In addition, the evaluation methodology used (the Lighting Market Adoption Model and Lighting Worksheet) resulted in decreased lifetime MWh savings, which directly affected total resource benefits.

The Programs Administrators have designed a new “performance based” incentive structure in this core initiative that will be utilized to better align savings with builder incentives starting in July 2017. As a result, the PAs anticipate that the core initiative will remain cost-effective moving forward.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Residential New Construction & Major Renovation core initiative, the 2016 actual benefit-cost ratio is 2.72, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.56.

2. Residential Multi-Family Retrofit

a. Significant Variances

A significant variance exists between the planned and actual budget. The primary reason for this variance is that the Compact planned for a project to be completed in 2016, but that did not occur. This project property has over a dozen separate condo associations, with predominately off-site individual unit ownership. Coordinating among owners and associations to move forward with cost-effective projects has proven difficult and time consuming. In addition, the Compact's actual measure mix had more inexpensive measures like LEDs and programmable thermostats, and fewer costly measures such as weatherization. The actual measure mix in any given year is driven by customer demand.

The Compact is not planning significant changes to the design or implementation of the core initiative because of these variances. The Compact will continue with a new phase of project recruitment in 2017, with the intention of obtaining additional participation commitments from unit owners.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Residential Multi-Family core initiative, the 2016 actual benefit-cost ratio 2.31, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 1.42.

3. Residential Home Energy Services

a. Significant Variances

i. Home Energy Services - Measures

Significant variances exist between planned and actual budget, and planned and preliminary total benefits. The primary reason for these variances is the Compact's shortfall in completing the planned number of Home Energy Assessments ("HEAs"). The Compact completed approximately

75 percent of its HEA goal of 4,000 assessments in 2016. Fewer HEAs were completed in part because of the transition to a common vendor between the Compact and National Grid (see *Colonial Gas Company d/b/a National Grid*, D.P.U. 16-169). The common vendor, the Compact's lead vendor for this core initiative, required additional time and resources to consistently serve mutual customers of the Compact and National Grid. Note that even accounting for only 75 percent of planned HEAs, the Compact surpassed its Home Energy Services – Measures lifetime electric savings target for 2016.

In response to these variances, the Compact has taken two primary steps to increase its HEAs. First, the Compact has been working with its lead vendor to ensure an adequate number of audit teams are available to serve customers in plan years 2017 and 2018. The Compact's lead vendor has hired more qualified energy efficiency auditors and technicians throughout 2016 and the start of 2017. Second, the Compact plans to increase its marketing and outreach efforts to oil and propane customers. Specifically, the Compact expects to present to and collaborate with relevant local organizations including, but not limited to, senior centers, part-time taxpayers' associations, and realtors.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

ii. Home Energy Services - RCS

A significant variance exists between planned and actual budget. The difference is due to the shortfall in HEAs, as discussed in more detail above.

b. *Cost-Effectiveness*

For the Residential Home Energy Services - Measures core initiative, the 2016 actual benefit-cost ratio is 2.63, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.77.

4. Residential Behavior/Feedback

a. *Significant Variances*

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, and planned and preliminary total benefits. A combination of lower than anticipated evaluated savings and suspended enrollment of new participants are the primary reasons costs, savings, and benefits are lower than expected. A more complete explanation for these variances is provided in the Testimony of Margaret T. Downey filed with the Compact's 2016 Plan-Year Report as Exhibit MTD-1.

The Compact does not expect to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Residential Behavior/Feedback core initiative, the 2016 actual benefit-cost ratio is 0.39, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 0.66. As discussed in Exhibit MTD-1, the core initiative is not cost-effective due to high costs and low savings.

The Compact is not aware of any design or implementation changes to the core initiative that would make it cost-effective going forward. The Compact does not expect this core initiative will be cost-effective over the three-year term. Therefore, the Compact has suspended new enrollment and proposes to terminate the core initiative. See Exhibit MTD-1.

B. Residential Products

For the Residential Products program, the 2016 actual benefit-cost ratio is 3.16, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.60.

1. Residential Cooling & Heating Equipment

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary lifetime electric savings, and planned and preliminary total benefits. These variances are primarily caused by decreased participation for central air conditioning and heat pump measures (both early replacement and regular offers), as well as for heat pump water heaters and circulator pumps.

The Compact expects to see a continued decline in installations of central air conditioning and central heat pump systems as mini-split heat pumps become more popular. Despite a direct mail marketing campaign for heat pump water heaters in the fall of 2016, the Compact was unable to reach the established participation goals. Circulator pump submittals were slow at the beginning of 2016, which prompted a statewide marketing effort that began in August 2016.

In response to these variances, the Compact will continue working with its vendor and trade allies to increase its marketing and outreach efforts. The Compact is in active discussions with its vendors and expects to conduct outreach efforts in collaboration with manufacturers and other relevant organizations.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Residential Cooling & Heating Equipment core initiative, the 2016 actual benefit-cost ratio is 1.07, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 1.03.

2. Residential Consumer Products

a. Significant Variances

A significant variance exists between the planned and actual budget. The primary reason for this variance is a change in the measure mix. The refrigerator recycling statewide vendor went into receivership and ceased operations in late 2015, which halted implementation of this offer until a

new vendor was procured in the second quarter of 2016. As a result, the Compact did not recycle as many refrigerators as planned, which explains the lower spending. The Compact exceeded its savings and benefits goals by surpassing planned goals for less-expensive measures.

The Compact is not planning significant change to the design or implementation of the core initiative because of this variance, given that the cost of saved energy was less than planned and the Compact realized greater savings per dollar spent.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Residential Consumer Products core initiative, the 2016 actual benefit-cost ratio is 3.28, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.50.

3. Residential Lighting

a. Significant Variances

There are no significant variances in 2016 for this core initiative.

For the 2016–2018 Three-Year term, no changes are planned for this core initiative’s design or implementation. The Compact continues to work with its vendor to better meet all planned goals.

b. Cost-Effectiveness

For the Residential Lighting core initiative, the 2016 actual benefit-cost ratio 3.96, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.86.

II. Low-Income Programs

The 2016 actual low-income expenditures were 29 percent lower than the 2016 planned low-income budget. Despite lower-than-expected spending in the low-income sector for 2016, the Compact continues to spend a significant amount of its budget on low-income customers. The Compact's low-income budget for the full three-year term is expected to be 10.6 percent of the three-year total budget, including actual expenditures for 2016 and the budget planned for 2017 and 2018. Therefore, the Compact continues to meet the statutory requirement that spending on low-income programs represent at least 10 percent of the total amount expended on electric energy efficiency programs.

A. Low-Income Whole House

For the Low-Income Whole House program, the 2016 actual benefit-cost ratio is 2.76, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.63.

1. Low-Income Single Family Retrofit

a. Significant Variances

A significant variance exists between planned and actual budget. While the Compact met its savings and benefits goals for 2016, it did so while spending less than planned. This is because there were fewer HVAC projects completed than planned because of reduced customer demand. HVAC projects have a higher per project cost than low-cost measures such as lighting. It should also be noted that lighting costs were lower than planned due to statewide contract price adjustments.

The Compact is not planning significant change to the design or implementation of the core initiative because of this variance, given that the cost of saved energy was less than planned and the Compact realized greater savings per dollar spent.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Low-Income Single Family Retrofit core initiative, the 2016 actual benefit-cost ratio is 3.28, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.35.

2. Low-Income Multi-Family Retrofit

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, and planned and preliminary total benefits. Compared to the plan, the Compact installed more lighting measures at a lower cost due to statewide contract price adjustments. This contributed to the decrease in the actual budget. In addition, based on customer demand, the Compact installed fewer weatherization-related measures, which typically make up a significant portion of this core initiative's benefits. Fewer weatherization-related measures installed contributed to the decrease in costs and led to lower savings and benefits than planned.

Additionally, when the Compact developed its Low-Income Multi-Family core initiative for 2016-2018, it planned to serve customers that heat with deliverable fuels. However, during 2016, the Residential Conservation Services regulations were not yet approved by the Department of Energy Resources, and the Compact was unable to serve as many oil and propane customers as planned. This resulted in the Compact not meeting its targets for costs, savings, and benefits.

The Compact is not planning significant change to the design or implementation of the core initiative because of these variances.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the Low-Income Multi-Family Retrofit core initiative, the 2016 actual benefit-cost ratio is 1.65, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.22.

III. Commercial Programs

A. C&I New Construction

For the Commercial & Industrial (“C&I”) New Construction program, the 2016 actual benefit-cost ratio is 2.29, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.33.

1. C&I New Buildings & Major Renovations

a. Significant Variances

A significant variance exists between planned and actual budget. For the C&I New Construction core initiative, the Compact reviews participating projects and applications as they are submitted. The Compact planned for more HVAC measures than it received, and such measures tend to have higher incremental costs. In contrast, the Compact received more applications and projects with lighting opportunities that have lower incremental costs. As a result, fewer incentives were necessary to achieve planned lifetime electric savings and total benefits.

The C&I New Construction core initiative is highly variable due to the nature of the new construction market overall. Big projects can have a large impact on costs and savings, but outside factors can affect the timing of when projects are started or completed. Additionally, trade allies and customers submit new construction applications on an as-needed basis, and their needs can fluctuate from year to year.

Given the variable nature of this core initiative, the Compact does not currently expect to make any significant changes to the core initiative’s design or implementation. The Compact expects to utilize the budget and meet the goals for lifetime savings and total benefits in the three-year timeframe.

b. Cost-Effectiveness

For the C&I New Buildings & Major Renovations core initiative, the 2016 actual benefit-cost ratio is 1.58, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 1.61.

2. C&I Initial Purchase & End of Useful Life

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, and planned and preliminary total benefits. Most of the Compact's planned costs, savings, and benefits were attributed to the anticipated completion of a single Combined Heat and Power ("CHP") project in 2016. This CHP project was delayed during 2016 but completed in early 2017. In contrast, the Compact received more projects related to prescriptive HVAC, lighting, compressed air, motors and drives, and refrigeration than anticipated. These measures tend to require higher incentive costs relative to lifetime electric savings and total benefits than CHP.

The Initial Purchase & End of Useful Life initiative can be highly variable due to the nature of the opportunities that it addresses. Given the variable nature of this core initiative, the Compact does not currently expect to make any significant changes in the core initiative's design or implementation. The Compact expects to utilize the budget and meet the goals for lifetime savings and total benefits in the three-year timeframe.

b. Cost-Effectiveness

For the C&I Initial Purchase & End of Useful Life core initiative, the 2016 actual benefit-cost ratio is 3.80, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.46.

B. C&I Retrofit

For the C&I Retrofit program, the 2016 actual benefit-cost ratio 2.58, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.98.

1. C&I Existing Building Retrofit

a. Significant Variances

There are no significant variances in 2016 for this core initiative.

For the 2016–2018 Three-Year term, no changes are planned for this core initiative's design or implementation. The Compact continues to work with its vendor to better meet all planned goals.

b. Cost-Effectiveness

For the C&I Existing Building Retrofit core initiative, the 2016 actual benefit-cost ratio 2.46, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 2.60.

2. C&I Small Business

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, and planned and preliminary total benefits. These variances are the result of less participation than expected. Beginning with the 2016-2018 Three-Year Plan, the Compact implemented a new effort for its small C&I customers, modeled after the Compact's Home Energy Services core initiative. The enhancements were designed to alleviate participation barriers for smaller customers, thereby increasing the core initiative's participation. The Compact spent the first quarter of 2016 reaching out to local businesses through its area Chambers of Commerce. While the Compact actively promoted this core initiative and sought to serve customers comprehensively, many customers were still only interested in lighting projects.

The Compact does not currently expect to make any significant changes in the core initiative's design or implementation. The Compact expects to utilize the budget and meet the goals for lifetime savings and total benefits in the three-year timeframe.

b. Cost-Effectiveness

For the C&I Small Business core initiative, the 2016 actual benefit-cost ratio is 2.01, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.13.

3. C&I Multifamily Retrofit

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, planned and preliminary total benefits, and preliminary and evaluated total resource benefits.

The variance in lifetime savings and benefits caused by the reduced measure lives established in the lighting evaluation may affect the Program Administrator's ability to achieve its lifetime savings and benefits goals by the end of the three-year term. Additionally, the variance in annual MWh goals caused by less production than planned may affect the Compact's ability to meet its annual MWh goals. This core initiative is delivered to customers in conjunction with the

Residential Multi-Family core initiative. Savings in these two sectors depend on the metering structure of multifamily units. The number of residential metered versus C&I metered buildings served changes each year, and this is the first year that the PAs have forecasted them separately. Since multifamily buildings served by the Program Administrators may be residentially or commercially metered, there may be large swings in production in one sector or the other. Therefore, production in one sector is not necessarily indicative of overall performance within the multifamily space. The Compact remains committed to pursuing all opportunities within multifamily buildings, whether they are residentially or commercially metered.

In the C&I Multifamily core initiative, the Program Administrators have been offering certain measures that are not cost-effective on their own but allow the PAs to attract participants and lead to deeper savings. In the past, when the multifamily programs were marketed primarily through the residential core initiative, these measures were offset by more cost-effective measures, keeping the core initiative cost-effective overall. While the multifamily vendors continue to screen projects based on the whole building, the PAs established a separate C&I multifamily core initiative to reflect C&I meters in multifamily buildings with the 2016-2018 Three Year Energy Efficiency Plan. Due to the evaluation results and the lack of more cost-effective residential metered measures (such as insulation), this core initiative did not screen as cost-effective in 2016. Going forward, the PAs have ceased to offer in-unit fixtures to mitigate the cost-effectiveness concerns. However, the PAs will continue to offer common area fixtures, which the PAs believe are necessary to attract owners to participate in the program. While the vendor ensures that the whole building screens as cost-effective, the C&I Multifamily core initiative may not be cost-effective on its own during the term. The PAs believe that it is important to continue to offer this core initiative to provide information on equitable service to multifamily buildings.

The Compact is projecting to achieve its savings and benefits goals by the end of the Three-Year Plan term for this core initiative.

b. Cost-Effectiveness

For the C&I Multifamily Retrofit core initiative, the 2016 actual benefit-cost ratio is 0.28, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 0.90. See the above explanation for more information on cost-effectiveness.

4. C&I Upstream Lighting

a. Significant Variances

Significant variances exist between planned and actual budget, planned and preliminary total lifetime savings, and planned and preliminary total benefits. These variances are due to changes in planned to actual measure mix. The Compact dramatically exceeded its planned linear LED

installations, but underachieved on screw-in LEDs installations. Linear LEDs were a smaller portion of the overall planned budget and savings than screw-in LEDs and cost more per unit. Screw-in LEDs were a larger portion of the planned budget and savings, so underperformance in this measure category had more pronounced effects on overall performance for the core initiative. These changes were the result of market demand.

In response to these variances, and as a matter of normal business practice, the Compact is working with its lead vendor to increase distributor participation in the core initiative and to include new measures as appropriate.

The Compact is projecting to achieve its savings and benefits goals for this core initiative by the end of the Three-Year Plan term.

b. Cost-Effectiveness

For the C&I Upstream Lighting core initiative, the 2016 actual benefit-cost ratio is 3.32, while the benefit-cost ratio for the three-year term after accounting for actual results from 2016 is 3.40.

APPENDIX 2

BENEFIT-COST RATIO SCREENING TOOL

Please see the Microsoft Excel workbook accompanying this report for the benefit-cost ratio screening tool.

As part of ongoing discussions with the Department of Energy Resources initiated pursuant to the Department's 2016-2018 Three-Year Plans Order, the electric Program Administrators have provided expanded information on C&I measures in this report version of the BCR screening tool. This does not alter the format of the BCR screening models (the measures can still be rolled up to end uses), but it does provide additional details on actual C&I performance. Consistent with the Department's Order, C&I data in planned models will continue to be presented at the end use level. There are no changes to the gas BCR models, which already present data at the measure level.

APPENDIX 3
STATEWIDE TECHNICAL REFERENCE MANUAL
2016 REPORT VERSION

Please see Statewide Appendix 3: Technical Reference Manual – 2016 Report Version, filed under separate cover. The electronic version, the Technical Reference Library, is available at: <http://www.masssavedata.com/Public/TechnicalReferenceLibrary>.

APPENDIX 4
STATEWIDE EVALUATION STUDIES SUMMARY

Please see Statewide Evaluation Studies Summary, filed under separate cover.

APPENDIX 5

PERFORMANCE INCENTIVES

The purpose of this section is to provide detailed supporting documentation on performance incentives that each Program Administrator proposes to collect. The Compact is a municipal aggregator and public entity that does not collect any performance incentives. As such, this section is not applicable to the Compact.

APPENDIX 6 DEMAND RESPONSE OFFERING

I. Statewide Summary

In the 2016-2018 Three-Year Plan, the Program Administrators committed to exploring creative new approaches to cost-effective demand reduction. These potential new approaches are in addition to the significant amount of demand savings planned to be achieved through energy efficiency programs in the 2016 2018 Three-Year Plan. See Plan at 19 (577 MW summer demand savings and 618 MW winter demand savings). Consistent with the Plan, in 2016 the Program Administrators assembled a Demand Savings Group (“DSG”) consisting of a small group of interested and qualified experts, to research potential electric and gas demand reduction efforts.

Through this highly collaborative and expert driven process, the PAs have considered various approaches to demand demonstration projects and examined various innovative technologies and approaches that could potentially be deployed to address unique opportunities in the Commonwealth. Below is a brief summary of the efforts undertaken by the PAs and DSG in 2016 to investigate potential cost-effective approaches to achieve active demand reduction.

The PAs developed the Initial Report on Scope, Task, and Timelines for the Demand Savings Group (“Initial Report”), which was filed with the Department on March 31, 2016. This Initial Report sets forth the structure, scope, milestones, tasks, and timeline for the PAs. Throughout the spring and summer of 2016, the Program Administrators held several productive formal and ad hoc meetings with subject matter experts, including vendors, evaluators, and industry experts. During this time, the PAs continued to analyze demand reduction reports and evaluations and review demand reduction strategies deployed in other jurisdictions. In order to fully assess potential demand reduction strategies beyond those used in other jurisdictions, the PAs issued a joint statewide Request for Information in September 2016 to help assess potential technologies and solutions emerging in the market. The PAs also convened DSG meetings, participated in meetings with the Energy Efficiency Advisory Council (“EEAC”) consultants (including a conference call with EEAC consultant Mary Ann Piette of Lawrence Berkeley National Lab), and supported the Demand Reduction Subcommittee of the EEAC by providing regular updates on the PAs’ progress, lessons learned, and draft proposals. Below is a list of the formal DSG and Demand Reduction Subcommittee meetings.

2016 Formal Demand Savings Group Meetings

<u>Date</u>	<u>Topic</u>
February 26, 2016	DSG structure, milestones, tasks, and AESC Update
March 1, 2016	Roundtable with demand response vendors: EnerNOC, Comverge, and Weatherbug
March 7, 2016	Wholesale Markets at ISO-NE
May 26, 2016	Distribution and Infrastructure
August 15, 2016	Progress Update, Cost-Effectiveness, Lessons Learned, Priorities, 2017 Demonstration Proposals
October 21, 2016	Demand Response Presentation by Mary Ann Piette of LBNL
December 2, 2016	Gas Capacity and Distribution and Potential for Gas Demand Response under GCA

2016 Demand Reduction Subcommittee Meetings

<u>Date</u>	<u>Topic</u>
February 18, 2016	Subcommittee Charter and Responsibilities, Terminology, PA Analytical Framework, March Report
March 10, 2016	PA report on roundtable with demand response vendors, Draft Initial Report, AESC Update
June 1, 2016	Demonstration Project Update, Cost-Effectiveness, Preview of EEAC presentations
October 5, 2016	Demonstration Project Update and 2017 Demonstration Project Proposals
December 7, 2016	Milestones and Timelines, Matrix of Research Questions and Technologies

Details regarding the various subject matter expert and DSG meetings and/or lessons learned are outlined in the Initial Report, Matrix of Opportunities memorandum dated September 28, 2016, the December 2016 Overview of Proposed/Approved Peak Demand Reduction Demonstration Projections, and the numerous presentations provided to the DSG, the Demand Reduction Subcommittee, and the EEAC.

Statewide PA Reports and Presentations

<u>Date</u>	<u>Setting</u>	<u>Topic</u>	<u>Link</u>
2/18/2016	Demand Reduction Subcommittee	Demand Reduction Subcommittee PA Framework & Updates	http://ma-eeac.org/wordpress/wp-content/uploads/Demand-SubCom-PA-Framework-Updates.pdf
2/26/2016	DSG	DSG Coordination, Scope, Milestones, and Timeline	Attachment A
2/26/2016	DSG	Draft Milestones	Attachment B
3/10/2016	Demand Reduction Subcommittee	DSG Update and Draft PA Report	Attachment C
3/31/2016	DPU	Initial Report of the Demand Savings Group	http://ma-eeac.org/wordpress/wp-content/uploads/Initial-Report-of-the-Demand-Savings-Group-w-App-3-31-16-1.pdf

Date	Setting	Topic	Link
6/1/2016	Demand Reduction Subcommittee	Cost-Effectiveness	Attachment D
6/21/2016	EEAC	Update from PAs on Demand Savings Group	http://ma-eeac.org/wordpress/wp-content/uploads/Update-from-PAs-on-Demand-Savings-Group.pdf
8/15/2016	DSG	Lessons Learned and Priorities	Attachment E
9/28/2016	Demand Reduction Subcommittee	Matrix of Opportunities	Attachment F
10/5/2016	Demand Reduction Subcommittee	Seasonal and Load vs. Pricing Priorities	Attachment G
10/19/2016	EEAC	Review of Demand Priorities, Timeline Update, and Next Steps	http://ma-eeac.org/wordpress/wp-content/uploads/Demand-Priorities-PA-Analysis-1.pdf
10/21/2016	DSG	New Directions in Demand Response by Mary Ann Piette	Attachment H
12/2/2016	Demand Reduction Subcommittee	Overview of Proposed/Approved Demand Reduction Demonstration Projects	http://ma-eeac.org/wordpress/wp-content/uploads/Matrix-Memorandum-12-2-16.pdf
12/2/2016	DSG	Natural Gas Systems Overview	Attachment I
12/7/2016	Demand Reduction Subcommittee	Upcoming Milestones for Peak Demand Reduction	http://ma-eeac.org/wordpress/wp-content/uploads/Milestones-for-PDR.pdf
2/23/2017	Demand Reduction Subcommittee	Demand Reduction Update & Milestones	http://ma-eeac.org/wordpress/wp-content/uploads/PDR-Timeline-2017.pdf
2/23/2017	Demand Reduction Subcommittee	Demand Reduction Projects Evaluation Plan Update	http://ma-eeac.org/wordpress/wp-content/uploads/MA-PAs-Demand-Reduction-Projects-Evaluation-Plan-Update-1.pdf
3/15/2017	EEAC	Demand Reduction Update & Milestones	http://ma-eeac.org/wordpress/wp-content/uploads/Peak-Demand-Reduction-Updates-Milestones-3.13-1.pdf

Through research, the Request for Information, and meetings with industry experts, the PAs have sought to identify successful models and innovative demand reduction strategies that could potentially be cost-effectively implemented in Massachusetts. Each electric PA has developed its own demonstration projects designed to test potentially viable cost-effective peak demand reduction technologies/strategies. The gas PAs continue to seek potentially viable gas demand reduction programs that can be appropriately implemented under the GCA and do not rely on using other fuels, such as oil.

Similar to other energy efficiency efforts, individual PAs have developed PA-specific demonstrations or program enhancements to test new innovative approaches and share lessons learned with all PAs. This collaborative approach allows the PAs to collectively test a variety of potential initiatives and leverage each other's results. Consistent with the Department approved Plan, National Grid and the Cape Light Compact deployed their approved demonstration projects in 2016 and worked to build the necessary capabilities for their 2017 demonstrations. National Grid and the Cape Light Compact continuously shared lessons learned and evaluation results, as they became available, with the other PAs to ensure that the full PA team benefitted from these early demonstration projects. Leveraging the results of the Request for Information and lessons learned from collaboration among the PAs and from other pilots around the country, Eversource and Unitil developed their own demonstration projects in 2016. In order to broaden the statewide scope of demonstration projects, they were conscious to minimize overlapping efforts. They are currently seeking approval of the Department of Public Utilities to proceed with implementation.

As evidenced in the matrix below and the Statewide PA Reports and Presentations and Documents listed above, through collaboration, the PAs are able to use innovative approaches to collectively deploy and test several technologies in a strategic manner, while minimizing costs. The projects use various technologies and vendors, and include direct load control, energy management systems, battery storage, thermal storage, behavior, training, and permanent load shift approaches. The PAs plan to implement, evaluate, and analyze these demonstration projects in order to inform potential designs of full-scale demand reduction programs to be implemented at the earliest appropriate time (e.g., during the 2019-2021 term).

Matrix of Demonstration Projects

PA	Residential	C&I		
		Small	Mid	Large
National Grid	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> Interruptible load approaches
Eversource		<ul style="list-style-type: none"> EMS Lighting/HVAC controls WiFi Tstat DLC 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Batteries Thermal storage 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Real time info Batteries Thermal storage Demand response
CLC	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) Behavioral DLC on DMSHP 	<ul style="list-style-type: none"> BTM thermal storage 	<ul style="list-style-type: none"> BTM thermal storage 	
Unitil	<ul style="list-style-type: none"> Battery storage for existing solar PV systems 			<ul style="list-style-type: none"> Operations changes to reduce demand
Key DLC – Direct Load Control DMSHP – Ductless Mini-Split Heat Pumps BTM – Behind the Meter EMS – Energy Management System				

II. Compact-Specific Demand Response Offering Summary

As part of its approved 2016-2018 Three-Year Plan, the Cape Light Compact included a Demand Response (“DR”) Demonstration Offering (“Offering”) that focused on installing connected devices in participating homes and businesses, and using these connected Wi-Fi thermostats to curtail air conditioning (“AC”) loads during demand response events called by the Compact. See Appendix L of the 2016-2018 Three-Year Plan for a complete description of the Compact’s Offering.

In accordance with the Department’s Order approving the 2016-2018 Three-Year Plan, the Compact is providing this update to describe the results, costs, benefits, challenges, and potential for future program offerings. In addition, the Compact provides CLC-specific presentations to the EEAC, the EEAC Executive Committee, and the EEAC Demand Reduction Subcommittee (see Appendix 6, Appendices A through N).

A. 2016 Offering

A copy of the evaluation report for the Compact's 2016 Offering is included as Attachment 4D, Study 16-38. The major findings from the evaluation are described below.

DR events: The Compact called eight DR events ("events") during August and September of 2016, during which the temperature setpoint of participants' thermostats was increased by approximately three degrees. Events were four hours in duration, with most occurring from 2-6 pm. The eight event days had maximum outdoor temperatures ranging from 79 to 89 degrees Fahrenheit. The Compact called these events based on a combination of weather and ISO-NE system load predictions.

Number of participants: The Compact recruited a total of 39 participants (with 56 Wi-Fi thermostats) in 2016. Some of the participants did not participate in any of the events because they were either enrolled in the Offering after the last 2016 event occurred, or they were enrolled but did not have equipment installed until after the last 2016 event was called.

Event participation: There were 22 participants (with a total of 31 Wi-Fi thermostats) who participated in at least one demand response event called by the Compact. For devices that were set to cooling mode and received the Compact's call to adjust the temperature set point ("setpoint adjustment") at the start of the events, there was an average override rate of 32 percent across all events. Four participants (with six devices) accounted for 60 percent of these overrides. Overrides occurred most frequently in the third hour of the event. The evaluation found that, across all event days, an average of 35 percent of devices did not receive the setpoint adjustment. This is likely because those devices were not set to cooling mode when the event started. In addition, the evaluation surveys found that some participants had their AC off on event days, depending on the outdoor temperature.

Savings/Benefits: The evaluation confirmed that load curtailment was achieved from the thermostat setpoint adjustments on high-temperature event days. However, the impact findings in the evaluation are only descriptive due to the statistically insufficient sample sizes. The evaluation provided an indicative average reduction of 0.4 kilowatts across all events. Further description of the impact evaluation, including detailed results and measurement caveats, can be found in Section 4 and Appendix B of the evaluation report.

Costs

In 2016, the Compact spent \$187,277 on its Offering, which is within one percent of the planned 2016 Offering budget of \$185,897 set forth in the 2016-2018 Three-Year Plan. Therefore, the Compact's Offering spending is consistent with its 2016-2018 Three-Year Plan. See Section II: Cape Light Compact Data Tables.

For 2017 and 2018, the Compact expects costs will be greater than in 2016. As part of D.P.U. 17-84 (Mid-Term Modification (“MTM”)), the Compact seeks an additional 2016-2018 budget of \$907,567 for its C&I sector and \$205,602 for its residential sector, for a total of \$1,113,169. The net increase to its 2016-2018 Three-Year Plan budget after accounting for the increase in the Offering budget and the decrease in the Residential Behavior/Feedback core initiative budget is \$605,066. D.P.U. 17-84, Exhibit CLC-MTD, Attachment A.

Challenges

The Compact has identified several challenges to implementing its Offering, as follows:

Deployment of near-real-time metering: Consistent with its approved 2016-2018 Three-Year Plan, the Compact provided and installed near-real-time whole-home energy monitoring equipment, similar to the equipment installed as part of the Residential Behavior/Feedback core initiative, for every Offering participant enrolled during 2016. The Compact provided and installed this equipment to measure approximate load reduction achieved through curtailment of air conditioning and to provide an additional incentive for customers to enroll in the Offering. While the participants were active users of the monitoring equipment and the equipment provided an estimate of load reductions achieved, the Compact found that providing and installing this equipment is cost-prohibitive to complete on a larger scale. The whole-home energy monitor needs to be installed by a licensed electrician, adding to cost and slowing deployment due to scheduling a time when both the electrician and homeowner are available. In addition, the monitoring equipment does not provide a wholly-accurate measurement of load reductions achieved through thermostat adjustment, since it is measuring the load of the entire house rather than the air conditioning load alone. For these reasons, the Compact will not provide or install the monitoring equipment for participants going forward.

Limited pool of participants: There are still many homes in the Compact’s service territory that do not have a central cooling system. Of the homes with installed cooling systems, many use mini--split heat pump (“MSHP”) systems that are controlled by a remote rather than a wall-mounted thermostat. Since the Compact’s Offering only included control over Wi-Fi thermostats, customers with MSHPs were precluded from participating, leading to a lower-than-anticipated number of eligible customers. The Compact plans to address this in 2017 and 2018 by incorporating MSHP load-control devices, as described below.

B. 2017 Offering

As part of D.P.U. 17-84, the Compact seeks to expand its Offering to include a thermal storage component for C&I customers. The proposed C&I Demand Response Offering will be focused on the deployment of 10 to 15 Ice Bear thermal storage units at 5 to 10 commercial locations. The Compact is targeting reductions in summer peak loads from air conditioning by creating ice during

off-peak hours and using thermal mass for cooling during peak hours. The Compact proposed this MTM to better inform the design of future demand response programs by deploying a broader range of technologies across a wider range of customer types. See D.P.U. 17-84, Initial Filing, Attachment A for a full description of the Compact's MTM request.

Apart from its MTM request, the Compact is making several minor adjustments to the design of its currently-approved Offering to address some of the challenges set forth above and beyond the suggestions provided in the evaluation. Below are the most significant adjustments.

New thermostat model: The evaluation found some participants had trouble using their thermostats. In order to help address this issue, the Compact will use a more popular and user-friendly thermostat model (Honeywell Lyric Round) going forward.

Installation through the Home Energy Services core initiative: In 2016, an electrician installed the thermostat(s) for each participant during the same visit in which they installed the whole-home energy monitor. Going forward, the Compact plans to enroll participants that have either installed an eligible thermostat themselves or have purchased and had it installed through a home energy audit. The Compact plans to market the Offering as part of the home energy audits. This Compact expects that this will increase program awareness and ease the enrollment process by eliminating the need to schedule a separate installation appointment.

Incorporation of mini-split heat pump systems: As described above, a challenge to the Offering in 2016 was the limited pool of participants with central AC controlled by a wall-mounted thermostat. To address this, the Compact is incorporating an add-on load control device for MSHPs that will allow the Compact to adjust the temperature setpoint of the unit during DR events.

Discontinuation of real-time monitoring equipment: For the reasons described above, the Compact will not provide or install energy monitoring equipment for participants going forward. The Compact will maintain functionality for current participants' monitoring equipment installed to date through the Residential Behavior/Feedback core initiative.

Opt-out events only: In 2016, the Compact called two of the eight events as "opt-in" events, where participants had to take affirmative action before the event to participate (i.e., allow the Compact to adjust their thermostat setpoint). The evaluation showed that participation rates were lower for these events, since most participants did not opt into the events. Going forward, the Compact will call all DR events as "opt-out" events in which the participant does not need to take any affirmative action to participate in the event, but can override the event if they so choose.

C. Compact-Specific Presentations

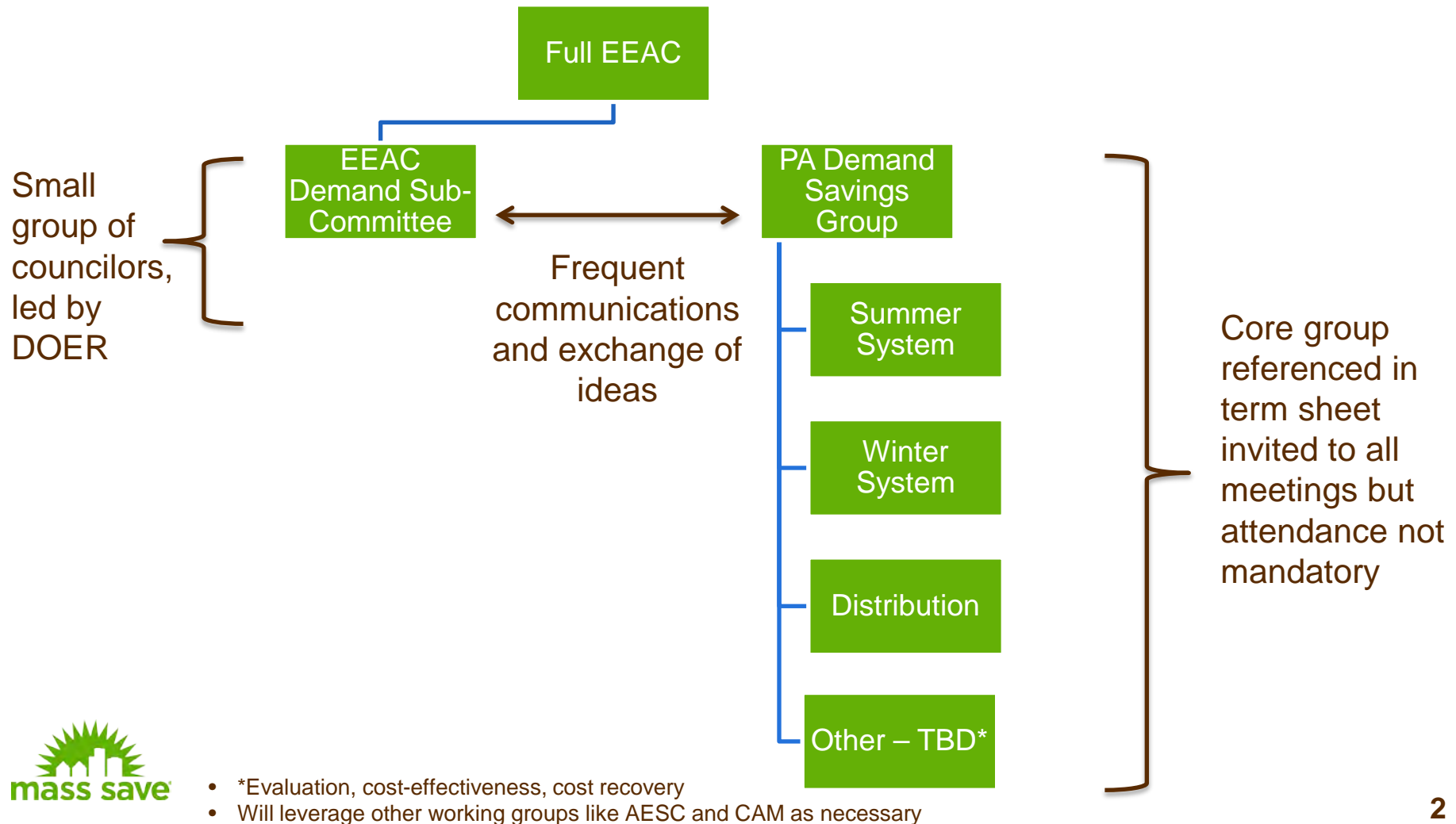
In 2016 and in early 2017, the Compact provided updates on its DR Offering to the EEAC multiple times, as summarized in the table below.

<u>Date</u>	<u>Setting</u>	<u>Topic</u>	<u>Link</u>
10/19/2016	MA EEAC	DR Offering Update	http://ma-eeac.org/wordpress/wp-content/uploads/CLC-DR-Offering-2016-2017-EEAC-10.19.pdf
12/21/2016	MA EEAC	DR Offering Update	http://ma-eeac.org/wordpress/wp-content/uploads/CLC-DR-Offering-2016-2017-1.pdf
2/23/2017	DR Subcommittee	2016 DR Offering Results and 2017 Preview/MTM Request	Attachment L
3/1/2017	MA EEAC, Executive Committee	2017 DR Offering MTM Request	Attachment M
3/15/2017	MA EEAC	2016 DR Offering Results and 2017 Preview/MTM Request	http://ma-eeac.org/wordpress/wp-content/uploads/CLC-Demand-Demonstration-Offering-MTM-Presentation-1.pdf



PA Demand Savings Group Coordination

Overall Organization



Internal Organization

- Goal is for group to be agile and expert
 - Less focused on process, more on substance
- No need for a formal steering committee
 - Mike Goldman and Ezra McCarthy as overall PA leads
 - Mike and Ezra heavily involved with liaising with EEAC subcommittee and wider EEAC when appropriate
 - Mike and Ezra responsible for liaising with sub-groups
 - There should still be a representative from each electric PA and one representative for all gas PAs
- Approximately four sub-groups comprised of subject matter experts and PA representatives
 - Summer System
 - Winter System
 - Distribution
 - Other - TBD

Sub-Group Composition*

***ILLUSTRATIVE ONLY, NO ONE CONFIRMED. SEEKING ADDITIONAL INPUT.**

Sub-Group	Person	Organization	Role
Summer System Peak	Greg Geller	Enernoc	Director
Summer System Peak	Eric Winkler	ISO-NE	Technical Manager – System Planning
Summer System Peak	Henry Yoshimura	ISO-NE	Director, Demand Resource Strategy
Summer System Peak	Someone from CA and dealing with duck curve		
Summer System Peak	Someone from NY that is working on REV		
Summer System Peak	Someone from First Fuel or Retroficiency or Nest (load disaggregation)		
Winter System Load	Eric Winkler	ISO-NE	Technical Manager – System Planning
Winter System Load	Someone from ICF that worked on ISO studies**		
Distribution Peak	Keith Jones or eqv	Eversource	System Planning Engineer
Distribution Peak	Dave Dobratz	Eversource	DR Implementation, CT
Distribution Peak	Bill Kallock	Integral Analytics	VP, Grid Analytics
Distribution Peak	Lindsey Foley	National Grid	

Invite individual councilors with specific expertise as necessary; Jeremy Newberger to assist on AESC

Note on Sub-Group Participation

- Subgroup experts may include representatives from relevant industries and businesses. To the extent practicable, subgroups will include representatives from multiple businesses to avoid the appearance of a competitive advantage. Business representatives will be asked to share their industry expertise but are not guaranteed to be selected to run demand programs or otherwise participate in the implementation of demand programs developed by the Group.

Identify Objectives

- Recommend topic for early group meeting – convene DSG to identify core objectives
- Determine what Group wants to achieve and then develop appropriate work plan
 - Reduce costs to customers? (System wide or individual?)
 - Use demand more efficiently?
 - Increase reliability of the system?
 - Others?
- How do we do it?
 - Reduce Installed Capacity Requirement (ICR)?
 - Reduce or reallocate ICAP tag?
 - Reduce peak to average energy ratio?
 - Flatten load curves?
 - Others?

As we think of objectives, we must keep in mind the materiality and relevance of the potential solutions

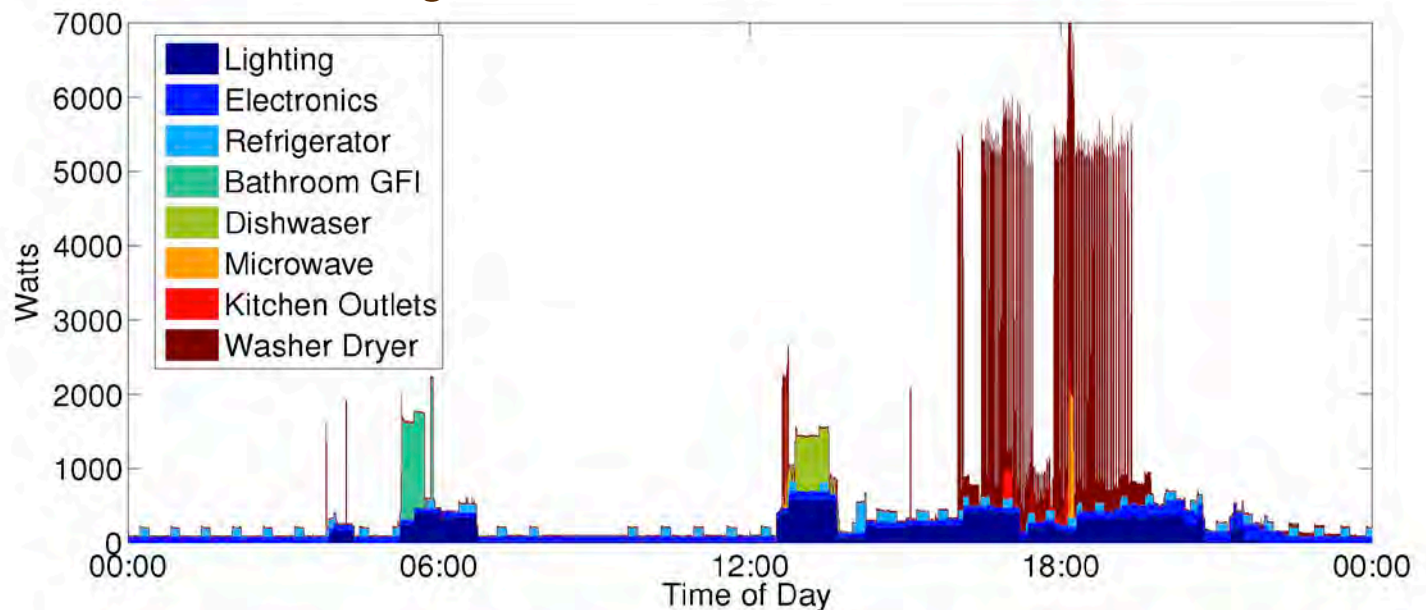
Possible First Meetings

■ ISO-NE

- A first priority and key stakeholder
- Get a better understanding of how EE impacts ICR and ICAP
- Get a better understanding of how capacity requirements impact costs, i.e. how costs are set
- Get a better understanding of the timing lag associated with actions and reflections in price
- Get a better understanding of the winter peak pricing issue
- Understand what is happening in other jurisdictions, including CT and RI (possible to look at non ISO-NE areas as well, such as NY)

Possible First Meetings

- Retroficiency / First Fuel / Nest*
 - Get a better understanding of end use disaggregation and the actual composition of load
 - This will be critical in understanding what measures and strategies can help achieve our objectives
 - Get a better understanding of winter load

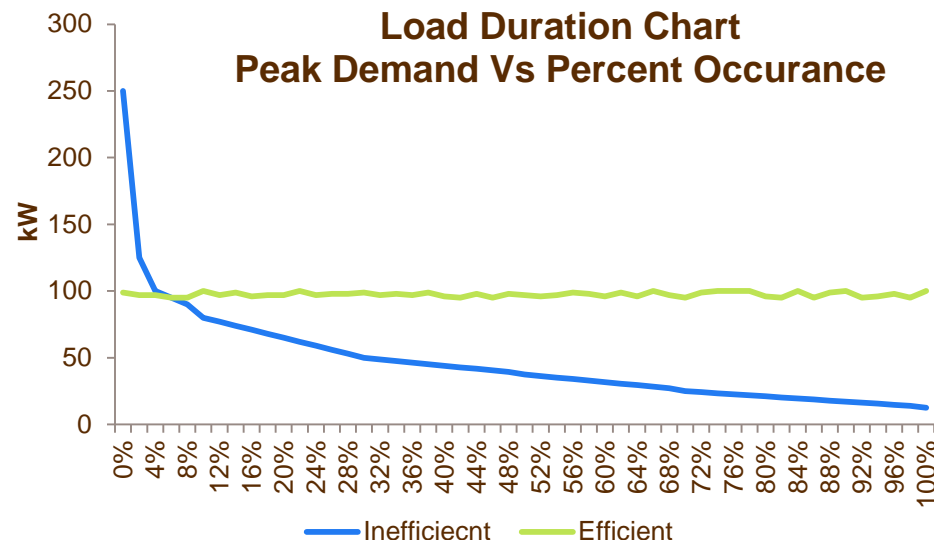


* Coordinate with
DOER and potentially
piggyback off of their
pilot



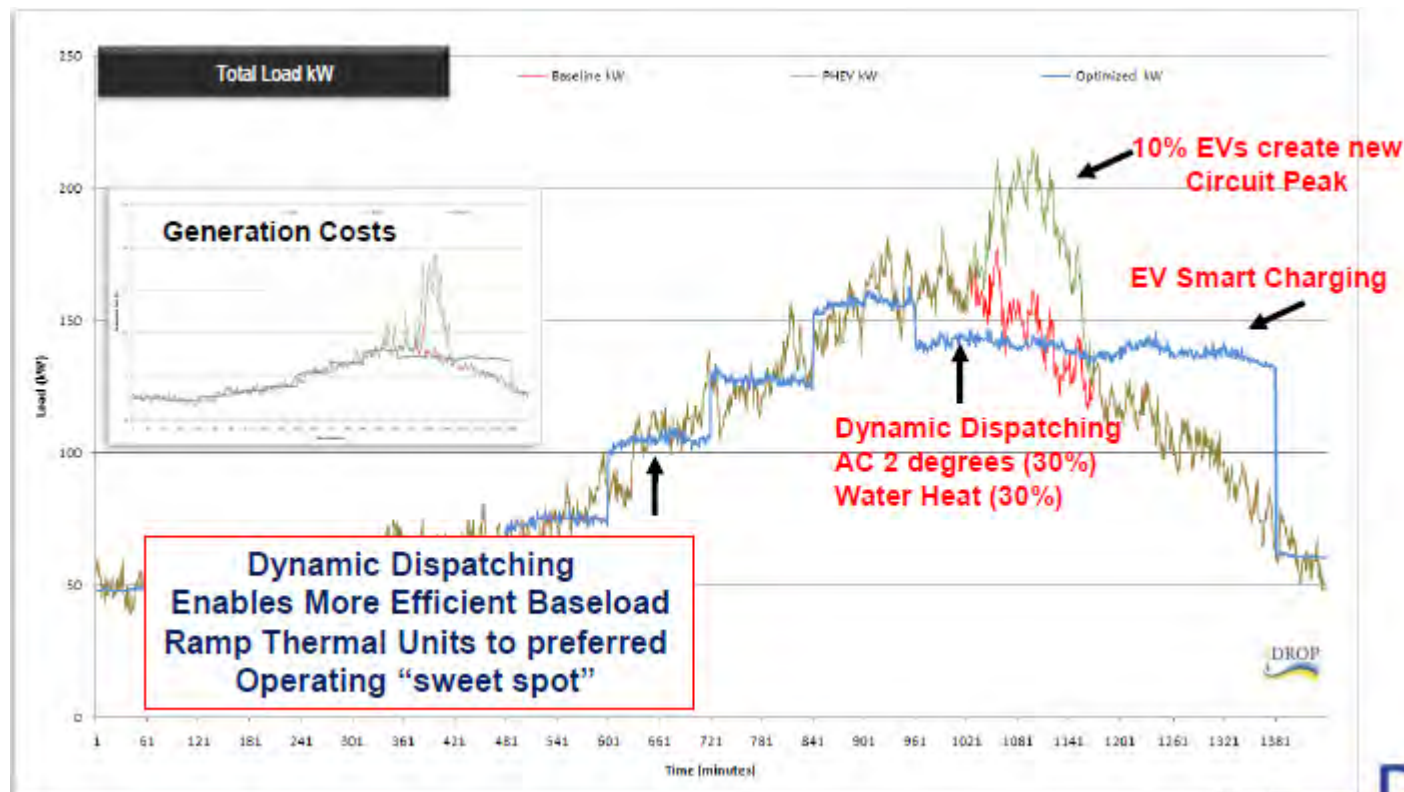
Possible First Meetings

- Large C&I Customers with high kW demand and relatively inefficient use of demand
 - Use TOU data to identify customers with this usage pattern
 - Understand what factors are driving this usage pattern and what types of solutions might mitigate this inefficient use of demand
 - Potentially work with Bob Rio and other key stakeholders/experts



Possible First Meetings

- Software and implementation vendors that have developed load flattening programs

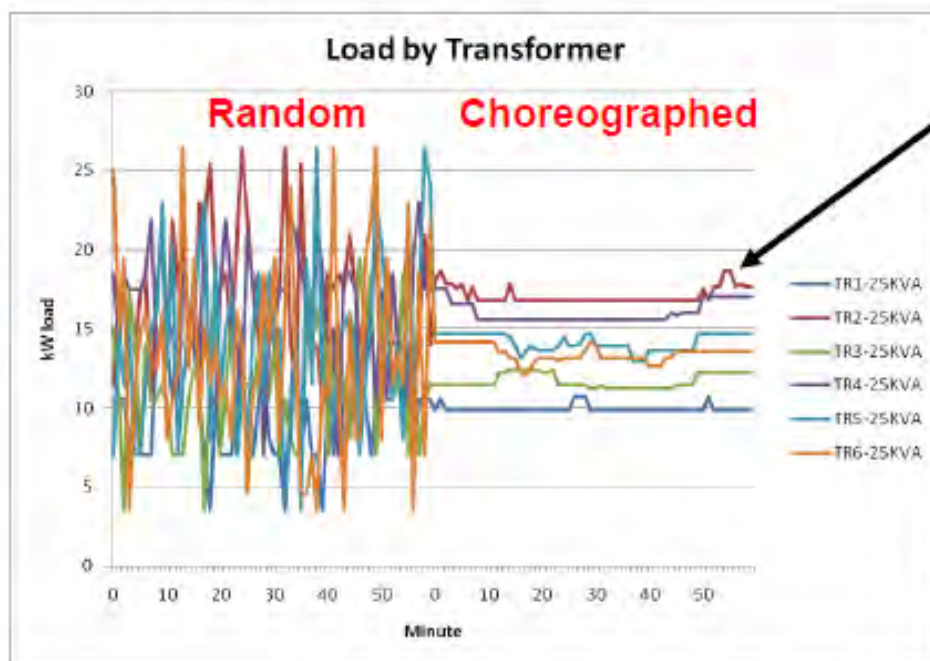


Possible First Meetings

- Software and implementation vendors that have developed load flattening programs

Voltage Improves, Asset Protected

IA only needs 25%-40% customer participation to levelize load, which saves utility money and **does not force** customers to participate.



