mass save®
Savings through energy efficiency

2016-2018 April Draft Plan

PA Presentation to EEAC - May 19, 2015

nationalgrid

EVERSOURCE

Columbia Gas of Massachusetts
A NiSource Company

Unitil

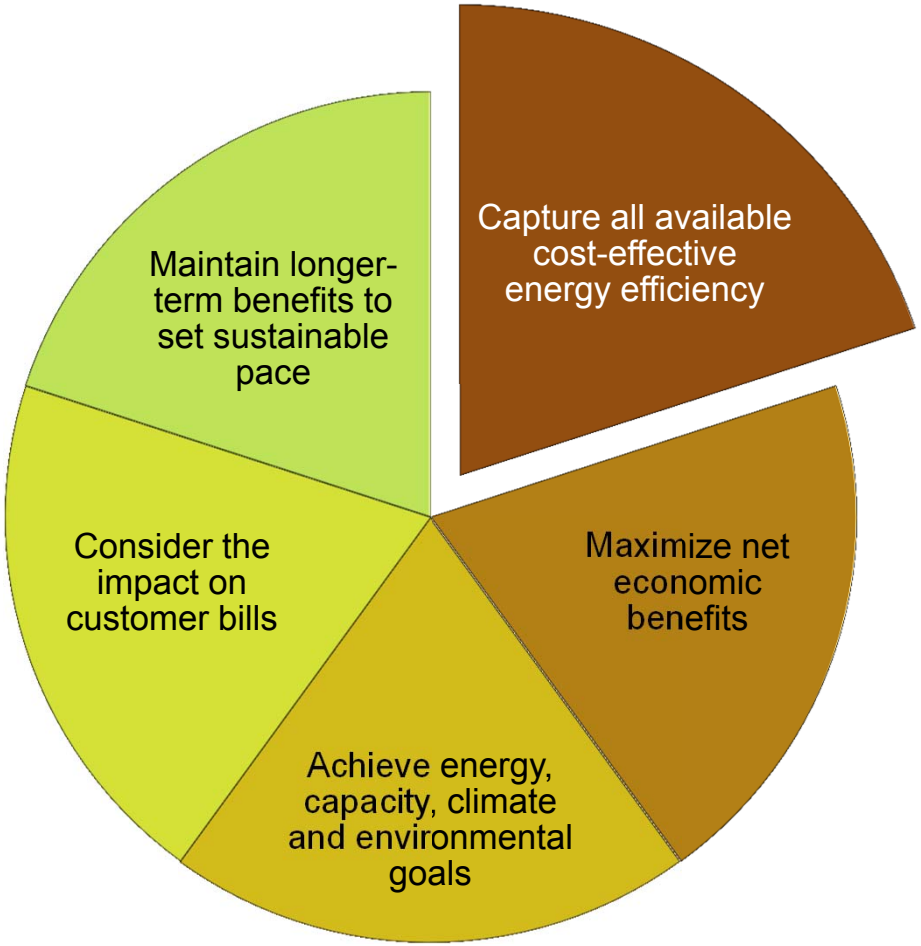
BLACKSTONE GAS COMPANY

Liberty Utilities

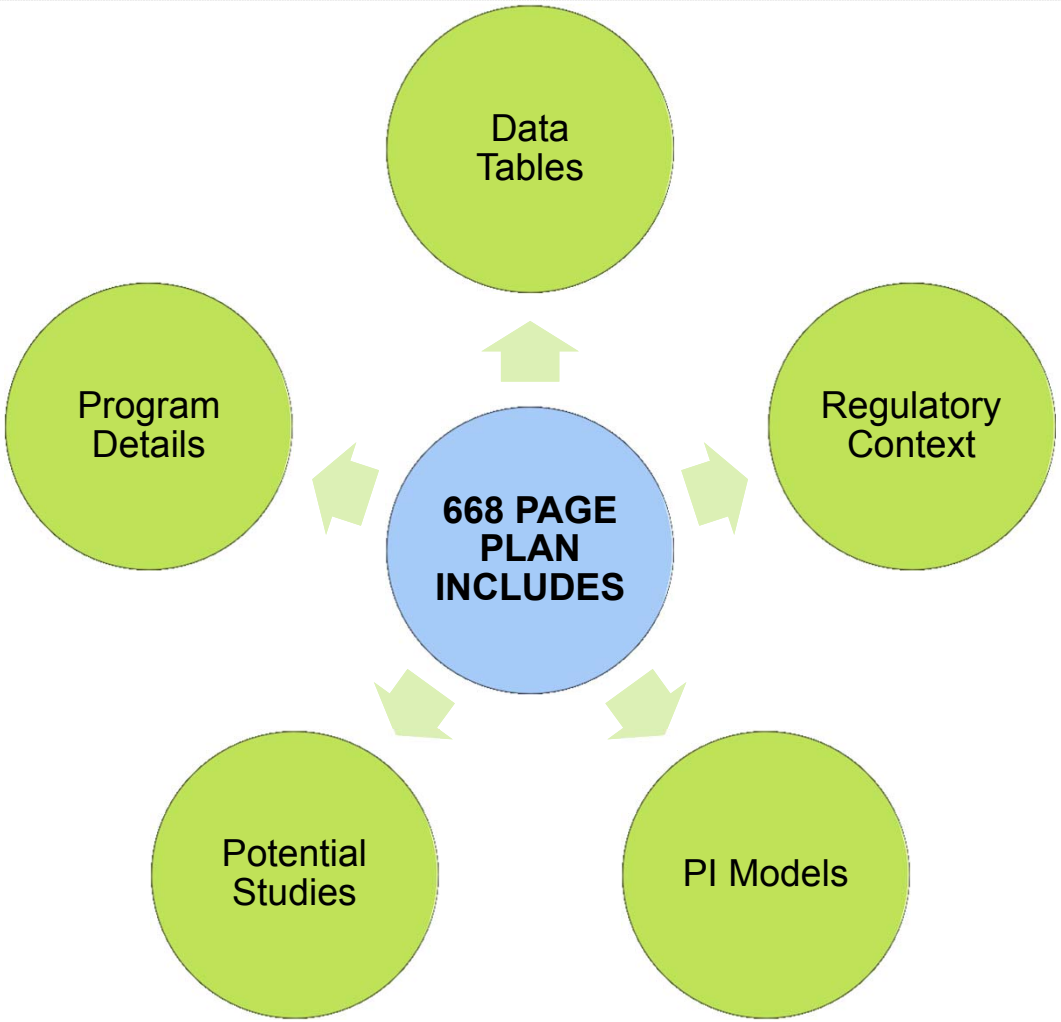
berkshire gas
A UIL HOLDINGS COMPANY

Cape Light Compact

2016-2018 Goals Comply with the GCA



April Plan - Complete, Detailed Draft



2016-2018 Plan Themes

PA are Committed to EE

Sustained excellence - #1 four years in a row

Building on successful programs

Continuous innovation

Sustaining infrastructure needed to support industry and jobs

No diminution of efforts – more effort required to achieve savings

- E.g. must install 3 LED bulbs in 2018 to match 1 bulb in 2014 – costs more per savings

Program Designs and Innovations

The PAs Are Listening

- A 16-page matrix detailing the PAs' responses to 150 workshop recommendations is now available on the Council's website
- PAs have included, or have committed to including, **75%** of all major EEAC recommendations in the 2016-2018 Plan
- Conversation ongoing, two more workshops scheduled for June
- Program designs will be refined throughout the year

Some significant highlights from stakeholder input for 2016-2018 include:

- Special renter offer
- Multi-Family initiative enhancements
- Segment-specific Outreach and Implementation Strategies
- Review of Small Business core initiative
- Evaluation Strategic Plan
- Technical Reference Library
- Spanish and Portuguese versions of MassSave.com

2016-2018 High Level Goals

Statewide Electric	2016	2017	2018	2016-2018
% of Sales	2.51%	2.49%	2.50%	2.50%
Annual MWh	1,178,846	1,168,089	1,162,459	3,509,394
Lifetime MWh	11,048,523	10,986,724	11,136,226	33,171,473