Bumps intentional to limit the extent that AC units are started/stopped, and to optimize on customer marginal costs, not just on load alone.

Loads are flat enough to observe improved voltages and protects the service transformer

Six transformers, 30 homes, displaying normal volatility in load prior to IA vs. after optimizations are operational.

Deliverables by End of Q1

- Structure of Group
- Scope of Group
- Milestones
- Timelines

From the Term Sheet:

....the PAs will provide a report to the Council setting forth the specific scope, tasks, and detailed timelines for this group by the end of Q1 2016.

Structure of Group

- In process, described on previous slides

Scope of Group

- Review 3 distinct issues associated with peak demand
 - Summer system peak, winter system load, distribution
- Long term strategy for flattening load
- Actionable projects focusing on C&I to move towards those goals
- Evaluate potential of residential programs

SUBJECT TO ADDITIONAL INPUT

Milestones

Suggested milestones below in no particular order, specific milestones have not yet been discussed or agreed upon.

- Provide background and context of problem
- Form subgroups
- Receive recommendations from sub groups
- Develop cost effectiveness screening
- Set evaluation protocols
- Identify measures with most potential
- Reassess milestones as appropriate
- Put demonstration projects in field (When? DOER funds?)
- Develop cost recovery and incentive structure
- Report results from NGRID and CLC demonstration projects

Timelines

Timelines will be developed and put against specific milestones that are identified as relevant to the core objectives of the Group

Milestone	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018
TO BE FILLED OUT AS MILESTONES ARE IDENTIFIED												

- Quarterly reports to sub-committee

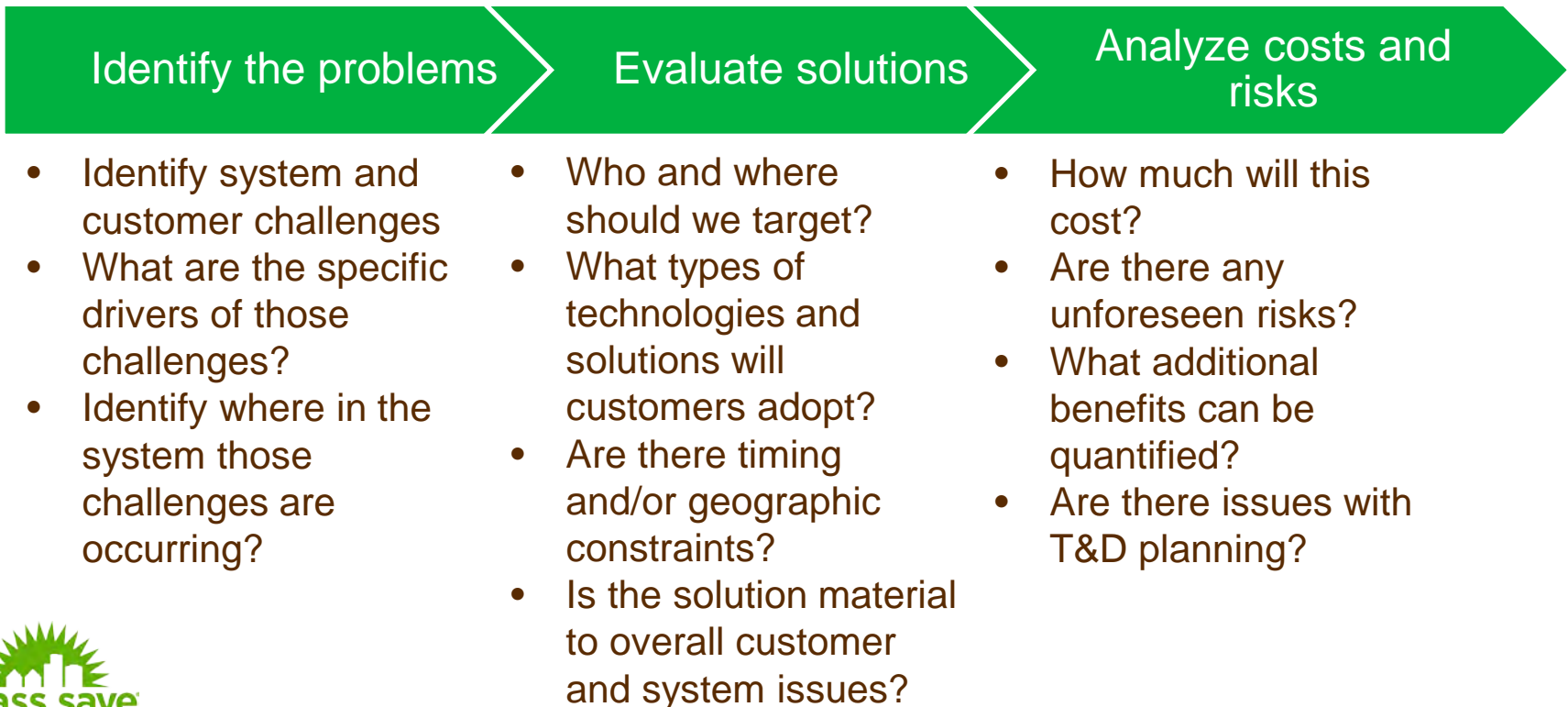
Appendix



Analytical Framework

Initial goal is to develop a strategy and analytical framework to dictate how we should be thinking about issues surrounding demand reductions

Overarching Methodology



Appendix

The PAs and the Council recognize the growing economic importance of achieving demand reduction goals and mitigating winter and summer peaks. The Term Sheet does not include targets for potential new statewide summer and winter demand peak reduction initiatives, and does not reflect costs, benefits or incentives associated with such initiatives. Subject to open meeting law requirements, PA representatives will work with a small Demand Savings Group that includes the DOER, the Attorney General's Office, the Low-Income Energy Affordability Network, interested expert and qualified stakeholders and the Council's consultants to explore approaches to cost-effective new demand reduction/peak reduction electric and gas initiatives. This Demand Savings Group will be addressing challenging and important matters, and all parties are committed to the successful development and actual implementation in-the-field during the 2016-2018 Plan period of new demand/peak reduction initiatives. To ensure that this in-the-field implementation goal is reached, the PAs will provide a report to the Council setting forth the specific scope, tasks, and detailed timelines for this group by the end of Q1 2016. This report will also provide an anticipated, high-level in-the-field deployment schedule for 2016-2018 based upon the then most current information. Deployment in-the-field will be subject to approval by the Department of Public Utilities and confirmation of cost-effectiveness. The PAs will also provide a report to the Council on the ongoing "super peak" avoided cost study on or before December 31, 2015 (if that study is delayed, this PA deliverable date will be appropriately adjusted).

Milestones

Suggested milestones below in no particular order, specific milestones have not yet been discussed or agreed upon.

Milestone	Tasks
Summary of background and provide context of problems/issues	<ul style="list-style-type: none"> • Obtain ISO forecasts of demand vs. energy • Show level of demand resources in FCM over time (to give sense of scale) • Show historical peaks and prices • Show current Pricing and Rate design and implications • Prepare summary of background information for reference purposes
Refine analytical framework	<ul style="list-style-type: none"> • Solidify initial analytical framework • Answer questions posed in the framework
Develop cost-effectiveness screening	<ul style="list-style-type: none"> • Analyze other approaches • Obtain or estimate costs of DR approaches • Identify avoided costs applicable to DR and differences from current EE methodology
Set evaluation protocols	<ul style="list-style-type: none"> • Release RFQ for short term evaluation from existing vendors • Issue RFP for longer term evaluation team
Develop cost recovery and incentive structure	<ul style="list-style-type: none"> • Review methodologies/structures from other jurisdictions • Propose methodology to EEAC and DPU

Milestones

Suggested milestones below in no particular order, specific milestones have not yet been discussed or agreed upon.

Milestone	Tasks
Engage Experts	<ul style="list-style-type: none"> • Reach out to potential experts • Arrange meetings as appropriate • Receive, develop, and revise recommendations
Identify approaches with most potential	<ul style="list-style-type: none"> • Determine demand reductions from different measure classes • Analyze each measure classes or approaches kW reduction coincidence with certain peaks
Put demonstration projects in field	<ul style="list-style-type: none"> • Plan Approach/Program Design • Select customer, technology, and vendor • Install equipment and metering as necessary • Deliver program / call events as appropriate • Measure results
Reassess milestones	<ul style="list-style-type: none"> • Ensure timelines are appropriate • Ensure that milestones are useful in meeting goals
Report results from demonstration projects	<ul style="list-style-type: none"> • Presentation to Demand Reduction Sub-Committee • Assess potential for broader program application



Demand Savings Group Update and Draft PA Report to EEAC

Presentation to the Demand Reduction Subcommittee – March 10, 2016

Discussions with Experts

- ❖ PAs have held several productive meetings with industry experts, including internal experts, demand response program implementers, and ISO-NE. Takeaways include:
 - Challenges to demand response exist (wholesale market rules, volatility and unpredictability of prices, time lag for impact, differences in customers and building stock, and climate)
 - Demand reduction programs in Mass. will likely have higher costs and lower benefits compared to other jurisdictions
 - Despite challenges, there may be opportunities for successful programs and entities are willing to work with the DSG to address challenges
 - Successful demand programs exist – PAs do not need to “reinvent the wheel”

PAs have worked with TCR to complete
AESC addendum

Summer and Winter Peak

❖ Summer Peak Load

- Highest peaks and most potential for benefits
- Currently, most residential demand response programs focus on single family homes with central air conditioning (multi-family do participate in certain situations)
 - Get additional benefits when coupled with other measures
- C&I programs are designed based on particular customer's discretionary load and the ability/willingness to shift load
- Current active DR in ISO-NE market are primarily facilities with behind the meter generation

❖ Winter Peak Pricing

- Winter peak pricing is not necessarily coincident with winter peak load
- Current active DR programs must use non-natural gas alternatives
- ISO-NE winter reliability program is expected to continue – need to show incremental reductions above capacity supply obligation
- Less opportunities available compared to summer

Advanced Meters and Real Time Data

Cape Light Compact
D.P.U. 17-100
Appendix 6, Attachment C
May 1, 2017
Jeffrey Leupold
Page 4 of 18

- ❖ AMI meters can provide helpful data but are not necessary
 - can implement certain demand reduction without AMI
- ❖ Time of use rates can help send better price signals
 - certain demand reduction programs do not require time of use rates
- ❖ Real-time price signal information to customers is not necessary
 - programs should provide some form of after-the-fact cost savings information

Wholesale Market Background

- ❖ New England is different than other jurisdictions in terms of industry, grid, climate, and wholesale market rules
 - Texas – lots of large industry with discretionary load
 - PJM – no telemetry requirement for active DR, different market in terms of transmission and generators
- ❖ ISO-NE was an early actor in DR field
 - successful programs were deployed in CT – ISO-NE paid for metering
 - active demand response participation has declined from 2,000 MW to 300 MW – mainly behind meter generation
 - ISO-NE has recently changed some rules that effect market participation
- ❖ ISO-NE is moving forward with market integration in accordance with the recent Supreme Court decision
- ❖ Offsetting demand could help Commonwealth's efforts under GWSA

Wholesale Market Potential

- ❖ Potential to Impact ICR (installed capacity requirement)
 - Energy efficiency and active DR are reconstituted for ICR purposes
 - Reduce ICR by reducing demand but not bidding into the FCM market
 - Section 12.8
- ❖ Reduce cost-allocation and ICAP tag by reducing demand during annual system peak (one hour period based on actual meter data)
 - Hard to predict when this will occur
 - Not direct pass through to customer
- ❖ Ways to Participate Wholesale Market
 - Bid active demand response into FCM
 - Participate as passive DR in FCM
 - Participate in energy market
 - Do not participate in the wholesale market but put downward pressure on prices by lowering peak demand

FCM Participation

- ❖ FCM participation allows project to be eligible for capacity payments; however, there are financial risks
- ❖ Qualification process for active demand response
 - Provide granular level information, such as distribution zone (~7 distribution zones in Massachusetts).
 - Demonstrate deliverability in distribution zone
 - Project deliverability is not guaranteed
 - Bid size may be trimmed during ISO due diligence process
 - Demonstrate likelihood of the project coming to fruition
 - Meet telemetry requirements
 - Hard for residential but there may be alternative approaches
- ❖ Deadlines for participating in the market
 - May seek to bid into primary FCA and/or the annual reconfiguration auctions
 - Process can take at least 14 months (can operate and reduce customer demand during time period – complete process for FCM revenue payments)
 - Process includes: a show of interest, qualification, auction, and then delivery.
 - Next show of interest deadline for primary auction is April 22, 2016 for Feb 2017 auction and delivery in 2020/2021
 - There are opportunities to advance commercialization date

Considerations and Next Steps

- ❖ Need to assess the potential value of a demand reduction program holistically – wholesale, distribution, and customer levels
- ❖ Assess both benefits and detriments of proposed approaches, including unintended consequences
- ❖ Consider both long and short term benefits
- ❖ Next steps:
 - Schedule additional meetings with demand response experts/consultants
 - Schedule distribution topic based meeting with system planning experts
 - Review results of RFQ for short term evaluator
 - Review and analyze suggested recommendations and high level strategies
 - Implement approved demonstration projects
 - Determine cost effectiveness of various strategies

Draft Initial Report

- ❖ Plan and Term Sheet – The PAs will provide a report to the EEAC setting forth the specific scope, tasks, and detailed timelines for the demand savings group by March 31, 2016.
- ❖ DPU Order – On or before March 31, 2016, the PAs must provide the Department with a copy of the report. In addition, the PAs must submit to the Department for information purposes copies of any future findings and reports from the demand savings group.

The PAs have circulated a working draft of the Initial Report. Additional information will likely be added and further formatting and revisions are expected, including:

- Gantt chart or similar for the timeline
- Synthesize discussion of lessons learned from initial meetings (currently in bullet, outline, and notes format)
- Outline potential benefits of this effort
- Include next steps in conclusion

Draft Initial Report - Format

❖ Introduction

- general summary of background and purpose of Initial Report

❖ Organizational Structure

- explains the organizational structure of the Demand Reduction Subcommittee and the Demand Savings Group

❖ Scope

- outlines the scope and purpose of DSG

❖ Goals and Objectives

- lists the four high level goals and eight objectives for the DSG to further the group's efforts to meet the goals

Draft Initial Report - Format

❖ Milestones and Tasks

❖ Timeline

- initial timeline for each task based on current estimates
- PAs will reassess and make adjustments as appropriate
 - changes in the timeline will be shared with the Demand Reduction Subcommittee
- complete timeline for all demonstration projects approved by DPU have been included in Initial Report
- potential additional demonstration projects not included in timeline
 - review and analyze information received to identify potential projects and determine whether such additional demonstration projects are appropriate
 - ensure existing work is leveraged and not duplicated
 - assess need for DPU approval
 - will add to timeline as PA begins to design project

Draft Initial Report - Format

❖ Progress to Date

- provide summary of some challenges identified and lessons learned to date
- highlight some materials reviewed by the PAs and meetings held with experts
- section is mostly an outline/notes in current draft

❖ Conclusion

Appendix

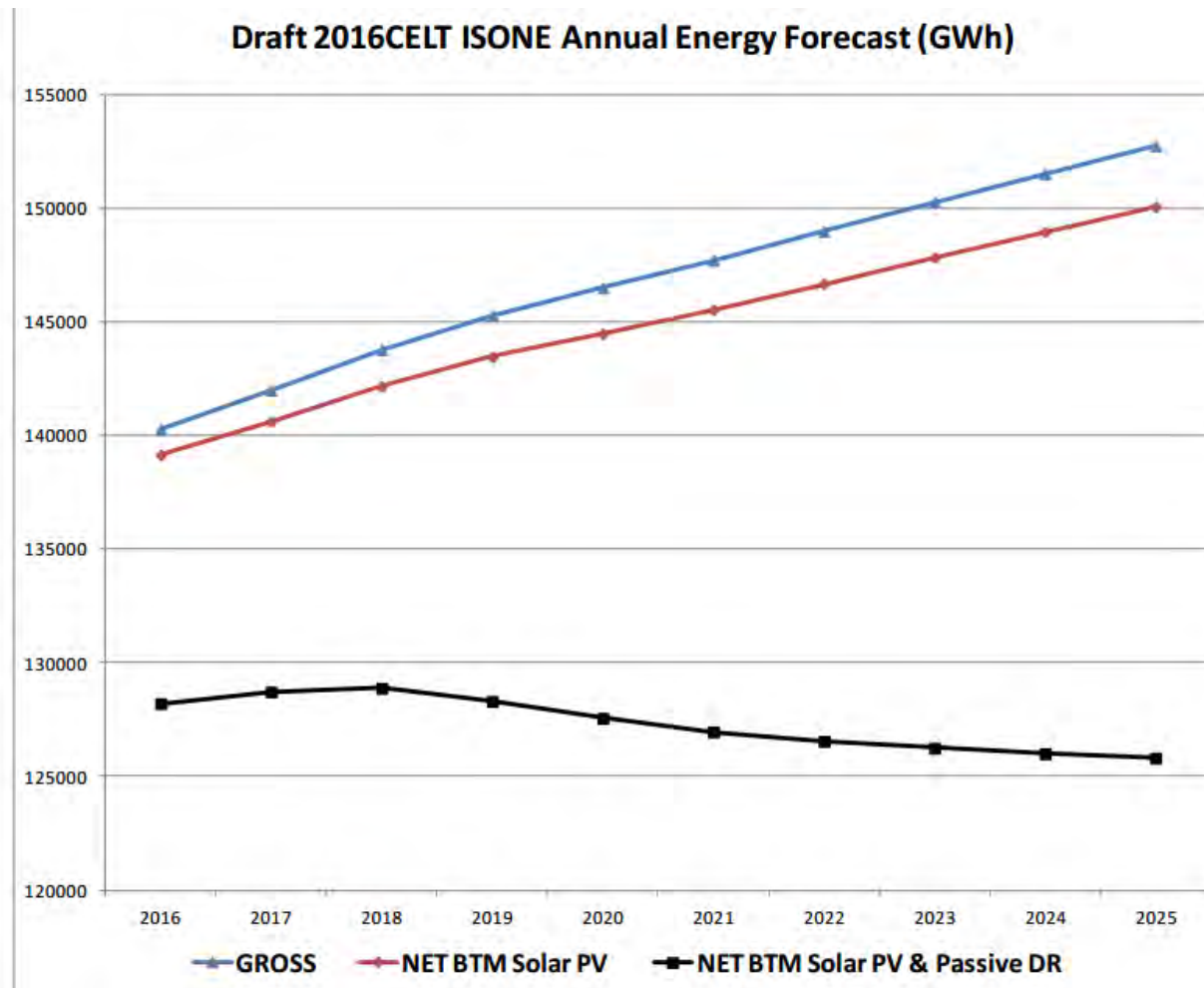


Background Trends from ISO-NE

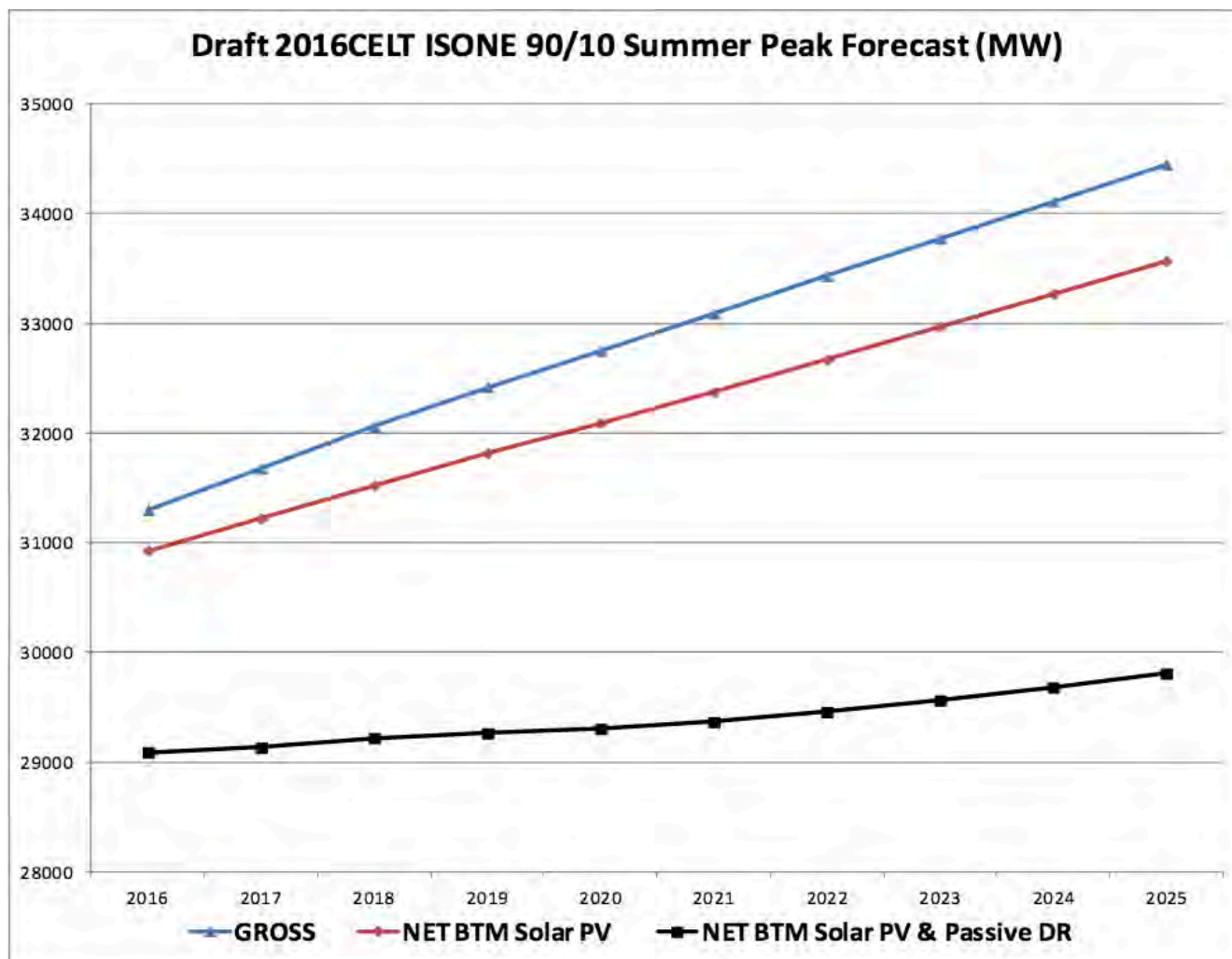
- ISO-NE does transmission planning on a 10 year outlook
- Projections are based on serving the highest peak day (think of third or fourth day of heat wave - 98 degrees)
 - Highest summer peak – 2006
 - Highest winter peak – 2004
- ISO-NE projects that for the year 2025 that without solar PV and passive demand reduction (primarily EE) that capacity needs would be in the mid-34,000 MW range. With projected solar PV and passive demand reduction the projected capacity demand is about 29,000 MW.
- Energy forecasts are projected to stay relatively flat, possibly deep negative
 - ISO-NE said our EE programs are a big driver of that forecast

Energy Forecast

Cape Light Compact
D.P.U. 17-100
Appendix 6, Attachment C
May 1, 2017
Jeffrey Leupold
Page 15 of 18



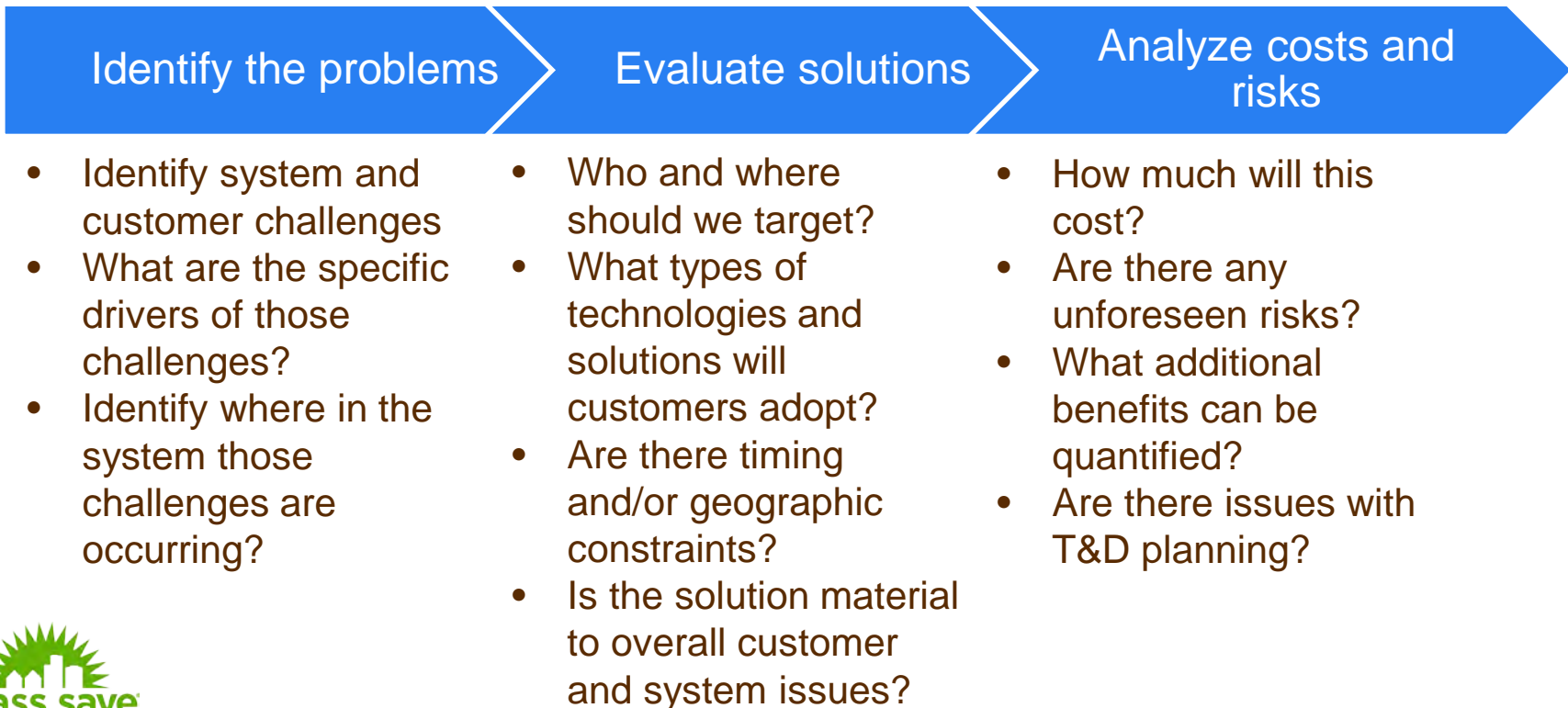
Capacity Forecast



Analytical Framework

Initial goal is to develop a strategy and analytical framework to dictate how we should be thinking about issues surrounding demand reductions

Overarching Methodology



Appendix

The PAs and the Council recognize the growing economic importance of achieving demand reduction goals and mitigating winter and summer peaks. The Term Sheet does not include targets for potential new statewide summer and winter demand peak reduction initiatives, and does not reflect costs, benefits or incentives associated with such initiatives. Subject to open meeting law requirements, PA representatives will work with a small Demand Savings Group that includes the DOER, the Attorney General's Office, the Low-Income Energy Affordability Network, interested expert and qualified stakeholders and the Council's consultants to explore approaches to cost-effective new demand reduction/peak reduction electric and gas initiatives. This Demand Savings Group will be addressing challenging and important matters, and all parties are committed to the successful development and actual implementation in-the-field during the 2016-2018 Plan period of new demand/peak reduction initiatives. To ensure that this in-the-field implementation goal is reached, the PAs will provide a report to the Council setting forth the specific scope, tasks, and detailed timelines for this group by the end of Q1 2016. This report will also provide an anticipated, high-level in-the-field deployment schedule for 2016-2018 based upon the then most current information. Deployment in-the-field will be subject to approval by the Department of Public Utilities and confirmation of cost-effectiveness. The PAs will also provide a report to the Council on the ongoing "super peak" avoided cost study on or before December 31, 2015 (if that study is delayed, this PA deliverable date will be appropriately adjusted).

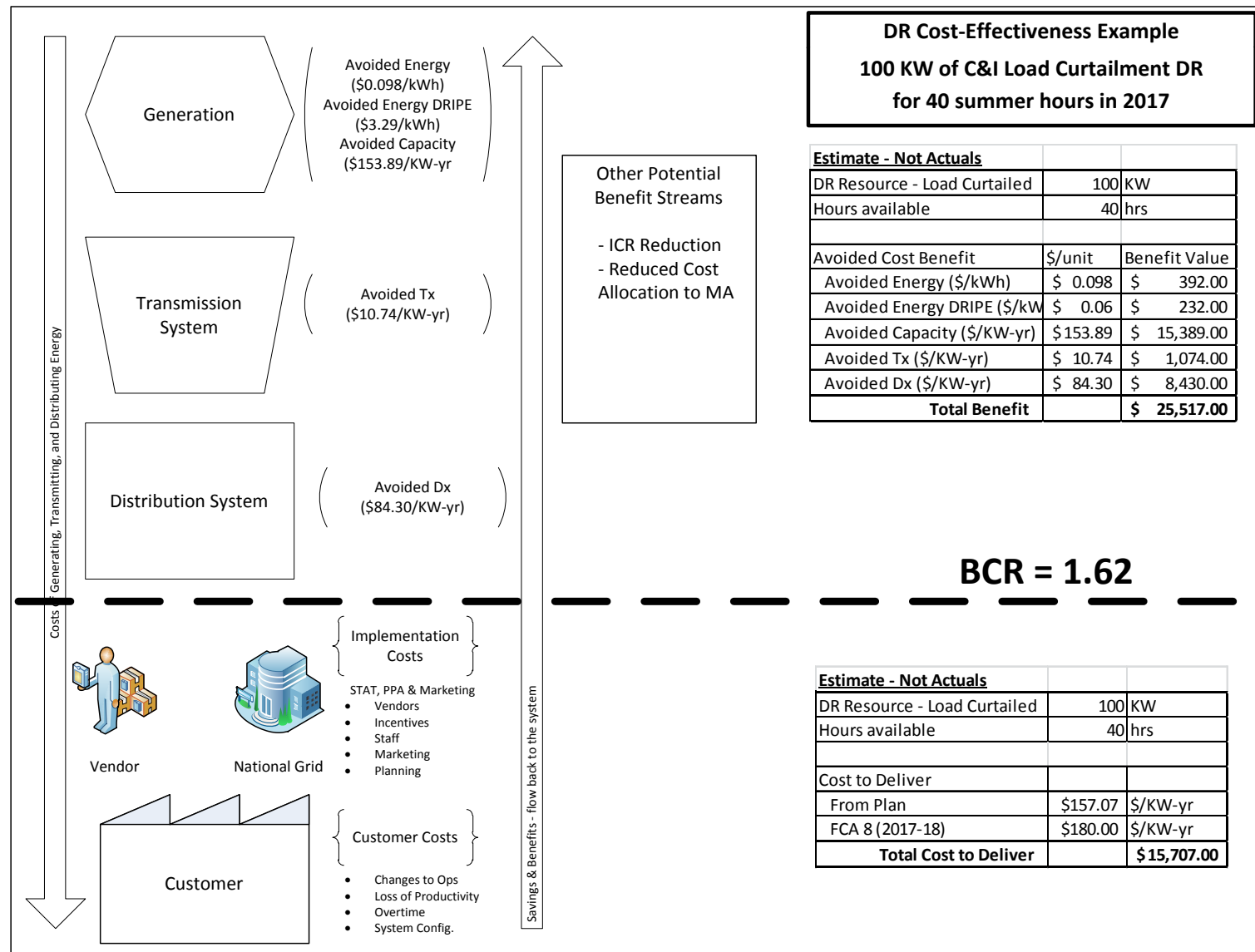
Active Demand Reduction Cost- Effectiveness Considerations

Demand Reduction Subcommittee

June 1, 2016

- DPU 11-120-A, Phase II – January 31, 2013
 - 3.4.3.3 Program Benefits
 - Avoided Capacity – summer-period & winter-period
 - Avoided Energy – summer-period peak/off=peak & winter-period peak/off-peak
 - Avoided Transmission
 - Avoided Distribution
 - Capacity DRIPE
 - Energy DRIPE
 - Non-Electric Benefits
 - Resource Benefits
 - Non-Resource Benefits
 - Additional Analysis to seize more benefits
 - Avoided Energy at Super Peak - Complete
 - Reduced ICR (Installed Capacity Requirement) - >3 years from program start
 - Reduce Cost Allocation for MA - >2 years from program start

Diagram of Benefits & Costs



- Persistence
 - Assume 1 Year Measure Life
 - Unlike EE in this way – Similar to the OPower Behavioral approach
- FCM Requirement
 - Need to bid into FCM in order to claim Avoided Capacity Benefit
 - Largest portion of Avoided Benefits (~60% in previous example)
 - With FCM comes complication, expense, and risk
- Treatment of Avoided Distribution Costs
 - Grid Mod did not include distribution benefits
 - ~33% in previous example
 - Planning perspective that it must have a 5 year track record in order to factor into planning and actual defer infrastructure
- How does the timing of ICR reductions and Cost Allocations applied back to the State effect what can be counted?

Further Reading



- A Framework for Evaluating the Cost-Effectiveness of Demand Response:
https://emp.lbl.gov/sites/all/files/napdr-cost-effectiveness_0.pdf
- CA 2010 Demand Response Cost Effectiveness Protocols:
http://docs.cpuc.ca.gov/WORD_PDF/AGENDA_DECISION/128212.pdf

Thank you

Demand Savings Group Handout

Monday, August 15, 2016



**BLACKSTONE
GAS COMPANY**



**Columbia Gas
of Massachusetts**
A NiSource Company

EVERSOURCE

 **Liberty Utilities**

nationalgrid
HERE WITH YOU. HERE FOR YOU.

 **Unitil**
energy for life

Lessons Learned

Progress on Analytical Framework

Identify the Problems

- ISO Level
 - Amount of capacity
 - Cost of capacity
- Distribution Level
 - System constraints, planning horizons
- Customer Level



Steps Taken:

- Conducted meetings with:
 - ISO-NE
 - System planning engineers
 - PA customers
- Reviewed available documents

Lessons Learned:

- Changes in ISO market rules present opportunities and challenges
 - Capacity v. Energy only
- Opportunity for programs to impact ISO forecasts without bidding into market but potential cost effectiveness issues
- System planners need to know reliability of reductions within 5 year planning horizon
 - May be able to impact planning indirectly by lowering peak demand
- Large customers are concerned about ICAP tags and demand charges

Evaluate Solutions

- Review potential solutions
- 2016 Demonstrations - Enrolling Now



- Worked with Fraunhofer to model measures
- Talked with PAs in other jurisdictions
- Met with vendors
- Leveraging existing program pathways
- Using learnings from others both in-state and in other jurisdictions

- Dispatchable assets have highest peak coincidence reduction values
- Some customers want choice, control and predictability
- Residential customers with Wifi Tstats connected to central AC have a high potential for load reductions within the sector
- Tstat manufacturers have customer experiences that they want to maintain even with BYOD approach

Analyze costs, risks, and benefits

- Cost effectiveness screening



- Talked to outside vendors about models for DERs in other jurisdictions
- Revisited whether existing avoided costs are appropriate and are "optimized"
- Developed draft screening models

- Discussed in detail later in presentation

Initial Conclusions/Lessons Learned

- There are multiple ways to impact system peak with differing costs, risks, and potential benefits.
 - Bidding demand response savings into capacity market includes strict telemetry requirements, a must offer requirement in the energy markets, and pay-for-performance standards which entail penalties. There is inherent risk in this option but could deliver significant benefits.
- Program models in other jurisdictions have been successful at lowering demand but have faced challenges in doing so, especially related to peak demand.
 - Some jurisdictions have seen increased opt-outs/overrides during extreme heat waves (when peak demand reduction is needed most)
 - Other ISOs have different market rules, influencing other PAs willingness to participate in wholesale markets.
- Need to address cost-effectiveness questions.
 - Current B/C model used for EE captures most costs and benefits – moderate refinements needed to address granular temporal nature of active demand reduction.
 - Avoided Capacity and Avoided Distribution benefits are the greatest currently understood proportion of active demand reduction benefits.
 - Other jurisdiction models and assumptions are based on their particular energy markets & rules, utility structure, PUC requirements which are different from Massachusetts.
 - E.g., California does not have a capacity market. The avoided cost of capacity is set by the California PUC and it is above the market capacity rate.
 - The presently used cost-effectiveness model may require hourly values for energy.
 - Additional benefit streams will need to be built into the model when identified and quantified.

Some Data that has Informed Priority Areas

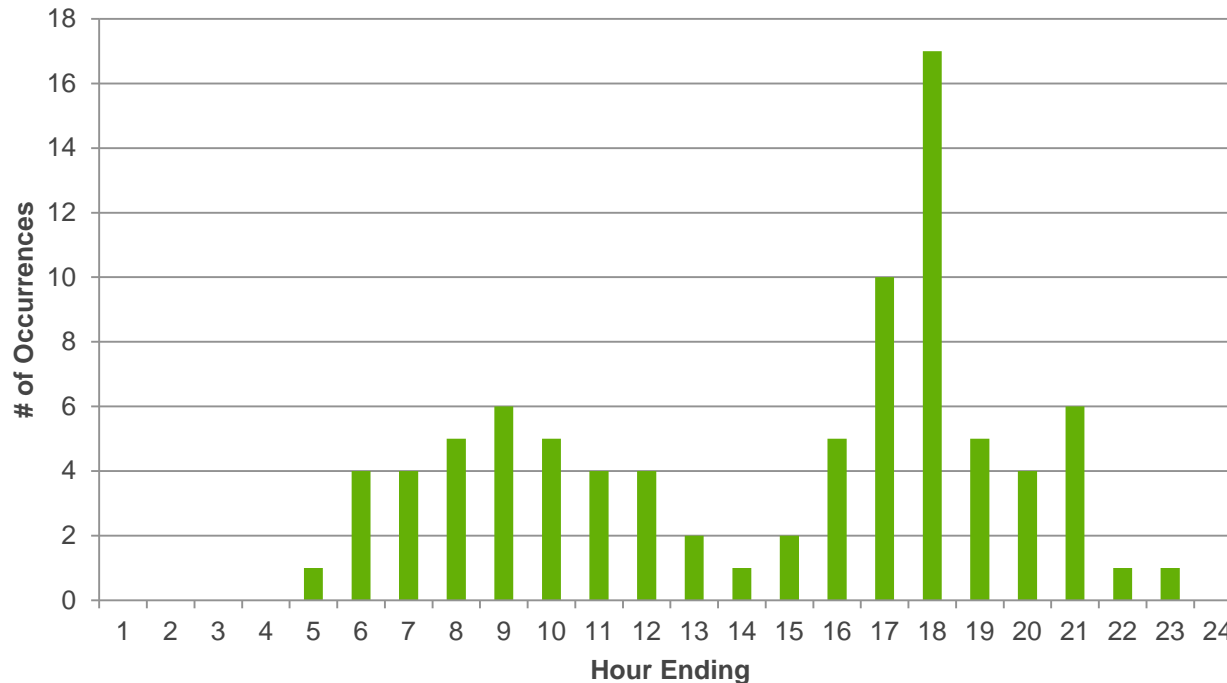
Why Focus on Summer?

Top Ten Highest Hourly LMPs in 2015			Top Ten Highest System Loads in 2015		
Date	Hour	Real Time LMP	Date	Hour	System Load
5/10/15	21	\$1041.38	7/20/15	17	24,437
8/15/15	17	\$615.48	7/29/15	17	24,437
2/21/15	19	\$487.32	7/29/15	18	24,399
1/03/15	18	\$425.39	9/08/15	16	24,368
9/07/15	18	\$422.92	7/20/15	18	24,365
8/24/15	17	\$387.34	7/20/15	16	24,357
8/24/15	16	\$377.65	9/08/15	17	24,338
9/08/15	15	\$375.40	9/08/15	15	24,291
9/08/15	16	\$365.18	7/20/15	15	24,291
12/21/15	18	\$350.03	9/09/15	17	24,275

- Highest hourly LMPs occur throughout the year
 - In 2015:
 - 6 of the 10 highest LMPs were in the summer
 - 1 in Spring
 - 3 in Winter
- However, highest system loads are consistently in the summer and within consistent time frames

Peaks are unpredictable

Top 1% of LMPs in 2015

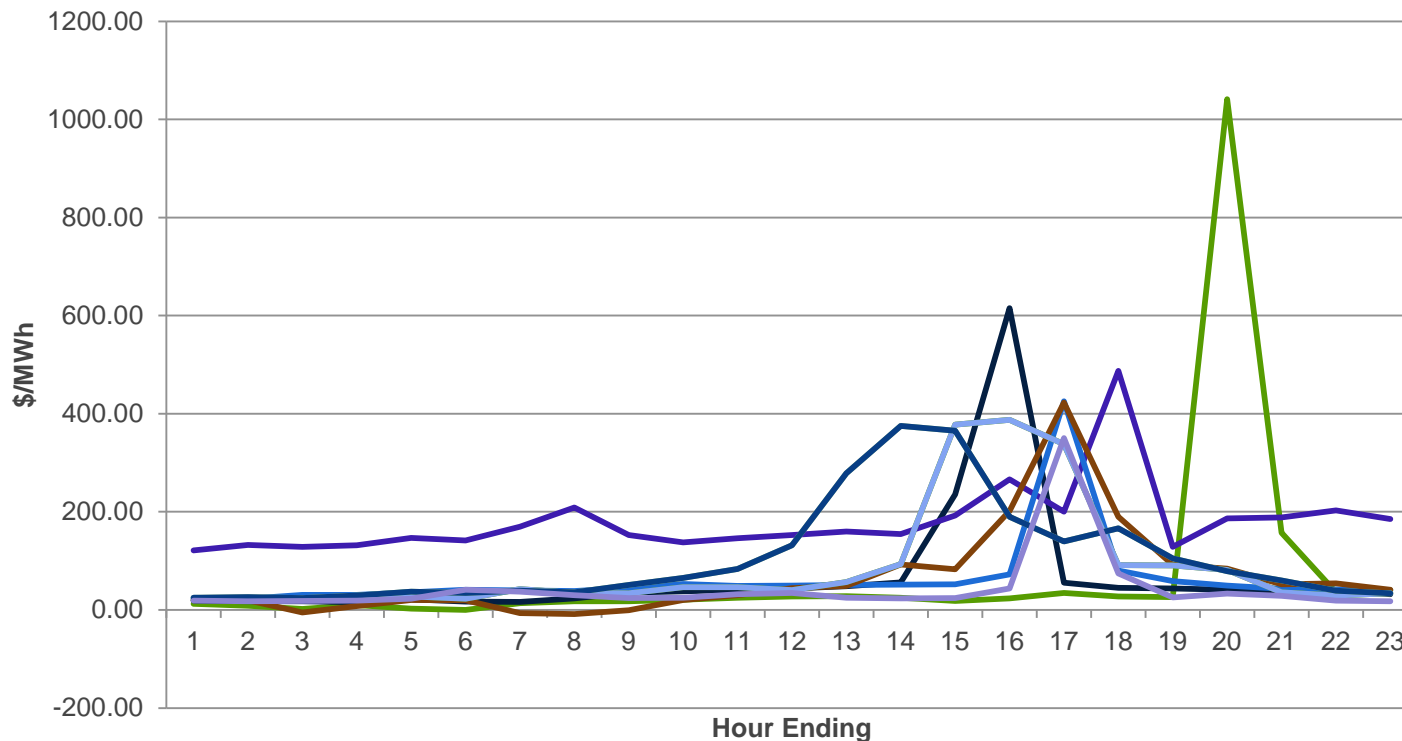


- The top 1% of hours, in terms of LMP, occur throughout the day
- There some groupings of hours but still not consistent
- Hard to develop programs around

A comparison of Day Ahead vs Real Time LMP shows that the Real Time LMP of the top 1% of hours is on average 241% higher than the Day Ahead LMP

Peaks are not sustained

LMPs for days with top ten highest hourly LMPs in 2015



- Prices spike for an hour and then come back down
- Difficult to design a program around unpredictable hours and when you can not give much advance notice
- Most programs are designed to last multiple hours, you may be over paying if you only need the reduction for an hour

Matrix of Opportunities – Prioritization of Research Objectives

In the “INITIAL REPORT ON SCOPE, TASKS, AND TIMELINES FOR THE DEMAND SAVINGS GROUP” submitted on March 31st, the PAs listed three main areas of preliminary inquiry – summer peak demand, winter peak pricing, and distribution related issues. At this time, the PAs are still evaluating potential solutions to the various issues associated with each one of the topics listed above but have begun to prioritize certain elements.

At this time, summer peak demand issues are being prioritized for further exploration and testing. This decision reflects the fact that the highest system loads tend to occur in the summer months, meaning that the amount of capacity procured in the Forward Capacity Market (FCM) is driven by summer usage. Additionally, many of the highest Real Time LMP hours occur in the summer (please see table 1). Focusing on summer months allows the PAs to potentially impact both capacity costs and some of the highest hourly energy costs. Summer months usually contain large amounts of “discretionary” load, that is to say load that can be adjusted with minimal customer operational interference. This usually manifests itself in AC load and there are many commercially viable technologies and solutions to address this load that can be tested for customer adoption.

Table 1. Top Ten Hourly LMPs and System Loads in 2015

Top Ten Highest Hourly LMPs in 2015			Top Ten Highest System Loads in 2015		
Date	Hour	Real Time LMP	Date	Hour	System Load
5/10/15	21	\$1041.38	7/20/15	17	24,437
8/15/15	17	\$615.48	7/29/15	17	24,437
2/21/15	19	\$487.32	7/29/15	18	24,399
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9/07/15	18	\$422.92	7/20/15	18	24,365
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8/24/15	16	\$377.65	9/08/15	17	24,338
9/08/15	15	\$375.40	9/08/15	15	24,291
9/08/15	16	\$365.18	7/20/15	15	24,291
12/21/15	18	\$350.03	9/09/15	17	24,275

Strategies specifically focused on distribution issues are still of interest but are not a high priority at the moment. Measures that have limited (or negative) energy efficiency impacts, have demand only impacts, and are utilized to offset specific distribution projects, are perhaps better categorized as a distribution asset. Accordingly, these assets may be more appropriately paid for and compensated as distribution assets. While the PAs strive to capture all cost effective energy efficiency and demand reduction savings, geo-targeting specific areas raises questions surrounding spending a disproportionate amount of budget on a limited geographic area. Additionally, many similar distribution related issues are being considered in the PA’s Grid Modernization dockets.

At this time, winter peak pricing has also been de-prioritized but not eliminated from consideration for further action. While winter does contain some of the highest hourly LMP costs, it is difficult to draw a strong correlation between those high LMPs and either load or temperature. Initial analysis indicates that winter peak pricing is more highly correlated with natural gas pricing and “one off” events such as transmission line outages and curtailments from neighboring systems. Designing programs or strategies

around relatively unpredictable events would be very challenging. Unlike summer, there is usually less discretionary load in winter as equipment like ACs, pool pumps, and dehumidifiers are not running, making it much harder to find large loads that can be reduced. Also, focusing on winter usage is unlikely to have an impact on reducing the ISO's Installed Capacity Requirement (ICR) and thus no impact on capacity prices.

Matrix of Solutions

The PAs have worked collaboratively to develop a slate of demonstration projects that will test different strategies and span across different customer segments. Table 2 outlines the proposed demonstration projects by PA and sector. The proposed demonstration projects will hit all sectors and will help the PAs understand customer willingness to adopt different strategies and technologies.

Table 2. Proposed Demonstration Projects by Sector

PA	Residential	C&I		
		Small	Mid	Large
National Grid	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> Interruptible load approaches
Eversource		<ul style="list-style-type: none"> EMS Lighting/HVAC controls WiFi Tstat DLC 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Batteries Thermal storage 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Real time info Batteries Thermal storage Demand response
CLC	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) Behavioral DLC on DMSHP, window A/C 	<ul style="list-style-type: none"> BTM thermal storage 	<ul style="list-style-type: none"> BTM thermal storage 	
Unitil	<ul style="list-style-type: none"> Battery Storage (or Muni project) 			<ul style="list-style-type: none"> Operations Changes to Reduce Demand

It should be noted that while some of the demonstration projects appear similar in the above table, they will actually be testing different things. For instance, the residential WiFi thermostat direct load control demo projects will be testing different triggers for calling events, different types of thermostats, and different peaks. This will allow the PAs to gain valuable information about savings values and opt-out rates when events are called at different trigger points and whether savings values are impacted by the type of thermostat installed in a customer's home.

Analytical Framework Update

Throughout the course of 2016 the PAs have been working towards answering, or developing a strategy to answer, the critical questions laid out in the Analytical Framework that was presented as part of the INITIAL REPORT ON SCOPE, TASKS, AND TIMELINES FOR THE DEMAND SAVINGS GROUP as Appendix H. Figure 1 below shows progress to date and is separated in to 3 categories. For most of the questions, developing answers required initial research that could be completed through literature reviews, interviews with other PAs, or discussions with other experts. The Research Complete column denotes whether that initial task has been completed (✓) or is in In Progress (IP). In order to fully answer many of the questions posed in the Analytical Framework, it is necessary to test hypothesis with in-the-field demonstration projects, in addition to the initial research. The column marked “In-field” highlights the progress to date with the in-the-field portion of the research. Finally, the Next Steps column is meant to be illustrative of what the PAs plan to do in order to fully answer the questions in the framework.

Figure 1. Progress to Date on Analytical Framework

	Research complete	In-field	Next Steps
Identify the problems			
Identify system and customer challenges	✓	IP	Demo projects, research
Determine the specific drivers of those challenges	✓	IP	Demo projects, research
Identify drivers of capacity and energy costs.	✓	n/a	n/a
Determine how changes in ICR, ICAP tags, and demand forecasts impact customers and rates.	✓	n/a	n/a
Evaluate solutions			
Who and where should we target?	✓	IP	Demo projects, other PAs
Is the solution material to overall customer and system issues?	IP	IP	Demo projects
What types of technologies and solutions will customers adopt?	✓	IP	Demo projects
What are the potential impacts and value at the wholesale, distribution, retail, and customer levels?	IP	IP	Demo projects, research, other PAs
What are the potential benefits?	✓	n/a	n/a
Are there timing and/or geographic constraints?	IP	IP	Demo projects, research, other PAs
Analyze costs, risks, and benefits			
How much will this cost?	IP	IP	Demo projects
Are there any unforeseen risks or unintended consequences?	✓	IP	Demo projects, research, other PAs
What additional benefits can be quantified?	IP	IP	Demo projects, other PAs
Are there issues with T&D planning?	✓	IP	Show persistence

PA Areas of Focus for Demand Demonstration Projects

Seasonal and Load vs.
Pricing Priorities



BLACKSTONE
GAS COMPANY



Columbia Gas
of Massachusetts
A NiSource Company

EVERSOURCE

 Liberty Utilities

 nationalgrid
HERE WITH YOU. HERE FOR YOU.

 Unitil
energy for life

Why Focus on Summer?



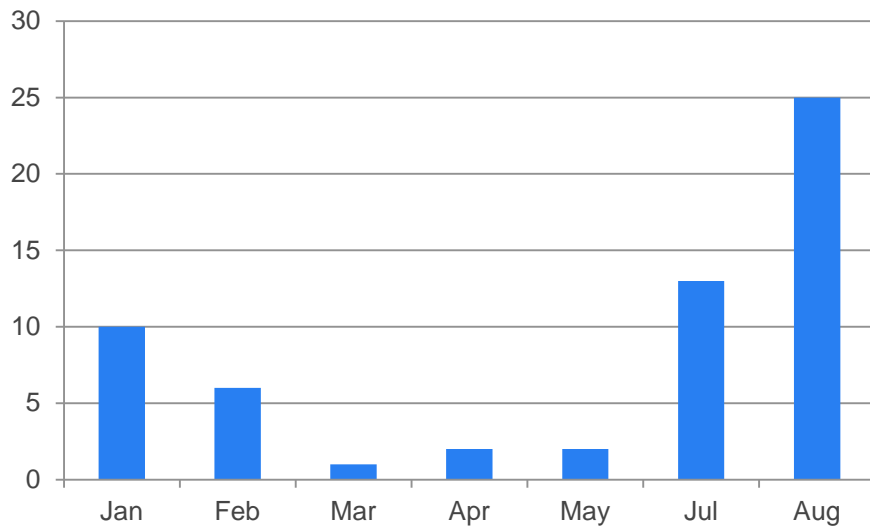
Top Ten Highest Hourly LMPs in 2016 to date			Top Ten Highest System Loads in 2016 to date		
Date	Hour	Real Time LMP	Date	Hour	System Load
8/11/16	15	\$1,438.97	8/12/16	15	25,521
8/11/16	18	\$1,390.82	8/12/16	16	25,495
8/11/16	17	\$930.55	8/12/16	14	25,206
8/11/16	16	\$518.04	8/12/16	17	25,074
8/14/16	19	\$508.23	8/11/16	17	25,037
8/11/16	19	\$407.05	8/11/16	18	24,968
8/11/16	14	\$387.32	8/11/16	16	24,845
8/12/16	15	\$379.95	8/11/16	15	24,672
8/12/16	16	\$365.81	8/12/16	13	24,600
1/5/16	8	\$360.00	8/12/16	18	24,446

- Highest hourly LMPs occur throughout the year
 - In 2016 to date:
 - 9 of the 10 highest LMPs were in the summer
 - 1 in Winter
- However, highest system loads are consistently in the summer and within consistent time frames

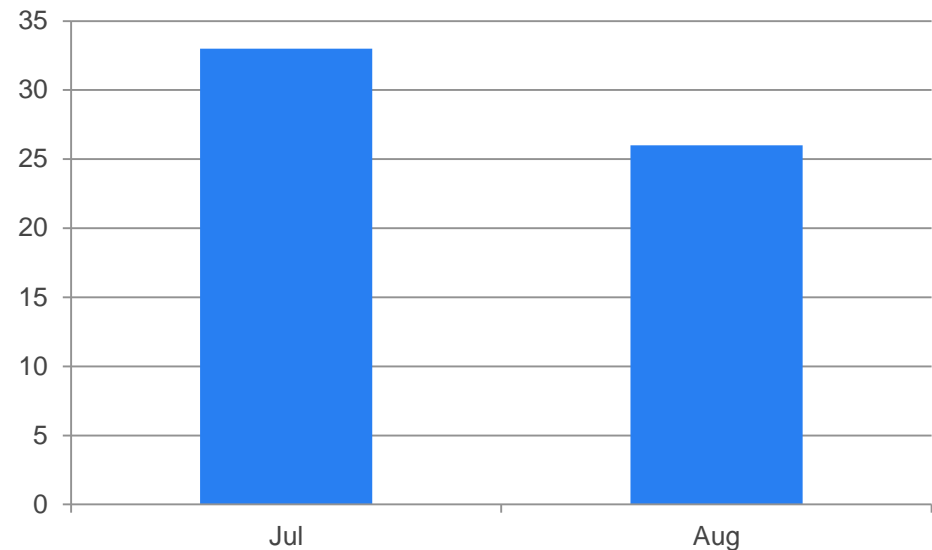
Top 1% of 2016 LMPs and System Loads

The general trend of a wide temporal distribution of LMPs but more concentrated system loads holds true when examining the top 1% of hours

When did the top 1% of 2016 LMPs occur?



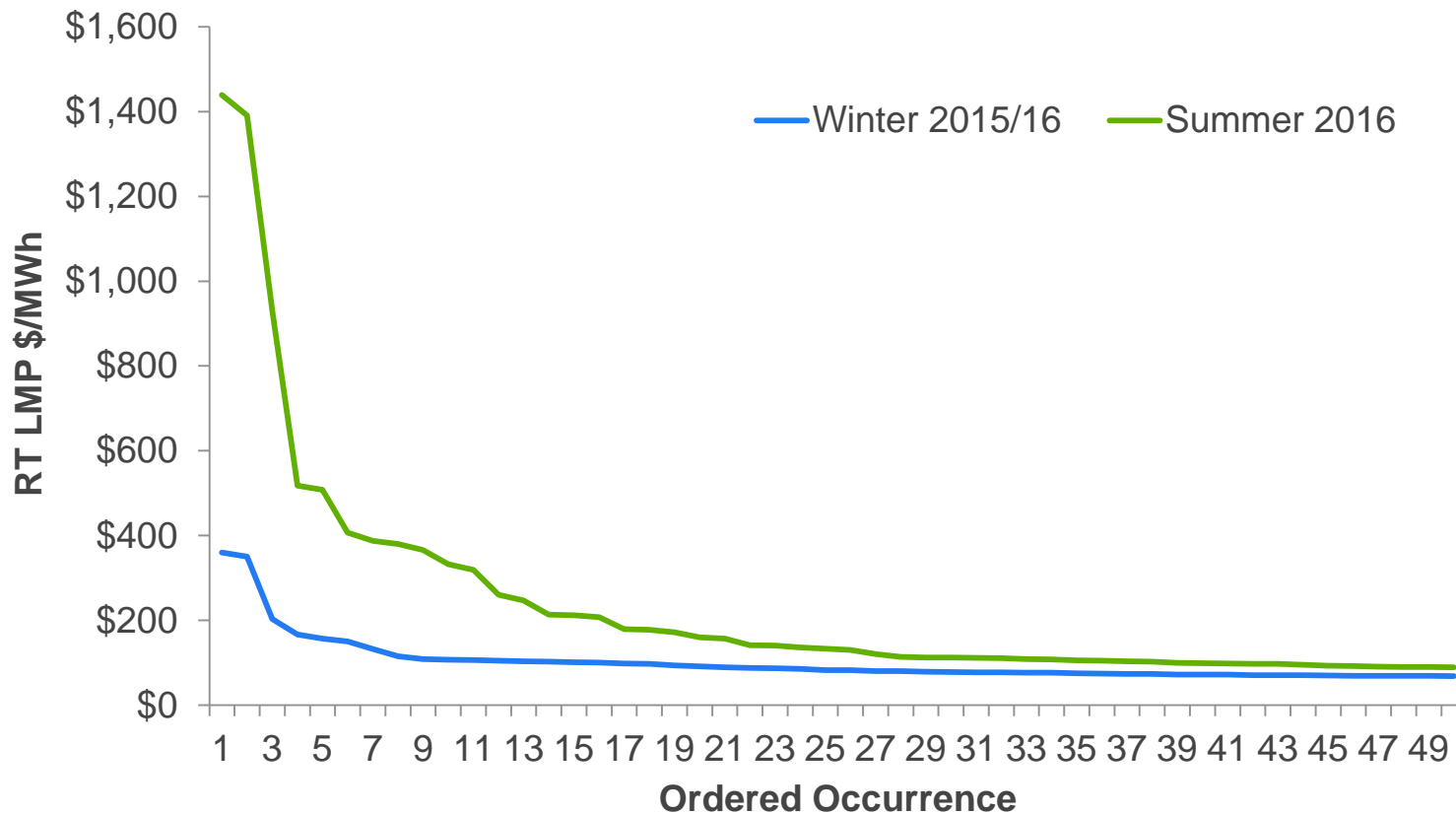
When did the top 1% of 2016 system loads occur?



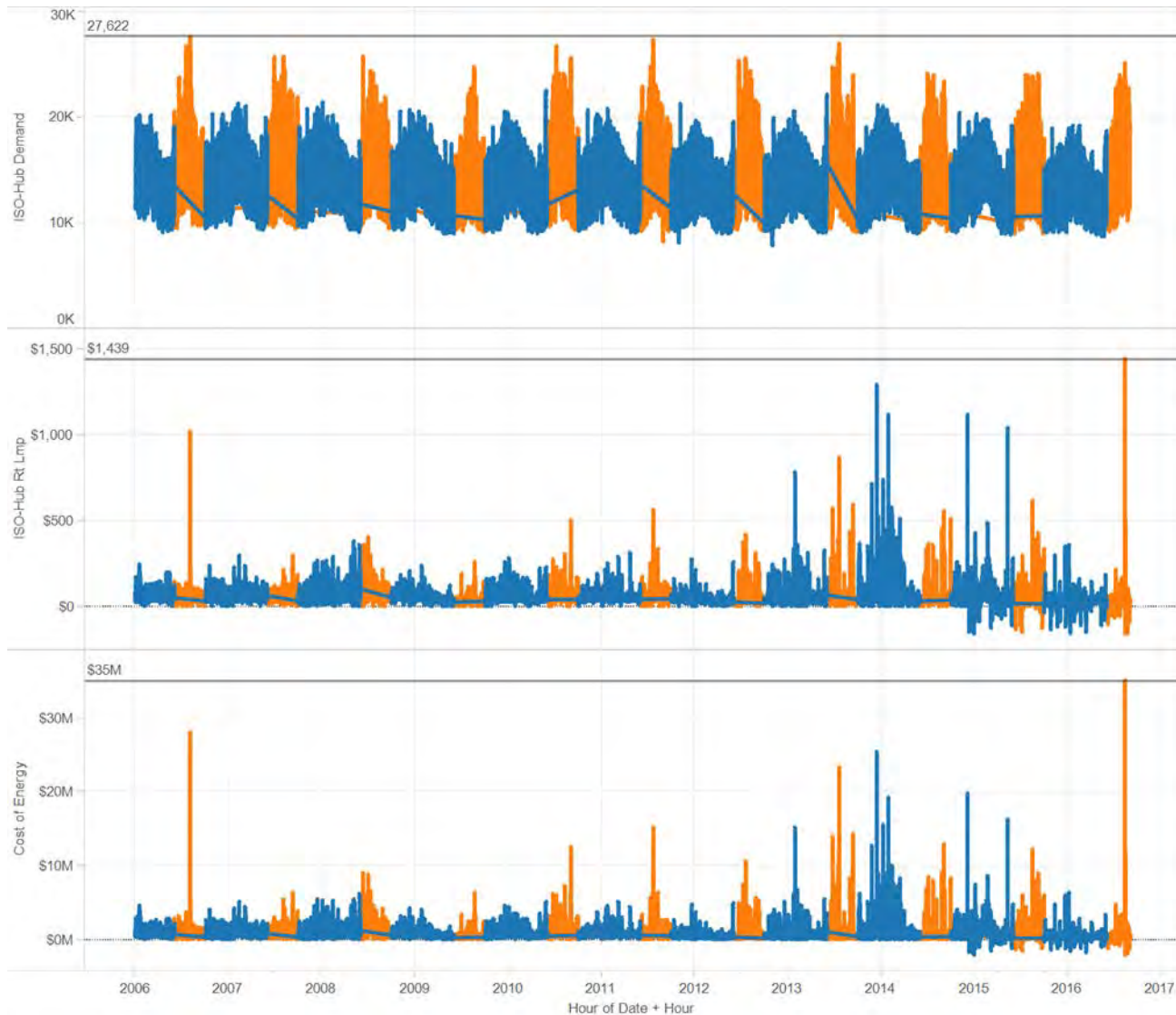
- Top 1% of hours in 2016 is 59 observations to date
- 42% of the hours in the top 1% of LMP hours are in the top 1% of load hours

Top LMPs - Winter vs Summer

The top 50 LMP hours for Winter 2015-16 vs Summer 2016 show that the summer costs are consistently higher



10 Year Summer vs. Winter View

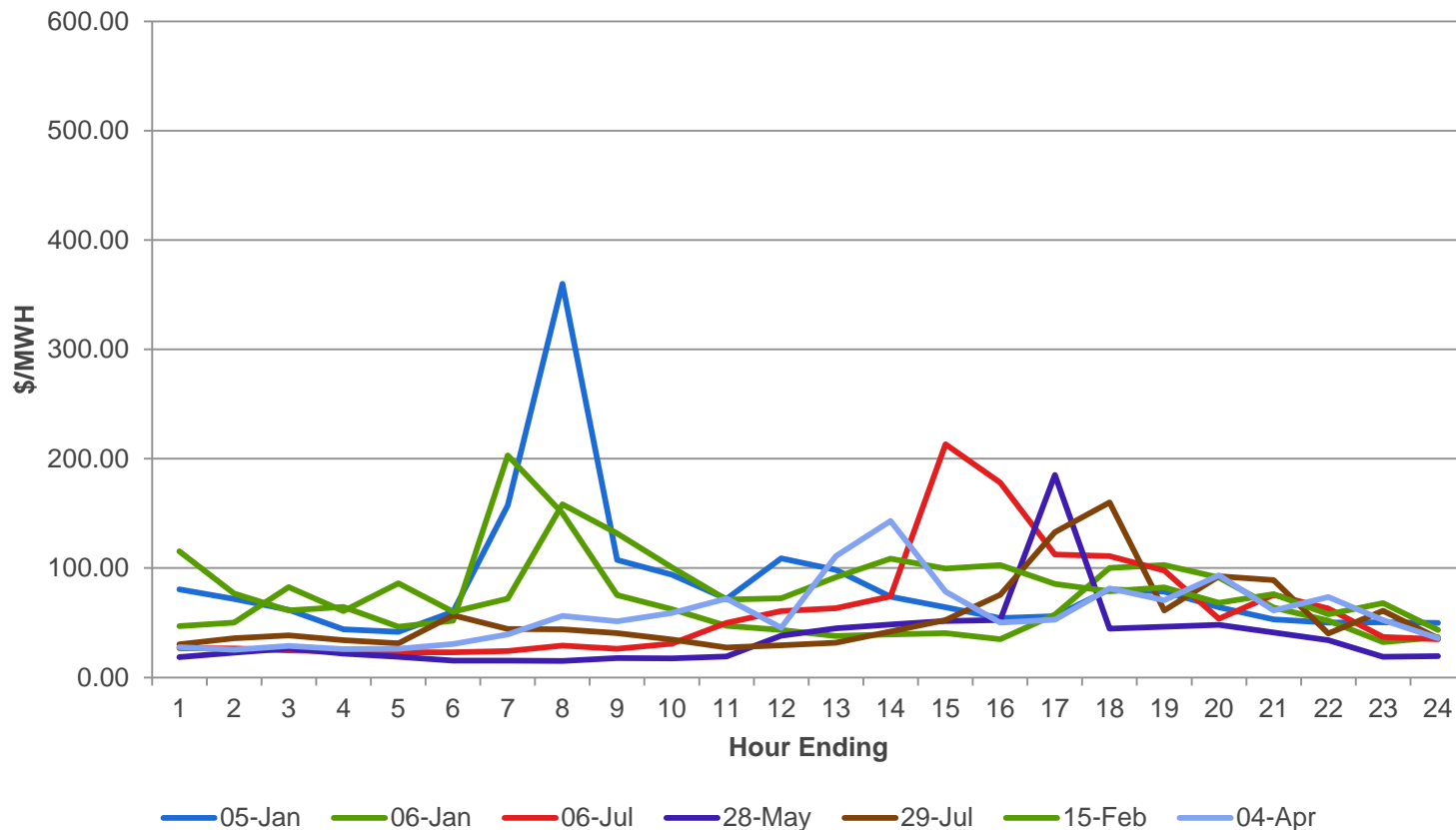


Key Points:

- Summer load has been higher than winter load
- Winter price spikes don't necessarily mean a cost of energy higher than in summer

Pricing Peaks are not sustained – 2016 to date

LMPs for days with top ten highest hourly LMPs during 2016 to date

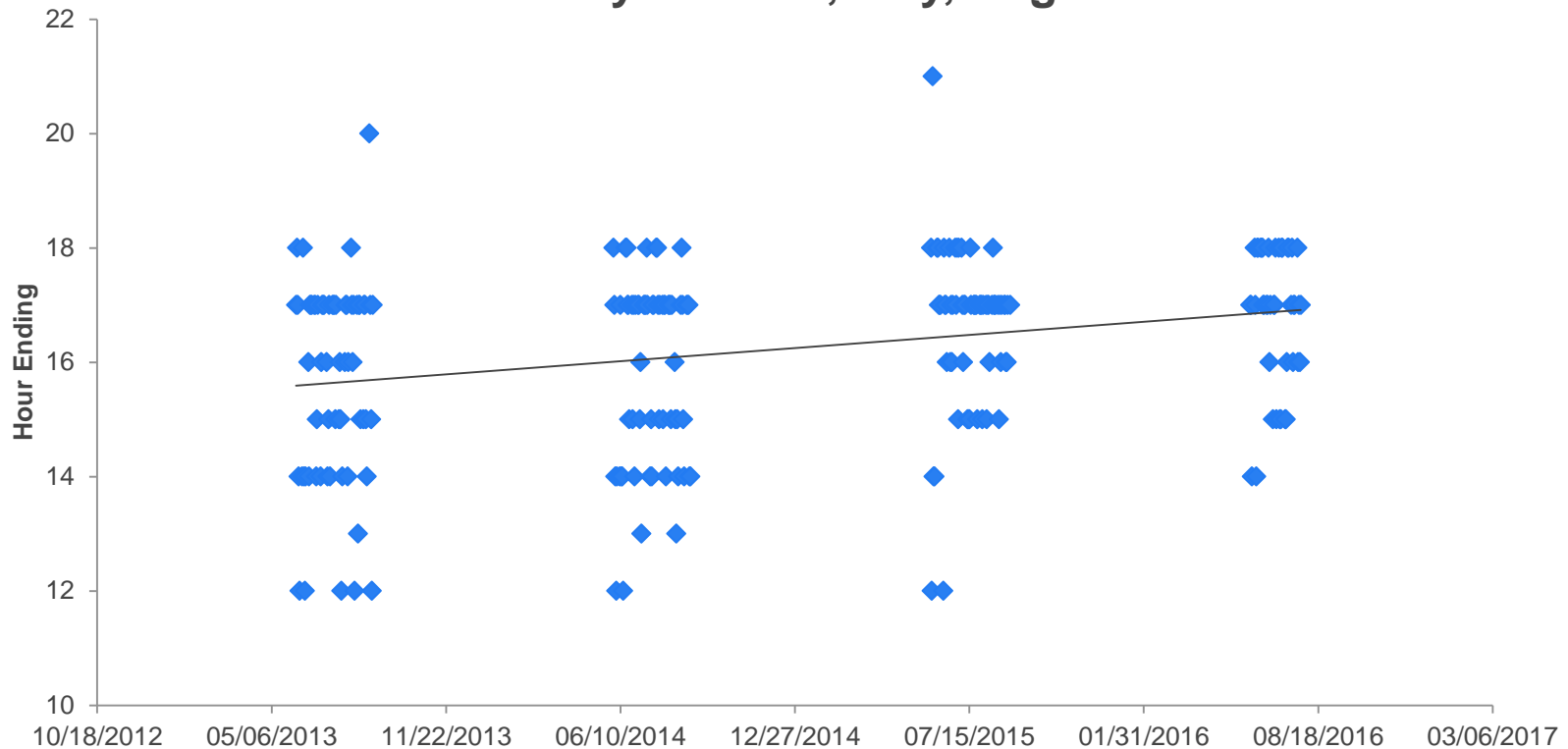


*excludes August

Peaks are getting later in the day

It is becoming increasingly important to develop programs that can have an impact later on the day

Hour When Daily Peak Occurred – Non-Holiday Weekdays – June, July, August



Proposed Demonstration Projects by Sector

PA	Residential	C&I		
		Small	Mid	Large
National Grid	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> WiFi Tstat DLC 	<ul style="list-style-type: none"> Interruptible load approaches
Eversource (contingent on EEAC and DPU approval)		<ul style="list-style-type: none"> EMS Lighting/HVAC controls WiFi Tstat DLC 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Batteries Thermal storage 	<ul style="list-style-type: none"> Software & Controls Onsite training Process audits Real time info Batteries Thermal storage Demand response
CLC	<ul style="list-style-type: none"> WiFi Tstat DLC (Central A/C) Behavioral DLC on DMSHP, window A/C 	<ul style="list-style-type: none"> BTM thermal storage 	<ul style="list-style-type: none"> BTM thermal storage 	
Unitil (contingent on EEAC and DPU approval)	<ul style="list-style-type: none"> Battery Storage 			<ul style="list-style-type: none"> Operations Changes to Reduce Demand

DLC – Direct Load Control
DMSHP – Ductless Mini-Split Heat Pumps
BTM- Behind the Meter



Mary Ann Piette, Division Head, Building
Technology and Urban Systems

New Directions in Demand Response

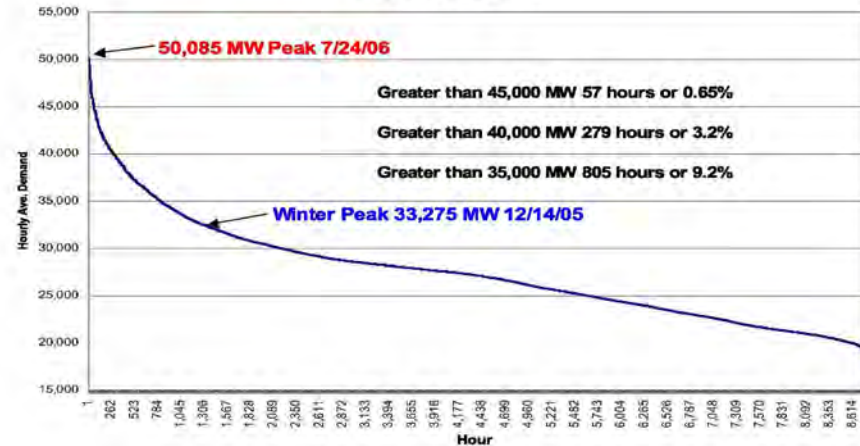
Motivation for Demand Response



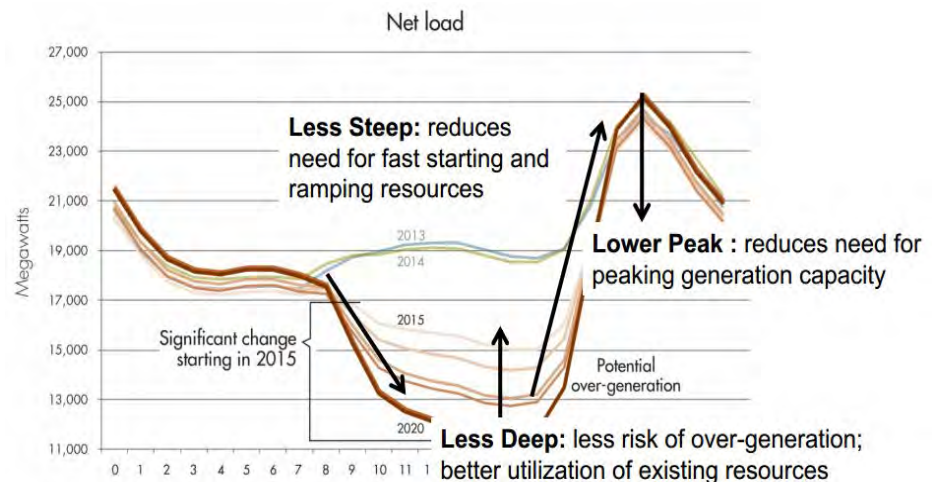
California ISO
 Your Link to Power

CAISO Load Duration Curve

Sept '05 to Sept '06



- Manage Peak Capacity During Hot Summer Days
- Improve Affordability of Electricity
- Improve Grid Reliability
- Enable More Renewables on Grid



Note, this curve is being updated, it is used here to represent how we should look at what we are trying to accomplish

Demand Response Simplified

Cape Light Compact
D.P.U. 17-100
Appendix 6, Attachment H
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Objectives



Reliability



Economics



Congestion



Intermittent
Resources

Data Model



Schedule



Price

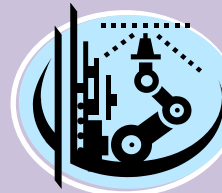


Signaling

Automation



Manual



Automated

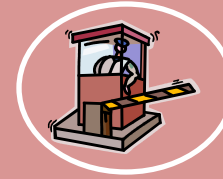
Standards



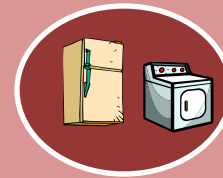
Control Strategies



Centralized



Gateway

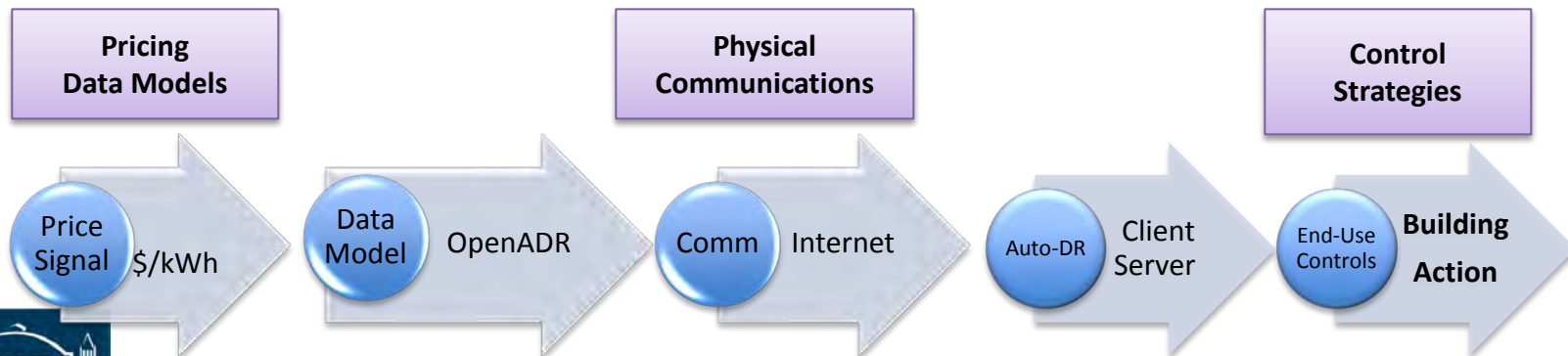
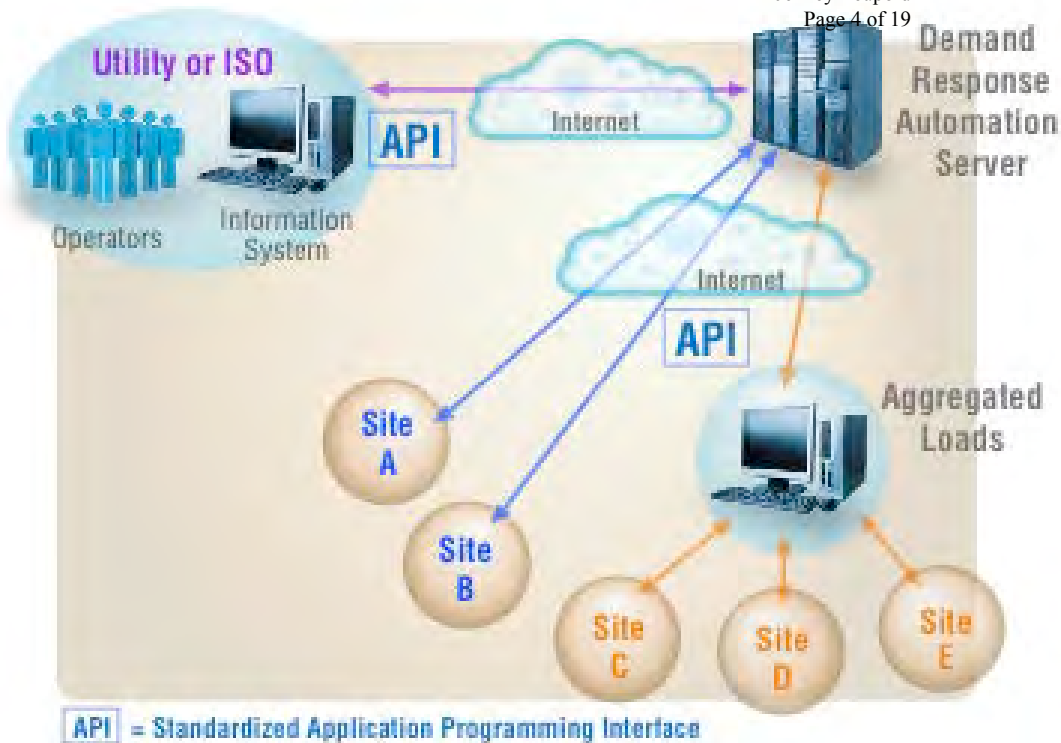


Embedded

Open Automated Demand Response

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- Open standardized DR interface
- Allows elec providers to communicate DR signals directly to customers
- Uses XML language and existing communications e.g., Internet

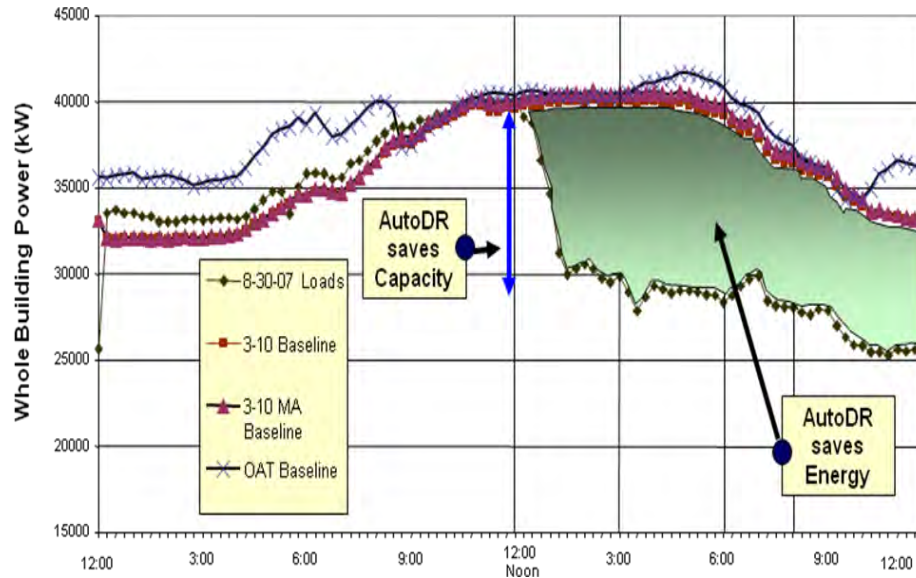




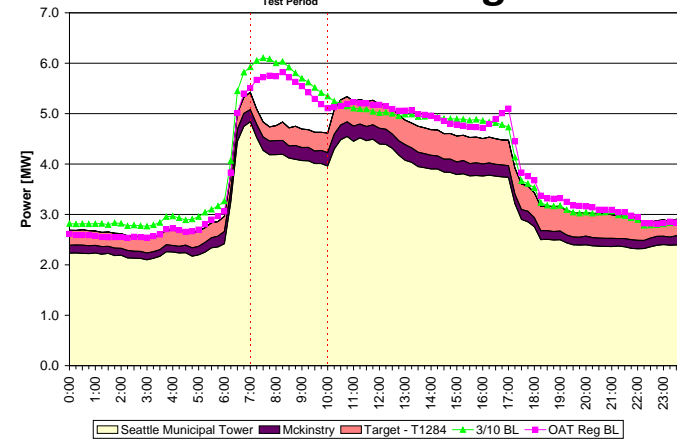
Historic focus on Seasonal Grid Stress

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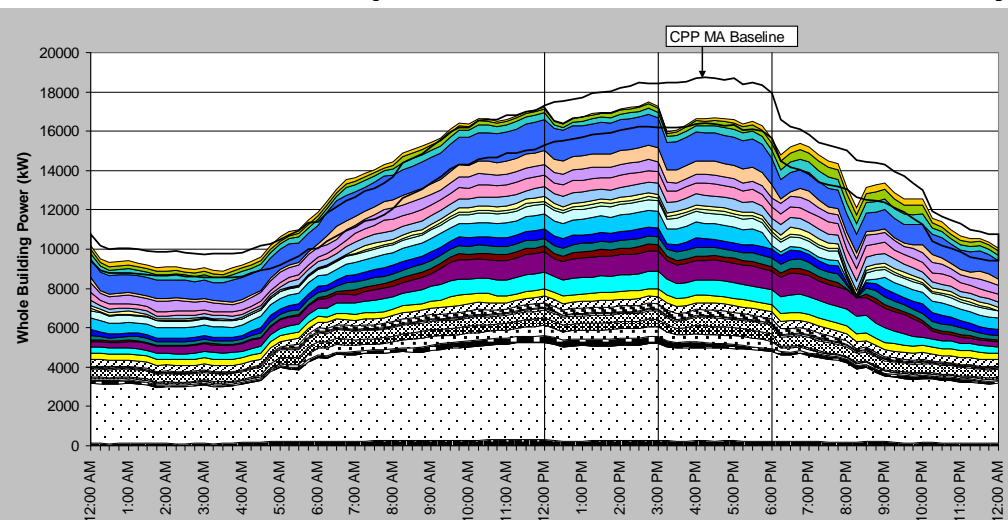
OpenADR PG&E Demand Bid Test Day



OpenADR Northwest Test on Cold Morning



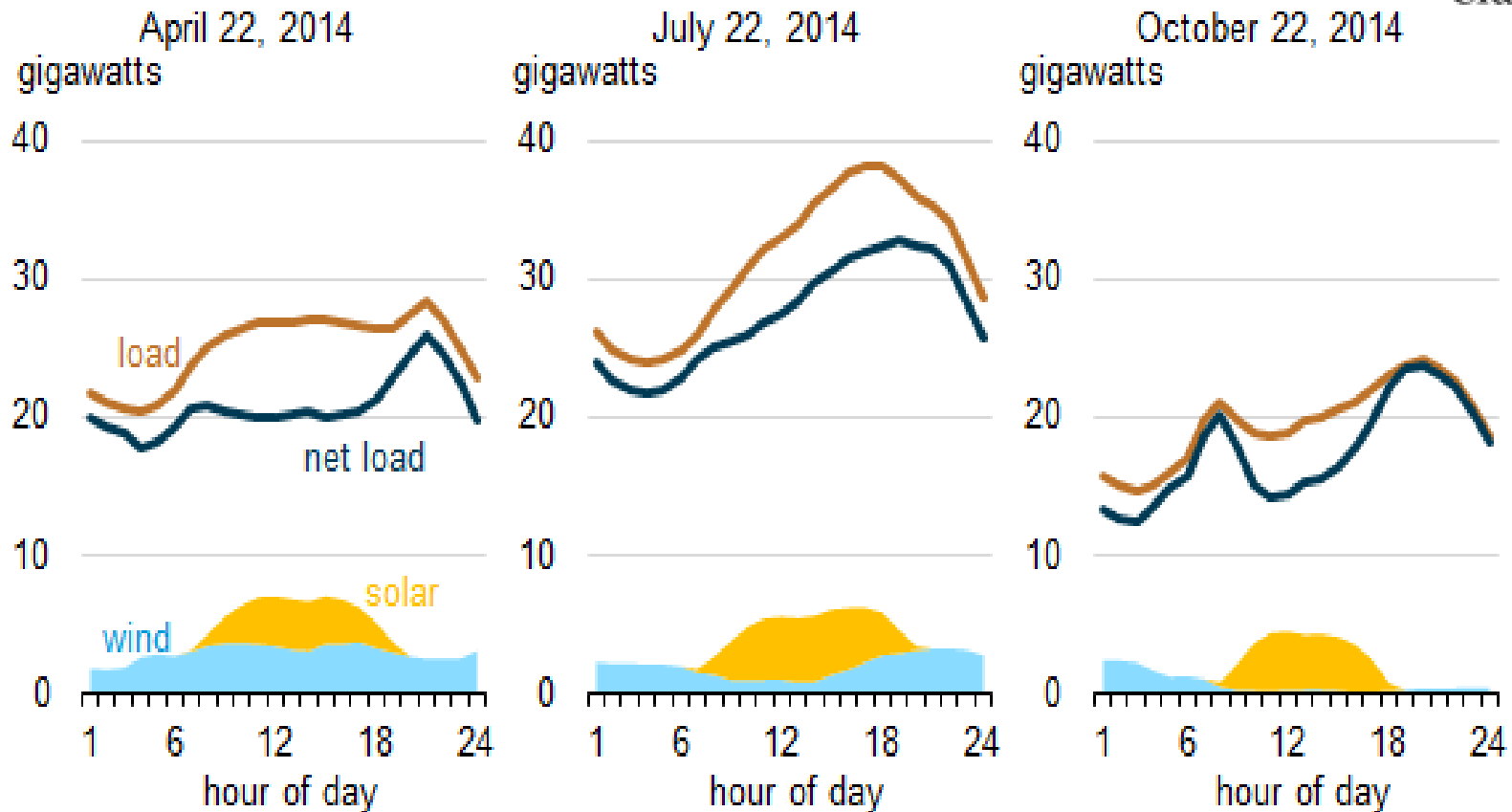
OpenADR Cumulative Shed in July 2008



Need for Electric Supply Changing with More Renewables

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CAISO load, net load, and wind and solar output on example weekdays during 2014



2014 Daily Net Load Profile

By Month | CEC Medium Growth Building Stock | 1in2 weather

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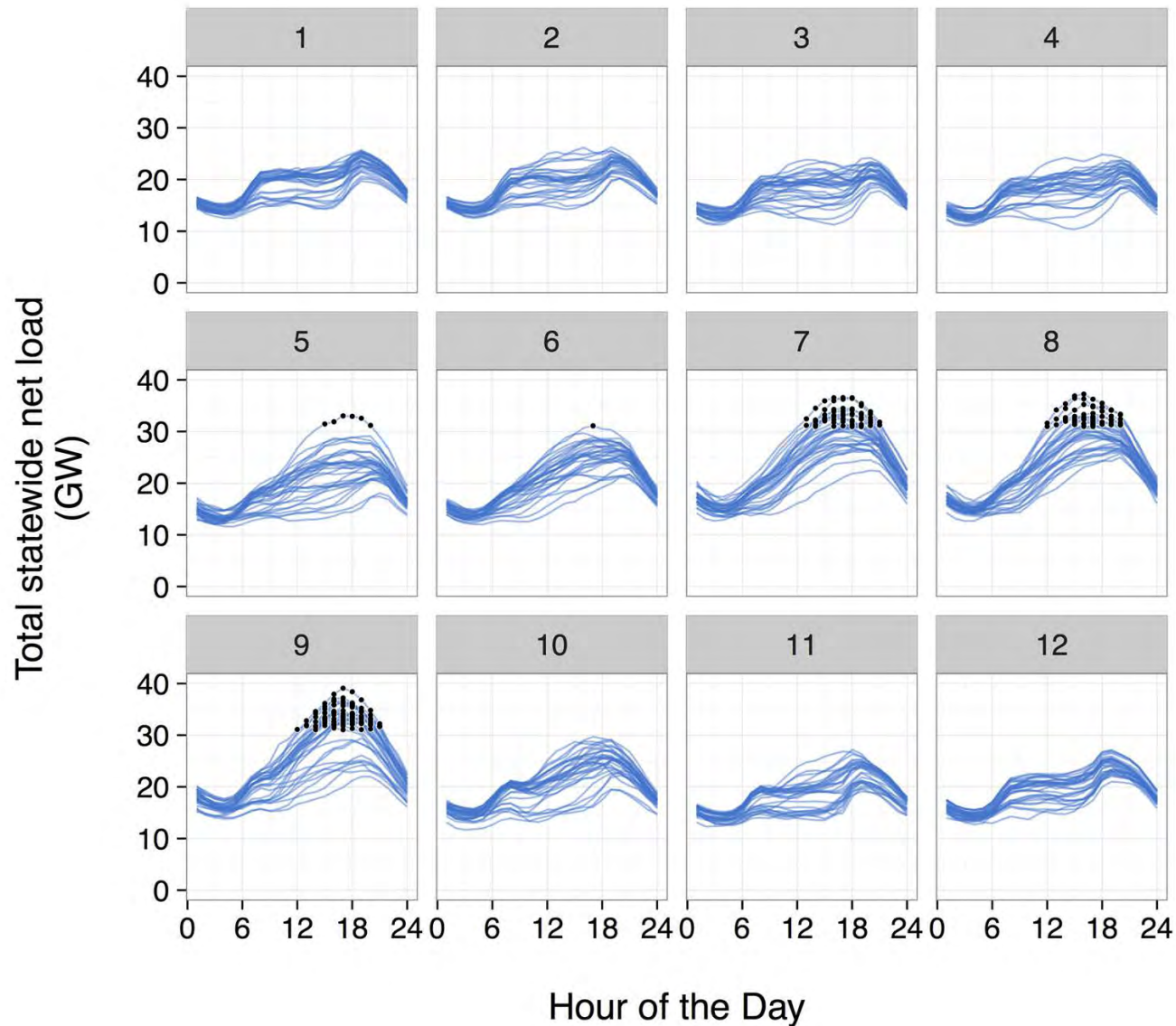
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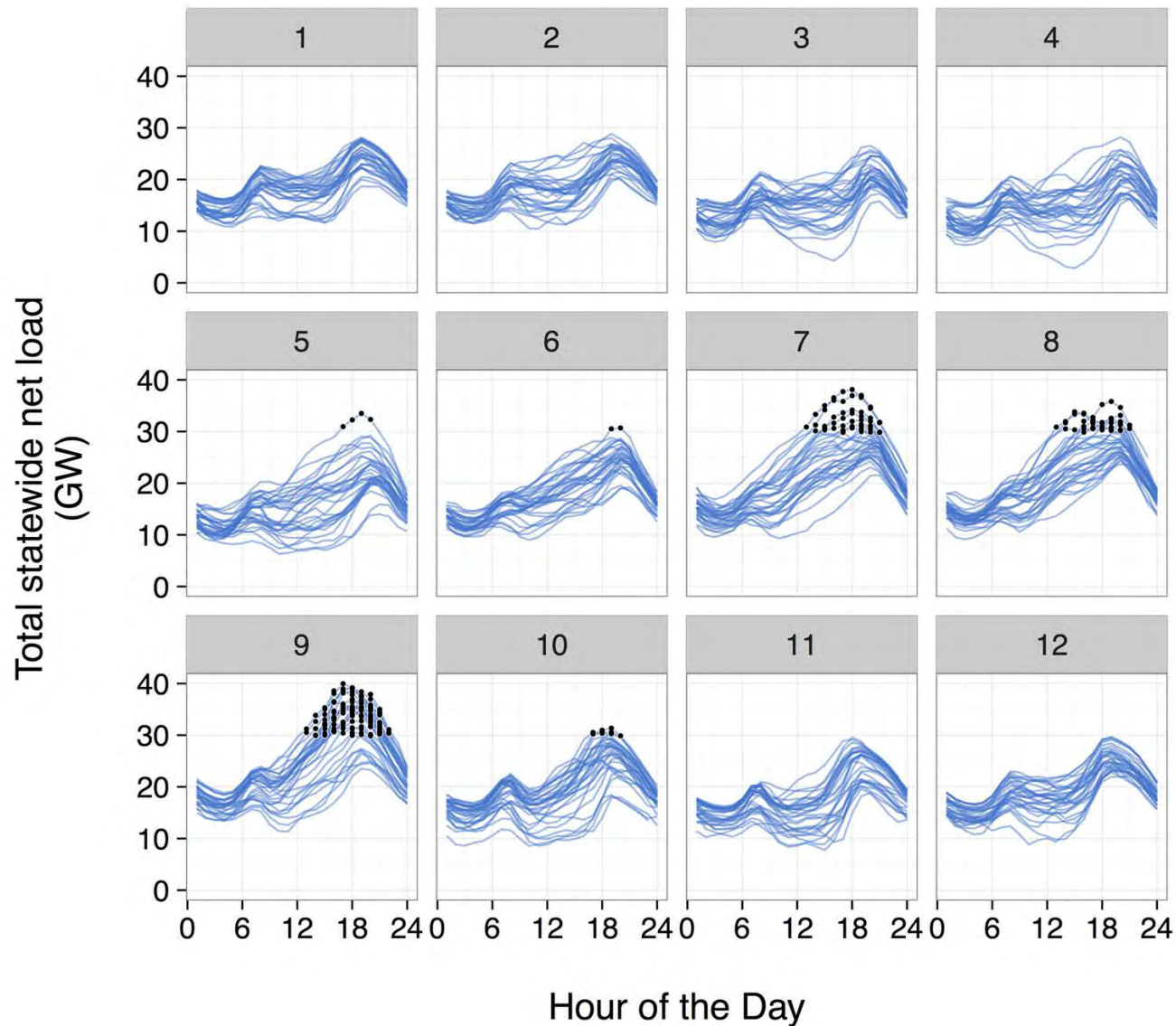
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2020 Daily Net Load Profile

By Month | CEC Medium Growth Building Stock | 1in2 weather

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2025 Daily Net Load Profile

By Month | CEC Medium Growth Building Stock | 1in2 weather

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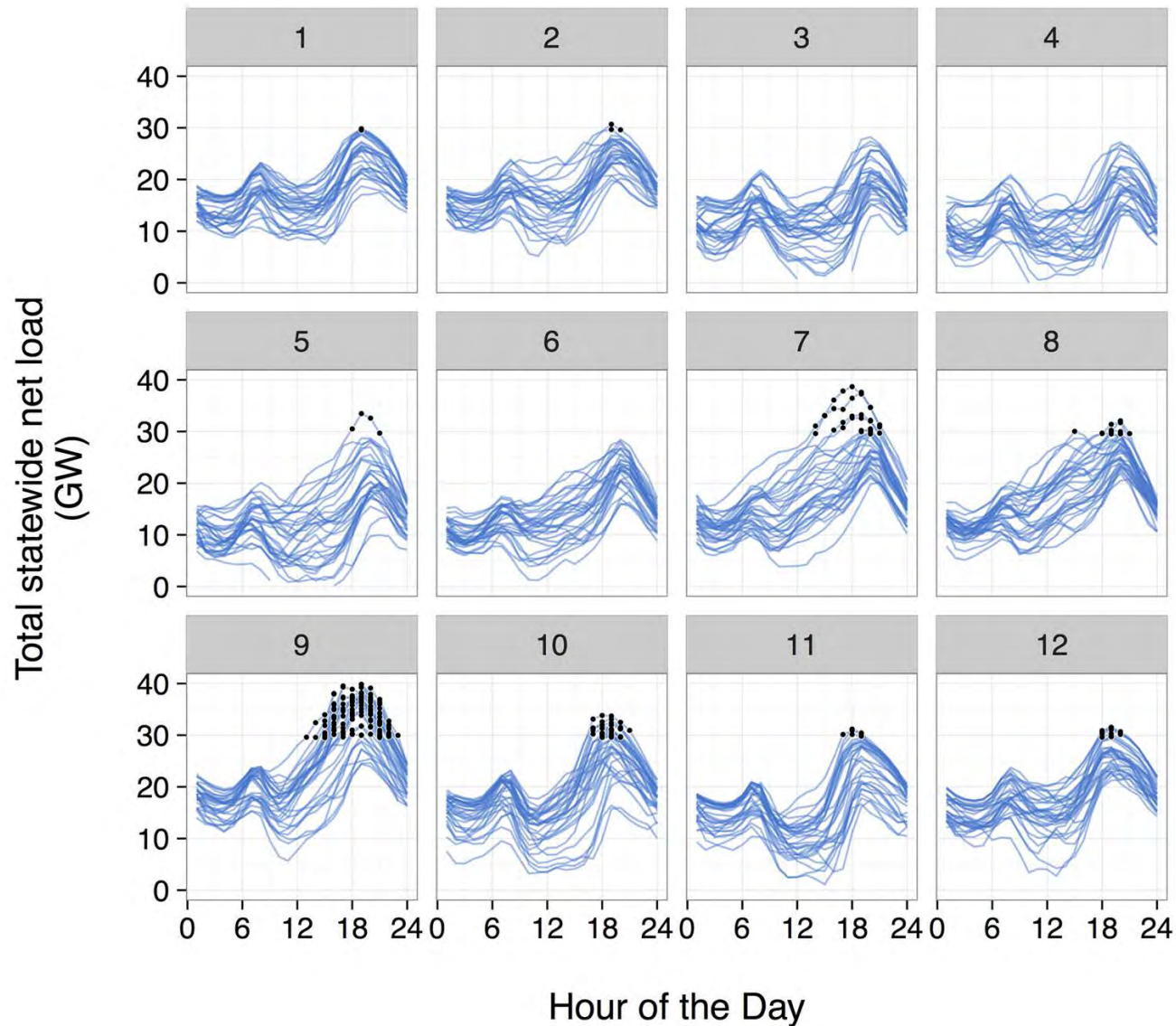
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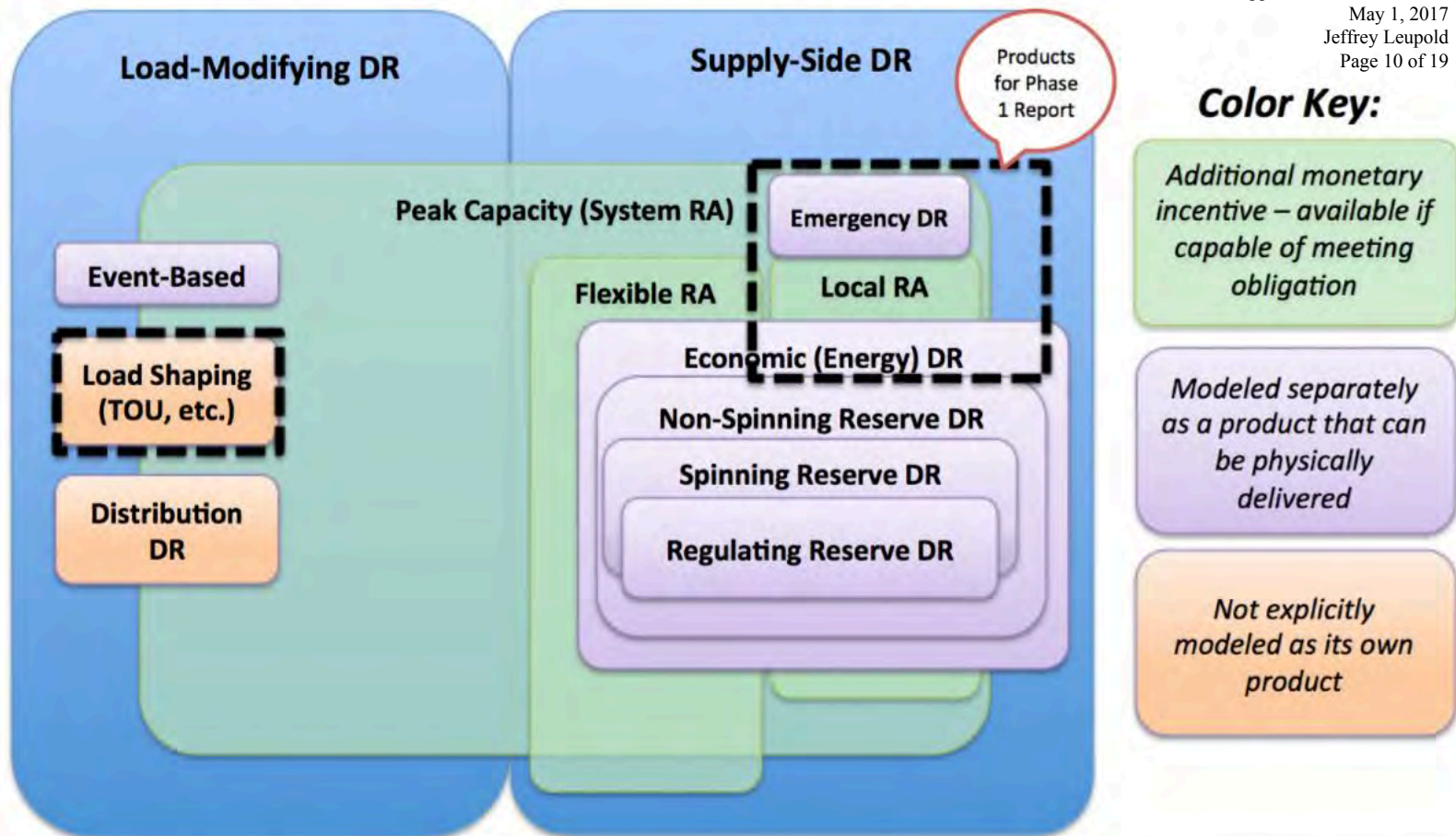
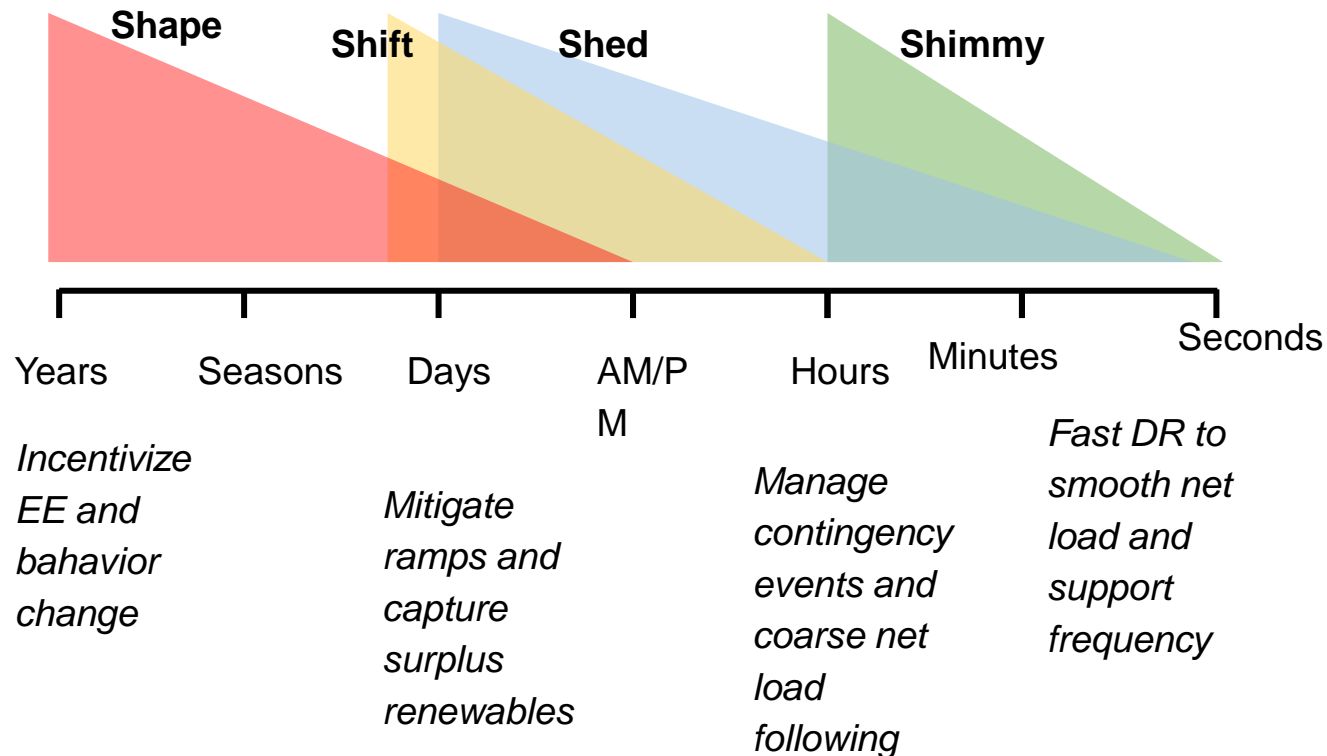


Figure 16: Nested Grid Support Products. DR products Classification by Resource Adequacy Capacity Credit, Supply-side & Load-Modifying DR, illustrating grid support products' interrelationship.

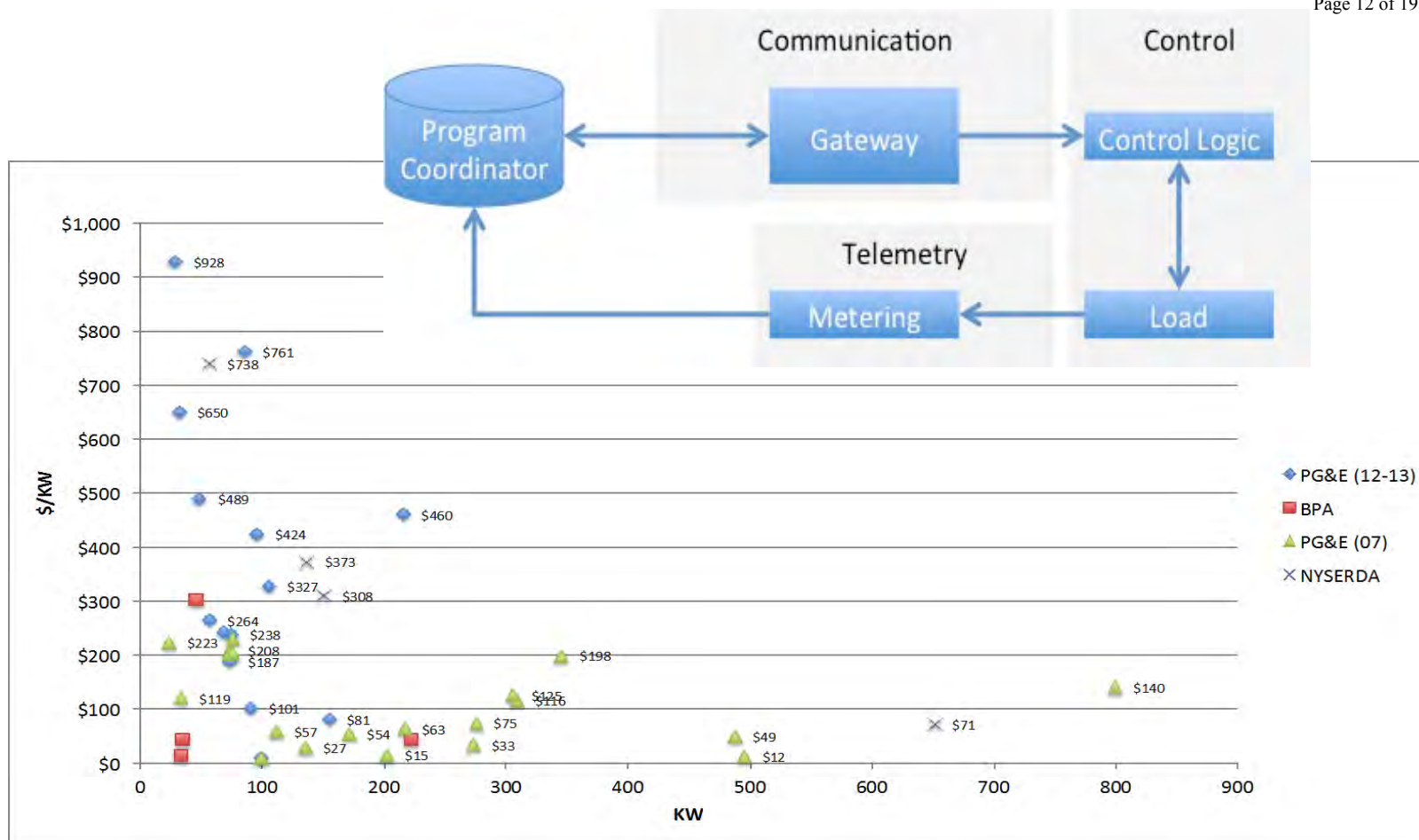
4 Types of DR Modeled

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Cost for Automating DR Systems

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Note- Some projects include efficiency technology and not just DR systems

Enabling Technologies Summary

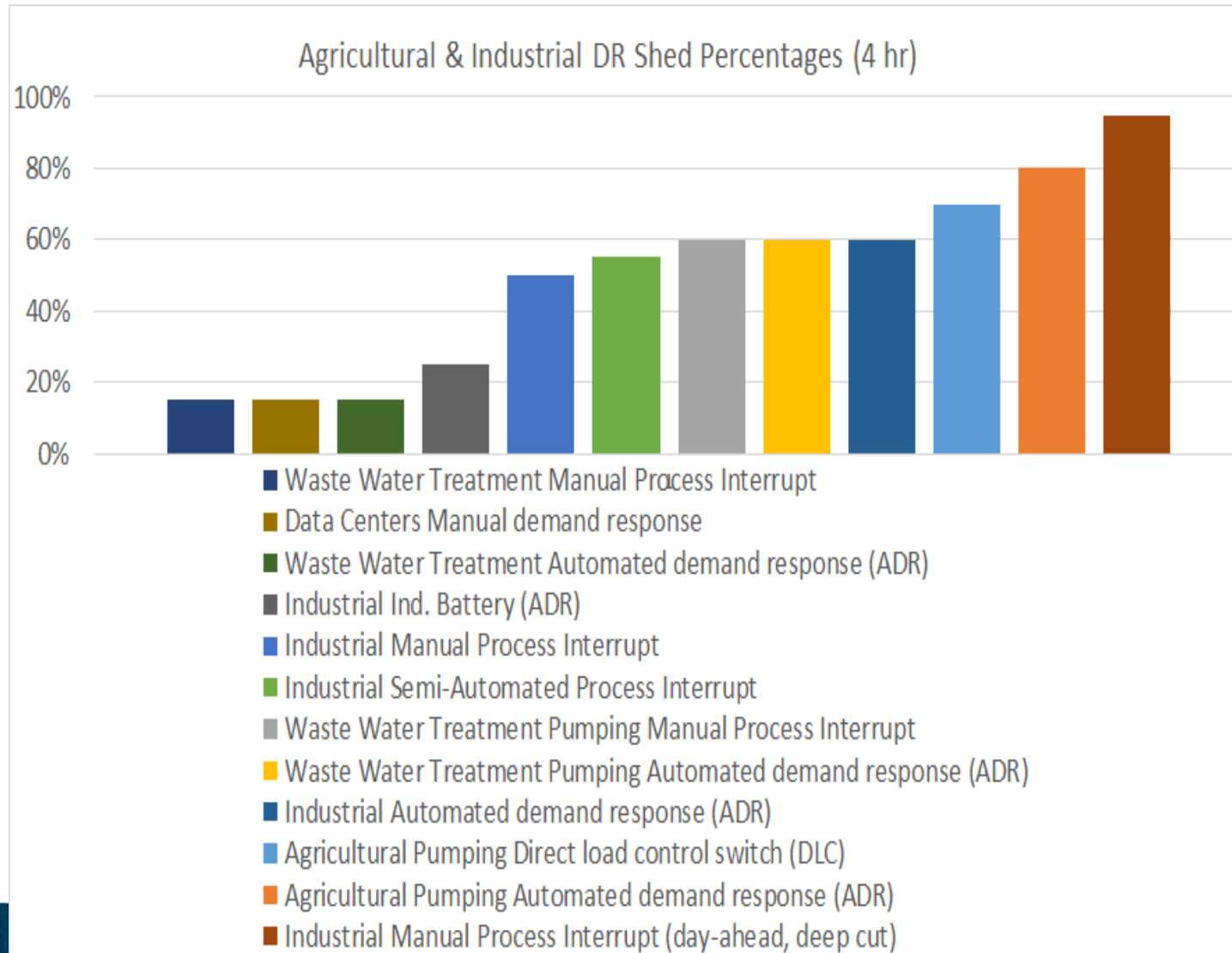
Phase 1 Model

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Sector	End-Use	Enabling Technology Summary
All	Battery-electric & plug-in hybrid vehicles	Level 1 & Level 2 charging interruption
	Behind-the-meter batteries	Automated DR (Auto-DR).
Residential	HVAC- Air Conditioning	Direct load control (DLC), smart thermostats
	Pool Pumps	DLC
Commercial	HVAC	Depending on site size, energy management system Auto-DR, DLC, and/or smart tstats.
	Lighting	A range of luminaire, zonal & standard control options.
	Refrigerated warehouses	Auto-DR
Industrial	Processes & large facilities	Automated and manual load shedding & process interruption.
	Agricultural & municipal pumping	Manual, DLC & Auto-DR
	Data centers	Manual DR
	Wastewater treatment	Automated & manual DR

Key Technology Input: Depth of Shed for Industrial Sector

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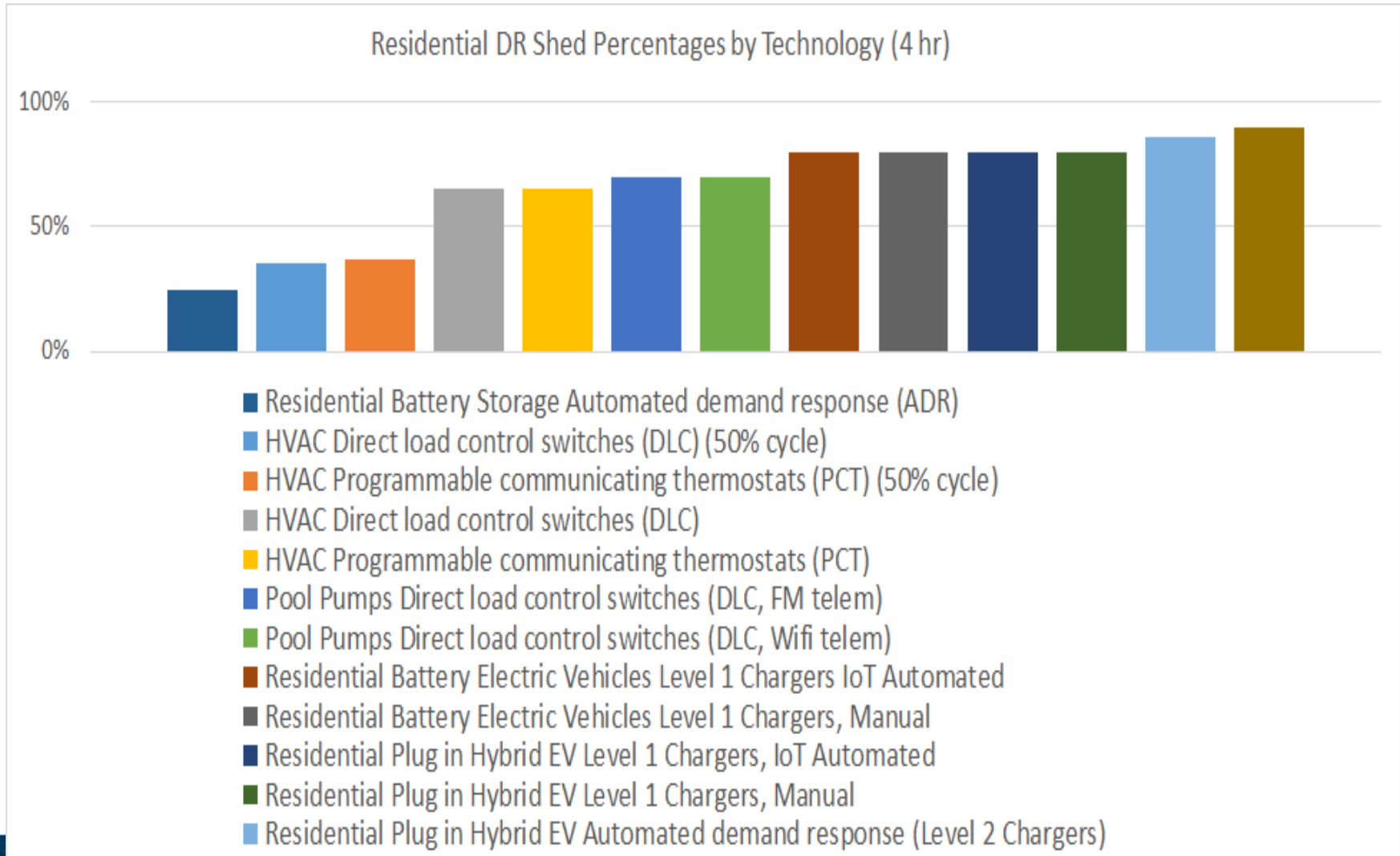


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Key Technology Input: Depth of Shed for Residential Sector

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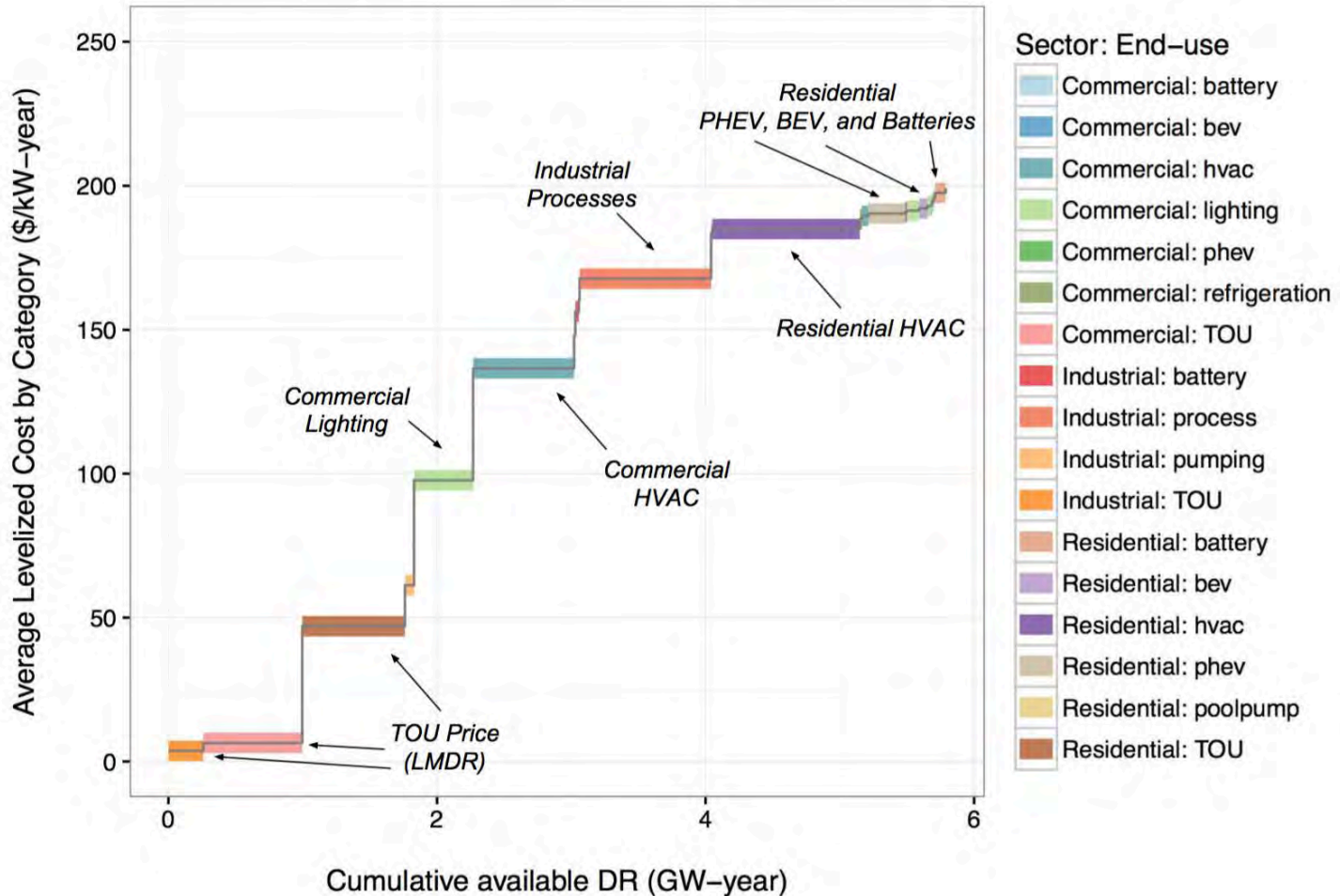


Preliminary Results on DR Potential

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2025 Technology Category Contributions @ \$200 Price Referent

Includes: All DR Tech | Med. DR Scen., 1-in-2 Weather | CEC Medium Growth Building Stock



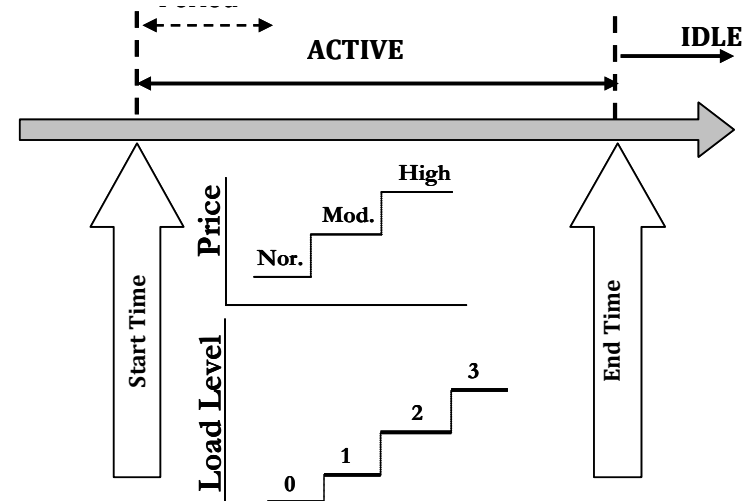
Demand Response and Codes

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Engineering

- Low cost way to enable DR is require it in building code for new buildings
- Effort in California has limited success

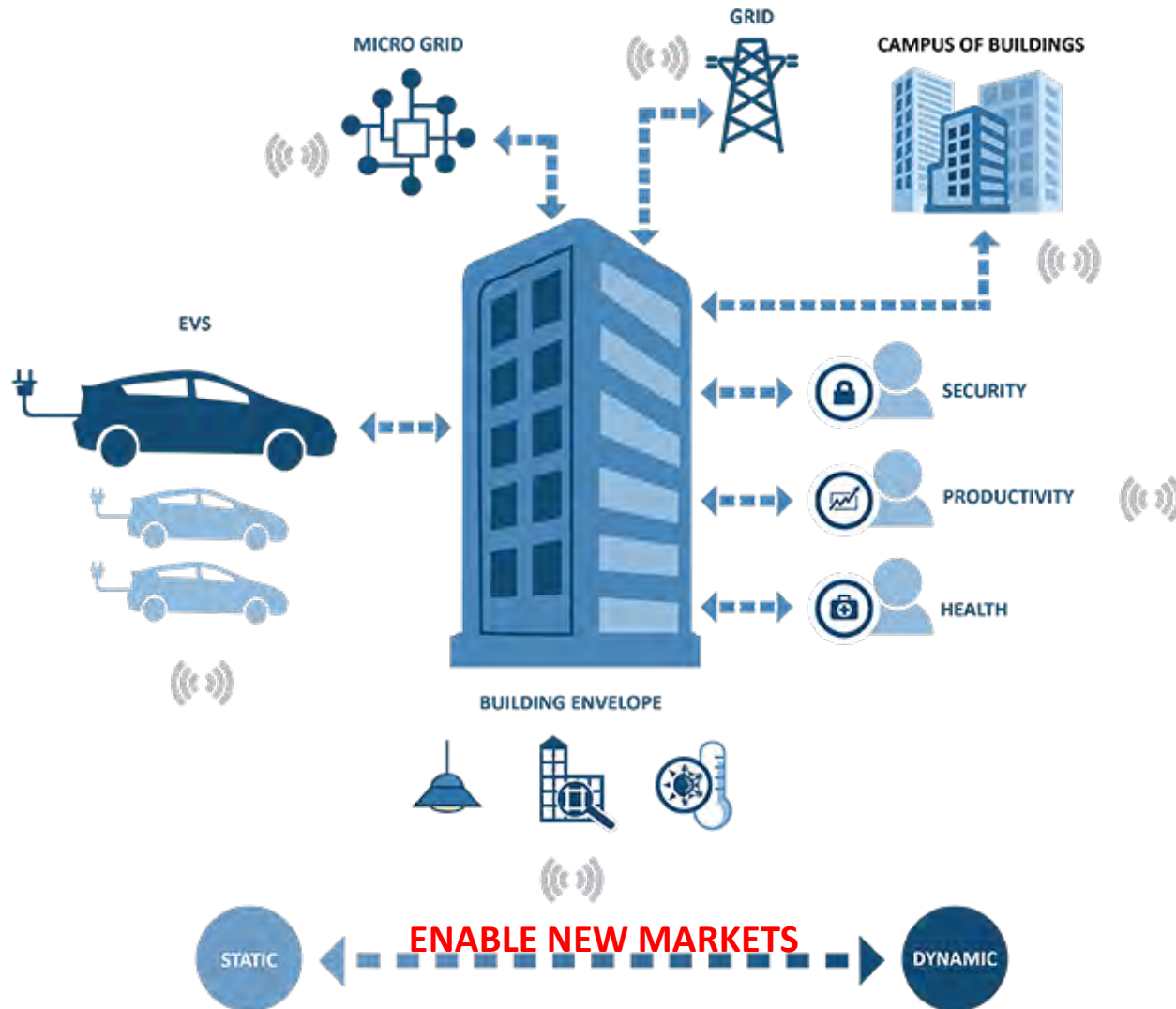
Controls require following features:

- **Automatic Demand Shed Control.** Upon receipt of a DR signal, space-conditioning systems conduct a centralized demand shed, as specified in Sections 120.2(h)1 and 120.2(h)2.



The Future - Dynamic Communication and Aggregation

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PA Demand Savings Group Discussion

Natural Gas Systems Overview

December 2, 2016

LDC Supply Responsibilities

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- Provide for a safe, reliable service to all firm customers on its distribution system
 - Long term planning focus
 - Reliable capacity – primary firm capacity for firm needs
 - Balance load variations (Storage, LNG etc.)
- Portfolio planning horizon must look forward well into future given lead times
- Ensure an adequate supply of natural gas into the distribution system under design weather conditions
- Manage supply portfolio to provide for lowest reasonable costs to consumers

Gas Supply Planning

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- New England's gas requirements are highly weather sensitive
- Reliability paramount – restoration complex
- Capacity planning long lead time – primary firm
- Design Demand Scenario
 - New England is design day driven
 - Must secure firm supply to accommodate expected demand on a design day, winter, and year.
 - Take into account each LDC's territory and distribution system

Gas Supply Planning and Process

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- Long Term:
 - Gas Supply Demand Balances (Typically 5-10 Years) under 'Normal' & 'Design' weather conditions
- Seasonal (Winter, Summer & Shoulder)
 - LDC's evaluate the market place and near-term load requirements to determine portfolio mix of base-load and daily supplies
- Daily/Intraday
 - LDC's forecast load requirements daily/intra day and are prepared with underlying assets to respond to dynamic customer load changes
 - (LDCs are the parties responsible for balancing customer needs and nominated supplies at the city gate)

Long-Term Planning

- LDC's in MA required to file 5 yr forecasts and supply plans to the DPU every 2 yrs
- The DPU reviews each LDC's plan to ensure that the plan is reviewable, appropriate and reliable.
- The DPU also reviews and approves any additions to the supply portfolio mix of gas pipeline, underground storage and on-system peak facilities to ensure it is in the best interest of the customers.

<u>Generic Forecast of Natural Gas Demand and Supply</u>					
	<u>FIRM DESIGN DAY DEMAND FORECAST (MMBtu)</u>				
	2013/14	2014/15	2015/16	2016/17	2017/18
Demand	100,000	102,000	104,040	106,121	108,243
Pipeline	50,000	50,000	60,000	60,000	60,000
Storage	30,000	30,000	30,000	30,000	30,000
LNG	30,000	30,000	30,000	30,000	30,000
Sub-total	110,000	110,000	120,000	120,000	120,000
Net	10,000	8,000	15,960	13,879	11,757

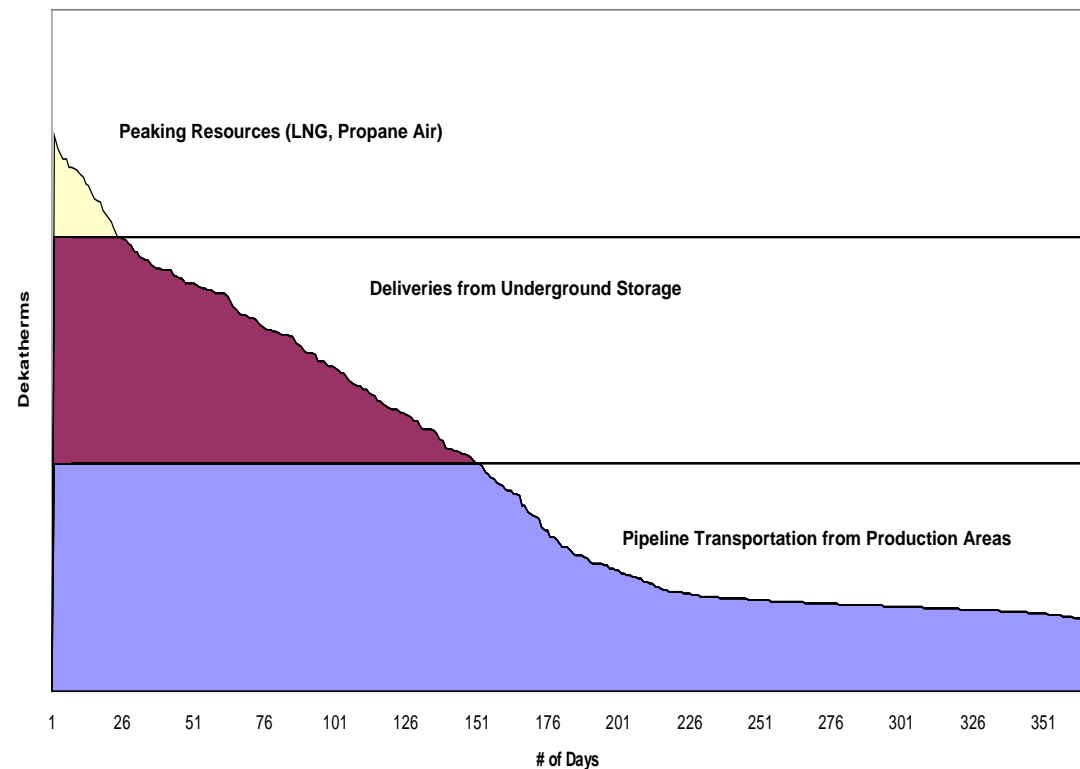
LDC Supply Planning Considerations

- **Reliability** - Firm Customers – high standard due to impact of shut-off and long recovery time to re-light pilots lights - LDC's contract for primary firm capacity
- **Diversification** – limit dependence on one supply/price source
- **Flexibility** – ability to adapt to changing conditions
- **Best Cost**
 - Balance between reliability /price/flexibility, Liquidity, New Capacity and Renewals, FERC/Pipeline Issues, Volatility
- **Discrete Distribution System Requirements** – Must tailor portfolio to each LDC's unique territory or distribution system
- **Demand Impacts** - Peak/Winter/Shoulder/Summer Conditions

LDC Portfolio to Meet Customer Load Requirements

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Illustrative Load Duration Curve



- Temperature sensitive load
- Three physical delivery resources are available to satisfy these requirements
 - Interstate pipeline transportation
 - Deliveries from underground storage facilities
 - Peaking supplies
 - (e.g. LNG Vaporization)

Daily Operations – Forecasting Loads and Procuring Supply

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- Each day will begin with a review the previous gas day's throughput, verified weather information and the corresponding variation (if any) to the forecast.
- LDC's receive weather forecasts for the next 7 days provided by various service companies.
- Gas Supply will add forecast into its model along with any other specific load information to determine the next day's requirements.
- This is typically completed by 8AM ECT
- These load requirements are then input into the daily 'load planner' which essentially outlines all available supplies for the given day against the requirements
- The gas market for the next gas day begins at 10AM ECT
- Trading typically opens around 8AM ECT and will continue with varying levels of liquidity until 12:30 PM ECT
- The LDC's procure the least cost supply available to them to meet their operational requirements for the next day

Daily Operations – Nominating and Scheduling the Gas Supply

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- Once the LDC has secured its required supply, it must nominate the delivery of its gas on the corresponding interstate pipeline Electronic Bulletin Boards “EBB” prior to the timely cycle, 12:30 PM ECT.
 - This includes all pipeline supply from production area meters and storage withdrawals and/or injections.

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NOMINATION - JKL MARKETING CO

Related Screens: [Nomination](#) [File Upload](#) [Nomination Import](#) [Intraday Nomination Status](#) [Predetermined Nomination Distribution Percentage](#) [Held Nomination](#) [Confirmation](#) [Scheduling Quantity](#) [Flowing Gas](#) [Invoicing](#) [Capacity Release](#) [Contracts](#) [Entitlements](#) [Service Requester](#) [Reports](#) [Favorites](#) [Lists](#) [Operational Account Manager Availability](#) [Informational Postings](#) [Site Map](#) [Sample Reports](#)

Buttons: [New](#) [Delete](#) [Sort](#) [Edit](#) [Renom](#) [Submit](#)

Form Fields:

TSP Name: TX EAST TRAN
TSP: 007932908
Svc Req Name: JKL MKTG
Svc Req Prop: JKL MKTG
Svc Req:
*Svc Req K: TRN185
Beg Date: 06/25/2011 Beg Time: 09:00
End Date: 06/30/2011 End Time: 09:00

*Rec Loc Prop:
Rec Loc: 0
Rec Loc Name:
*Up Name:
Up ID Prop:
Up ID:
Up K:
Rec Qty: 0
Rec Rank: 999

*Del Loc Prop:
Del Loc: 0
Del Loc Name:
*Dn Name:
Dn ID Prop:
Dn ID:
Dn K:
Del Qty: 0
Del Rank: 999

*Act Cd:
*TT: 01
Pkg ID:
Nom Trk ID:
Bid Up:
Nom Sub Cycle:
Svc Req Name (Agent): JKL MKTG
RR: AOK
Rate Sch: FT-1
Fuel Qty: 0
Fuel%: 0.000
Backhaul:
Nom Stat:

Svc Req K	Nom Sub Cycle	*Act Cd	*TT	*Rec Loc Prop	*Up Name	Up ID Prop	Up ID	Up K	Rec Qty	Rec Rank	Rec Rank (Sched)	*Del Loc Prop	*Dn Name	Dn ID Prop	Dn ID	Dn K	Del Qty	Del Qty (Sched)
TRN185	<input type="checkbox"/>		01						0	0	999						0	

Daily Operations – Confirming the Gas Supply

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- Each afternoon, the LDC's will ensure that its gas supply was confirmed by the pipeline that nominated receipt points to respective delivery points are scheduled
- The LDC's will then confirm that the Third-party suppliers have successfully scheduled the requisite amount of gas to the LDC's city-gates for delivery on its distribution system and rectify any variances as necessary.
- Gas Supply will monitor any changes to the weather forecast and the system loads with Gas Control throughout the work day.
- Gas Control will contact Gas Supply as needed to address any supply requirement changes 24 hours a day.

Regional Gas Infrastructure

Pipeline System at Capacity

- New England has no natural gas production or underground storage facilities
- Region is directly served by:
 - Six interstate pipeline systems
 - Algonquin Gas Transmission
 - Tennessee Gas Pipeline
 - Iroquois Gas Transmission
 - Maritimes & Northeast Pipeline
 - Portland Natural Gas Transmission
 - Granite State Gas Transmission
 - Four LNG import terminals
 - Distrigas Of Massachusetts (Everett, MA)
 - Canaport LNG (Saint John, New Brunswick)
 - Northeast Gateway (offshore MA)
 - Project Neptune (offshore MA)
 - Peak shaving facilities
 - 16.2 Bcf of LDC-owned LNG storage
 - 20 Propane/LP Air sites
- Regional LDC Peak Day Demand
 - ~4.3 Bcf/day

Pipeline Systems Serving New England

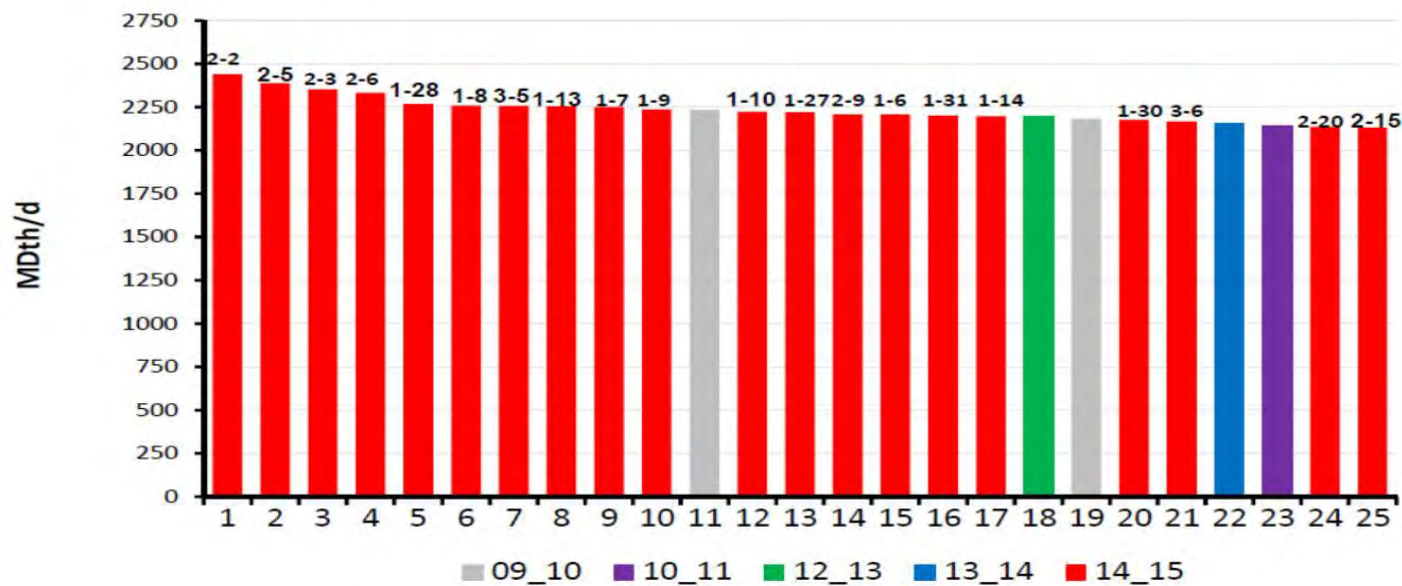


Source: Northeast Gas Association

With power generation and LDC growth -> Pipeline Utilization at all time highs

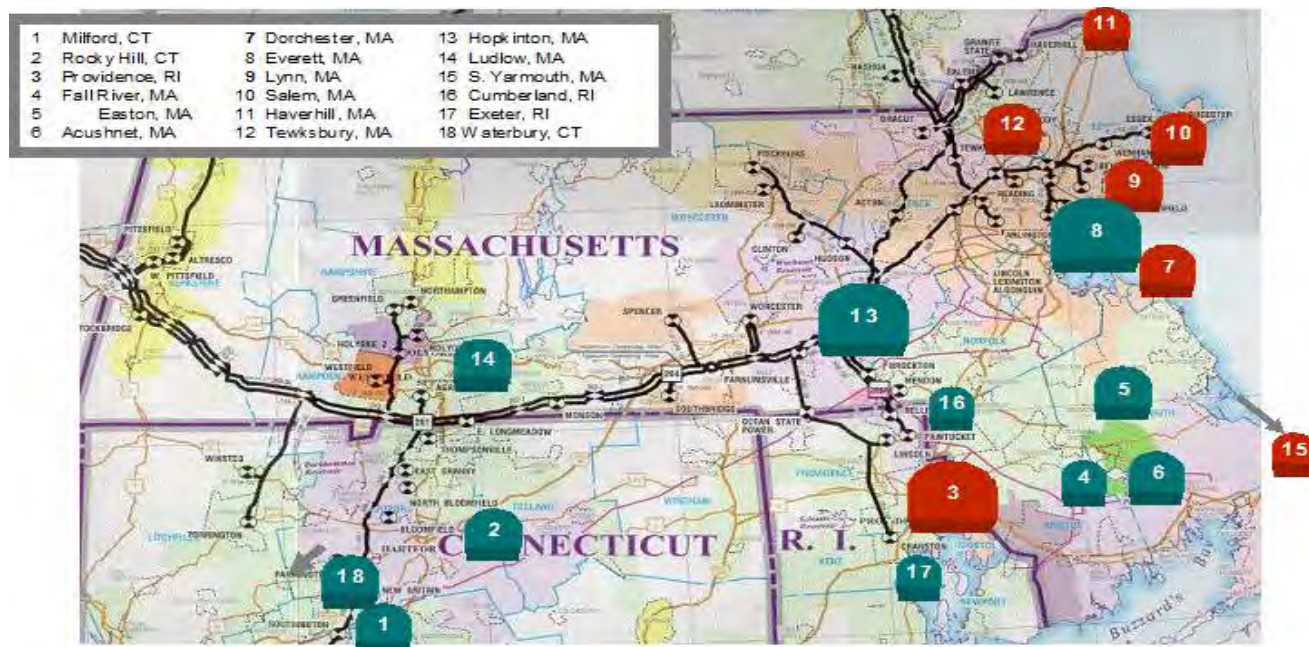
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Algonquin Gas Transmission Top 25 Days



Major NE LNG Storage Facilities

- New England has the highest concentration of on-system LNG storage in the United States
 - LNG has been used since the 1970s to economically meet short-term, needle peaking requirements
 - Weather dependent heating loads require delivery capacity 3 times greater than average usage
 - Not generally available to assist market as needed for Design Winter requirements
 - Liquefaction capability and refill options limit turnover of capacity



Impact of Inadequate Gas Capacity on New England Power Markets

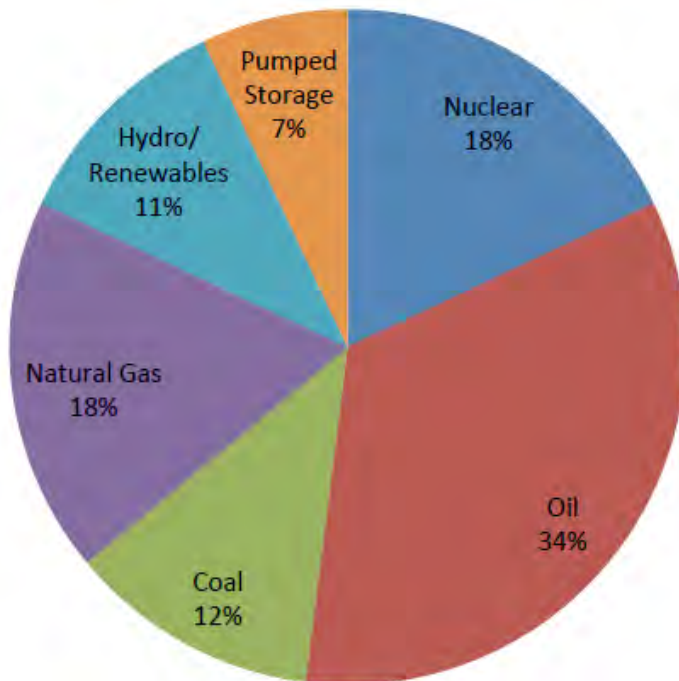
New England Lacks Pipeline Infrastructure

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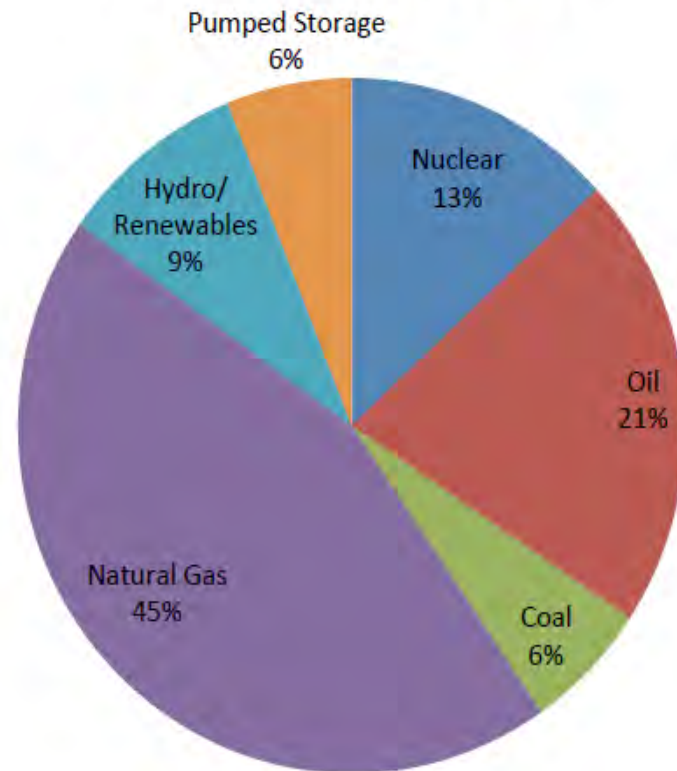


ISONE has become increasingly reliant on natural gas to generate power

System Capacity 2000



System Capacity 2015



Benefits of increased use of Gas-Fired Generators

Power Plant Emissions Have Declined with Changes in the Fuel Mix



Reduction in Aggregate Emissions (ktons/yr)

Year	NO _x	SO ₂	CO ₂
2001	59.73	200.01	52,991
2014	20.49	11.68	39,317
% Reduction, 2001–2014	↓ 66%	↓ 94%	↓ 26%

Reduction in Average Emission Rates (lb/MWh)

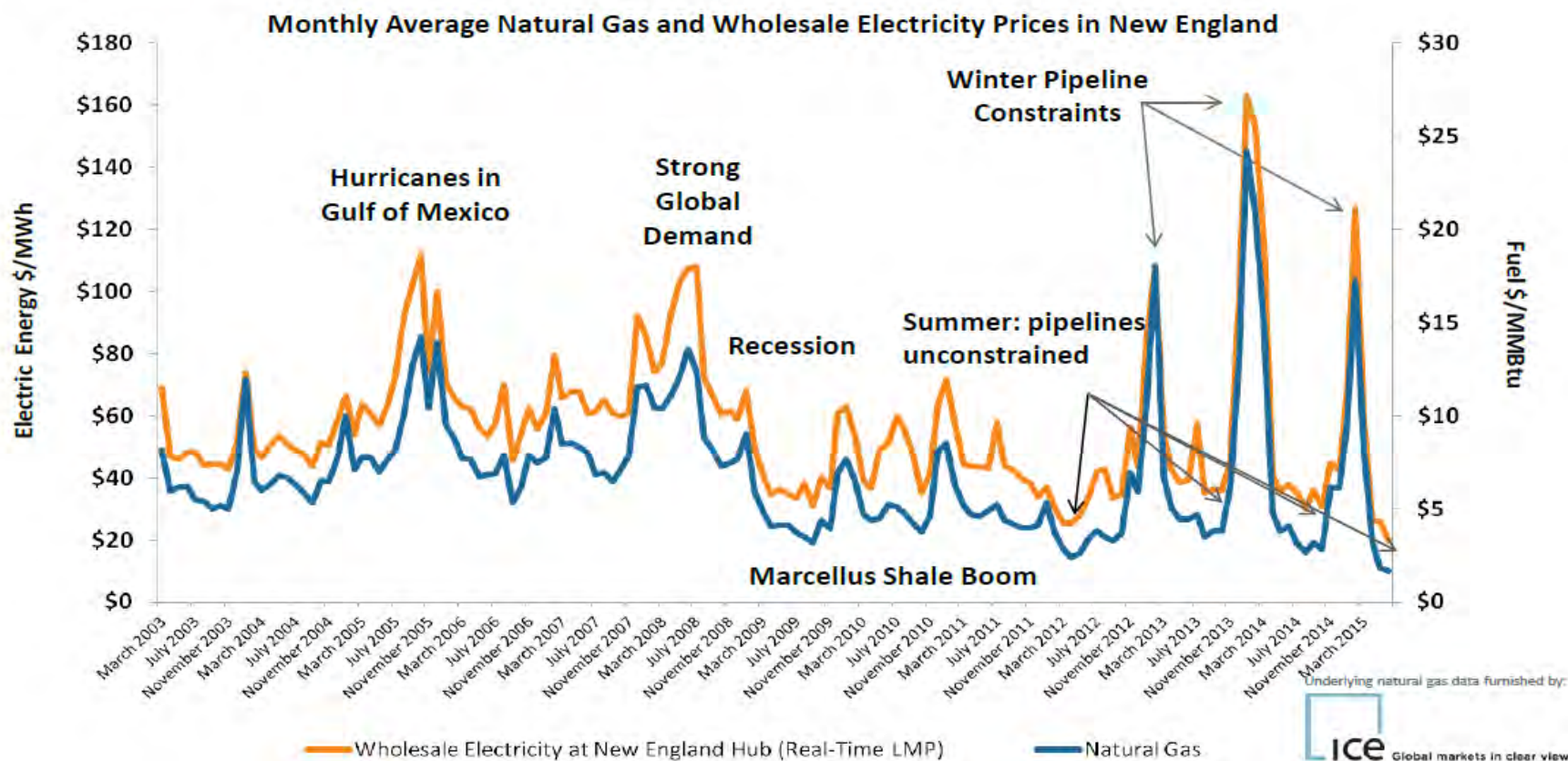
Year	NO _x	SO ₂	CO ₂
1999	1.36	4.52	1,009
2014	0.38	0.22	726
% Reduction, 1999–2014	↓ 72%	↓ 95%	↓ 28%

Gas and Electric Price Highly Correlated

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Natural Gas and Wholesale Electricity Prices Are Linked

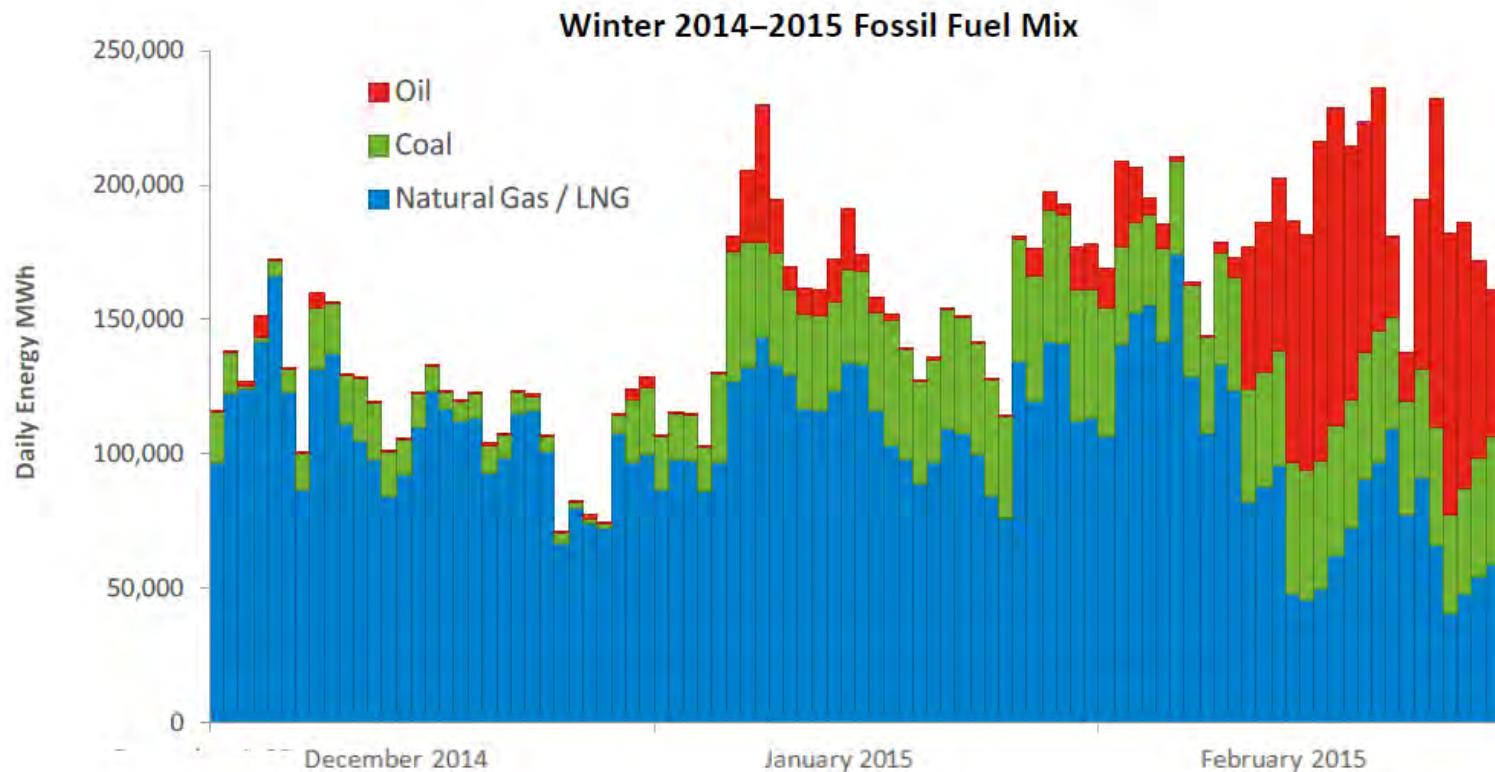
With natural gas the primary fuel used to produce electricity, natural-gas-fired power plants typically set the price for wholesale electricity



ISO-NE Required to Dispatch Coal and Oil During Winter Seasons for Reliability

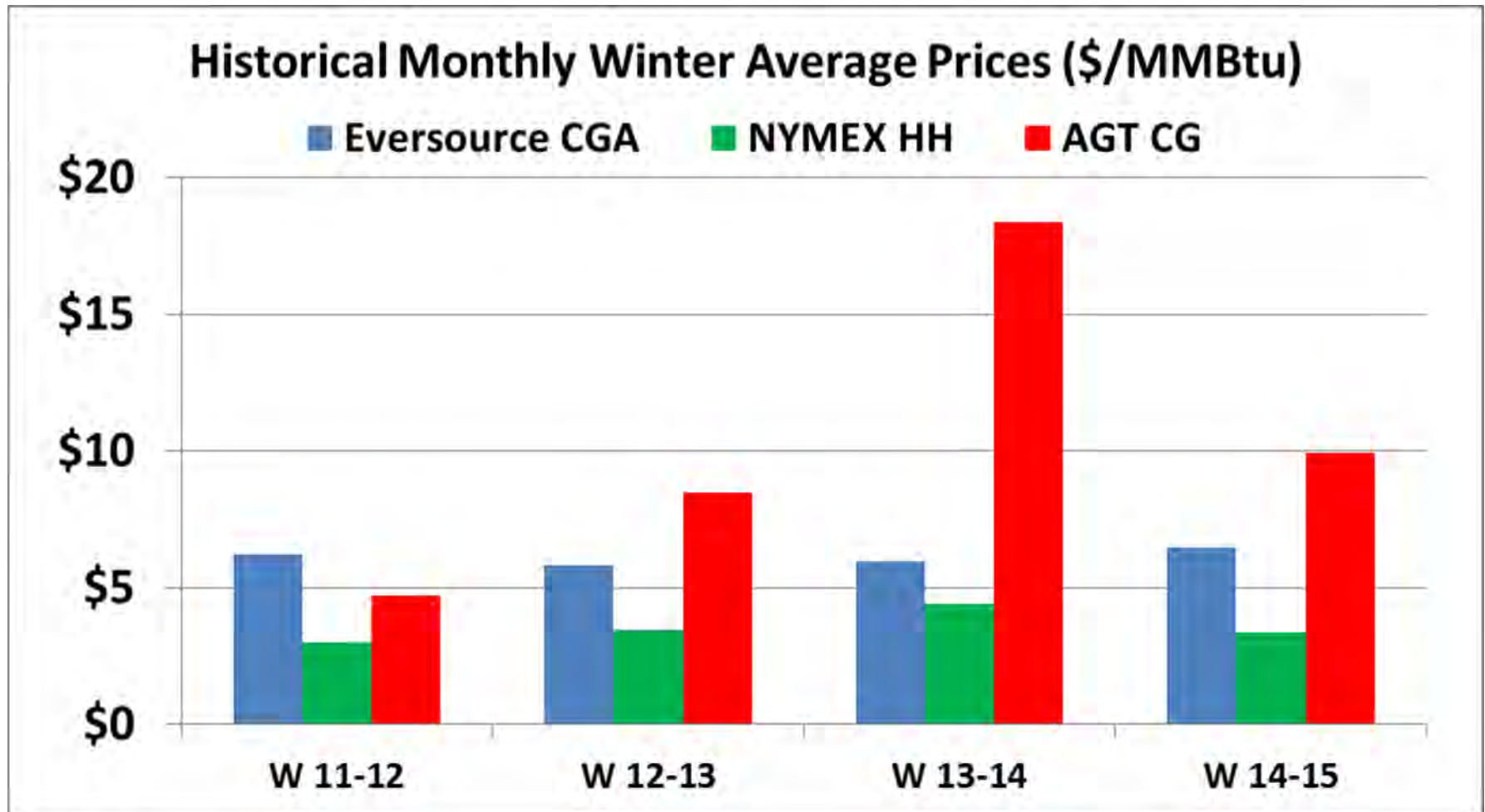
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New England Shifts to Coal and Oil in the Winter



Owning pipelines insulates gas customers from price volatility

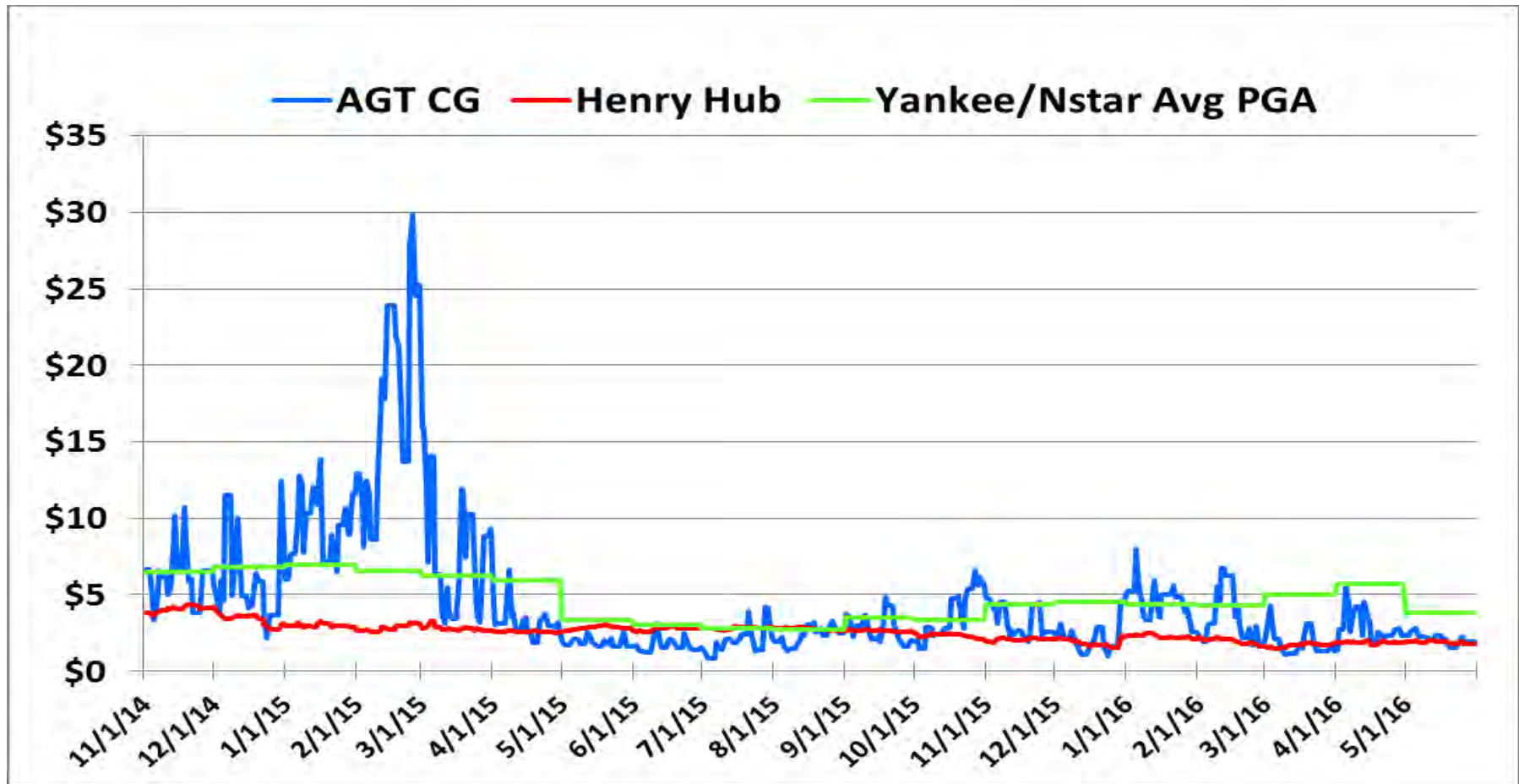
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LDC Customer Prices Stable with Capacity vs. Secondary Market Prices

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NE LDC CGA vs. Henry Hub and AGT City Gate \$/MMBtu



The FERC Application Process

- FERC approval for interstate pipeline facilities are petitioned through an Application for a Certificate of Public Convenience and Necessity (CPCN)
- Applications presented for FERC action must demonstrate the following key criteria:
 - **Market need**
 - New projects or expansions must be supported with firm market commitments for long-term (10+ year) transportation service agreements at tariff or negotiated rates
 - **Just and reasonable rates**
 - Demand charge based, fee-for-service structure with maximum rates set by FERC under traditional cost of service ratemaking methodology
 - **Environmental impact mitigation**
 - Comprehensive environmental impact analysis and mitigation measures
 - **Compliance with pipeline safety standards**
 - Built and operated in compliance with US Department of Transportation rules and procedures
- FERC will undertake a comprehensive review of an applicant's proposal and determine whether the action meets the standard of being in the interest of the public convenience and necessity and will issue an approval or denial of a project based on meeting this test

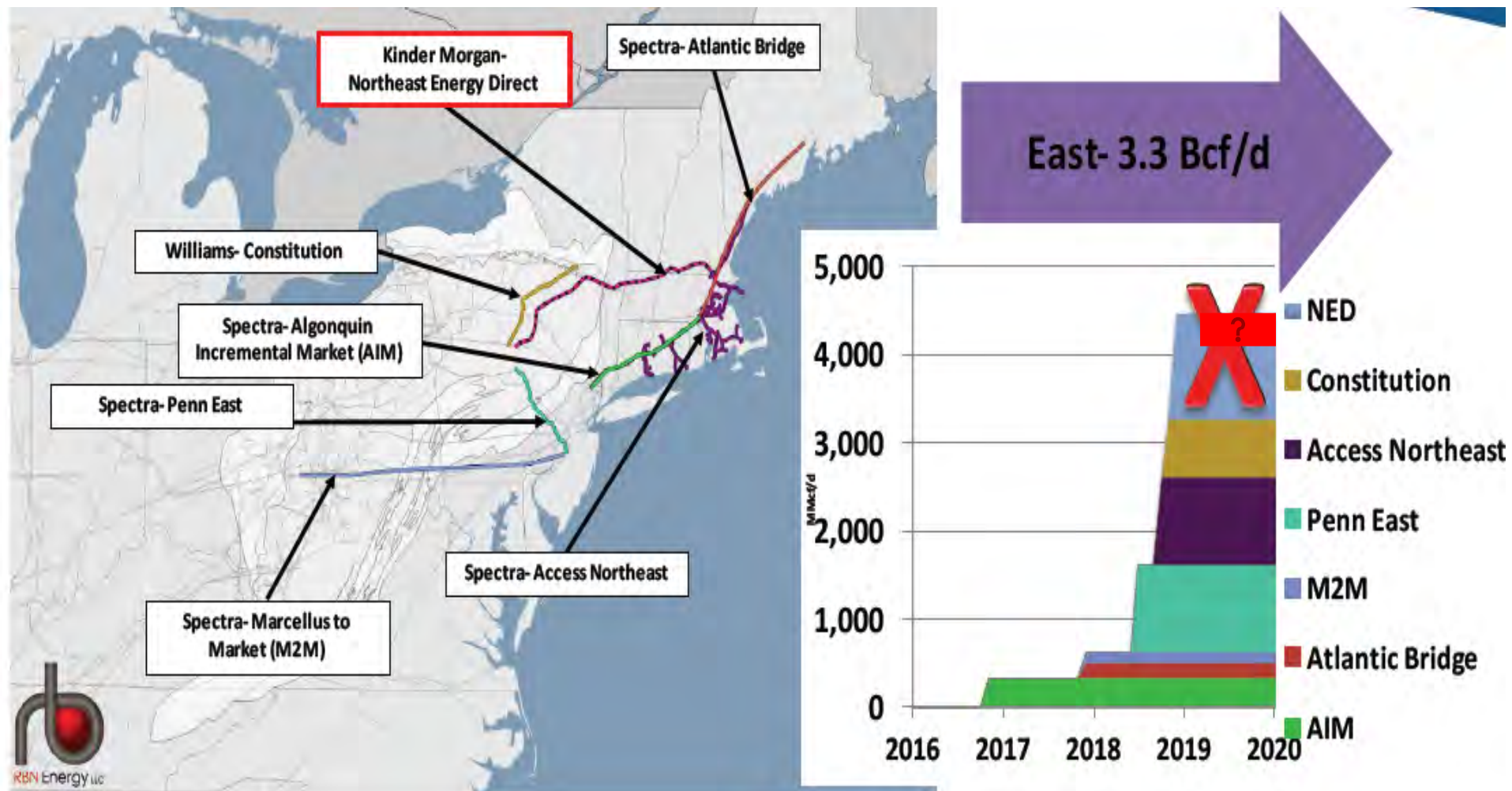
FERC's Capacity Release Overview

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- > **FERC unbundled gas supply from transportation in its Order 636**
- > **As part of that unbundling FERC establish a secondary market for capacity with two main goals**
 - › **Transparency - In the reallocation of capacity**
 - › **Efficiency - To ensure that capacity is allocated to the shipper willing to pay the highest price**
- > **To ensure transparency FERC mandated that pipelines bid out available capacity through their EBB (Electronic Bulletin Boards)**
- > **FERC establish a set of rules that would help ensure that released capacity would be allocated to the highest bidder**
 - › **Shipper Must Have Title**
 - › **No Tying**
 - › **Prohibit Buy/Sell Transactions**
- > **FERC revised some of the rules under Order 712 to allow and promote AMA's (Asset Management Agreements)**

Northeast Gas Infrastructure Development Projects

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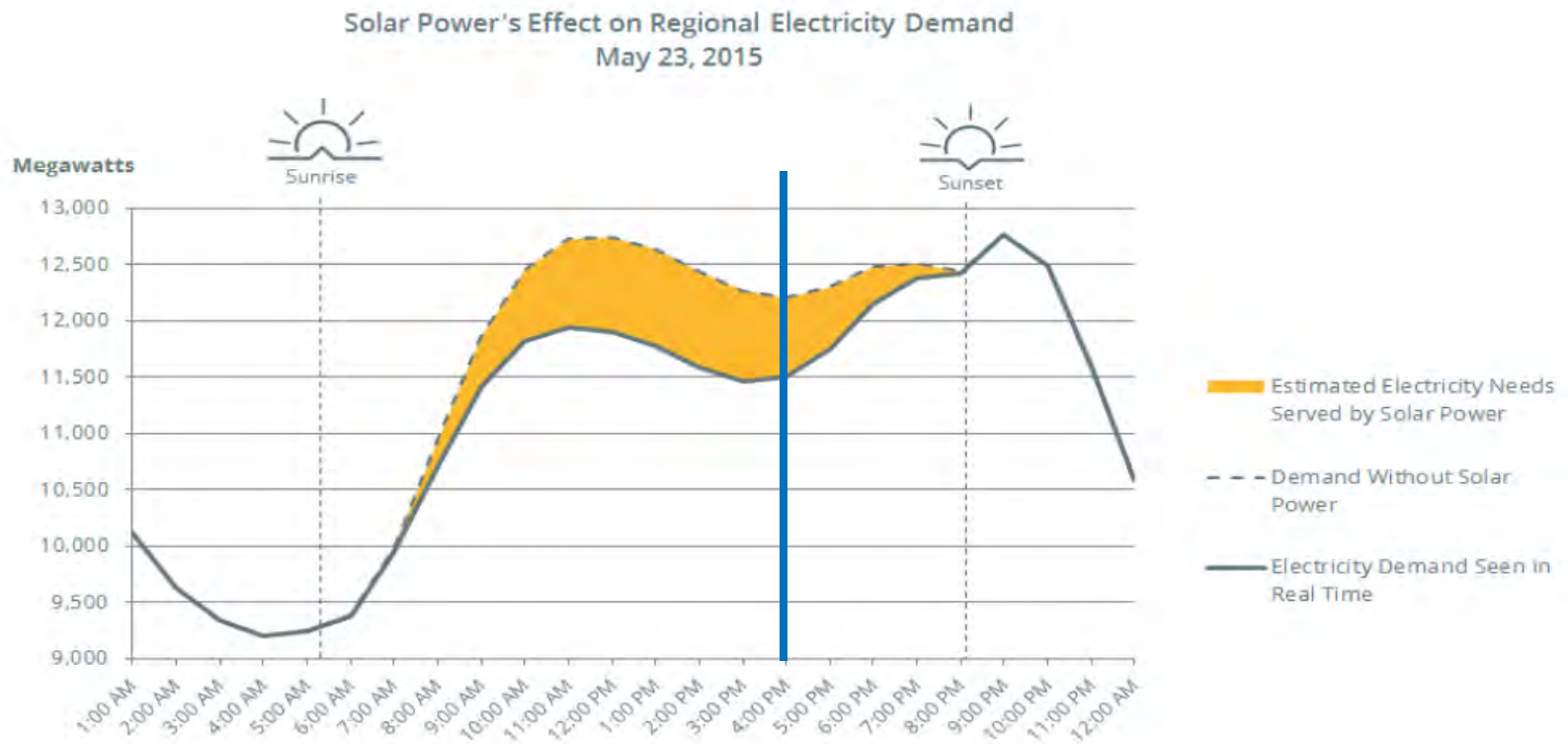
Backup Slides

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Solar Power Creates “Duck Curve”

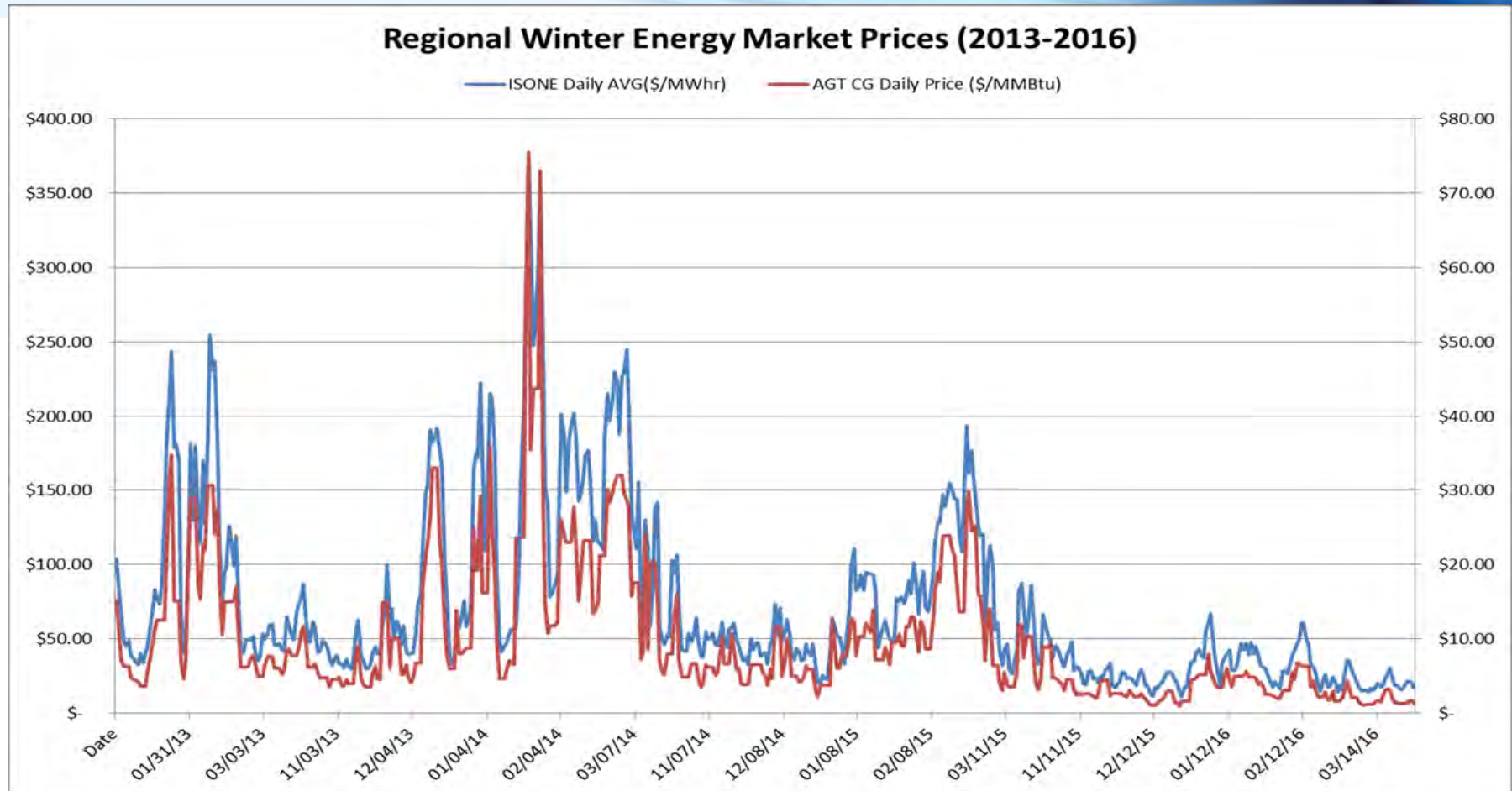
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Solar Power's Effect on Hourly Electricity Demand *May 23, 2015*



But electricity prices have soared with spot prices

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Cape Light Compact Demand Response Demonstration Offering

2016-2018





Offering Overview

- CLC included a DR Demonstration Offering in 2016-2018 Plan
 - Focused mainly on residential customers
 - Goal: Learn how to best engage residential customers in demand response, use experience to inform further DR program development
 - Offered participants a WiFi thermostat and near real-time energy monitoring equipment, monitored/controlled via app and/or web
 - Participants must have central a/c controlled by wall-mounted thermostat
 - Participants' thermostat set points were adjusted during DR events called by CLC
 - Events called based on weather and system load predictions
 - Targeted load rather than energy prices
- Also developing behind-the-meter thermal storage demonstration projects for small-medium C&I customers

2016 Recap



- Numbers
 - 9 DR Events
 - 26 participants enrolled, 37 thermostats installed
 - More signups pending installation
 - ~160 thermostat DR events called
- Successes
 - Very low opt-out rate for events
 - Savings being evaluated
 - Overall, concept was well-received by customers
- Challenges
 - Limited pool of applicants – fewer central a/c customers than expected - incorporating customers with ductless mini-splits into the demonstration offering
 - No smart metering for reduction measurement
 - Monitoring equipment installation = slower deployment
 - Real-time energy usage monitoring is expensive
 - Vendor platform challenges resulted in less complex event structure
 - Most events were called as opt-out only



2017: Expansion & Improvements

- Platform Improvements
 - Develop algorithm to call events to target demand
 - Day-of baseline adjustment
- Expanding participation
 - Increasing number of compatible thermostats
 - Leverage thermostats installed through HES, and include offering information in HES packets
 - Bring Your Own Thermostat (BYOT) for customers with eligible thermostats already installed
 - Expanding equipment compatibility to increase participation
 - Plan to incorporate load control for ductless mini-split systems
- Reduce costs by eliminating energy monitoring equipment
 - Use currently enrolled customers with monitoring equipment to help model demand reductions
- First small C&I thermal storage demos deployed before summer 2017

Thank you



Cape Light Compact Demand Response Demonstration Offering

2016-2018



Offering Overview



- CLC included a DR Demonstration Offering in 2016-2018 Plan
 - Focused on residential customers
 - Goal: Learn how to best engage residential customers in demand response, use experience to inform further DR program development
 - Offered participants a WiFi thermostat and near real-time energy monitoring equipment, monitored/controlled via app and/or web
 - Participants must have central a/c controlled by wall-mounted thermostat
 - Participants' thermostat set points were adjusted during DR events called by CLC
 - Events called based on weather and system load predictions
 - Targeted load rather than energy prices

Offering Overview (cont.)



- Also deploying behind-the-meter thermal storage demonstration projects for small-medium C&I customers
 - Ice Bear technology targets summer peak loads from air conditioning
 - Works in concert with air conditioning equipment to reduce demand at set hours without impacting indoor temperature
 - Plan to deploy 5 – 10 units before summer 2017
 - Locations being selected to demonstrate potential to deliver customer- and grid-facing benefits, in areas with high seasonal population fluctuation

2016 Recap



- Numbers
 - 9 DR Events
 - 39 participants enrolled, 56 thermostats installed
 - ~160 thermostat DR events called
- Successes
 - Very low opt-out rate for events
 - Overall, technology and concept was well-received by customers
- Challenges
 - Limited pool of applicants – fewer central a/c customers than expected - incorporating customers with ductless mini-splits into the demonstration offering
 - No smart metering for reduction measurement
 - Monitoring equipment installation = slower deployment
 - Real-time energy usage monitoring is expensive
 - Vendor platform challenges resulted in less complex event structure
 - Most events were called as opt-out only



2017: Expansion & Improvements

- Platform Improvements
 - Develop algorithm to call events to target demand
 - Day-of baseline adjustment
- Expanding participation
 - Leverage thermostats installed through HES, and include offering information in HES packets
 - Bring Your Own Thermostat (BYOT) for customers with eligible thermostats already installed
 - Expanding a/c equipment compatibility to increase participation
 - Plan to incorporate load control for ductless mini-split systems
- Reduce costs by eliminating energy monitoring equipment
 - Possibly use currently enrolled customers with monitoring equipment to help model demand reductions
- First small C&I thermal storage demos deployed before summer 2017

Thank you

Cape Light Compact

Demand Response

Demonstration Offering

MA EEAC – PDR Sub Committee
February 23, 2017



BLACKSTONE
GAS COMPANY



Columbia Gas
of Massachusetts
A NiSource Company

EVERSOURCE

 Liberty Utilities


HERE WITH YOU. HERE FOR YOU.

 Unitil
energy for life

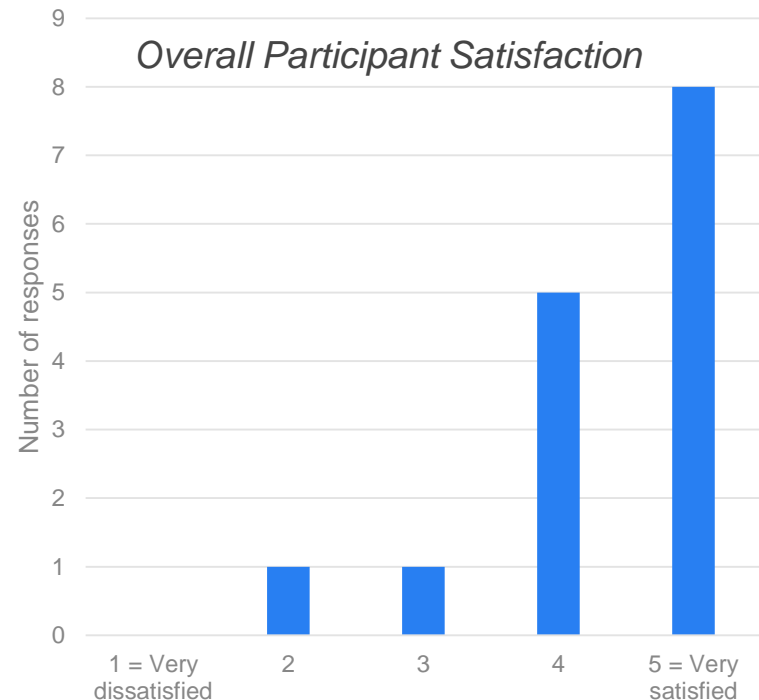
Planned Offering Overview



- CLC included a DR Demonstration Offering in 2016-2018 Plan
 - Offered participants a WiFi thermostat and energy monitoring equipment, monitored/controlled via app and/or web
 - Participants must have central a/c controlled by wall-mounted thermostat
 - Participants' thermostat set points were adjusted during DR events called by CLC
 - 4-hour events (most called 2-6 pm)
 - Events called based on weather and ISO load predictions
 - Participants notified of events via email on day before

2016 Preliminary Results

- Offering goal: Learn how to best engage residential customers in demand response, use experience to inform further DR program development in the areas of:
 - Overall satisfaction
 - Enrollment motivators
 - Customer acceptance
 - Technology
 - Effect on comfort
 - Event participation
 - Fatigue within events
 - Opt-in vs. opt-out approach

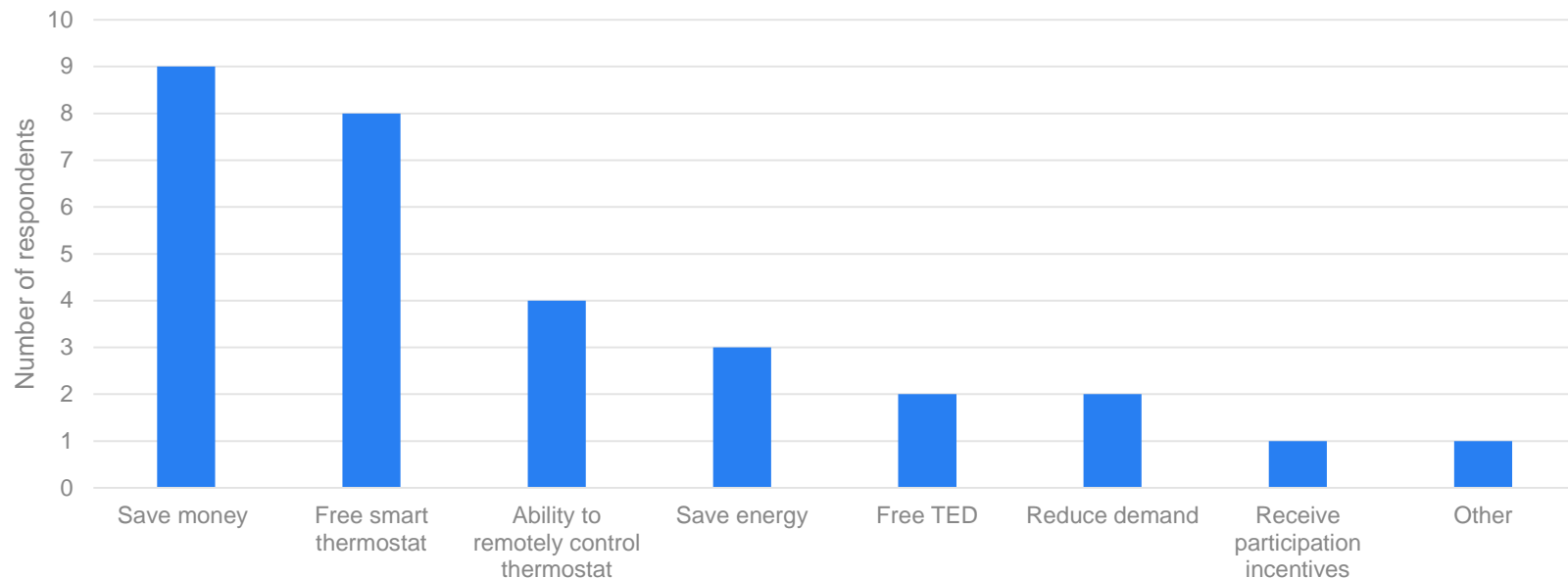


2016 Preliminary Results



- Most cited participation motivators were to save money, receive free thermostat, and ability to remotely control thermostat
- Participation incentives were not significant motivators

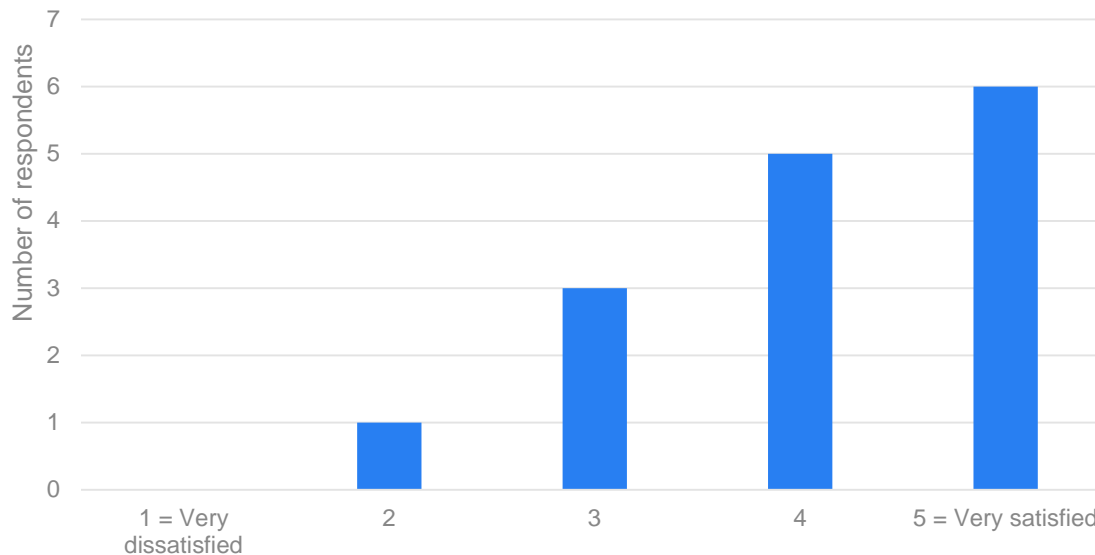
Reasons for Participant Enrollment



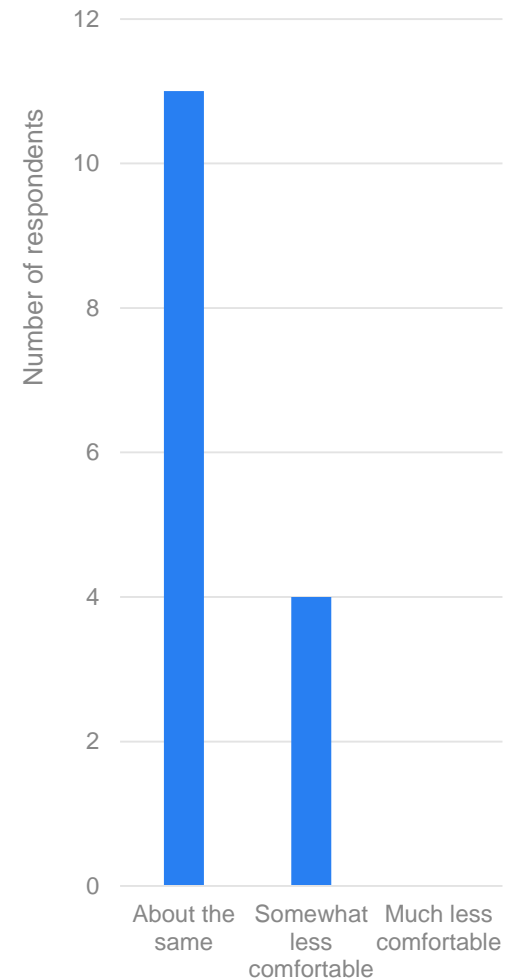
2016 Preliminary Results

- Most customers were satisfied with the performance of their thermostat
- Most customers did not report a decrease in comfort (vs. days of similar temperature)
- Customers were active users of technology & information

Thermostat Performance Satisfaction



General Comfort During Events



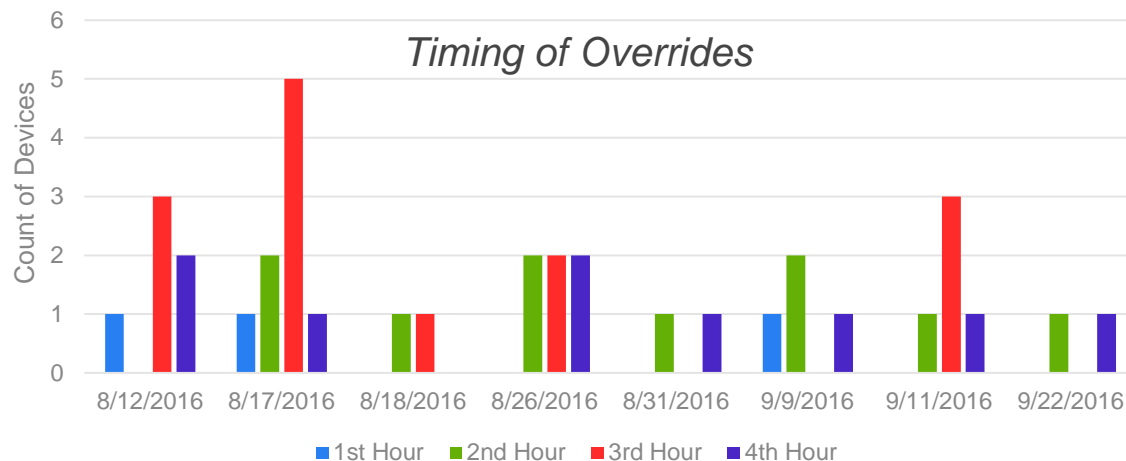
2016 Preliminary Results



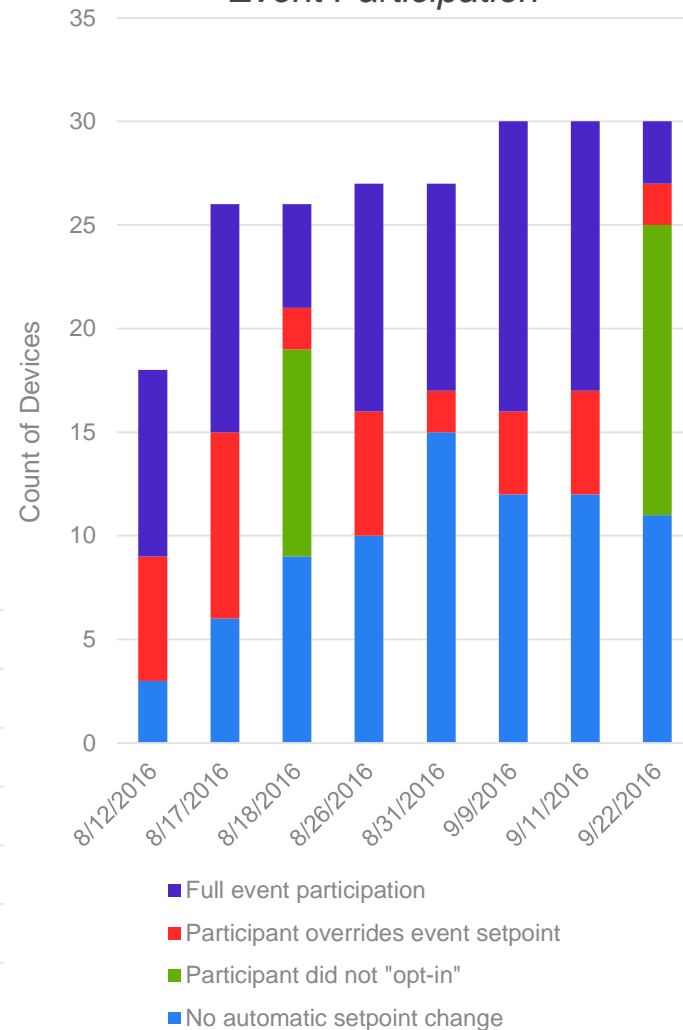
Results are not statistically significant

- 22 participants in 8 events
 - Currently 39 participants enrolled, 56 devices
- Most participants that did not receive set point change had A/Cs off
- Opt-out rate averaged 32%
 - 4 “serial opt-outers” accounted for 60% of opt-outs
 - Most overrides occurred in 3rd hour

Timing of Overrides



Event Participation



2016 Takeaways & 2017 Adjustments

- High customer satisfaction
 - Most reported they would continue to participate in future summers
- Technology concept was well-received, but some customer issues with thermostat use and installation
 - 2017: Switch to Honeywell Lyric thermostat, either previously installed or installed through Direct Install initiative
- Opt-out design is most effective
 - 2017: All events will be called as opt-out
- Event fatigue occurred the most in hour 3
 - 2017: May call shorter events

2016 Takeaways & 2017 Adjustments (cont.)

- Curtailment degradation after event hour 2
 - 2017: For 4-hour events, stagger thermostat setbacks over event
- Some pre-cooling and snapback occurred
 - 2017: May stagger event times across participants
- Limited pool of participants
 - 2017: Incorporate mini-splits in to DR platform
- No smart metering
 - Deployment of work-around meter readers expensive & slow
 - 2017: no real-time metering

2017 C&I Offering – Thermal Storage

- As part of MTM, proposing behind-the-meter thermal storage demonstration projects for small-medium C&I customers
 - Ice Bear technology targets summer peak loads from air conditioning
 - Works in concert with air conditioning equipment to reduce demand at set hours without impacting indoor temperature
 - Plan to deploy 5 – 10 units before summer 2018
 - Locations being selected to demonstrate potential to deliver customer- and grid-facing benefits, in areas with high seasonal population fluctuation

Mid-Term Modification

- Compact proposes MTM to:
 - Decrease spending on Res. Behavior Feedback Core Initiative
 - Fund C&I thermal storage offering as part of DR Demonstration Offering
- Will present MTM and proposed resolution at 3/1 ExCom meeting and 3/15 EEAC meeting for vote
- Net increase of \$757,642 over approved Plan

<u>Budget</u>	<u>2016-2018 Plan</u>		<u>Proposed in MTM</u>		<u>MTM minus Plan</u>
	<u>2017</u>	<u>2018</u>	<u>2017</u>	<u>2018</u>	
Res. Behavior Feedback Initiative	\$326,115	\$329,832	\$153,448	\$147,635	-\$354,864
Demand Response Offering (total)	\$267,797	\$349,697	\$890,000	\$840,000	\$1,112,506
<i>DR C&I</i>	\$26,780	\$34,970	\$485,000	\$485,000	\$908,250
<i>DR Residential</i>	\$241,017	\$314,727	\$405,000	\$355,000	\$204,256
<u>Grand Total</u>	<u>\$593,912</u>	<u>\$679,529</u>	<u>\$1,043,448</u>	<u>\$987,635</u>	<u>\$757,642</u>

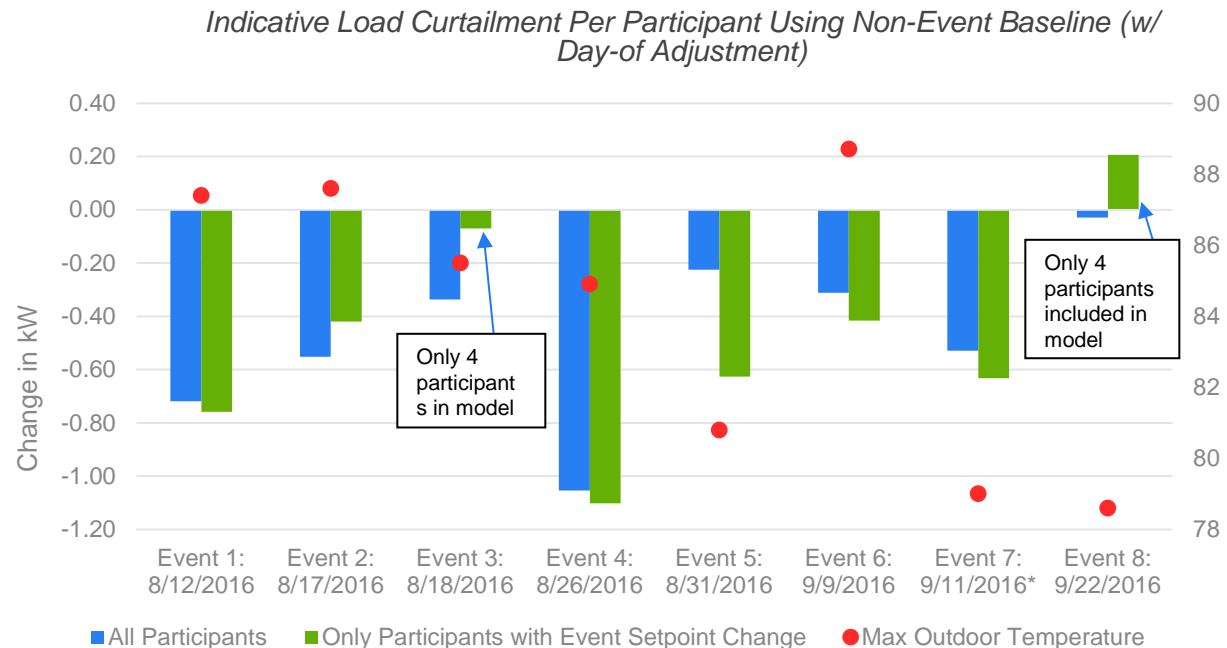
Thank you

Appendix: 2016 Preliminary Results – Impact Analysis

Results Not Statistically Significant

- **kW savings achieved**
- Similar temp days used as baseline, then adjusted for pre-event usage on day of event
- *Significant limitations:*
 - Very small sample size
 - Based on whole-home energy consumption
 - Humidity not accounted for in baseline adjustment
 - Pre-cooling and early shutoff would skew baseline and estimated savings

<i>Indicative Load Curtailment Per Participant Using Non-Event Baseline (w/ Day-of Adjustment)</i>	All Participants (kW)	Event Set Point Change Only (kW)
Across All Events	-0.4	-0.6
High Temperature Days (87-89 F)	-0.5	-0.5
Medium Temperature Days (85-86 F)	-0.7	-0.8
Low Temperature Days (79-81 F)*	-0.1	-0.3



Cape Light Compact

Demand Response Demonstration Offering Mid-Term Modification

MA EEAC – Executive Committee
March 1, 2017



Planned Offering Overview

- CLC included a DR Offering in 2016-2018 Plan
 - Offered participants a WiFi thermostat and energy monitoring equipment, monitored/controlled via app and/or web
 - Participants must have central a/c controlled by wall-mounted thermostat
 - Participants' thermostat set points were adjusted during DR events called by CLC
 - 4-hour events (most called 2-6 pm)
 - Events called based on weather and ISO load predictions
 - Participants notified of events via app and email day before
 - DR Offering design informed by CLC's Residential Behavior/Feedback core initiative
 - Residentially-focused

MTM Overview

- In coordination with other PAs, CLC proposes to expand its DR Offering to include thermal storage for small and medium C&I customers
 - Also expand and improve current Res. DR Offering
 - Shift funds from Behavior Initiative to DR Offering
- Testing additional technology will broaden scope of DR Offering learning for CLC/PAs to better inform future demand response offerings
- Deploying in-the-field demonstration projects provides valuable insights in to technology performance and value in specific locations

Project Description

- Ice Bear technology targets summer peak loads from air conditioning by creating ice during off-peak hours and using thermal mass instead of a/c compressor to cool air during peak hours
 - Behind-the-meter DR solution
 - Load shifting, rather than overall demand reduction
- Plan to deploy at 5 to 10 sites before summer 2018
- Locations being selected to demonstrate potential to deliver customer- and grid-facing benefits, in areas with high seasonal population fluctuation

Why Ice Bears?

- Dispatch has no impact on customer comfort = no customer fatigue
- Dispatch and resulting load reduction is reliable
 - Remotely dispatchable
 - Does not rely on any customer action to dispatch
 - Dispatch cannot be overridden by customer
- It is relatively simple – the core components are the same as an a/c unit = can be maintained by local a/c technicians
- There are no safety concerns, unlike many other storage technology types
- Storage capability does not degrade over time
- System performance is continuously monitored in real-time
- It has been successfully deployed elsewhere in the United States
- Can operate every day of the cooling season, over multiple hours
 - High probability of overlap with ISO-NE peak load day and hour, which reduces ICAP tags and can lower power supply costs

Research Questions

- Which value streams are available to different customers, and which are the most important to them?
 - In the future, could the customer value be sufficient to motivate them to pay some of the costs to purchase/install the technology?
 - Within the commercial rate class, which customer/business types can get the most value from the technology?
 - Could customer pair it with a power supply contract to increase customer value?
- How much of the peak period will it be able to cover given Compact territory's climate?
 - Will it be enough to cover the Cape Cod and Martha's Vineyard and/or system peak? Could it cover a longer period?
- What are the grid-facing benefits?
 - Is it reliable enough to potentially defer T&D upgrades?
 - Can it be brought to scale in order to potentially defer T&D upgrades?
 - How can the locational T&D benefits be quantified?

Why have demonstration projects?

- There are inherent locational differences both within MA and between MA and other areas
 - Rate structures, costs (project, avoided, market), load profiles, customer composition, climate
 - Data from demonstration projects accounts for these differences
- Demonstrations provide hands-on experience and in-the-field data which is used to:
 - Provide data with which to help evaluate cost-effectiveness
 - Inform the development of potential future programs at a larger scale, incl. technology selection, program design, implementation, and goals
 - Recruit participants for future programs

Res. Behavior/Feedback Initiative

- In order to deploy Ice Bears before summer 2017, CLC proposed shifting funds from Res. Behavior/Feedback to the DR Offering in its 2017 Energy Efficiency Surcharge filing (DPU 16-177)
 - CLC viewed as appropriate because both programs shared goals of curbing peak demand/load shifting
- DPU did not allow shift of funds from Res. Behavior/Feedback to DR Offering, required EEAC review and a separate DPU filing
- Compact decreasing spending on Res. Behavior/Feedback by suspending enrollment
 - Maintaining functionality for current participants
 - Costs were high, maintaining equipment connectivity increasingly an issue, evaluation showed minimal savings

Budget



<u>Budget</u>	2016-2018 Plan				Proposed in MTM			
	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>
Res. Behavior Feedback Initiative	323,850	326,115	329,832	979,797	170,611	153,448	147,635	471,695
Demand Response Offering (total)	185,897	267,797	349,697	803,391	186,560	890,000	840,000	1,916,560
DR C&I	18,590	26,780	34,970	80,340	17,907	485,000	485,000	987,907
DR Residential	167,307	241,017	314,727	723,051	168,654	405,000	355,000	928,654
<u>Grand Total</u>	509,747	593,912	679,529	1,783,189	357,172	1,043,448	987,635	2,388,255

<u>Budget</u>	Difference			
	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>
Res. Behavior Feedback Initiative	(153,239)	(172,667)	(182,198)	(508,103)
Demand Response Offering (total)	663	622,203	490,303	1,113,169
DR C&I	(683)	458,220	450,030	907,567
DR Residential	1,346	163,983	40,273	205,602
<u>Grand Total</u>	(152,576)	449,536	308,106	<u>605,066</u>

Bill Impacts

- Residential
 - Overall, proposed 2017 & 2018 res. budget decrease from what was approved in 2017 EES (2017) and planned (2018) due to decrease in Res. Behavior/Feedback
 - 2017 res. rate will increase slightly from what is currently effective due to decrease in sales and RGGI revenue
- C&I
 - Rates higher than planned due to DR budget increases and decrease in RGGI revenue
- Low Income
 - Three-year LI budget is at 10.06%
 - Slight rate increases in 2017/2018 due to decrease in RGGI revenue

Bill Impacts (cont.)

- Year-to-year bill impact analysis:
 - 2017 currently-effective vs. 2017 proposed
 - 2017 proposed vs 2018 updated
 - **None are greater than 1%**
 - Most residential are negative for 2017 proposed v. 2018 updated
- Replace EES rates included in approved Plan
 - 2017 planned vs. 2017 proposed
 - 2018 planned vs 2018 updated
 - **None are greater than 2%**

Thank you

Appendix: EES Rates

EES Rates (c/kWh)

<u>Sector</u>	<u>2017 Planned</u>	<u>2017 In Effect</u>	<u>2017 Proposed</u>	<u>2018 Planned</u>	<u>2018 Updated</u>
Residential	1.706	2.051	2.058	1.677	1.964
Low Income	0.162	0.099	0.1	0.18	0.189
C&I	1.383	1.573	1.653	1.521	1.788



Cape Light Compact

Demand Response Demonstration Offering 2016 Results & 2017 MTM

MA EEAC
March 15, 2017



Planned Demonstration Offering Overview

Cape Light Compact
D.P.U. 17-100
Appendix 6, Attachment N, CLC-Specific
May 1, 2017
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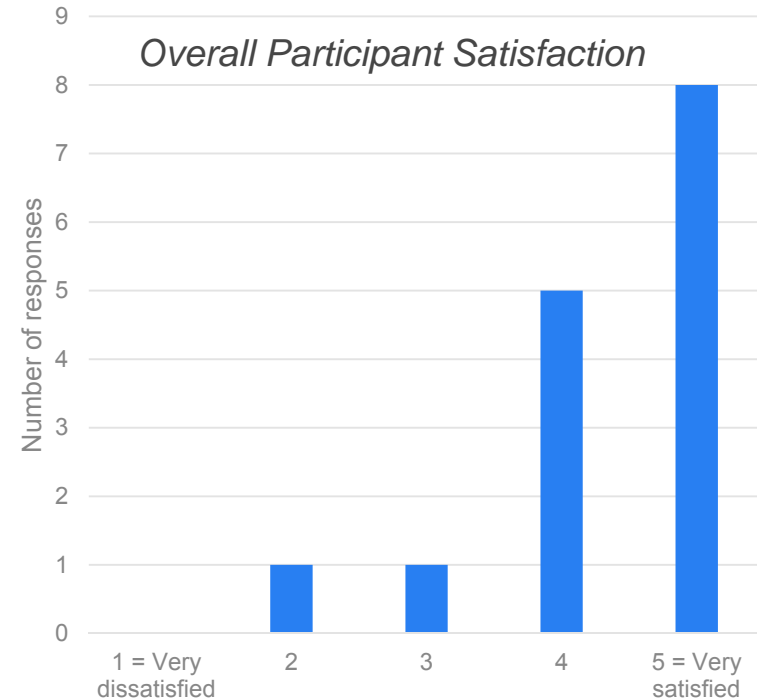


- CLC included a DR Demonstration Offering in 2016-2018 Plan
 - Offered participants a WiFi thermostat and energy monitoring equipment, monitored/controlled via app and/or web
 - Participants must have central a/c controlled by wall-mounted thermostat
 - Participants' thermostat set points were adjusted during DR events called by CLC
 - 4-hour events (most called 2-6 pm)
 - Events called based on weather and ISO load predictions
 - Participants notified of events via app and email day before
 - DR Offering design informed by CLC's Residential Behavior/Feedback core initiative
 - Residentially-focused

2016 Results



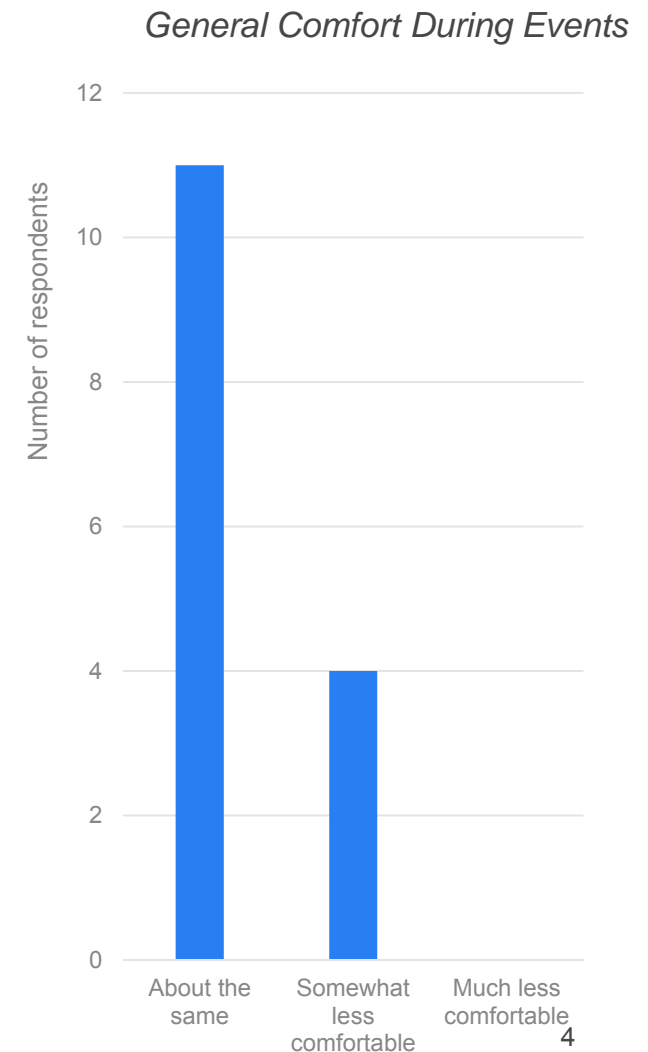
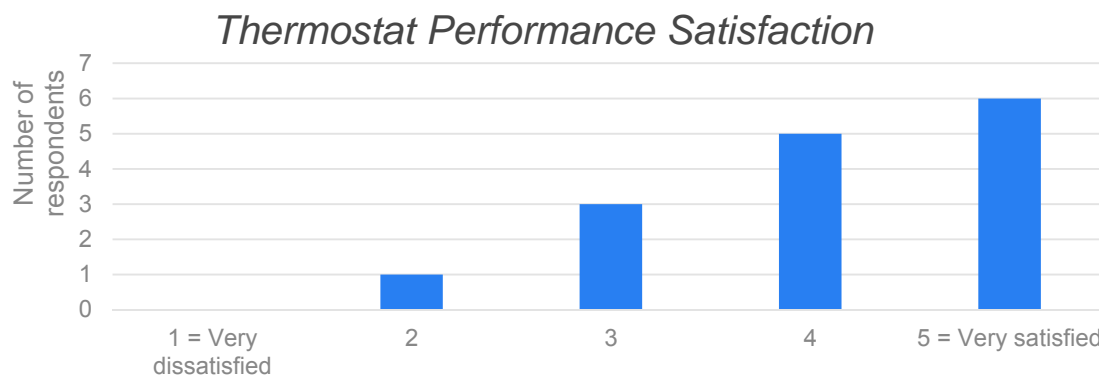
- Demonstration Offering goal: Learn how to best engage residential customers in demand response, use experience to inform further DR program development in the areas of:
 - Overall satisfaction
 - Enrollment motivators
 - Customer acceptance
 - Technology
 - Effect on comfort
 - Event participation
 - Fatigue within events
 - Opt-in vs. opt-out approach



2016 Results (cont.)



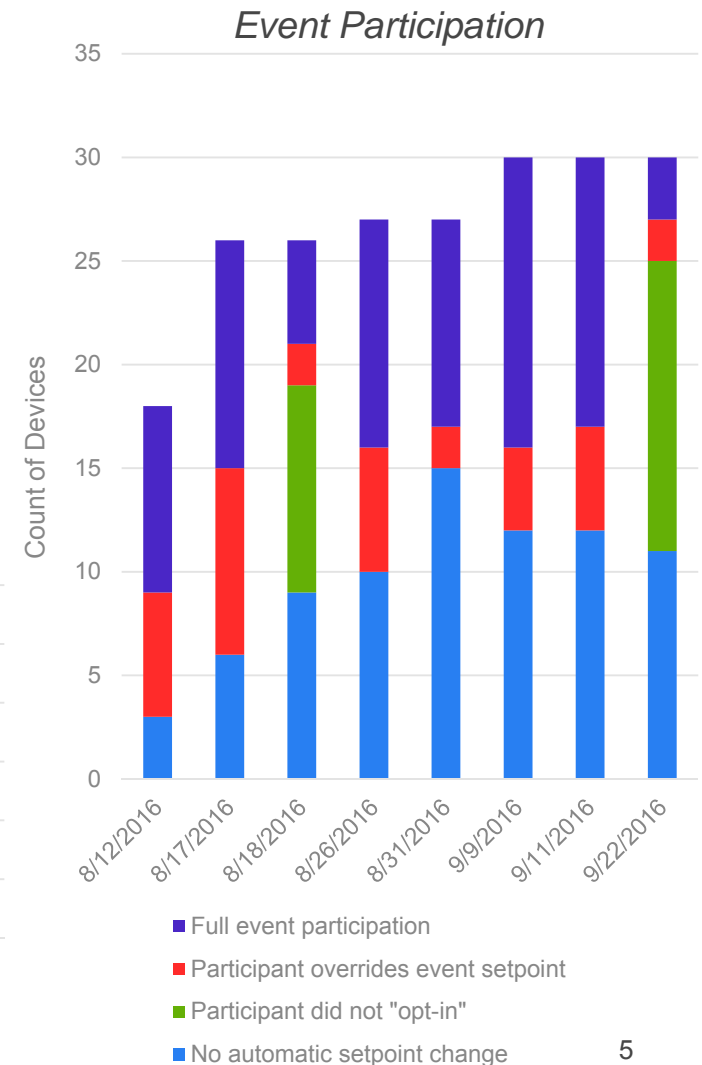
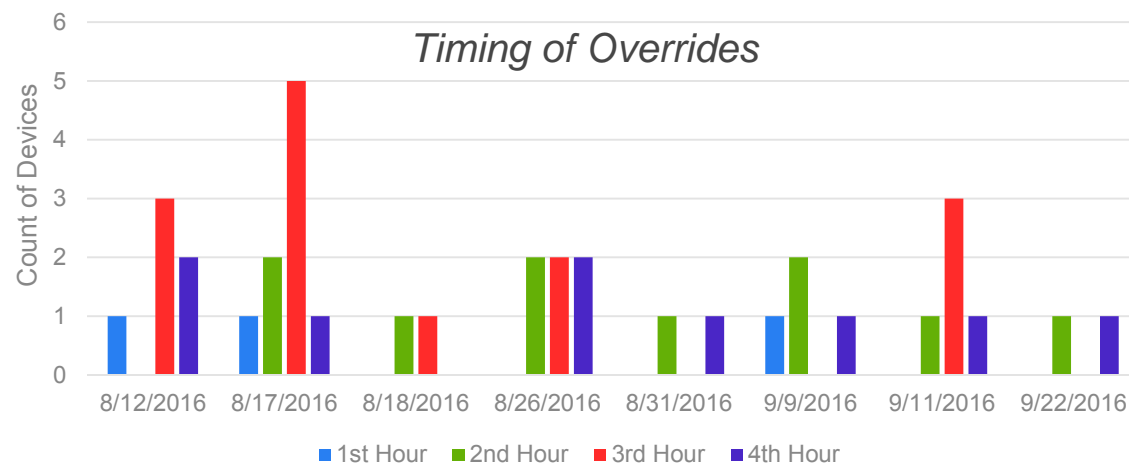
- Most customers were satisfied with the performance of their thermostat
- Most customers did not report a decrease in comfort (vs. days of similar temperature)
- Customers were active users of technology & information
- Most cited participation motivators were to save money, receive free thermostat, and ability to remotely control thermostat
 - Participation incentives were not significant motivators



2016 Results (cont.)



- 22 participants in 8 events
 - Currently 39 participants enrolled, 56 devices
- Most participants that did not receive set point change had A/Cs off
- Opt-out rate averaged 32%*
 - 4 “serial opt-outers” accounted for 60% of opt-outs
 - Most overrides occurred in 3rd hour



*Results not statistically significant due to limited sample size

2016 Takeaways



- High customer satisfaction
- Technology concept was well-received
- Opt-out design is most effective
- Some event fatigue occurred (usually in hour 3)
- Curtailment degradation after event hour 2
- Some pre-cooling and snapback occurred
- Limited pool of participants
- No smart metering is a challenge

2017 Residential DR Demonstration Offering

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- Expansion and adjustment of current demonstration offering
- Technology
 - Moving to Honeywell Lyric Thermostat (improve thermostat offering)
 - Incorporating mini-splits (expand participant eligibility)
 - No real-time monitoring equipment (reduce costs and deployment time)
- Events
 - All events will be called as opt-out (better participation rates)
 - Call shorter events (address event fatigue)
 - Stagger thermostat setbacks (address curtailment degradation)
 - Stagger event times across participants (address pre-cooling & snapback)

MTM Request - 2017 C&I DR Demonstration Offering

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- Background: CLC sought to expand its DR Demonstration Offering as part of its 2017 Energy Efficiency Surcharge filing (DPU 16-177) to include thermal storage
 - Proposed to stay within overall 2016-2018 approved budget
 - Would have been able to deploy thermal storage before summer 2017
 - DPU did not allow DR Offering increase, required EEAC review and a separate DPU filing
- In coordination with other PAs, CLC proposes to expand its Offering to include thermal storage for C&I customers
 - Also expand and improve current Res. DR Offering
 - Reduce Residential Behavior Initiative spending
- Testing additional technology will broaden scope of Offering learning for CLC/PAs to better inform future demand response offerings

Project Description



- Ice Bear technology targets summer peak loads from air conditioning by creating ice during off-peak hours and using thermal mass instead of a/c compressor to cool air during peak hours
 - Load-shifting, behind-the-meter DR technology
- Goal to deploy at 5 to 10 sites before summer 2018
 - Likely 10 to 15 units
- Locations being selected to demonstrate potential to deliver customer- and grid-facing benefits, in areas with high seasonal population fluctuation

Why Ice Bears?



- Dispatch has no impact on customer comfort = no customer fatigue
- Dispatch and resulting load reduction is reliable
 - Remotely dispatchable
 - Does not rely on any customer action to dispatch
 - Dispatch cannot be overridden by customer
- It is relatively simple – the core components are the same as an a/c unit = can be maintained by local a/c technicians
- There are no safety concerns, unlike many other storage technology types
- Storage capability does not degrade over time
- System performance is continuously monitored in real-time
- It has been successfully deployed elsewhere in the United States
- Can operate every day of the cooling season, over multiple hours
 - High probability of overlap with ISO-NE peak load day and hour, which reduces ICAP tags and can lower power supply costs

C&I DR Demonstration Offering Research Questions

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- Which value streams are the most important to customers?
 - In the future, could the customer value be sufficient to motivate them to pay some of the costs to purchase/install the technology?
 - Within the commercial rate class, which customer/business types can get the most value from the technology?
 - Could customer pair it with a power supply contract to increase customer value?
- How will it operate in the Compact territory's climate?
 - Will it be enough to cover the Cape Cod and Martha's Vineyard and/or system peak? Could it cover a longer period?
- What are the grid-facing benefits?
 - Is it reliable enough to potentially defer T&D upgrades?
 - Can it be brought to scale in order to potentially defer T&D upgrades?
 - How are the T&D benefits quantified?
- Vendor to analyze several of these questions in advance of full demonstration implementation, which will assist in site selection



Participation Goals

- Targeting 5-10 sites in order to deploy on a range of C&I customers in order to inform future expanded DR programs
 - DR reduction is very site-specific and temperature-dependent, but expected range of reduction for the C&I demonstration is 100-250kW*
- Targeting customers representative of range of C&I customers on Cape Cod/Martha's Vineyard that have consistent cooling load
 - Primary focus is on implementation experience
 - Examples will be used to understand potential variables in modeled vs realized DR impacts and barriers to future program implementation
- Customer types for DR Demonstration Offering
 - Municipal – mix regular hours and all-hours occupation
 - Hospitality/Lodging – higher loads later in the day, longer cooling season
 - Healthcare – consistent loads/space conditions
 - Restaurant – more site-specific loads
 - Retail – consistent load during daytime/operating hours

*based on preliminary information provided by vendor (typical reduction of ~1.1 kW/ton)

Why have demonstration projects?



- There are inherent locational differences both within MA and between MA and other areas
 - Rate structures, costs (project, avoided, market), load profiles, customer composition, climate
 - Data from demonstration projects accounts helps to identify these differences
- Demonstrations provide hands-on experience and in-the-field data which is used to:
 - Inform the development of potential future programs at a larger scale, incl. technology selection, program design, implementation, and goals
 - Evaluate customer acceptance & barriers to implementation
 - Recruit participants for future programs



Res. Behavior/Feedback Initiative

- As part of 2016-2018 Plan, Compact had an approved budget for its Residential Behavior/Feedback Initiative
 - Used near-real time energy monitoring equipment to inform participants of energy usage drivers and encourage load reduction through behavioral change
- Costs were high, maintaining equipment connectivity increasingly an issue, evaluation showed minimal savings
- Compact decreasing spending on Res. Behavior/Feedback by suspending enrollment
- Maintaining functionality for current participants

<u>Budget</u>	2016-2018 Plan				Proposed in MTM				Difference
	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>	<u>2016-2018</u>
Res. Behavior Feedback Initiative	323,850	326,115	329,832	979,797	170,611	153,448	147,635	471,695	(508,103)

DR Demonstration Offering Proposed Budget

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2017-2018 C&I DR Demonstration Offering Budget

PP&A	Marketing	Participant Incentive & STAT	EM&V	Total Cost
-	-	820,000	150,000	970,000

- Incentive/STAT budget includes equipment, installation, and maintenance
- Budget based on pricing information from vendor

2016-2018 DR Demonstration Offering Budget, Current & Proposed

<u>Budget</u>	2016-2018 Plan				Proposed in MTM			
	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>
Demand Response Offering (total)	185,897	267,797	349,697	803,391	186,560	890,000	840,000	1,916,560
<i>DR C&I</i>	18,590	26,780	34,970	80,340	17,907	485,000	485,000	987,907
<i>DR Residential</i>	167,307	241,017	314,727	723,051	168,654	405,000	355,000	928,654

Budget Impact & EES



Overall Plan Budget Impact

<u>Budget</u>	Difference: Approved vs. Proposed			
	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2016-2018</u>
Res. Behavior Feedback Initiative	(153,239)	(172,667)	(182,198)	(508,103)
Demand Response Offering (total)	663	622,203	490,303	1,113,169
<i>DR C&I</i>	(683)	458,220	450,030	907,567
<i>DR Residential</i>	1,346	163,983	40,273	205,602
Grand Total	(152,576)	449,536	308,106	<u>605,066</u>

EES Rates (c/kWh)

<u>Sector</u>	<u>2017 Planned</u>	<u>2017 In Effect</u>	<u>2017 Proposed</u>	<u>2018 Planned</u>	<u>2018 Updated</u>
Residential	1.706	2.051	2.058	1.677	1.964
Low Income	0.162	0.099	0.1	0.18	0.189
C&I	1.383	1.573	1.653	1.521	1.788

Thank you



Appendix: Bill Impacts Summary

- Residential
 - Overall, proposed 2017 & 2018 res. budget decrease from what was approved in 2017 EES (2017) and planned (2018) due to decrease in Res. Behavior/Feedback
 - 2017 res. rate will increase slightly from what is currently effective due to decrease in sales and RGGI revenue
- C&I
 - Rates higher than planned due to DR budget increases and decrease in RGGI revenue
- Low Income
 - Three-year LI budget is at 10.06%
 - Slight rate increases in 2017/2018 due to decrease in RGGI revenue



Appendix: Bill Impacts Summary

- Year-to-year bill impact analysis:
 - 2017 currently-effective vs. 2017 proposed
 - 2017 proposed vs 2018 updated
 - **None are greater than 1%**
 - Most residential are negative for 2017 proposed v. 2018 updated
- Replace EES rates included in approved Plan
 - 2017 planned vs. 2017 proposed
 - 2018 planned vs 2018 updated
 - **None are greater than 2%**

APPENDIX 7
CAPE LIGHT COMPACT
TOWN ACTIVITY REPORTS

The following are the 2016 Town Activity Reports for the Cape Light Compact.

Energy Efficiency Program Activity by Town

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Town Name: All
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	235,667.66	\$92,894.89	55	1,421,555.79	\$628,234.88	316	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	402,245.10	\$156,696.04	241	973,480.30	\$457,028.60	549	\$0.00	0.00%
Residential Home Energy Services - Measures	866,406.10	\$715,158.07	724	8,882,130.04	\$7,882,831.30	6,100	\$12,753,247.99	61.81%
Residential Home Energy Services - RCS	0.00	\$97,200.00	448	0.00	\$929,885.00	3,445	\$1,680,761.58	55.33%
Residential Behavior/Feedback Program	0.00	\$0.00	0	86,738.40	\$14,178.00	8	\$0.00	0.00%
Residential Heating & Cooling Equipment	161,314.20	\$110,646.50	226	1,716,285.50	\$1,175,796.00	2,214	\$0.00	0.00%
Residential Consumer Products	164,148.80	\$33,398.62	216	1,020,922.70	\$178,845.63	2,195	\$0.00	0.00%
Residential Lighting	662,912.10	\$64,485.21	2,961	13,926,356.40	\$1,255,251.18	69,005	\$0.00	0.00%
Residential HEAT Loan	0.00	\$3,270.00	53	0.00	\$660,399.89	860	\$0.00	0.00%
Res Subtotal	2,492,693.96	\$1,273,749.33	4,924.00	28,027,469.13	\$13,182,450.48	84,692	\$14,434,009.57	
Res % of Total	41.88%	51.51%	89.79%	56.81%	61.66%	96.42%	63.78%	
Low-Income Single Family Retrofit	143,373.63	\$116,495.15	117	1,451,689.40	\$1,676,563.45	896	\$2,731,036.34	61.39%
Low-Income Multi-Family Retrofit	61,292.20	\$33,141.25	49	457,755.90	\$802,322.36	478	\$0.00	0.00%
LI Subtotal	204,665.83	\$149,636.40	166.00	1,909,445.30	\$2,478,885.81	1,374	\$2,731,036.34	
LI % of Total	3.44%	6.05%	3.03%	3.87%	11.60%	1.56%	12.07%	
C&I New Buildings & Major Renovations	81,467.69	\$24,761.93	7	580,248.01	\$201,801.49	29	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	25,699.00	\$34,823.25	3	309,381.00	\$306,864.59	20	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	204,914.18	\$158,876.95	10	1,320,671.96	\$469,788.81	98	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	856,587.44	\$223,398.32	14	5,118,050.91	\$1,503,595.58	90	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	185,092.98	\$93,838.85	15	1,524,616.66	\$919,878.75	87	\$3,432,473.82	26.80%
C&I Existing Building Retrofit - Municipal	181,926.96	\$187,164.75	13	623,509.70	\$649,449.32	68	\$0.00	0.00%
C&I Small Business	262,132.49	\$170,712.53	80	1,033,723.15	\$728,465.31	236	\$2,032,345.17	35.84%
C&I Multifamily Retrofit	58,131.50	\$14,815.86	6	184,009.50	\$114,423.01	18	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	1,398,969.56	\$141,197.00	246	8,701,899.57	\$822,389.00	1,122	\$0.00	0.00%
C&I Subtotal	3,254,921.79	\$1,049,589.44	394.00	19,396,110.46	\$5,716,655.86	1,768	\$5,464,818.99	
C&I % of Total	54.68%	42.44%	7.18%	39.32%	26.74%	2.01%	24.15%	
Total	5,952,281.58	\$2,472,975.17	5,484	49,333,024.89	\$21,377,992.15	87,834	\$22,629,864.90	

*Costs include those costs that has been recorded through this period and are not necessarily representative of all activity through this month

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Town Name: AQUINNAH
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	598.70	\$130.81	1	4,985.30	\$5,839.82	5	\$16,579.22	35.22%
Residential Home Energy Services - RCS	0.00	\$505.00	2	0.00	\$1,095.00	4	\$2,184.99	50.11%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	0.00	\$0.00	0	1,938.00	\$1,003.00	2	\$0.00	0.00%
Residential Consumer Products	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Res Subtotal	598.70	\$635.81	3.00	6,923.30	\$7,937.82	11	\$18,764.21	
Res % of Total	100.00%	100.00%	100.00%	78.44%	97.07%	91.67%	63.78%	
Low-Income Single Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$3,550.35	0.00%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
LI Subtotal	0.00	\$0.00	0.00	0.00	\$0.00	0	\$3,550.35	
LI % of Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$4,462.22	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Small Business	0.00	\$0.00	0	0.00	\$0.00	0	\$2,642.05	0.00%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	0.00	\$0.00	0	1,903.32	\$240.00	1	\$0.00	0.00%
C&I Subtotal	0.00	\$0.00	0.00	1,903.32	\$240.00	1	\$7,104.26	
C&I % of Total	0.00%	0.00%	0.00%	21.56%	2.93%	8.33%	24.15%	
Total	598.70	\$635.81	3	8,826.62	\$8,177.82	12	\$29,418.82	

*Costs include those costs that has been recorded through this period and are not necessarily representative of all activity through this month

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Energy Efficiency Program Activity by Town

Town Name: BARNSTABLE
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
 Cumulative Dates: 1/1/2016 - 12/31/2016

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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	36,232.92	\$11,701.62	10	189,569.89	\$60,960.49	49	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	45,335.20	\$20,696.50	19	158,547.40	\$81,881.46	81	\$0.00	0.00%
Residential Home Energy Services - Measures	126,619.10	\$84,869.47	95	1,384,797.30	\$1,080,332.72	966	\$2,480,506.73	43.55%
Residential Home Energy Services - RCS	0.00	\$11,320.00	52	0.00	\$115,245.00	436	\$326,908.13	35.25%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	18,961.20	\$15,338.50	32	265,534.80	\$202,450.00	345	\$0.00	0.00%
Residential Consumer Products	44,620.80	\$6,412.50	43	297,096.40	\$45,081.70	400	\$0.00	0.00%
Residential Lighting	507,529.30	\$52,734.32	2,586	6,230,538.60	\$573,268.18	34,776	\$0.00	0.00%
Residential HEAT Loan	0.00	\$535.00	12	0.00	\$145,537.33	192	\$0.00	0.00%
Res Subtotal	779,298.52	\$203,607.91	2,849.00	8,526,084.40	\$2,304,756.88	37,245	\$2,807,414.86	
Res % of Total	60.81%	55.11%	96.28%	65.91%	60.14%	98.50%	63.78%	
Low-Income Single Family Retrofit	26,523.68	\$14,149.24	20	292,696.11	\$309,938.66	175	\$531,186.57	58.35%
Low-Income Multi-Family Retrofit	4,484.80	\$3,290.53	11	76,384.50	\$49,844.82	85	\$0.00	0.00%
LI Subtotal	31,008.48	\$17,439.77	31.00	369,080.61	\$359,783.48	260	\$531,186.57	
LI % of Total	2.42%	4.72%	1.05%	2.85%	9.39%	0.69%	12.07%	
C&I New Buildings & Major Renovations	81,467.69	\$23,611.93	5	438,033.01	\$142,864.74	16	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$2,955.00	1	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$317.50	1	625,947.52	\$112,724.30	22	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	95,319.04	\$13,003.04	3	1,004,953.04	\$283,263.47	18	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	34,247.48	\$23,309.54	4	232,709.48	\$161,948.90	14	\$667,616.16	24.26%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	51,968.00	\$42,879.02	10	\$0.00	0.00%
C&I Small Business	78,275.68	\$65,845.02	22	369,578.74	\$273,839.21	60	\$395,291.14	69.28%
C&I Multifamily Retrofit	30,704.00	\$2,948.71	1	65,476.00	\$43,236.71	6	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	151,275.65	\$19,364.00	43	1,251,719.74	\$104,136.00	162	\$0.00	0.00%
C&I Subtotal	471,289.53	\$148,399.74	79.00	4,040,385.51	\$1,167,847.35	309	\$1,062,907.29	
C&I % of Total	36.77%	40.17%	2.67%	31.23%	30.47%	0.82%	24.15%	
Total	1,281,596.54	\$369,447.42	2,959	12,935,550.52	\$3,832,387.71	37,814	\$4,401,508.72	

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Town Name: BOURNE
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	9,717.85	\$3,166.63	3	31,229.45	\$10,299.94	12	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	71,129.70	\$16,231.90	74	101,250.90	\$32,213.49	93	\$0.00	0.00%
Residential Home Energy Services - Measures	52,282.80	\$35,785.36	39	401,468.90	\$356,130.31	306	\$1,084,026.08	32.85%
Residential Home Energy Services - RCS	0.00	\$5,670.00	26	0.00	\$44,835.00	161	\$142,864.73	31.38%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	6,073.00	\$4,176.50	11	67,029.20	\$46,013.50	84	\$0.00	0.00%
Residential Consumer Products	6,367.20	\$1,110.40	10	61,817.60	\$11,086.42	158	\$0.00	0.00%
Residential Lighting	32,178.40	\$809.05	157	288,573.90	\$29,299.09	1,384	\$0.00	0.00%
Residential HEAT Loan	0.00	\$140.00	4	0.00	\$37,651.65	41	\$0.00	0.00%
Res Subtotal	177,748.95	\$67,089.84	324.00	951,369.95	\$567,529.40	2,239	\$1,226,890.81	
Res % of Total	38.93%	26.61%	88.52%	49.22%	52.41%	92.33%	63.78%	
Low-Income Single Family Retrofit	10,209.24	\$7,134.07	10	82,436.18	\$106,360.09	53	\$232,138.09	45.82%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	3,341.20	\$4,234.24	3	\$0.00	0.00%
LI Subtotal	10,209.24	\$7,134.07	10.00	85,777.38	\$110,594.33	56	\$232,138.09	
LI % of Total	2.24%	2.83%	2.73%	4.44%	10.21%	2.31%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	88,025.00	\$17,413.75	3	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$6,999.70	2	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	152,060.00	\$147,924.00	1	300,169.77	\$238,715.50	12	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$370.00	1	95,374.92	\$37,130.00	4	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$700.00	1	18,459.46	\$17,950.86	4	\$291,760.27	6.15%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$4,255.00	4	\$0.00	0.00%
C&I Small Business	23,250.12	\$17,700.31	5	56,608.90	\$44,126.91	19	\$172,749.34	25.54%
C&I Multifamily Retrofit	0.00	\$292.50	1	0.00	\$292.50	1	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	93,299.99	\$10,951.00	23	337,024.06	\$37,881.00	81	\$0.00	0.00%
C&I Subtotal	268,610.11	\$177,937.81	32.00	895,662.11	\$404,765.22	130	\$464,509.61	
C&I % of Total	58.83%	70.56%	8.74%	46.34%	37.38%	5.36%	24.15%	
Total	456,568.30	\$252,161.72	366	1,932,809.44	\$1,082,888.95	2,425	\$1,923,538.52	

*Costs include those costs that has been recorded through this period and are not necessarily representative of all activity through this month

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Town Name: BREWSTER
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	8,129.43	\$8,151.60	3	71,411.49	\$55,109.18	23	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	74,452.20	\$40,727.91	46	244,767.70	\$132,081.73	122	\$0.00	0.00%
Residential Home Energy Services - Measures	27,552.20	\$43,985.04	35	430,839.80	\$460,651.62	290	\$539,462.39	85.39%
Residential Home Energy Services - RCS	0.00	\$5,095.00	24	0.00	\$52,830.00	191	\$71,096.21	74.31%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	11,730.60	\$7,139.00	12	120,719.30	\$74,277.50	141	\$0.00	0.00%
Residential Consumer Products	5,919.00	\$585.00	12	35,974.00	\$4,634.97	101	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	786.00	\$63.75	3	\$0.00	0.00%
Residential HEAT Loan	0.00	\$220.00	3	0.00	\$30,065.50	36	\$0.00	0.00%
Res Subtotal	127,783.43	\$105,903.55	135.00	904,498.29	\$809,714.25	907	\$610,558.60	
Res % of Total	75.31%	85.10%	87.66%	58.97%	80.62%	90.52%	63.78%	
Low-Income Single Family Retrofit	9,732.89	\$9,435.54	6	84,833.02	\$120,764.49	39	\$115,522.84	104.54%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	8,145.80	\$3,644.50	3	\$0.00	0.00%
LI Subtotal	9,732.89	\$9,435.54	6.00	92,978.82	\$124,408.99	42	\$115,522.84	
LI % of Total	5.74%	7.58%	3.90%	6.06%	12.39%	4.19%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$50.00	1	0.00	\$1,675.00	2	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	7,268.23	\$971.20	1	7,268.23	\$971.20	1	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	3,921.00	\$1,152.04	1	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$145,193.64	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$2,400.00	4	0.00	\$2,400.00	4	\$0.00	0.00%
C&I Small Business	2,537.81	\$2,291.31	2	11,390.81	\$9,721.33	8	\$85,968.20	11.31%
C&I Multifamily Retrofit	6,156.00	\$1,395.00	1	28,759.00	\$21,508.78	5	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	16,197.02	\$2,000.00	4	485,116.75	\$32,748.00	32	\$0.00	0.00%
C&I Subtotal	32,159.06	\$9,107.51	13.00	536,455.79	\$70,176.35	53	\$231,161.84	
C&I % of Total	18.95%	7.32%	8.44%	34.97%	6.99%	5.29%	24.15%	
Total	169,675.37	\$124,446.60	154	1,533,932.90	\$1,004,299.59	1,002	\$957,243.29	

*Costs include those costs that has been recorded through this period and are not necessarily representative of all activity through this month

**All information presented is preliminary and subject to change.

Energy Efficiency Program Activity by Town

Town Name: Cape Cod
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
 Cumulative Dates: 1/1/2016 - 12/31/2016

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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	143,750.00	\$78,727.73	50	835,103.92	\$531,030.84	289	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	376,098.60	\$138,183.53	235	947,619.80	\$438,766.10	543	\$0.00	0.00%
Residential Home Energy Services - Measures	741,104.70	\$636,128.59	647	8,141,775.99	\$7,121,840.20	5,644	\$11,849,042.71	60.10%
Residential Home Energy Services - RCS	0.00	\$79,045.00	374	0.00	\$819,345.00	3,033	\$1,561,595.58	52.47%
Residential Behavior/Feedback Program	0.00	\$0.00	0	86,738.40	\$14,178.00	8	\$0.00	0.00%
Residential Heating & Cooling Equipment	152,431.20	\$105,762.00	213	1,604,346.90	\$1,109,417.50	2,121	\$0.00	0.00%
Residential Consumer Products	134,938.80	\$19,766.12	203	936,036.40	\$139,975.86	2,110	\$0.00	0.00%
Residential Lighting	639,932.10	\$61,504.83	2,889	13,434,916.90	\$1,198,842.37	66,749	\$0.00	0.00%
Residential HEAT Loan	0.00	\$3,165.00	50	0.00	\$634,136.28	827	\$0.00	0.00%
Res Subtotal	2,188,255.40	\$1,122,282.80	4,661.00	25,986,538.31	\$12,007,532.15	81,324	\$13,410,638.29	
Res % of Total	40.02%	49.10%	90.05%	56.61%	61.88%	96.76%	63.78%	
Low-Income Single Family Retrofit	139,776.70	\$114,499.41	112	1,405,498.29	\$1,605,268.02	860	\$2,537,405.86	63.26%
Low-Income Multi-Family Retrofit	60,032.20	\$32,982.25	48	391,434.80	\$481,304.78	344	\$0.00	0.00%
LI Subtotal	199,808.90	\$147,481.66	160.00	1,796,933.09	\$2,086,572.80	1,204	\$2,537,405.86	
LI % of Total	3.65%	6.45%	3.09%	3.91%	10.75%	1.43%	12.07%	
C&I New Buildings & Major Renovations	81,467.69	\$24,761.93	7	641,829.34	\$241,005.49	29	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	25,699.00	\$28,435.75	2	120,673.00	\$149,025.59	14	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	204,914.18	\$158,876.95	10	1,280,689.32	\$457,222.21	69	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	856,587.44	\$223,398.32	14	5,092,669.91	\$1,455,746.22	86	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	185,092.98	\$93,838.85	15	1,514,078.66	\$907,264.54	84	\$3,189,111.43	28.45%
C&I Existing Building Retrofit - Municipal	181,926.96	\$187,164.75	13	557,044.77	\$560,952.01	52	\$0.00	0.00%
C&I Small Business	234,270.28	\$159,589.56	74	999,744.45	\$707,619.80	216	\$1,888,251.90	37.47%
C&I Multifamily Retrofit	58,131.50	\$14,815.86	6	184,009.50	\$114,423.01	18	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	1,252,073.98	\$124,842.00	214	7,730,461.47	\$717,023.00	950	\$0.00	0.00%
C&I Subtotal	3,080,164.00	\$1,015,723.97	355.00	18,121,200.42	\$5,310,281.87	1,518	\$5,077,363.32	
C&I % of Total	56.33%	44.44%	6.86%	39.48%	27.37%	1.81%	24.15%	
Total	5,468,228.30	\$2,285,488.43	5,176	45,904,671.82	\$19,404,386.82	84,046	\$21,025,407.48	

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Town Name: CHATHAM
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	5,541.81	\$1,522.56	1	21,291.68	\$5,451.66	3	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	11,463.00	\$3,435.86	5	15,001.00	\$6,422.96	6	\$0.00	0.00%
Residential Home Energy Services - Measures	24,672.60	\$19,099.22	24	323,088.30	\$242,973.60	197	\$336,685.75	72.17%
Residential Home Energy Services - RCS	0.00	\$3,385.00	15	0.00	\$25,910.00	102	\$44,372.11	58.39%
Residential Behavior/Feedback Program	0.00	\$0.00	0	13,198.50	\$2,167.50	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	7,172.80	\$4,856.50	14	69,768.60	\$46,128.50	104	\$0.00	0.00%
Residential Consumer Products	4,049.00	\$420.00	9	26,404.00	\$3,382.50	89	\$0.00	0.00%
Residential Lighting	788.40	\$36.72	3	3,583.00	\$330.43	12	\$0.00	0.00%
Residential HEAT Loan	0.00	\$35.00	1	0.00	\$15,883.94	18	\$0.00	0.00%
Res Subtotal	53,687.61	\$32,790.86	72.00	472,335.08	\$348,651.09	532	\$381,057.85	
Res % of Total	71.78%	72.86%	87.80%	47.95%	54.90%	80.97%	63.78%	
Low-Income Single Family Retrofit	1,754.70	\$1,619.55	2	29,282.02	\$39,633.42	15	\$72,099.36	54.97%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	41,737.30	\$11,436.03	57	\$0.00	0.00%
LI Subtotal	1,754.70	\$1,619.55	2.00	71,019.32	\$51,069.45	72	\$72,099.36	
LI % of Total	2.35%	3.60%	2.44%	7.21%	8.04%	10.96%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	45,981.00	\$17,675.50	1	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$4,720.00	2	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	2,636.36	\$500.00	1	6,440.36	\$1,700.00	2	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	6,555.00	\$6,425.18	1	62,164.64	\$22,875.46	4	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	155,036.70	\$129,875.66	3	\$90,617.31	143.32%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	26,119.34	\$27,626.16	8	\$0.00	0.00%
C&I Small Business	4,582.76	\$2,921.38	2	19,073.99	\$18,066.57	5	\$53,653.91	33.67%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	5,577.28	\$750.00	4	126,847.91	\$12,785.00	28	\$0.00	0.00%
C&I Subtotal	19,351.40	\$10,596.56	8.00	441,663.93	\$235,324.35	53	\$144,271.22	
C&I % of Total	25.87%	23.54%	9.76%	44.84%	37.06%	8.07%	24.15%	
Total	74,793.71	\$45,006.97	82	985,018.33	\$635,044.89	657	\$597,428.43	

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Town Name: CHILMARK
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	28,215.37	\$21,450.92	3	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	8,480.20	\$2,118.32	4	35,852.90	\$32,222.00	27	\$47,187.02	68.29%
Residential Home Energy Services - RCS	0.00	\$1,010.00	4	0.00	\$6,820.00	25	\$6,218.82	109.67%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	956.00	\$731.50	2	7,053.00	\$4,855.50	6	\$0.00	0.00%
Residential Consumer Products	1,359.00	\$100.00	1	8,946.20	\$4,790.12	6	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$3,107.91	3	\$0.00	0.00%
Res Subtotal	10,795.20	\$3,959.82	11.00	80,067.47	\$73,246.45	70	\$53,405.84	
Res % of Total	61.70%	67.46%	84.62%	83.77%	94.66%	92.11%	63.78%	
Low-Income Single Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$10,104.83	0.00%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
LI Subtotal	0.00	\$0.00	0.00	0.00	\$0.00	0	\$10,104.83	
LI % of Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	2,026.51	\$750.00	2	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$12,700.15	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$700.00	1	\$0.00	0.00%
C&I Small Business	0.00	\$0.00	0	0.00	\$0.00	0	\$7,519.68	0.00%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	6,701.34	\$1,910.00	2	13,480.49	\$2,680.00	3	\$0.00	0.00%
C&I Subtotal	6,701.34	\$1,910.00	2.00	15,507.00	\$4,130.00	6	\$20,219.83	
C&I % of Total	38.30%	32.54%	15.38%	16.23%	5.34%	7.89%	24.15%	
Total	17,496.54	\$5,869.82	13	95,574.46	\$77,376.45	76	\$83,730.50	

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Energy Efficiency Program Activity by Town

Town Name: DENNIS
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	77,953.70	\$47,860.82	22	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	7,277.60	\$2,541.83	20	65,856.10	\$32,114.91	54	\$0.00	0.00%
Residential Home Energy Services - Measures	86,472.30	\$66,399.61	59	792,604.76	\$597,366.07	494	\$779,223.45	76.66%
Residential Home Energy Services - RCS	0.00	\$8,075.00	35	0.00	\$60,825.00	223	\$102,694.53	59.23%
Residential Behavior/Feedback Program	0.00	\$0.00	0	8,706.60	\$1,377.00	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	11,186.20	\$8,706.00	20	139,280.00	\$100,114.50	199	\$0.00	0.00%
Residential Consumer Products	12,224.00	\$1,151.35	23	81,043.80	\$11,741.33	203	\$0.00	0.00%
Residential Lighting	13,846.60	\$1,437.28	10	783,617.60	\$94,734.21	4,537	\$0.00	0.00%
Residential HEAT Loan	0.00	\$220.00	3	0.00	\$56,831.73	76	\$0.00	0.00%
Res Subtotal	131,006.70	\$88,531.07	170.00	1,949,062.56	\$1,002,965.57	5,809	\$881,917.98	
Res % of Total	48.16%	63.05%	82.52%	67.66%	76.98%	96.62%	63.78%	
Low-Income Single Family Retrofit	5,430.86	\$2,059.83	4	103,313.30	\$97,200.90	65	\$166,866.32	58.25%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	34,591.80	\$17,265.65	34	\$0.00	0.00%
LI Subtotal	5,430.86	\$2,059.83	4.00	137,905.10	\$114,466.55	99	\$166,866.32	
LI % of Total	2.00%	1.47%	1.94%	4.79%	8.79%	1.65%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	60,269.00	\$27,390.00	3	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	27,608.00	\$17,878.50	2	63,856.80	\$26,479.87	7	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	22,621.80	\$14,521.37	2	33,534.80	\$24,756.87	3	\$209,724.15	11.80%
C&I Existing Building Retrofit - Municipal	0.00	\$50.00	1	0.00	\$585.00	1	\$0.00	0.00%
C&I Small Business	6,380.40	\$6,188.72	7	44,702.99	\$39,073.46	14	\$124,176.29	31.47%
C&I Multifamily Retrofit	1,213.50	\$342.83	1	1,213.50	\$342.83	1	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	77,749.10	\$10,850.00	19	590,132.52	\$66,820.00	75	\$0.00	0.00%
C&I Subtotal	135,572.80	\$49,831.42	32.00	793,709.61	\$185,448.03	104	\$333,900.44	
C&I % of Total	49.84%	35.49%	15.53%	27.55%	14.23%	1.73%	24.15%	
Total	272,010.36	\$140,422.32	206	2,880,677.27	\$1,302,880.15	6,012	\$1,382,684.75	

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Energy Efficiency Program Activity by Town

Town Name: EASTHAM
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	4,618.84	\$2,652.20	1	29,227.94	\$13,357.12	4	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$575.00	1	\$0.00	0.00%
Residential Home Energy Services - Measures	31,271.70	\$41,810.76	39	450,863.10	\$424,681.37	257	\$271,644.18	156.34%
Residential Home Energy Services - RCS	0.00	\$4,800.00	23	0.00	\$51,525.00	187	\$35,800.22	143.92%
Residential Behavior/Feedback Program	0.00	\$0.00	0	1,304.10	\$229.50	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	6,979.00	\$4,013.00	10	58,628.80	\$36,532.50	74	\$0.00	0.00%
Residential Consumer Products	4,661.00	\$450.00	9	27,738.00	\$3,150.00	75	\$0.00	0.00%
Residential Lighting	5,935.20	\$584.04	3	164,870.20	\$19,858.64	350	\$0.00	0.00%
Residential HEAT Loan	0.00	\$70.00	2	0.00	\$18,692.94	20	\$0.00	0.00%
Res Subtotal	53,465.74	\$54,380.00	87.00	732,632.14	\$568,602.07	969	\$307,444.40	
Res % of Total	86.27%	79.36%	92.55%	76.65%	76.21%	95.19%	63.78%	
Low-Income Single Family Retrofit	3,388.06	\$10,202.43	3	36,501.82	\$78,384.64	27	\$58,171.07	134.75%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
LI Subtotal	3,388.06	\$10,202.43	3.00	36,501.82	\$78,384.64	27	\$58,171.07	
LI % of Total	5.47%	14.89%	3.19%	3.82%	10.51%	2.65%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$1,100.00	1	0.00	\$6,572.50	2	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	90,693.00	\$81,305.42	2	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	1,445.24	\$2,364.97	1	1,445.24	\$4,004.97	3	\$73,111.69	5.48%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Small Business	0.00	\$275.00	1	1,951.00	\$1,310.25	3	\$43,288.95	3.03%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	3,675.40	\$200.00	1	92,614.58	\$5,910.00	12	\$0.00	0.00%
C&I Subtotal	5,120.64	\$3,939.97	4.00	186,703.82	\$99,103.14	22	\$116,400.64	
C&I % of Total	8.26%	5.75%	4.26%	19.53%	13.28%	2.16%	24.15%	
Total	61,974.44	\$68,522.40	94	955,837.78	\$746,089.85	1,018	\$482,016.12	

*Costs include those costs that has been recorded through this period and are not necessarily representative of all activity through this month

**All information presented is preliminary and subject to change.

Energy Efficiency Program Activity by Town

Town Name: EDGARTOWN
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	29,283.50	\$31,194.01	17	228,604.60	\$250,145.91	130	\$224,457.16	111.44%
Residential Home Energy Services - RCS	0.00	\$3,925.00	17	0.00	\$30,565.00	118	\$29,581.40	103.33%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	5,078.00	\$3,034.00	6	39,152.00	\$23,275.00	33	\$0.00	0.00%
Residential Consumer Products	18,917.00	\$10,550.00	4	49,795.00	\$26,167.50	28	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	3,630.80	\$147.00	16	\$0.00	0.00%
Residential HEAT Loan	0.00	\$35.00	1	0.00	\$5,976.62	9	\$0.00	0.00%
Res Subtotal	53,278.50	\$48,738.01	45.00	321,182.40	\$336,277.03	334	\$254,038.57	
Res % of Total	32.10%	78.62%	75.00%	37.88%	46.98%	68.58%	63.78%	
Low-Income Single Family Retrofit	0.00	\$0.00	0	18,177.03	\$12,209.98	11	\$48,066.24	25.40%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	2,162.30	\$225,346.85	61	\$0.00	0.00%
LI Subtotal	0.00	\$0.00	0.00	20,339.33	\$237,556.83	72	\$48,066.24	
LI % of Total	0.00%	0.00%	0.00%	2.40%	33.19%	14.78%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	89,072.00	\$75,493.75	1	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	16,349.30	\$5,000.00	9	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$60,411.54	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	33,237.01	\$21,961.92	2	\$0.00	0.00%
C&I Small Business	2,786.78	\$2,102.40	2	15,432.96	\$7,890.83	4	\$35,769.27	22.06%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	109,893.81	\$11,154.00	13	352,273.15	\$31,557.00	65	\$0.00	0.00%
C&I Subtotal	112,680.59	\$13,256.40	15.00	506,364.42	\$141,903.50	81	\$96,180.81	
C&I % of Total	67.90%	21.38%	25.00%	59.72%	19.83%	16.63%	24.15%	
Total	165,959.09	\$61,994.41	60	847,886.15	\$715,737.36	487	\$398,285.62	

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Town Name: FALMOUTH
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	26,692.89	\$7,472.42	6	135,014.62	\$38,614.40	34	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	24,754.00	\$7,023.20	8	27,036.20	\$7,973.72	9	\$0.00	0.00%
Residential Home Energy Services - Measures	95,936.40	\$73,130.77	74	1,065,537.59	\$1,029,538.20	784	\$1,730,615.75	59.49%
Residential Home Energy Services - RCS	0.00	\$7,365.00	38	0.00	\$114,925.00	429	\$228,079.35	50.39%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	27,501.60	\$19,099.50	31	242,346.20	\$168,197.00	285	\$0.00	0.00%
Residential Consumer Products	21,349.50	\$3,070.30	35	112,797.90	\$17,235.60	245	\$0.00	0.00%
Residential Lighting	54,026.80	\$3,906.04	9	2,368,579.80	\$191,078.98	8,061	\$0.00	0.00%
Residential HEAT Loan	0.00	\$220.00	3	0.00	\$75,584.02	99	\$0.00	0.00%
Res Subtotal	250,261.19	\$121,287.23	204.00	3,951,312.31	\$1,643,146.92	9,946	\$1,958,695.10	
Res % of Total	19.01%	27.67%	64.76%	53.45%	50.47%	95.26%	63.78%	
Low-Income Single Family Retrofit	9,846.41	\$9,572.86	8	141,553.32	\$202,036.84	105	\$370,601.63	54.52%
Low-Income Multi-Family Retrofit	50,307.20	\$26,360.76	33	180,891.40	\$359,675.12	92	\$0.00	0.00%
LI Subtotal	60,153.61	\$35,933.62	41.00	322,444.72	\$561,711.96	197	\$370,601.63	
LI % of Total	4.57%	8.20%	13.02%	4.36%	17.25%	1.89%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	8,209.00	\$10,717.50	3	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$6,783.75	3	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	88,959.01	\$21,492.22	10	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	706,777.00	\$165,896.56	2	1,156,167.26	\$370,139.28	21	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	47,911.18	\$21,925.20	4	427,255.35	\$252,831.24	21	\$465,786.70	54.28%
C&I Existing Building Retrofit - Municipal	100,864.40	\$67,171.76	2	237,026.34	\$158,311.66	10	\$0.00	0.00%
C&I Small Business	12,985.14	\$8,021.68	7	127,299.17	\$98,144.70	30	\$275,789.24	35.59%
C&I Multifamily Retrofit	0.00	\$0.00	0	10,920.00	\$8,788.00	1	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	137,549.17	\$18,052.00	55	1,062,982.24	\$123,772.00	199	\$0.00	0.00%
C&I Subtotal	1,006,086.89	\$281,067.20	70.00	3,118,818.38	\$1,050,980.35	298	\$741,575.94	
C&I % of Total	76.42%	64.13%	22.22%	42.19%	32.28%	2.85%	24.15%	
Total	1,316,501.70	\$438,288.05	315	7,392,575.41	\$3,255,839.23	10,441	\$3,070,872.67	

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Energy Efficiency Program Activity by Town

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Town Name: HARWICH
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	8,536.89	\$8,071.34	3	106,682.87	\$62,134.99	23	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	19,909.90	\$10,598.16	11	19,909.90	\$11,975.66	14	\$0.00	0.00%
Residential Home Energy Services - Measures	71,701.20	\$39,132.95	55	643,892.00	\$510,313.74	420	\$672,096.17	75.93%
Residential Home Energy Services - RCS	0.00	\$7,930.00	33	0.00	\$51,885.00	194	\$88,576.14	58.58%
Residential Behavior/Feedback Program	0.00	\$0.00	0	13,633.20	\$2,244.00	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	12,421.40	\$6,890.00	18	101,298.90	\$65,931.00	145	\$0.00	0.00%
Residential Consumer Products	4,252.00	\$332.50	7	44,553.20	\$6,009.25	143	\$0.00	0.00%
Residential Lighting	53.00	\$2.25	0	216,824.60	\$20,814.34	713	\$0.00	0.00%
Residential HEAT Loan	0.00	\$325.00	6	0.00	\$27,648.95	50	\$0.00	0.00%
Res Subtotal	116,874.39	\$73,282.20	133.00	1,146,794.67	\$758,956.93	1,703	\$760,672.30	
Res % of Total	34.28%	60.23%	84.18%	53.86%	73.38%	93.26%	63.78%	
Low-Income Single Family Retrofit	12,398.64	\$11,624.55	8	95,884.89	\$88,526.30	50	\$143,925.62	61.51%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	4,955.10	\$2,958.46	3	\$0.00	0.00%
LI Subtotal	12,398.64	\$11,624.55	8.00	100,839.99	\$91,484.76	53	\$143,925.62	
LI % of Total	3.64%	9.55%	5.06%	4.74%	8.85%	2.90%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$4,077.50	1	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	6,036.25	\$1,128.75	1	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	10,999.00	\$11,675.04	2	212,891.00	\$69,959.90	5	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$180,891.37	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$1,600.00	2	\$0.00	0.00%
C&I Small Business	20,109.80	\$9,802.61	6	49,363.19	\$30,703.04	14	\$107,104.59	28.67%
C&I Multifamily Retrofit	12,159.00	\$2,768.82	1	63,735.00	\$32,265.39	2	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	168,371.95	\$12,521.00	8	549,484.94	\$44,071.00	45	\$0.00	0.00%
C&I Subtotal	211,639.75	\$36,767.47	17.00	881,510.38	\$183,805.58	70	\$287,995.96	
C&I % of Total	62.08%	30.22%	10.76%	41.40%	17.77%	3.83%	24.15%	
Total	340,912.78	\$121,674.22	158	2,129,145.03	\$1,034,247.27	1,826	\$1,192,593.88	

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Energy Efficiency Program Activity by Town

Town Name: Martha's Vineyard
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	22,202.07	\$14,167.16	5	86,318.39	\$98,527.89	28	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	26,146.50	\$18,512.51	6	26,146.50	\$19,127.51	6	\$0.00	0.00%
Residential Home Energy Services - Measures	116,063.50	\$79,385.96	77	732,070.64	\$761,816.62	457	\$904,205.28	84.25%
Residential Home Energy Services - RCS	0.00	\$18,155.00	74	0.00	\$110,540.00	412	\$119,166.00	92.76%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	9,304.00	\$5,639.00	14	112,359.60	\$67,133.00	94	\$0.00	0.00%
Residential Consumer Products	29,210.00	\$13,632.50	13	84,886.30	\$38,869.77	85	\$0.00	0.00%
Residential Lighting	22,980.00	\$2,980.38	72	491,439.50	\$56,408.81	2,255	\$0.00	0.00%
Residential HEAT Loan	0.00	\$105.00	3	0.00	\$26,263.61	33	\$0.00	0.00%
Res Subtotal	225,906.07	\$152,577.51	264.00	1,533,220.93	\$1,178,687.21	3,370	\$1,023,371.28	
Res % of Total	55.88%	83.67%	85.71%	51.22%	58.11%	88.85%	63.78%	
Low-Income Single Family Retrofit	3,596.93	\$2,151.99	5	46,191.11	\$71,451.68	36	\$193,630.48	36.90%
Low-Income Multi-Family Retrofit	0.00	\$159.00	1	38,729.20	\$321,229.34	134	\$0.00	0.00%
LI Subtotal	3,596.93	\$2,310.99	6.00	84,920.31	\$392,681.02	170	\$193,630.48	
LI % of Total	0.89%	1.27%	1.95%	2.84%	19.36%	4.48%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	188,708.00	\$150,005.25	5	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	56,259.43	\$17,630.00	29	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	25,381.00	\$47,849.36	4	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	10,538.00	\$12,614.21	3	\$243,362.39	5.18%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	66,464.93	\$88,972.31	18	\$0.00	0.00%
C&I Small Business	27,862.21	\$11,122.97	6	56,357.02	\$34,491.41	22	\$144,093.27	23.94%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	146,895.58	\$16,355.00	32	971,438.10	\$105,366.00	172	\$0.00	0.00%
C&I Subtotal	174,757.79	\$27,477.97	38.00	1,375,146.48	\$456,928.54	253	\$387,455.67	
C&I % of Total	43.23%	15.07%	12.34%	45.94%	22.53%	6.67%	24.15%	
Total	404,260.79	\$182,366.47	308	2,993,287.73	\$2,028,296.77	3,793	\$1,604,457.42	

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Energy Efficiency Program Activity by Town

Town Name: MASHPEE
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	61,994.84	\$14,893.70	13	254,680.64	\$61,198.50	56	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	6,216.80	\$1,649.94	5	89,078.70	\$43,307.53	62	\$0.00	0.00%
Residential Home Energy Services - Measures	45,019.50	\$32,494.04	34	437,465.60	\$233,225.46	269	\$769,020.85	30.33%
Residential Home Energy Services - RCS	0.00	\$3,790.00	20	0.00	\$33,290.00	122	\$101,349.92	32.85%
Residential Behavior/Feedback Program	0.00	\$0.00	0	5,612.60	\$867.00	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	7,610.80	\$5,881.00	9	72,440.30	\$49,602.50	107	\$0.00	0.00%
Residential Consumer Products	8,299.10	\$1,844.82	13	55,433.40	\$9,333.69	151	\$0.00	0.00%
Residential Lighting	1,943.00	\$136.62	9	112,093.40	\$4,274.96	519	\$0.00	0.00%
Residential HEAT Loan	0.00	\$635.00	5	0.00	\$37,776.99	38	\$0.00	0.00%
Res Subtotal	131,084.04	\$61,325.12	108.00	1,026,804.64	\$472,876.63	1,325	\$870,370.78	
Res % of Total	72.21%	68.37%	82.44%	41.85%	47.44%	88.16%	63.78%	
Low-Income Single Family Retrofit	10,659.73	\$13,140.93	11	91,988.40	\$74,550.98	59	\$164,681.49	45.27%
Low-Income Multi-Family Retrofit	3,023.90	\$1,020.23	2	44,671.50	\$17,529.39	55	\$0.00	0.00%
LI Subtotal	13,683.63	\$14,161.16	13.00	136,659.90	\$92,080.37	114	\$164,681.49	
LI % of Total	7.54%	15.79%	9.92%	5.57%	9.24%	7.58%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	7,946.46	\$3,481.20	2	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	9,329.40	\$1,562.50	2	661,017.09	\$181,366.48	8	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	370,712.75	\$167,127.52	15	\$206,978.17	80.75%
C&I Existing Building Retrofit - Municipal	0.00	\$447.35	1	29,631.21	\$32,060.17	1	\$0.00	0.00%
C&I Small Business	13,533.26	\$4,248.99	3	39,493.46	\$19,212.63	9	\$122,550.41	15.68%
C&I Multifamily Retrofit	7,899.00	\$7,068.00	1	13,906.00	\$7,988.80	2	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	6,014.14	\$885.00	3	167,453.51	\$20,529.00	27	\$0.00	0.00%
C&I Subtotal	36,775.80	\$14,211.84	10.00	1,290,160.48	\$431,765.80	64	\$329,528.59	
C&I % of Total	20.26%	15.84%	7.63%	52.58%	43.32%	4.26%	24.15%	
Total	181,543.47	\$89,698.12	131	2,453,625.03	\$996,722.80	1,503	\$1,364,580.85	

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Energy Efficiency Program Activity by Town

Town Name: OAK BLUFFS
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
 Cumulative Dates: 1/1/2016 - 12/31/2016

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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	4,290.34	\$2,764.90	1	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	26,146.50	\$18,512.51	6	26,146.50	\$19,127.51	6	\$0.00	0.00%
Residential Home Energy Services - Measures	41,366.20	\$23,279.70	28	235,959.60	\$215,535.89	129	\$248,688.34	86.67%
Residential Home Energy Services - RCS	0.00	\$5,900.00	23	0.00	\$31,545.00	118	\$32,774.85	96.25%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	543.00	\$254.00	1	18,379.80	\$10,487.50	16	\$0.00	0.00%
Residential Consumer Products	0.00	\$0.00	0	6,760.10	\$2,537.15	17	\$0.00	0.00%
Residential Lighting	22,351.20	\$2,940.00	69	23,925.40	\$3,114.41	75	\$0.00	0.00%
Residential HEAT Loan	0.00	\$70.00	2	0.00	\$4,161.17	7	\$0.00	0.00%
Res Subtotal	90,406.90	\$50,956.21	129.00	315,461.74	\$289,273.53	369	\$281,463.19	
Res % of Total	70.90%	84.50%	93.48%	32.85%	48.34%	73.21%	63.78%	
Low-Income Single Family Retrofit	696.84	\$340.92	1	15,232.99	\$13,877.24	11	\$53,255.21	26.06%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	40,976.90	\$95,723.49	72	\$0.00	0.00%
LI Subtotal	696.84	\$340.92	1.00	56,209.89	\$109,600.73	83	\$53,255.21	
LI % of Total	0.55%	0.57%	0.72%	5.85%	18.31%	16.47%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	99,636.00	\$74,511.50	4	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	17,334.85	\$4,880.00	4	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	25,381.00	\$47,513.60	3	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	10,538.00	\$12,614.21	3	\$66,933.24	18.85%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$900.00	1	\$0.00	0.00%
C&I Small Business	20,992.38	\$7,637.15	3	20,992.38	\$8,187.15	4	\$39,630.73	20.66%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	15,411.51	\$1,370.00	5	414,889.89	\$50,964.00	33	\$0.00	0.00%
C&I Subtotal	36,403.89	\$9,007.15	8.00	588,772.12	\$199,570.46	52	\$106,563.97	
C&I % of Total	28.55%	14.94%	5.80%	61.30%	33.35%	10.32%	24.15%	
Total	127,507.63	\$60,304.28	138	960,443.75	\$598,444.72	504	\$441,282.37	

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Energy Efficiency Program Activity by Town

Town Name: ORLEANS
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
 Cumulative Dates: 1/1/2016 - 12/31/2016

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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	17,263.78	\$7,704.71	3	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	4,248.10	\$2,451.09	2	\$0.00	0.00%
Residential Home Energy Services - Measures	28,676.10	\$25,088.56	20	409,706.17	\$429,151.36	227	\$322,657.17	133.01%
Residential Home Energy Services - RCS	0.00	\$3,695.00	17	0.00	\$48,280.00	176	\$42,523.27	113.54%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	7,211.00	\$4,678.50	10	77,767.00	\$50,460.50	103	\$0.00	0.00%
Residential Consumer Products	3,291.00	\$875.00	6	26,631.00	\$3,537.50	69	\$0.00	0.00%
Residential Lighting	262.00	\$12.40	1	128,168.10	\$13,244.53	438	\$0.00	0.00%
Residential HEAT Loan	0.00	\$70.00	2	0.00	\$16,511.18	18	\$0.00	0.00%
Res Subtotal	39,440.10	\$34,419.46	56.00	663,784.15	\$571,340.87	1,036	\$365,180.44	
Res % of Total	37.40%	70.15%	74.67%	55.01%	78.52%	91.52%	63.78%	
Low-Income Single Family Retrofit	4,754.44	\$1,630.12	3	44,850.41	\$47,125.44	22	\$69,095.22	68.20%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	5,147.50	\$2,887.22	2	\$0.00	0.00%
LI Subtotal	4,754.44	\$1,630.12	3.00	49,997.91	\$50,012.66	24	\$69,095.22	
LI % of Total	4.51%	3.32%	4.00%	4.14%	6.87%	2.12%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$5,906.25	1	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	37,134.76	\$6,664.25	2	51,282.76	\$9,397.05	3	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	65,022.00	\$16,404.87	2	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	15,454.00	\$10,927.60	3	\$86,841.59	12.58%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Small Business	2,939.94	\$3,612.85	6	36,460.70	\$39,189.63	18	\$51,418.33	76.22%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	21,177.93	\$2,740.00	8	324,727.45	\$24,460.00	45	\$0.00	0.00%
C&I Subtotal	61,252.63	\$13,017.10	16.00	492,946.91	\$106,285.40	72	\$138,259.92	
C&I % of Total	58.09%	26.53%	21.33%	40.85%	14.61%	6.36%	24.15%	
Total	105,447.17	\$49,066.68	75	1,206,728.97	\$727,638.93	1,132	\$572,535.58	

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Energy Efficiency Program Activity by Town

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Town Name: PROVNC TOWN
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	5,371.57	\$5,312.46	3	75,546.30	\$58,860.32	18	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	9,184.60	\$3,873.11	5	\$0.00	0.00%
Residential Home Energy Services - Measures	4,935.20	\$19,185.83	13	84,201.60	\$146,494.30	116	\$161,966.25	90.45%
Residential Home Energy Services - RCS	0.00	\$1,620.00	10	0.00	\$21,680.00	85	\$21,345.67	101.57%
Residential Behavior/Feedback Program	0.00	\$0.00	0	3,528.70	\$586.50	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	4,731.00	\$2,782.50	5	33,293.00	\$18,844.00	41	\$0.00	0.00%
Residential Consumer Products	2,657.00	\$1,350.00	2	5,235.00	\$1,825.00	11	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	130,736.50	\$18,378.16	1,329	\$0.00	0.00%
Residential HEAT Loan	0.00	\$35.00	1	0.00	\$5,614.16	7	\$0.00	0.00%
Res Subtotal	17,694.77	\$30,285.79	34.00	341,725.70	\$276,155.55	1,613	\$183,311.92	
Res % of Total	26.30%	64.51%	68.00%	29.62%	66.91%	95.67%	63.78%	
Low-Income Single Family Retrofit	7,818.42	\$3,991.41	5	23,338.72	\$30,607.43	15	\$34,684.16	88.25%
Low-Income Multi-Family Retrofit	2,552.90	\$1,927.89	1	6,939.40	\$6,570.89	3	\$0.00	0.00%
LI Subtotal	10,371.32	\$5,919.30	6.00	30,278.12	\$37,178.32	18	\$34,684.16	
LI % of Total	15.42%	12.61%	12.00%	2.62%	9.01%	1.07%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	1,316.00	\$500.00	1	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	162,107.00	\$42,781.70	1	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$43,592.42	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Small Business	10,030.90	\$8,580.53	2	10,667.90	\$9,579.85	4	\$25,810.78	37.12%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	29,172.91	\$2,165.00	8	607,486.89	\$46,562.00	49	\$0.00	0.00%
C&I Subtotal	39,203.81	\$10,745.53	10.00	781,577.79	\$99,423.55	55	\$69,403.20	
C&I % of Total	58.28%	22.89%	20.00%	67.75%	24.09%	3.26%	24.15%	
Total	67,269.91	\$46,950.62	50	1,153,581.62	\$412,757.42	1,686	\$287,399.28	

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Energy Efficiency Program Activity by Town

Town Name: SANDWICH
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	6,156.49	\$1,897.96	2	46,054.10	\$19,096.72	11	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	27,265.00	\$8,469.51	1	88,999.60	\$28,327.61	29	\$0.00	0.00%
Residential Home Energy Services - Measures	68,390.50	\$57,675.84	53	642,073.64	\$542,405.00	436	\$1,135,039.07	47.79%
Residential Home Energy Services - RCS	0.00	\$6,190.00	34	0.00	\$77,220.00	268	\$149,587.78	51.62%
Residential Behavior/Feedback Program	0.00	\$0.00	0	31,660.30	\$5,278.50	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	5,753.00	\$4,763.00	8	111,921.20	\$78,883.00	142	\$0.00	0.00%
Residential Consumer Products	4,879.00	\$448.85	10	59,745.30	\$9,136.25	166	\$0.00	0.00%
Residential Lighting	1,313.60	\$96.37	6	963,988.30	\$114,408.07	3,993	\$0.00	0.00%
Residential HEAT Loan	0.00	\$185.00	2	0.00	\$52,923.95	85	\$0.00	0.00%
Res Subtotal	113,757.59	\$79,726.53	116.00	1,944,442.44	\$927,679.10	5,131	\$1,284,626.85	
Res % of Total	58.51%	62.75%	85.29%	54.53%	62.56%	97.47%	63.78%	
Low-Income Single Family Retrofit	7,277.75	\$3,867.25	6	120,912.62	\$162,253.36	65	\$243,062.23	66.75%
Low-Income Multi-Family Retrofit	923.40	\$382.84	1	4,479.20	\$2,993.86	5	\$0.00	0.00%
LI Subtotal	8,201.15	\$4,250.09	7.00	125,391.82	\$165,247.22	70	\$243,062.23	
LI % of Total	4.22%	3.35%	5.15%	3.52%	11.14%	1.33%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	25,699.00	\$21,102.00	1	25,699.00	\$27,077.00	1	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	923.18	\$500.00	1	3,325.18	\$1,620.00	3	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$6,587.50	1	1,204,158.80	\$276,099.46	6	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	6,150.14	\$2,865.02	1	40,841.74	\$21,678.05	1	\$305,490.17	7.10%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	0.00	\$3,475.00	3	\$0.00	0.00%
C&I Small Business	9,177.02	\$8,856.01	2	67,563.84	\$41,322.83	7	\$180,878.72	22.85%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	30,515.76	\$3,170.00	7	154,484.50	\$18,580.00	42	\$0.00	0.00%
C&I Subtotal	72,465.11	\$43,080.53	13.00	1,496,073.06	\$389,852.34	63	\$486,368.89	
C&I % of Total	37.27%	33.91%	9.56%	41.95%	26.29%	1.20%	24.15%	
Total	194,423.85	\$127,057.15	136	3,565,907.32	\$1,482,778.66	5,264	\$2,014,057.98	

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Town Name: TISBURY
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	26,248.59	\$7,000.00	1	98,979.19	\$54,815.50	15	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	29,165.30	\$17,806.31	21	139,379.00	\$144,257.06	102	\$216,805.22	66.54%
Residential Home Energy Services - RCS	0.00	\$5,285.00	22	0.00	\$24,250.00	89	\$28,572.95	84.87%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	1,913.00	\$990.50	3	28,647.00	\$16,615.00	21	\$0.00	0.00%
Residential Consumer Products	3,026.00	\$1,382.50	3	7,844.00	\$3,015.00	10	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	463,014.00	\$53,099.02	2,159	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$11,539.46	8	\$0.00	0.00%
Res Subtotal	60,352.89	\$32,464.31	50.00	737,863.19	\$307,591.04	2,404	\$245,378.16	
Res % of Total	75.81%	86.25%	74.63%	78.10%	80.00%	95.74%	63.78%	
Low-Income Single Family Retrofit	2,900.09	\$1,811.07	4	9,433.91	\$28,950.21	10	\$46,427.62	62.36%
Low-Income Multi-Family Retrofit	0.00	\$159.00	1	0.00	\$159.00	1	\$0.00	0.00%
LI Subtotal	2,900.09	\$1,970.07	5.00	9,433.91	\$29,109.21	11	\$46,427.62	
LI % of Total	3.64%	5.23%	7.46%	1.00%	7.57%	0.44%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	15,038.78	\$6,000.00	11	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$58,352.05	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	3,395.00	\$7,005.00	11	\$0.00	0.00%
C&I Small Business	4,083.04	\$1,383.42	1	19,931.68	\$18,413.43	14	\$34,549.87	53.30%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	12,272.52	\$1,821.00	11	159,072.90	\$16,360.00	60	\$0.00	0.00%
C&I Subtotal	16,355.56	\$3,204.42	12.00	197,438.36	\$47,778.43	96	\$92,901.92	
C&I % of Total	20.54%	8.51%	17.91%	20.90%	12.43%	3.82%	24.15%	
Total	79,608.54	\$37,638.80	67	944,735.46	\$384,478.68	2,511	\$384,707.70	

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Energy Efficiency Program Activity by Town

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Town Name: TRURO
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	14,109.18	\$7,630.54	3	82,791.38	\$46,522.42	16	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	14,155.40	\$3,650.94	3	20,571.50	\$6,251.45	5	\$0.00	0.00%
Residential Home Energy Services - Measures	8,344.30	\$11,621.54	9	118,661.00	\$113,756.13	104	\$109,677.93	103.72%
Residential Home Energy Services - RCS	0.00	\$1,055.00	6	0.00	\$19,345.00	72	\$14,454.55	133.83%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	5,441.00	\$3,318.00	6	42,606.80	\$26,482.00	50	\$0.00	0.00%
Residential Consumer Products	0.00	\$0.00	0	5,101.00	\$490.00	13	\$0.00	0.00%
Residential Lighting	253.40	\$40.74	0	994.20	\$127.46	3	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$105.00	3	\$0.00	0.00%
Res Subtotal	42,303.28	\$27,316.76	27.00	270,725.88	\$213,079.46	266	\$124,132.48	
Res % of Total	51.16%	38.12%	84.38%	70.03%	62.25%	92.36%	63.78%	
Low-Income Single Family Retrofit	0.00	\$0.00	0	17,037.61	\$22,628.79	10	\$23,486.91	96.35%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
LI Subtotal	0.00	\$0.00	0.00	17,037.61	\$22,628.79	10	\$23,486.91	
LI % of Total	0.00%	0.00%	0.00%	4.41%	6.61%	3.47%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	2,105.74	\$750.00	1	2,105.74	\$750.00	1	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$29,519.27	0.00%
C&I Existing Building Retrofit - Municipal	34,794.36	\$43,299.83	3	72,310.75	\$101,585.90	4	\$0.00	0.00%
C&I Small Business	0.00	\$0.00	0	2,478.00	\$1,667.30	2	\$17,478.17	9.54%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	3,487.50	\$300.00	1	21,914.76	\$2,575.00	5	\$0.00	0.00%
C&I Subtotal	40,387.60	\$44,349.83	5.00	98,809.25	\$106,578.20	12	\$46,997.44	
C&I % of Total	48.84%	61.88%	15.63%	25.56%	31.14%	4.17%	24.15%	
Total	82,690.87	\$71,666.59	32	386,572.74	\$342,286.45	288	\$194,616.84	

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Energy Efficiency Program Activity by Town

Town Name: WELLFLEET
 Program Period: 2016
 Current Dates: 12/1/2016 - 12/31/2016
 Cumulative Dates: 1/1/2016 - 12/31/2016

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Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	8,290.60	\$6,254.70	2	86,553.82	\$33,982.47	9	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	11,858.80	\$17,744.64	15	211,871.57	\$256,968.50	163	\$150,488.33	170.76%
Residential Home Energy Services - RCS	0.00	\$2,435.00	11	0.00	\$36,870.00	143	\$19,832.99	185.90%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	10,701.00	\$6,976.00	12	62,244.60	\$37,950.50	67	\$0.00	0.00%
Residential Consumer Products	1,359.00	\$100.00	2	11,503.00	\$1,355.00	34	\$0.00	0.00%
Residential Lighting	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$4,539.17	7	\$0.00	0.00%
Res Subtotal	32,209.40	\$33,510.34	42.00	372,172.98	\$371,665.64	423	\$170,321.31	
Res % of Total	60.79%	64.60%	82.35%	56.96%	68.56%	87.58%	63.78%	
Low-Income Single Family Retrofit	5,750.73	\$7,124.93	5	34,262.73	\$52,350.22	29	\$32,226.23	162.45%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	2,443.70	\$1,691.52	1	\$0.00	0.00%
LI Subtotal	5,750.73	\$7,124.93	5.00	36,706.43	\$54,041.74	30	\$32,226.23	
LI % of Total	10.85%	13.74%	9.80%	5.62%	9.97%	6.21%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$7,333.75	1	4,281.00	\$13,278.47	2	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	61,575.00	\$19,809.00	2	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$6,247.50	1	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	40,344.80	\$22,775.50	7	\$40,503.19	56.23%
C&I Existing Building Retrofit - Municipal	0.00	\$700.00	1	40,276.94	\$43,469.29	3	\$0.00	0.00%
C&I Small Business	15,024.03	\$3,204.54	2	15,689.03	\$3,949.41	3	\$23,981.67	16.47%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	0.00	\$0.00	0	82,334.87	\$6,900.00	12	\$0.00	0.00%
C&I Subtotal	15,024.03	\$11,238.29	4.00	244,501.64	\$116,429.17	30	\$64,484.86	
C&I % of Total	28.36%	21.66%	7.84%	37.42%	21.48%	6.21%	24.15%	
Total	52,984.17	\$51,873.56	51	653,381.05	\$542,136.55	483	\$267,032.41	

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Town Name: WEST TISBURY
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	14,025.77	\$7,167.16	4	39,850.17	\$19,496.57	9	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Home Energy Services - Measures	7,169.60	\$4,856.81	6	86,949.40	\$113,815.94	64	\$150,488.33	75.63%
Residential Home Energy Services - RCS	0.00	\$1,530.00	6	0.00	\$16,265.00	58	\$19,832.99	82.01%
Residential Behavior/Feedback Program	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Heating & Cooling Equipment	814.00	\$629.00	2	17,189.80	\$10,897.00	16	\$0.00	0.00%
Residential Consumer Products	5,908.00	\$1,600.00	5	11,541.00	\$2,360.00	24	\$0.00	0.00%
Residential Lighting	628.80	\$40.38	3	869.30	\$48.38	4	\$0.00	0.00%
Residential HEAT Loan	0.00	\$0.00	0	0.00	\$1,478.45	6	\$0.00	0.00%
Res Subtotal	28,546.17	\$15,823.35	26.00	156,399.67	\$164,361.34	181	\$170,321.31	
Res % of Total	91.60%	99.37%	96.30%	69.54%	67.36%	90.05%	63.78%	
Low-Income Single Family Retrofit	0.00	\$0.00	0	3,347.18	\$16,414.25	4	\$32,226.23	50.93%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
LI Subtotal	0.00	\$0.00	0.00	3,347.18	\$16,414.25	4	\$32,226.23	
LI % of Total	0.00%	0.00%	0.00%	1.49%	6.73%	1.99%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	0.00	\$0.00	0	5,510.00	\$1,000.00	3	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	0.00	\$335.76	1	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	0.00	\$0.00	0	0.00	\$0.00	0	\$40,503.19	0.00%
C&I Existing Building Retrofit - Municipal	0.00	\$0.00	0	29,832.92	\$58,310.39	2	\$0.00	0.00%
C&I Small Business	0.00	\$0.00	0	0.00	\$0.00	0	\$23,981.67	0.00%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	2,616.40	\$100.00	1	29,818.35	\$3,565.00	10	\$0.00	0.00%
C&I Subtotal	2,616.40	\$100.00	1.00	65,161.27	\$63,211.15	16	\$64,484.86	
C&I % of Total	8.40%	0.63%	3.70%	28.97%	25.91%	7.96%	24.15%	
Total	31,162.57	\$15,923.35	27	224,908.12	\$243,986.74	201	\$267,032.41	

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Energy Efficiency Program Activity by Town

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Town Name: YARMOUTH
Program Period: 2016
Current Dates: 12/1/2016 - 12/31/2016
Cumulative Dates: 1/1/2016 - 12/31/2016

Program Initiative	Current Period			Cumulative Period				
	Annual kWh Savings	Actual Expenditures	Participants	Annual kWh Savings	Actual Expenditures	Participants	Budget	Cumulative Actual % of Budget
Residential New Construction	0.00	\$0.00	0	24,949.07	\$8,553.25	5	\$0.00	0.00%
Residential New Construction (Low-Income)	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
Residential Multi-Family Retrofit	74,139.80	\$23,157.78	43	102,882.10	\$48,451.37	60	\$0.00	0.00%
Residential Home Energy Services - Measures	66,609.90	\$67,748.48	83	753,327.91	\$697,026.30	614	\$1,305,932.59	53.37%
Residential Home Energy Services - RCS	0.00	\$6,620.00	30	0.00	\$64,680.00	244	\$172,109.99	37.58%
Residential Behavior/Feedback Program	0.00	\$0.00	0	9,094.40	\$1,428.00	1	\$0.00	0.00%
Residential Heating & Cooling Equipment	8,536.60	\$6,389.50	14	139,047.20	\$106,796.00	233	\$0.00	0.00%
Residential Consumer Products	11,011.20	\$1,615.40	22	84,962.80	\$11,976.65	252	\$0.00	0.00%
Residential Lighting	21,802.40	\$1,709.00	100	2,041,562.70	\$118,961.57	10,623	\$0.00	0.00%
Residential HEAT Loan	0.00	\$475.00	6	0.00	\$108,769.77	137	\$0.00	0.00%
Res Subtotal	182,099.90	\$107,715.16	298.00	3,155,826.19	\$1,166,642.91	12,169	\$1,478,042.58	
Res % of Total	20.89%	37.41%	82.55%	51.86%	60.04%	97.51%	63.78%	
Low-Income Single Family Retrofit	24,231.15	\$18,790.45	21	206,607.14	\$172,750.21	131	\$279,658.12	61.77%
Low-Income Multi-Family Retrofit	0.00	\$0.00	0	888.30	\$361.32	1	\$0.00	0.00%
LI Subtotal	24,231.15	\$18,790.45	21.00	207,495.44	\$173,111.53	132	\$279,658.12	
LI % of Total	2.78%	6.53%	5.82%	3.41%	8.91%	1.06%	12.07%	
C&I New Buildings & Major Renovations	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I New Buildings & Major Renovations - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Initial Purchase & End of Useful Life	2,785.90	\$1,250.00	2	41,771.23	\$12,479.59	6	\$0.00	0.00%
C&I Existing Building Retrofit - LARGE	0.00	\$0.00	0	401,036.36	\$121,846.19	8	\$0.00	0.00%
C&I Existing Building Retrofit - MEDIUM	72,717.14	\$28,152.75	2	178,284.35	\$93,387.37	10	\$351,485.32	26.57%
C&I Existing Building Retrofit - Municipal	46,268.20	\$73,095.81	1	99,712.20	\$142,324.81	1	\$0.00	0.00%
C&I Small Business	35,443.41	\$18,040.61	7	125,044.42	\$64,066.78	18	\$208,112.15	30.78%
C&I Multifamily Retrofit	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Multifamily - Municipal	0.00	\$0.00	0	0.00	\$0.00	0	\$0.00	0.00%
C&I Upstream Lighting	508,010.18	\$40,894.00	30	1,876,136.75	\$169,294.00	136	\$0.00	0.00%
C&I Subtotal	665,224.82	\$161,433.17	42.00	2,721,985.31	\$603,398.74	179	\$559,597.46	
C&I % of Total	76.33%	56.07%	11.63%	44.73%	31.05%	1.43%	24.15%	
Total	871,555.87	\$287,938.78	361	6,085,306.93	\$1,943,153.18	12,480	\$2,317,298.17	

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APPENDIX 8

CAPE LIGHT COMPACT

ENERGY EDUCATION OUTREACH ACTIVITIES

The Compact is committed to energy education outreach within its community and continues to be a regionally and nationally recognized leader in the design and implementation of its energy education programs. As a municipal aggregator with a unique service territory, the Compact supports the community's efforts to develop a deeper and broader knowledge of energy efficiency technology and practices, moving towards an energy-literate society.

Highlights from 2016 include:

- The Compact participated in energy education school-based presentations and all-school Energy Carnivals, through which students learn the basic lessons of energy efficiency, energy forms, and energy sources in a first-hand, fun, and engaging way. The Compact reached over 2,000 students and teachers through these efforts in 2016.
- The Compact reached teachers in its service territory through National Energy Education Development ("NEED") Teacher Workshops, in partnership with the statewide Energy Education Working Group and in-service training for school systems.
- The Compact participated in Cape Cod and Martha's Vineyard science education festivals, demonstrating the science of energy, building energy efficiency, and renewable energy resources.

In addition, in 2016 the Compact implemented a new energy efficiency education initiative, Be Energy Efficient Smart ("BEES"), which includes both a classroom lesson and take-home student kit and survey. Within this initiative, the Compact trained 24 teachers and engaged the following schools:

- Provincetown School
- Wellfleet Elementary
- Eastham Elementary
- Eddy Elementary
- Orleans Elementary
- Monomoy Middle and High School
- Mattacheese Middle School
- Sandwich STEM Academy

- Mashpee High School

Through BEES, a total of 1,195 students received kits to install energy saving measures in their homes. Of those students, 47 percent completed and returned their surveys, resulting in net annual savings of 44 MWh with a seven-year measure life. Savings from the BEES initiative are summarized in the following table.

Primary Fuel	Kits Installed	Net Annual kWh Saved	Net Annual MMBtu Saved
Electricity	63	7,727	
Natural Gas	297	21,874	59.4
Oil	120	8,838	36.0
Propane	76	5,597	15.2
Total	556	44,036	110.6

For the thirteenth year in a row, the schools the Compact works with were recognized by the NEED Project and the Massachusetts State Department of Energy Resources for their outstanding work in energy education outreach to their communities. These recognitions are highlighted below.

- *State Junior Level Finalist:* Monomoy Middle School. Students met weekly to discuss how to raise awareness and teach valuable lessons about energy, including ways to reduce energy consumption through recycling. Students also presented a day-long Energy Carnival for fellow students.
- *State Senior Level Finalist:* Martha's Vineyard High School. Martha's Vineyard Regional High School students from the MVironment Club visited the island's elementary schools to help teach students about energy science engineering. These students took time out of their busy schedules to plan each activity every week.

Schools on Cape Cod and Martha's Vineyard have been well represented among honorees at the state and national level. The schools the Compact works with have received these great honors every year since 2004.

The Compact's greatest successes continue with the "kids as teachers" model, where students are trained, conduct studies, and present information on energy efficiency, renewable energy, and related topics to younger students and community members. With the addition of BEES, this effort has now successfully reached into the home.

Schools have fully adopted energy education into their yearly schedule of classroom activities, as evidenced by their repeated requests for energy education programs from the Compact. As a result,

the Compact and its partner schools continue to reach more teachers, students, and families each year.

The Compact continues to use updated and innovative energy education materials from local and national energy education-based resources such as the NEED Project, a 501(c)3 non-profit organization. Using a model for science-based facts and local science, technology, engineering and math (“STEM”) initiatives, the Compact designs and uses curriculum materials that align with Massachusetts’ standards for science and technology, allowing teachers to introduce lesson plans discussing energy efficiency, innovation, and conservation.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

CAPE LIGHT COMPACT

D.P.U. 17-100

PRE-FILED TESTIMONY OF
MARGARET T. DOWNEY
ON BEHALF OF
THE CAPE LIGHT COMPACT

May 1, 2017

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Margaret T. Downey. My business address is c/o Cape Light Compact (the “Compact”), Open Cape Building, 3195 Main Street, Barnstable, Massachusetts 02630. The Compact, however, will be relocating its office on or about July 1, 2017.

Q. By whom are you employed?

A. I am employed by Barnstable County.

Q. Please state your current position and provide a brief job description.

A. I am the Compact Administrator and have served in this position since the Compact’s inception in 1997. I oversee the administration of the Compact and its development and implementation of its energy efficiency programs, as well as its provision of competitive energy supply through its municipal aggregation program.

Q. Provide a brief job description for your position as Administrator for the Compact.

A. I manage the Compact’s activities as an electric energy efficiency program administrator (“Program Administrator”) and as a municipal aggregator for all electric ratepayers on Cape Cod and Martha’s Vineyard. Specifically, with respect to the Compact’s energy efficiency activities, I oversee the administration of the Compact’s annual energy efficiency program budgets that are part of the Compact’s three-year statewide Department of Public Utilities (“DPU” or “Department”) approved plan. I am responsible for local and state regulatory reporting and approvals, and I oversee the

1 Compact's participation in and compliance with the ISO New England Forward Capacity
2 Market. I represent the Compact as a non-voting member of the Energy Efficiency
3 Advisory Council ("EEAC"), and regularly make presentations and report to customers,
4 the Compact's Governing Board members, staff, regulatory agencies, and community
5 advocates.

6 **Q. Briefly describe the purpose of your testimony in this proceeding.**

7 A. I am offering this testimony in support of the Compact's 2016 Plan-Year Report.
8 Specifically, as directed by the Department in D.P.U. 16-177, the Compact's 2017
9 Energy Efficiency Surcharge ("EES") filing, I am providing testimony in support of the
10 Compact's decision to suspend enrollment in its Residential Behavior/Feedback core
11 initiative ("Core Initiative") during 2016, and its proposal to terminate the Core Initiative
12 going forward. In addition, I am providing testimony explaining the Compact's increases
13 to its pension liabilities.

14 **II. CORE INITIATIVE OVERVIEW**

15 **Q. Please explain the purpose of the Core Initiative.**

16 A. Consistent with the 2016-2018 Three-Year Statewide Energy Efficiency Plan, for all
17 Program Administrators "the primary goal of the Behavioral core initiative is to
18 encourage customer level behavioral change to conserve energy." *Cape Light Compact*
19 *2016-2018 Three-Year Energy Efficiency Plan*, D.P.U. 15-166, Exhibit 1 at 74. The
20 Compact-specific Core Initiative is designed to provide the Compact's customers a

1 unique opportunity to save energy using home automation tools. These automation tools
2 give homeowners the ability to remotely control their homes' energy usage as well as
3 potentially participate in demand response events. *Id.* at Appendix L.

4 **Q. Briefly explain the design of the Core Initiative.**

5 A. Beginning with the Compact's 2013-2015 Three-Year Energy Efficiency Plan,
6 participants in the Core Initiative would install a monitor, The Energy Detective
7 ("TED"), that uploads electricity usage data to a cloud-based software program for
8 analysis. Participants would have a mobile application on their smart phone, tablet, or
9 computer that would report their electricity usage in real time and show historical
10 consumption in 15-minute intervals. The Compact could send messages and energy
11 efficiency tips on ways to save energy as well as participant challenges. The design of
12 the Core Initiative remained the same for the 2016-2018 Three-Year Plan. The Compact
13 implemented a similar opportunity during the 2010-2012 Three-Year Plan, although the
14 design differed from the 2013-2015 and 2016-2018 version of the Core Initiative. See
15 *Cape Light Compact 2012 Annual Report*, D.P.U. 13-118, Report at 47-50.

16 **Q. Is the Core Initiative similar to the Compact's demand response efforts?**

17 A. Yes. Both the Core Initiative and the demand response offering are vehicles to aid
18 customer understanding of energy usage and provide a platform for informed energy use
19 and savings. The Compact's residential demand response offering provides residential
20 customers with WiFi thermostat and energy monitoring equipment that allows

1 participants to monitor their energy usage and take part in certain demand reduction
2 events. The energy monitoring technology used in both efforts is similar. The Compact
3 relied on lessons learned from the Core Initiative to better inform the design of its
4 residential demand response offering.

5 **III. CORE INITIATIVE RESULTS**

6 **Q. Was the Core Initiative cost-effective in 2013-2015?**

7 A. No. As most recently reported in the Compact's 2013-2015 Term Report, the Core
8 Initiative was not cost-effective for the term. *Cape Light Compact 2013-2015 Term*
9 *Report*, D.P.U. 16-127, Term Report, Part One, Cost-Effectiveness table ("Term
10 Report"). The Compact stated that costs were greater than planned and evaluated savings
11 were less than anticipated. As a result, the benefit-cost ratio ("BCR") for the three-year
12 term was 0.01. *Id.*

13 **Q. Why were costs greater than planned during 2013-2015?**

14 A. The Compact planned the 2013-2015 Core Initiative budget based on its 2010-2012
15 residential behavior feedback efforts. However, the ultimate design of the 2013-2015
16 Core Initiative differed from the Compact's prior efforts. After the Compact selected its
17 vendor and began enrolling customers during 2013-2015, the actual implementation costs
18 proved to be greater than planned. The most significant cost was the acquisition and
19 installation of TED, a device required for participation, which was costly to purchase and
20 required an electrician to install. For 2013-2015, the Compact exceeded its planned

1 budget for the Core Initiative by over \$240,000, or 182 percent. Term Report, Part One,
2 Program Administrator Budget table.

3 **Q. Why were savings and benefits less than planned during 2013-2015?**

4 A. In 2013, there were no expenditures, savings, or benefits because the Compact issued its
5 request for proposals in 2013 with an official launch to customers toward the end of the
6 third quarter in 2014. Given the timing of the Core Initiative launch, the Compact did not
7 claim savings for 2013 or 2014. For 2015 reporting, a program evaluation was completed
8 in early 2016 that showed far lower savings per participant than anticipated. This
9 evaluation was filed with the Compact's Term Report. Term Report at Appendix D,
10 (Study 15-10). For the 2013-2015 term, lifetime savings were less than planned by 1,307
11 MWh, or 99 percent. Term Report, Part One, Program Savings table.

12 **Q. Given the 2013-2015 results, how has the Compact proceeded with implementation**
13 **of the Core Initiative in 2016?**

14 A. The evaluation was completed in early 2016, and after reviewing its results the Compact
15 determined it was not prudent to continue implementing the Core Initiative as planned.
16 Instead, the Compact ceased enrollment of new participants during 2016. The Compact
17 continues to maintain functionality for current participants in the Core Initiative, but is
18 not actively enrolling new participants.

19 **Q. How did suspending implementation of the Core Initiative impact the Compact's**
20 **2016 spending and savings?**

1 A. The Compact both spent and saved less than planned because it suspended customer
2 enrollment in 2016. The above-mentioned evaluation report also reduced the Compact's
3 savings relative to plan. Specifically, the Compact spent approximately \$152,000, or 47
4 percent, less than planned, and lifetime saving were 912 MWh, or 75 percent, less than
5 planned. See *Cape Light Compact 2016 Plan Year Report*, D.P.U. 17-100, Exhibit 1,
6 Part One, Program Administrator Budgets, Plan Year Summary table; Program Savings,
7 Plan Year Summary table; and Appendix 1, Section I.A.4 ("2016 Plan Report").

8 **Q. Did the Compact reallocate any of the Core Initiative budget in 2016?**

9 A. No. As part of its 2017 EES, the Compact initially proposed a budget reallocation from
10 the Core Initiative to its demand response offering budget. Consistent with the
11 Department's directives the Compact did not proceed with this course of action. D.P.U.
12 16-177, Order at 7-8.

13 **IV. CORE INITIATIVE TERMINATION**

14 **Q. Is the Core Initiative expected to be cost-effective over the 2016-2018 Three-Year**
15 **Plan term?**

16 A. No. The BCR in 2016 based on actual results is 0.39. For the 2016-2018 Three-Year
17 term, including the 2016 results from the Compact's 2016 Plan Report and the 2017 and
18 2018 planned costs and benefits which are now known to be outdated, the BCR is 0.66.
19 See 2016 Plan Report at Exhibit 1, Part One, Cost-Effectiveness tables. It is likely the
20 three-year BCR would be even lower if the evaluation results were applied to the 2017
21 and 2018 planned estimates.

1 **Q. Could the Compact modify the Core Initiative to make it cost-effective?**

2 A. No. The scope of the Core Initiative is narrowly focused on changing customer behavior
3 through access to near real-time energy usage, which the Compact attempted to
4 accomplish through the installation of TED. TED represents the greatest expenditure,
5 was not a reliable or a user-friendly technology and as a result it does not provide
6 sufficient motivation to change a majority of participant behavior and thereby save
7 energy. At this time, the Compact is not aware of a less costly alternative to TED other
8 than the deployment of Advanced Metering Infrastructure (“AMI”) by the local
9 distribution company, which could allow for real-time monitoring of a customer’s energy
10 usage. The ability to deploy AMI lies solely with the local distribution company. The
11 Compact is not aware of any other design or implementation changes to the Core
12 Initiative that would make it cost-effective.

13 **Q. How would the Compact like to proceed with the Core Initiative, considering it is**
14 **not cost-effective and cannot be made cost-effective going forward?**

15 A. While the Compact would like to proceed with a Core Initiative that provides customers
16 near, or real-time access to their energy usage, absent the deployment of AMI by the
17 local distribution company, there are no other options to do so cost-effectively. As such,
18 the Compact is proposing to terminate the Core Initiative. The Compact will continue
19 services for customers already enrolled, but will not enroll new customers. For the 2016-
20 2018 Three-Year term, the Compact is seeking to reduce the budget for the Core

1 Initiative by \$508,103. *Cape Light Compact Mid-Term Modification* (“MTM”), D.P.U.
2 17-84, Exhibit CLC-MTD at 3-4.

3 **Q. Why is this course of action appropriate?**

4 A. Terminating the Core Initiative is appropriate because it is not cost-effective, and is not
5 expected to become cost-effective. Continuing to implement the Core Initiative as
6 planned would not be a responsible use of ratepayer funding. The proposed course of
7 action allows the Compact to focus ratepayer funding on efforts that will result in greater
8 savings and benefits to customers and the Commonwealth, thereby continuing to procure
9 all available cost-effective energy efficiency resources. By reducing its energy efficiency
10 budget to terminate the Core Initiative, the Compact is reducing customer bill impacts.
11 By continuing to serve current participants, the Compact will minimize customer
12 confusion and dissatisfaction.

13 **Q. Will termination of the Core Initiative affect the Compact’s obligation to procure all**
14 **available cost-effective energy efficiency resources, consistent with the Green**
15 **Communities Act?**

16 A. No, termination will not impact the Compact’s ability to procure all available cost-
17 effective energy efficiency resources. The Compact still expects to achieve its savings
18 and benefits goals cost-effectively for the 2016-2018 Three-Year term for the Residential
19 Whole House Program, the residential customer sector, and for its portfolio in total.
20 More specifically, the Compact is not abandoning customers who have already installed
21 energy monitoring devices through the Core Initiative to better manage their energy

1 consumption. The Core Initiative and demand response offering both target customers
2 who are seeking ways to be better informed about their usage and to better manage it.
3 Current participants in the Core Initiative will be encouraged to participate in the
4 Compact's residential demand response offering if they meet the eligibility requirements,
5 and will still be able to use their currently-installed energy monitoring equipment. New
6 customers interested in achieving energy savings by adjusting their energy usage will be
7 served under the Compact's demand response offering. The Compact expects that its
8 demand response offering will be a better use of ratepayer funding and result in greater
9 savings than the Core Initiative.

10 **Q. Has the EEAC reviewed the Compact's proposed approach for the Core Initiative?**

11 A. Yes. On March 15, 2017, the EEAC adopted a resolution on the Compact's 2017 MTM.
12 Through that resolution, the EEAC stated that it "applauds the Compact's intention to
13 suspend enrollment in its Residential Behavior/Feedback initiative, which has not
14 performed to expectations, and reallocate budget to this high-priority demand reduction
15 initiative, while maintaining their high savings goals." D.P.U. 17-84 at Attachment E.

16 **V. THE COMPACT'S PENSION AND OTHER POST EMPLOYMENT BENEFITS**
17 **OBLIGATIONS**

18 **Q. How does the Compact provide retirement services to its employees?**

19 A. As a municipal entity, pursuant to G.L. c. 32, all Compact employees must participate in
20 the Commonwealth's retirement system. Consistent with this system, and like other
21 municipalities in the Commonwealth, the Compact has an annual retirement cost

1 obligation. This cost obligation, which the Compact is required to fund, is based on a
2 percentage of the Compact's employee pay roll.

3 **Q. What costs are included in the Compact's retirement obligation?**

4 A. The costs included in the Compact's retirement obligation are pension costs and other
5 post-employment benefits ("OPEB"). OPEB obligations include the provision of post-
6 employment life-time benefits, such as health insurance, to eligible retired employees.

7 **Q. Has the Compact proposed to increase its cost recovery for these obligations?**

8 A. Yes. As part of its 2017 EES, the Compact proposed cost increases associated with its
9 pension and OPEB liabilities. See D.P.U. 16-177. As part of that proceeding, the
10 Department required the Compact to provide in its 2016 Plan Report documentation that
11 further supports the cost increases.

12 **Q. Briefly describe the reasons for the increase to the Compact's retirement liabilities**
13 **currently being recovered as part of its 2017 EES.**

14 A. The Compact's Independent Auditors' Report on Financial Statements and Additional
15 Information ("Auditors' Report") for the year ended December 31, 2015 provided revised
16 projections for the Compact's pension and OPEB liabilities. A copy of the Auditors'
17 Report is provided as Exhibit MTD-2. These figures were updated after the
18 Department's approval of the 2016-2018 Three-Year Plan, and the budget increases
19 proposed for the 2017 plan year reflect the updated Compact liabilities.

1 **Q. How much did the Compact's retirement liabilities increase in the 2017 EES?**

2 A. As part of its 2016-2018 Three-Year Plan, the Compact included \$120,000 per year to
3 fund its OPEB liabilities. After the Auditors' Report was reviewed in 2016, the Compact
4 determined that it should begin to fully fund its future pension and OPEB liabilities.
5 These funds are set-aside in a pension and OPEB reserve accounts. For 2017, it required
6 an additional \$165,000 to fund its OPEB liabilities, plus an additional \$635,000 to fund
7 its pension liabilities. The combined proposed 2017 increase is \$800,000 relative to
8 planned.

9 **Q. Could the Compact's retirement and OPEB funding obligations change from year**
10 **to year?**

11 A. Yes. The Compact's retirement and OPEB obligations are a function of the number of
12 eligible retired employees receiving post-employment benefits. As with all its other
13 administrative costs, the Compact will review its OPEB and pension obligations annually
14 and make any necessary adjustments based on actuarially determined funding
15 obligations.

16 **Q. Would the Compact's OPEB and retirement obligations vary if there are changes in**
17 **its organizational structure?**

18 A. No. As stated above, the Compact's retirement and OPEB obligations are a function of
19 the actuarial characteristics of its employees and its participation in the Commonwealth's
20 retirement system as a municipal entity. Neither is impacted by a change in the
21 Compact's organizational structure.

1 **VI. CONCLUSION**

2 **Q. Does this conclude your testimony?**

3 **A. Yes, it does.**

CAPE LIGHT COMPACT

INDEPENDENT AUDITORS' REPORT ON
FINANCIAL STATEMENTS AND
ADDITIONAL INFORMATION

YEAR ENDED DECEMBER 31, 2015

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INDEPENDENT AUDITORS' REPORT

To the Board of Representatives
Cape Light Compact
Barnstable, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Cape Light Compact as of and for the year ended December 31, 2015, and the related notes to the financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Cape Light Compact as of December 31, 2015, and the change in financial position and cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis (located on pages 4 through 8) be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements. The combining statements and reconciliation of audited energy efficiency GAAP expenses to Department of Public Utilities report (additional information) are presented for purposes of additional analysis and are not a required part of the basic financial statements. The additional information is the responsibility of management and was derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the additional information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated August 30, 2016, on our consideration of the Cape Light Compact's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Cape Light Compact's internal control over financial reporting and compliance.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Boston, Massachusetts
August 30, 2016

As management of the Cape Light Compact (Compact), we offer readers of these financial statements this narrative overview and analysis of the Compact's financial activities for the calendar year ended December 31, 2015.

The management's discussion and analysis (MD&A) is presented in the following sections:

1. Background
2. Overview of the Financial Statements
3. Financial Statement Analysis

Please refer to the audited *Financial Statements* when reading the MD&A.

Background

Since 1997, the Compact has represented a unique "regional partnership" between each of the Cape Cod and Martha's Vineyard towns and counties. The Compact consists of the twenty-one towns in Barnstable and Dukes Counties, as well as the two counties themselves. It is organized through a formal Intergovernmental Agreement under Massachusetts General Laws, Chapter 40, Section 4A.

The Compact serves as a regional municipal load aggregator and energy efficiency program administrator pursuant to Massachusetts General Laws, Chapter 164, Section 134 and offers a variety of programs and advocacy activities to help consumers with their electric energy needs. As stated in its Intergovernmental Agreement, the purposes of the Compact, include, among other things, (1) to provide the basis for aggregation of all consumers on a non-discriminatory basis; (2) to negotiate the best terms and conditions for electricity supply and transparent pricing; (3) to provide sharing of economic savings to consumers based on current electric rates and/or cost-of-service ratemaking; (4) to provide full public accountability to consumers; and (5) to utilize and encourage demand side management and other forms of energy efficiency and to advance consumer awareness and adoption of a wide variety of energy efficiency measures through the implementation of an energy efficiency plan.

The Compact as a Municipal Aggregator:

The Compact is a regional municipal aggregator under Massachusetts General Laws, Chapter 164, Section 134 and its aggregation plan was originally approved by the Massachusetts Department of Telecommunications and Energy in 2000, and updated in 2015 with review and approval by the Massachusetts Department of Public Utilities ("DPU"). The Compact's various power supply contracts have been executed pursuant to the plan. The Compact presently offers a competitive electric power supply option on an opt-out basis to over 200,000 potential customers, across all customer classes, who are located within the Compact's service territory. The Compact's current form of universal service competitive electric supply agreement was approved by the Massachusetts Department of Telecommunications and Energy, now the DPU, in 2004.

The Compact as Energy Efficiency Program Administrator and the 2013-2015 Energy Efficiency Plan:

The Compact's 2013 - 2015 Energy Efficiency Plan was approved by the DPU on January 31, 2013 in compliance with the Massachusetts state energy efficiency goals and policies, including the Green Communities Act ("GCA"), (Chapter 169, Section 11 of the Acts of 2008). The Compact is pleased with the results of its 2013-2015 Three-Year Energy Efficiency Plan, the second of such plans envisioned by the GCA. The Compact met its planned three-year savings and benefit goals by the end of 2015, while maintaining the balance between meeting the budget for its program and complying with the directives

of the GCA in ensuring that it makes available all cost-effective energy efficiency opportunities. Below are the highlights of the 2015 program year:

- Surpassed the 2015 lifetime MWh savings goals for each of its three customer sectors
- Recipient of the ENERGY STAR Partner of the Year 2015 The Lighting & Products Sponsors of Mass Save® Award
- Recipient of the ENERGY STAR Partner of the Year 2015 Sustained Excellence Award
- Recipient of the following 2015 National Energy Education Development Program State and National Youth Awards:
 - Eastham Elementary School: Elementary Level State School of the Year
 - Harwich Cares, Harwich Middle School: Junior Level State School of the Year and National Junior Level Finalist
 - Martha's Vineyard Regional High School: Senior Level State School of the Year
- Completed its territory-wide LED Streetlight Initiative, which began in 2013 with demonstration installations and moved into full implementation in 2014. When the last installations were completed in 2015, more than 15,000 streetlights had been upgraded to LEDs, with an estimated lifetime energy savings of more than 49 GWh—48 percent greater than originally expected.
- Completed its first Combined Heat and Power ("CHP") project since the start of the statewide three-year plans.
- Participated in the largest Commercial and Industrial ("C&I") Comprehensive Design Approach ("CDA") New Construction project in its territory to date - the Monomoy Regional High School received more than a half a million dollars in energy efficiency funds from the Compact, and is estimated to deliver 505 MWh of annual energy savings.

The results for all three years of the 2013–2015 Three-Year Plan, presented in this 2013–2015 Term Report ("Term Report"), indicate that the Compact achieved its total three-year goals by the end of 2015. Over the three-year term, the Compact has achieved:

- cost-effective programs with a benefit-cost ratio ("BCR") of 3.23;
- net benefits of \$275 million;
- annual energy savings of 132 GWh;
- lifetime energy savings of 1,407 GWh;
- total benefits of \$398 million; and
- program costs of \$101 million.

The Compact as Consumer Advocate:

Energy issues can be complex and decisions made by legislators or state regulators can have far-reaching impacts for consumers. The impacts range from increased (or decreased) electricity costs to ensuring protection and opportunities for consumers and their communities. The Compact monitors issues under consideration and participates when there is clearly something at stake for the region. The Compact's work in this arena helped to secure the return of more than \$25 million from the sale of the Canal Electric Plant in 1999, and more than \$10 million in avoided costs and savings since that time.

The focus of the Compact's work at the state level in 2015 was review of the filings by the electric distribution companies of their Grid Modernization Plans. Development and revision (and the subsequent regulatory review of) these Plans will continue to unfold over the next few years and hopefully yield far-reaching effects in what is known as "Modernization of the Grid." Development of a new "smart grid" that combines data communications with electricity supply is intended to produce a transformation in how electricity is generated, delivered, and consumed. At stake locally are reliability, greater control over costs, and the amount of independent power generation from homeowners and businesses that will be accepted onto the distribution system. Consumers are viewed as having a vital role in this transformation.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the financial statements, which consists of the following two components:

1. Financial statements
2. Notes to the financial statements

This report also contains additional information that supplements the financial statements.

Financial Statements

The Compact's financial statements are prepared in accordance with U.S. generally accepted accounting principles (GAAP), as set forth by the Governmental Accounting Standards Board (GASB). The financial statements are presented on the accrual basis of accounting and include the following three basic financial statements: (1) the Statement of Net Position, (2) the Statement of Revenues, Expenses and Change in Net Position and (3) the Statement of Cash Flows.

The financial statements can be found on pages 9 – 11 of this report.

Notes to Financial Statements

The notes provide additional information that is essential to a full understanding of the data provided in the financial statements. The notes to the financial statements can be found on pages 12 – 19 of this report.

Additional Information

In addition to the financial statements and accompanying notes, this report also presents additional information. Presented in this information are combining statements of net position and revenues, expenses and change in net position, as well as a reconciliation of audited energy efficiency GAAP expenses to the amounts reported to the DPU. The additional information can be found on pages 20 – 22.

Financial Statement Analysis

The following tables present current and prior year data on the financial statements.

Net Position

The Compact's liabilities exceeded assets by \$148,281 at the close of the calendar year and are summarized as follows:

	2015	2014	Change (\$)	Change (%)
Assets				
Current Assets	\$ 7,670,966	\$ 12,951,947	\$ (5,280,981)	-40.8%
Noncurrent Assets	524,372	-	524,372	N/A
Total Assets	<u>8,195,338</u>	<u>12,951,947</u>	<u>(4,756,609)</u>	<u>-36.7%</u>
Liabilities				
Current Liabilities	5,110,674	8,822,173	(3,711,499)	-42.1%
Noncurrent Liabilities	3,232,945	654,706	2,578,239	393.8%
Total Liabilities	<u>8,343,619</u>	<u>9,476,879</u>	<u>(1,133,260)</u>	<u>-12.0%</u>
Net Position (Deficit)				
Net Investment in Capital Assets	524,372	-	524,372	N/A
Unrestricted (Deficit)	(672,653)	3,475,068	(4,147,721)	-119.4%
Total Net Position (Deficit)	<u>\$ (148,281)</u>	<u>\$ 3,475,068</u>	<u>\$ (3,623,349)</u>	<u>-104.3%</u>

The Compact's assets consist primarily of cash and cash equivalents, accounts receivable and capital assets. The decrease in the Compact's current assets primarily reflects the decrease in the current liabilities as a result of timing differences in the prior year. The increase in noncurrent assets is a result of the construction in progress related to the development of new software.

Liabilities primarily consist of accounts payable and accrued long-term liabilities. The substantial decrease in current liabilities primarily reflects a timing difference in accounts payable. The substantial increase in noncurrent liabilities represents the recognition of the allocated portion of the estimated liability for pension benefits from Barnstable County (see Note 6), which amounted to \$2,415,259.

Changes in Net Position

The Compact's net position decreased by \$3,623,349 for the year ended December 31, 2015 and is summarized as follows:

	2015	2014	Change (\$)	Change (%)
Operating Revenues	\$ 36,371,915	\$ 32,912,468	\$ 3,459,447	10.5%
Operating Expenses	41,242,028	38,307,909	2,934,119	7.7%
Operating Income (Loss)	(4,870,113)	(5,395,441)	525,328	-9.7%
Nonoperating Revenues (Expenses), Net	1,246,764	1,368,249	(121,485)	-8.9%
Change in Net Position	(3,623,349)	(4,027,192)	403,843	-10.0%
Net Position - Beginning of Year	3,475,068	7,502,260	(4,027,192)	-53.7%
NET POSITION (DEFICIT) - END OF YEAR	\$ (148,281)	\$ 3,475,068	\$ (3,623,349)	-104.3%

Operating revenues primarily consist of mandatory energy efficiency charges (\$5,085,556) and energy efficiency reconciliation factor charges (\$28,580,327). The increase in operating revenues primarily reflects energy efficiency funds collected in advance of energy efficiency projects and their related expenses.

Approximately 86% (or \$35,298,066) of the Compact's operating expenses relate directly to energy efficiency programs. Approximately 91% of the Compact's three-year (2013-2015) energy efficiency budget, modified from \$83,586,651 to \$103,382,379 in 2015, had been spent through December 31, 2015. The energy efficiency budget is funded via energy efficiency and energy efficiency reconciliation factor charges over the three-year period. As a result, annual differences can exist for recognized revenues and expenses. The primary increase in operating expenses represents the recognition of the allocated portion of the estimated liability for pension benefits from Barnstable County, which amounted to \$2,415,259 (See note 6).

Requests for Information

This financial report is designed to provide a general overview of the Compact's finances for all those with an interest in its finances. Questions concerning any of the information provided in this report should be addressed to the Compact Administrator, Barnstable County, P.O. Box 427, Open Cape Building, Barnstable, Massachusetts, 02630.

ASSETS

Current Assets:

Cash and Cash Equivalents	\$ 4,079,372
Receivables, Net of Allowance for Uncollectible Amounts:	
Energy Efficiency	485,137
Energy Efficiency Reconciliation Factor	2,502,989
Mil-Adder	67,022
Green Program	9,472
Intergovernmental (RGGI)	439,542
Other	59,982
Prepaid Expenses	23,130
Intangible Assets	4,320
Total Current Assets	<u>7,670,966</u>

Noncurrent Assets:

Capital Assets Not Being Depreciated	<u>524,372</u>
Total Assets	<u>8,195,338</u>

LIABILITIES

Current Liabilities:

Accounts Payable and Accrued Expenses	5,079,136
Accrued Contracted Labor Payable	17,726
Accrued Contracted Labor - Compensated Absences	13,812
Total Current Liabilities	<u>5,110,674</u>

Noncurrent Liabilities:

Accrued Contracted Labor - Compensated Absences	124,310
Accrued Long-Term Liabilities (Note 6)	3,108,635
Total Noncurrent Liabilities	<u>3,232,945</u>

Total Liabilities	<u>8,343,619</u>
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NET POSITION (DEFICIT)

Net Investment in Capital Assets	524,372
Unrestricted Deficit	<u>(672,653)</u>
Total Net Deficit	<u>\$ (148,281)</u>

OPERATING REVENUES

Energy Efficiency	\$ 5,085,556
Energy Efficiency Reconciliation Factor	28,580,327
Mil-adder	666,022
Green Program	76,819
Intergovernmental (RGGI)	1,963,191
Total Operating Revenues	<u>36,371,915</u>

OPERATING EXPENSES

Contracted Labor (Note 2j)	4,397,354
Energy Efficiency Programs:	
Residential Programs	20,936,612
Low Income Programs	3,235,576
Commercial and Industrial Programs	10,671,846
Others Programs	454,032
Legal	570,471
Other Professional Services	148,373
Marketing	291,818
Other Operating	535,946
Total Operating Expenses	<u>41,242,028</u>

Operating Loss	<u>(4,870,113)</u>
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NONOPERATING REVENUES

Forward Capacity Market	1,090,417
Renewable Energy Certificates, Net	147,527
Investment income	8,820
Total Nonoperating Revenues	<u>1,246,764</u>

CHANGE IN NET POSITION

(3,623,349)

Net Position - Beginning of Year	<u>3,475,068</u>
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NET DEFICIT - END OF YEAR

\$ (148,281)

CASH FLOWS FROM OPERATING ACTIVITIES

Receipts from Customers and Users	\$ 36,372,357
Payments to Vendors and Customers	(40,529,795)
Payments for Contracted Labor	<u>(1,845,493)</u>
Net Cash Used by Operating Activities	(6,002,931)

CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES

Proceeds from Sales of Renewable Energy Certificates	1,537,374
Purchase of Renewable Energy Certificates	(1,353,280)
Proceeds from Forward Capacity Market	<u>1,127,538</u>
Net Cash Provided by Noncapital Financing Activities	1,311,632

CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES

Acquisition of Capital Assets	(524,372)
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CASH FLOWS FROM INVESTING ACTIVITIES

Investment Income	<u>8,820</u>
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NET CHANGE IN CASH AND CASH EQUIVALENTS

(5,206,851)

Cash and Cash Equivalents - Beginning of Year

9,286,223

CASH AND CASH EQUIVALENTS - END OF YEAR

\$ 4,079,372

RECONCILIATION OF OPERATING LOSS TO NET CASH FROM OPERATING ACTIVITIES

Operating Loss	\$ (4,870,113)
Adjustments to Reconcile Operating Loss to Net Cash Used by Operating Activities:	
Changes in Assets and Liabilities not Requiring Current Cash Flows:	
Accrued Long-Term Liabilities	2,540,920
Effect of Changes in Operating Assets and Liabilities:	
Accounts Receivable	442
Warrants Payable and Accrued Expenses	(3,685,121)
Accrued Contracted Labor	(30,524)
Accrued Contracted Labor - Compensated Absences	<u>41,465</u>
Total Adjustments	<u>(1,132,818)</u>

NET CASH FROM OPERATING ACTIVITIES

\$ (6,002,931)

NOTE 1 REPORTING ENTITY

The Cape Light Compact (Compact) was established in 1997 pursuant to an Inter-Municipal Agreement authorized by Chapter 40, Section 4A of the Massachusetts General Laws for the purpose of providing competitive electric supply, green power options, energy efficiency programs and consumer advocacy for the residents and businesses of Cape Cod and Martha's Vineyard.

The Compact's membership consists of 21 towns and 2 counties on Cape Cod and Martha's Vineyard and is governed by a 23 member Board of Representatives appointed by each of the member towns and counties.

These financial statements do not include state and federal grants awarded to Barnstable County (County) that are administered by the Compact. Such grants are included as governmental funds in the County's annual financial statement audit.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The basic financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the standard-setting body for establishing governmental accounting and financial reporting principles. The Compact accounts for its operations as an enterprise fund. The significant accounting policies are described herein.

A. Measurement Focus, Basis of Accounting and Basis of Presentation

The Compact's financial statements are reported using the economic resources measurement focus and the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded when the liabilities are incurred, regardless of the timing of related cash flows.

The Compact distinguishes operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the principal ongoing operations. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

B. Deposits and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value.

C. Accounts Receivable

Accounts receivable are recorded at the time of the underlying event. The allowance for uncollectible amounts is estimated based on historical trends and specific account analysis. At December 31, 2015, all amounts are 100% collectible.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

D. *Intangible Assets*

Renewable Energy Certificates (RECs) are valued at the Compact's contract purchase price. Total RECs at December 31, 2015 amounted to \$4,320.

E. *Capital Assets*

Capital assets are recorded at historical cost. All individual purchases and construction costs in excess of \$5,000 are capitalized at the date of acquisition or construction, respectively, with expected useful lives of greater than one year.

Depreciable capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are as follows:

<u>Asset Type</u>	<u>Estimated Useful Life (in Years)</u>
Vehicles	5

The cost of normal maintenance and repairs that do not add to the value of the assets or materially extend asset lives are not capitalized and are treated as expenses when incurred. Improvements are capitalized.

F. *Accrued Contracted Labor - Compensated Absences*

Accrued contracted labor – compensated absences represents charge backs from the County related to an agreement to reimburse the County for contracted labor vacation and sick leave.

G. *Accrued Long-Term Liabilities*

Accrued long-term liabilities represent the accumulated charge backs from the County related to an agreement to reimburse the County for other postemployment benefits and pension benefits (see Note 6).

H. *Revenue Recognition*

Energy efficiency revenues are derived from the Massachusetts Department of Public Utilities (DPU) mandatory charge of 2.5 mills (\$0.0025) per kilowatt hour to fund energy efficiency programs. These charges are initially collected by the electric distribution company and subsequently provided to the Compact. The Compact recognizes the energy efficiency charge as operating revenue on the accrual basis of accounting.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

H. Revenue Recognition (Continued)

In addition to the mandatory charge, the Compact, and all Massachusetts energy efficiency program administrators, have an "Energy Efficiency Reconciliation Factor Charge" (EERF). The EERF is a fully reconciling funding mechanism designed to recover costs associated with energy efficiency programs by reconciling energy efficiency revenue amounts collected in electric rates with the total expense amounts incurred for energy efficiency programs, as approved by the DPU. These charges are initially collected by the electric distribution company and subsequently provided to the Compact. The Compact recognizes the EERF charge as operating revenue on the accrual basis of accounting.

Operational-adder revenues are derived from a 1 mil (\$0.001) per kilowatt hour surcharge used to fund the Compact's non-energy efficiency operational expenses as provided in the Compact's competitive electric supply agreement (CESA) approved by the Massachusetts Department of Telecommunications and Energy, now the Department of Public Utilities. These funds are collected by the Compact's contracted electric supply company on behalf of the Compact as part of the Compact's electric rates and are subsequently remitted to the Compact. The Compact's Governing Board appropriates these funds through the annual budget process; in addition, funds are disbursed by the Compact's Administrator based on contractual and regulatory obligations. Operational-adder charges are recognized as operating revenue on the accrual basis of accounting.

Green program revenues are derived from the Compact's voluntary opt-in green energy program for which participants pay a premium for matching their electric generation purchases with renewable energy. This additional charge (green program adder) is initially collected by the Compact's contracted electric supply company and subsequently provided to the Compact. The Compact recognizes the green program adder as operating revenue on the accrual basis of accounting.

Intergovernmental revenues are received from the Commonwealth via the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI) quarterly CO2 auctions. The 2008 Massachusetts Green Communities Act assigned at least 80% of RGGI fund proceeds for energy efficiency programs administered by the state's electric utilities and energy efficiency service providers. The Compact recognizes the Intergovernmental (RGGI) proceeds as operating revenue on the accrual basis of accounting.

I. Forward Capacity Market

The Compact participates in ISO New England's forward capacity market. The Compact recognizes proceeds from the forward capacity market as nonoperating revenue on the accrual basis. These funds are used for energy efficiency projects.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

J. Contracted Labor

Personal services are provided to the Compact through an agreement with the County. As such, the Compact has agreed to reimburse the County for all expenses related to salaries and benefits, including pension and other postemployment benefits. The related charges in these financial statements represent charge backs to the Compact from the County.

K. Use of Estimates

The preparation of basic financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure for contingent assets and liabilities at the date of the basic financial statements and the reported amounts of the revenues and expenditures/expenses during the fiscal year. Actual results could vary from estimates that were used.

NOTE 3 DEPOSITS AND INVESTMENTS

The County Treasurer, through an Administrative Services Agreement more fully described in Note 8, maintains the Compact's deposits and investments. The County Treasurer maintains its cash and investments in accordance with the municipal finance laws of the Commonwealth, which authorize the County Treasurer to invest temporarily idle cash in bank term deposits and certificates of deposits, and treasury and agency obligations of the United States government with maturities of one year or less; U.S. treasury or agency repurchase agreements with maturities of not more than 90 days; money market accounts; and the state treasurer's investment pool - the Massachusetts Municipal Depository Trust (MMDT).

The MMDT meets the criteria of an external investment pool and operates in accordance with applicable state laws and regulations. The Treasurer of the Commonwealth serves as Trustee. The reported value of the pool is the same as the fair value of the pool shares.

The County Treasurer maintains separate bank accounts for the Compact's energy efficiency funds, power supply reserve funds and line of credit maintained for the Cape & Vineyard Electric Cooperative (CVEC). All other Compact funds are included in the County's pooled cash. The Compact's cash and cash equivalents maintained by the County Treasurer are allocated as follows:

	Amount
Energy Efficiency	\$ 2,437,807
Power Supply Reserve	775,012
Operating	649,422
Green Program	217,131
Total	<u><u>\$ 4,079,372</u></u>

NOTE 4 CAPITAL ASSETS

Capital asset activity for the year ended December 31, 2015 was as follows:

	Beginning Balance	Increases	Decreases	Ending Balance
<u>Capital Assets Not Being Depreciated:</u>				
Construction in Progress (Software)	\$ -	\$ 524,372	\$ -	\$ 524,372
<u>Capital Assets Being Depreciated:</u>				
Vehicle	23,319	-	-	23,319
<u>Accumulated Depreciation:</u>				
Vehicles	(23,319)	-	-	(23,319)
Total Capital Assets Being Depreciated, Net	-	-	-	-
Total Capital Assets	<u>\$ -</u>	<u>\$ 524,372</u>	<u>\$ -</u>	<u>\$ 524,372</u>

During 2015, the Compact entered into an agreement to perform significant modifications to licensed computer software for the benefit of the energy efficiency program. The software is expected to be substantially complete in 2016 and the amortization of the asset will begin at that point through the contract period ending in 2021.

NOTE 5 LONG-TERM OBLIGATIONS

The following represents a summary of changes that occurred in long-term obligations during the year ended December 31, 2015:

	Beginning Balance	Increases	Decreases	Ending Balance	Current Portion
Accrued Long-Term Liabilities (Note 6)	\$ 567,715	\$ 2,802,969	\$ (262,049)	\$ 3,108,635	\$ -
Accrued Contracted Labor -					
Compensated Absences	96,657	41,465	-	138,122	13,812
Total	<u>\$ 664,372</u>	<u>\$ 2,844,434</u>	<u>\$ (262,049)</u>	<u>\$ 3,246,757</u>	<u>\$ 13,812</u>

NOTE 6 ACCRUED LONG-TERM LIABILITIES

The County provides health, dental and life insurance coverage (other postemployment benefits (OPEB)) for its retirees and their survivors. As described in Note 2, the amounts reported in these financial statements represent charge backs to the Compact from the County.

The County's expense and liability related to OPEB are reported in the County's financial statements. The 2015 amount charged to the Compact totaled \$108,345 and is reported as contracted labor expense in these financial statements. The accumulated long-term liability at December 31, 2015 totaled \$693,376.

NOTE 6 ACCRUED LONG-TERM LIABILITIES (CONTINUED)

The Compact (through the County) participates in the Barnstable County Retirement Association (the Association), a cost-sharing multiple-employer defined benefit pension plan administered by the Barnstable County Retirement Board. As described in Note 2, the amounts reported in these financial statements represent charge backs to the Compact from the County.

The County's expense and liability related to its net pension liability are reported in the County's financial statements. The 2015 amount charged to the Compact totaled \$2,415,259 and is reported as contracted labor expense in these financial statements. The accumulated long-term liability reported at December 31, 2015 totaled \$2,415,259.

NOTE 7 RELATED PARTY TRANSACTIONS

Administrative Services

The Compact has entered into an Administrative Services Agreement (Agreement) with the County, a member of the Compact, to provide, among other things, the following:

- Fiscal administration services, such as banking, accounting, reporting, etc.
- Procurement administration services
- IT support

The Compact paid the County approximately \$55,000 for these services for the year ended December 31, 2015.

During 2015, the Compact began renting office space from the County, for which the Compact paid approximately \$20,000 for Rent and \$18,000 for custodial services for the year ended December 31, 2015. These expenses are reported as other operating expenses in the accompanying financial statements.

Cape & Vineyard Electric Cooperative (CVEC)

The Compact is a Member of CVEC, whose purpose is to develop and/or own renewable electric generation facilities and procuring and/or selling long-term electric supply or other energy-related goods or services at competitive prices to its Members and consumers within its Member communities.

Renewable Energy Certificates

RECs purchased by CVEC are sold to the Compact for an amount equal to CVEC's cost for the Compact's Green Power Program. Total purchases for the year ended December 31, 2015 totaled approximately \$32,000.

NOTE 7 RELATED PARTY TRANSACTIONS (CONTINUED)

Letter of Credit

The Compact (through the County) has guaranteed a letter of credit obtained by CVEC. The value of the letter of credit totals \$100,000 and expires November 30, 2016. No amounts have been drawn on the letter of credit.

NOTE 8 OPERATING LEASES

The Compact is committed under operating leases for vehicles used by the Compact. Future minimum payments under these operating leases are as follows:

<u>Calendar Year</u>	<u>Payment</u>
2016	\$ 7,324
2017	7,324
2018	1,220

Lease expenses for the year ended December 31, 2015 totaled \$9,295 and are reported as other operating expenses.

NOTE 9 COMMITMENTS

REC Purchases

At December 31, 2015, the Compact is committed under certain agreements to purchase RECs at fixed prices through the 2nd quarter of calendar year 2017. The Compact's estimated commitment (based on units produced) under these agreements are as follows:

<u>December 31</u>	<u>Amount</u>
2016	\$ 7,087,630
2017	2,858,750
Total	<u>\$ 9,946,380</u>

The Compact is also committed to purchase all RECs purchased by CVEC for an amount equal to CVEC's cost through the third quarter (first quarter generation period) of calendar year 2015. CVEC's purchases are based on units/RECs produced, which cannot be reasonably estimated at this time.

NOTE 9 COMMITMENTS (CONTINUED)

REC Sales

At December 31, 2015, the Compact is committed to an agreement to sell RECs it had acquired (or had committed to acquire) from a third party. The RECs will be sold at fixed prices through the second quarter of calendar year 2017. Expected cash inflows under this agreement are as follows:

<u>December 31</u>	<u>Amount</u>
2016	\$ 7,087,630
2017	2,858,750
Total	<u>\$ 9,946,380</u>

Forward Capacity market

The Compact participates in ISO New England's forward capacity market and has made commitments to deliver specified units of energy efficiency at a fixed price per unit. If the Compact fails to deliver its capacity supply obligation it is subject to penalties determined by the rules of the forward capacity market.

	Energy Efficiency	Power Supply Reserve	Operating	Green Program	Total
ASSETS					
Current Assets:					
Cash and Cash Equivalents	\$ 2,437,807	\$ 775,012	\$ 649,422	\$ 217,131	\$ 4,079,372
Receivables, Net of Allowance for Uncollectible Amounts:					
Energy Efficiency	485,137	-	-	-	485,137
Energy Efficiency Reconciliation Factor	2,502,989	-	-	-	2,502,989
Mil-Adder	-	67,022	-	-	67,022
Green Program	-	-	-	9,472	9,472
Intergovernmental (RGGI)	439,542	-	-	-	439,542
Other	59,982	-	-	-	59,982
Prepaid Expenses	-	23,130	-	-	23,130
Intangible Assets	-	4,320	-	-	4,320
Total Current Assets	5,925,457	869,484	649,422	226,603	7,670,966
Noncurrent Assets:					
Capital Assets Not Being Depreciated	524,372	-	-	-	524,372
Total Assets	6,449,829	869,484	649,422	226,603	8,195,338
LIABILITIES					
Current Liabilities:					
Accounts Payable and Accrued Expenses	5,069,669	-	9,467	-	5,079,136
Accrued Contracted Labor Payable	15,136	-	2,590	-	17,726
Accrued Contracted Labor - Compensated Absences	10,839	-	2,973	-	13,812
Total Current Liabilities	5,095,644	-	15,030	-	5,110,674
Noncurrent Liabilities:					
Accrued Contracted Labor - Compensated Absences	97,552	-	26,758	-	124,310
Accrued Long-Term Liabilities	2,545,689	-	562,946	-	3,108,635
Total Noncurrent Liabilities	2,643,241	-	589,704	-	3,232,945
Total Liabilities	7,738,885	-	604,734	-	8,343,619
NET POSITION (DEFICIT)					
Net Investment in Capital Assets	524,372	-	-	-	524,372
Unrestricted (Deficit)	(1,813,428)	869,484	44,688	226,603	(672,653)
Total Net Position (Deficit)	\$ (1,289,056)	\$ 869,484	\$ 44,688	\$ 226,603	\$ (148,281)

	Energy Efficiency	Power Supply Reserve	Operating	Green Program	Total
OPERATING REVENUES					
Energy Efficiency	\$ 5,085,556	\$ -	\$ -	\$ -	\$ 5,085,556
Energy Efficiency Reconciliation Factor	28,580,327	-	-	-	28,580,327
Mil-Adder	-	666,022	-	-	666,022
Green Program	-	-	-	76,819	76,819
Intergovernmental (RGGI)	1,963,191	-	-	-	1,963,191
Total Operating Revenues	<u>35,629,074</u>	<u>666,022</u>	<u>-</u>	<u>76,819</u>	<u>36,371,915</u>
OPERATING EXPENSES					
Contracted Labor	3,594,746	-	802,608	-	4,397,354
Energy Efficiency Programs:					
Residential Programs	20,936,612	-	-	-	20,936,612
Low Income Programs	3,235,576	-	-	-	3,235,576
Commercial and Industrial Programs	10,671,846	-	-	-	10,671,846
Other Programs	454,032	-	-	-	454,032
Legal	391,976	-	178,495	-	570,471
Other Professional Services	23,665	5,250	119,458	-	148,373
Marketing	218,674	-	73,144	-	291,818
Other Operating	364,096	19,553	152,297	-	535,946
Total Operating Expenses	<u>39,891,223</u>	<u>24,803</u>	<u>1,326,002</u>	<u>-</u>	<u>41,242,028</u>
Operating Income (Loss)	<u>(4,262,149)</u>	<u>641,219</u>	<u>(1,326,002)</u>	<u>76,819</u>	<u>(4,870,113)</u>
NONOPERATING REVENUES (EXPENSES)					
Forward Capacity Market	1,090,417	-	-	-	1,090,417
Renewable Energy Certificates	-	209,593	-	(62,066)	147,527
Investment Income	5,782	3,038	-	-	8,820
Total Nonoperating Revenues (Expenses), Net	<u>1,096,199</u>	<u>212,631</u>	<u>-</u>	<u>(62,066)</u>	<u>1,246,764</u>
Income (Loss) Before Transfers	<u>(3,165,950)</u>	<u>853,850</u>	<u>(1,326,002)</u>	<u>14,753</u>	<u>(3,623,349)</u>
TRANSFERS					
Transfers In	-	71,222	940,606	-	1,011,828
Transfers Out	-	(940,606)	(71,222)	-	(1,011,828)
Total Transfers	<u>-</u>	<u>(869,384)</u>	<u>869,384</u>	<u>-</u>	<u>-</u>
CHANGE IN NET POSITION	<u>(3,165,950)</u>	<u>(15,534)</u>	<u>(456,618)</u>	<u>14,753</u>	<u>(3,623,349)</u>
Net Position - Beginning of Year	<u>1,876,894</u>	<u>885,018</u>	<u>501,306</u>	<u>211,850</u>	<u>3,475,068</u>
NET POSITION (DEFICIT) - END OF YEAR	<u>\$ (1,289,056)</u>	<u>\$ 869,484</u>	<u>\$ 44,688</u>	<u>\$ 226,603</u>	<u>\$ (148,281)</u>

Energy Efficiency Operating Fund Expenses Reported on 2015 Combining Statement of Revenues, Expenses and Change in Net Position (Page 22)	\$ 39,891,223
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Reconciling items:

To Record Net Change in Accrued Contracted Labor	24,971
To Record Net Change in Accrued Long-Term Liabilities	(2,060,243)
To Record Net Change in Accrued Contracted Labor - Compensated Absences	(33,835)
Expenditures Capitalized for Financial Reporting Purposes	<u>524,372</u>
Total Reconciling Items	<u>(1,544,735)</u>

2015 Energy Efficiency Expenses Reported on the 2013-2015 DPU Term Report	<u><u>\$ 38,346,488</u></u> (A)
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(A) This amount is reported on the modified accrual basis of accounting
and reviewed annually by the DPU

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

CAPE LIGHT COMPACT)
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D.P.U. 17-100

AFFIDAVIT OF MARGARET T. DOWNEY

Margaret T. Downey does hereby depose and say as follows:

I, Margaret T. Downey, certify that the direct testimony and exhibit submitted on behalf of the Cape Light Compact in the above-captioned proceeding, which bears my name, were prepared by me or under my supervision and are true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury.



Margaret T. Downey
Administrator, Cape Light Compact

Dated: May 1, 2017

COMMONWEALTH OF MASSACHUSETTS

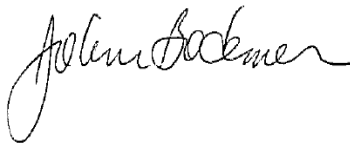
DEPARTMENT OF PUBLIC UTILITIES

CAPE LIGHT COMPACT

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D.P.U. 17-100

NOTICE OF APPEARANCE

Pursuant to 220 C.M.R. §1.02(7), the undersigned attorneys hereby appear for and on behalf of the Cape Light Compact in the above-captioned case.



Jeffrey M. Bernstein, Esq. (jbernstein@bck.com)

Jo Ann Bodemer, Esq. (jbodemer@bck.com)

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(802) 419-8283 Facsimile

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

CAPE LIGHT COMPACT

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D.P.U. 17-100

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing documents in this proceeding in accordance with the requirements of 220 C.M.R. §1.05(1) (Department's Rules of Practice and Procedure) upon Secretary Mark D. Marini via electronic mail and hand delivery, upon Hearing Officer Jeffrey Leupold via electronic mail, upon Donald Boecke, Esq. and Jerrold Oppenheim, Esq. via electronic mail and first class mail delivery and upon Rachel Graham Evans, Esq. and the Members of the Energy Efficiency Advisory Council and the DPU 15-166 service list via electronic mail only in this matter.

Dated at Waltham, Massachusetts this 1st day of May, 2017.



Jo Ann Bodemer, Esq. (jbodemer@bck.com)
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