Budget	$580,772,082	$605,044,890	$632,651,160	$1,818,468,132

Statewide Gas	2016	2017	2018	2016-2018
% of Sales	1.07%	1.09%	1.09%	1.08%
Annual Therms	24,278,949	25,077,063	25,432,068	74,788,080
Lifetime Therms	325,035,783	338,626,128	345,016,304	1,008,678,215
Budget	$202,207,812	$207,734,122	$213,060,494	$623,002,428

Highest Goals in the Nation

Plan provides for 2.50% of retail sales for electric and 1.08% of retail sales for gas

While total budgets moderately increase, PAs appropriately increased residential budgets to serve unprecedented demand for residential EE products & services

Based on ACEEE data, the proposed goals remain more aggressive than other highly ranked states integrated gas and electric energy effort[1]

California at ~0.85% annual electric savings through 2020	Vermont at 2.1% annual incremental electricity savings, 2015-2017; no gas goals	New York at ~1% annual savings per year through 2015 for electric; ~0.5% annual savings through 2015 for gas

One example of MA excellence- MA HEAT Loan

MA provided 29,080 loans to residential customers compared to NY (6,690) and CA (11,250)

[1]Source: ACEEE 2014 State Energy Efficiency Scorecard; Appendix D, 117-121

2016-2018 Goals – PAs and Consultant Recommendation Differences

PAs and consultants to engage on issues, cost drivers

Process expected to lead to adjustments on both sides

Likely good faith differences, assumptions

Working together in 2013-2015 Plan led to consensus

Aligning on savings and cost assumptions, incorporating recommendations

External Impacts PAs Incorporated for 2016-2018 Goals

Federal Codes	Increased codes and standards reduce amount of incremental savings PAs can claim	**Initiatives Impacted:** Res Lighting, Res Products, Res Cooling and Heating, C&I New Buildings, C&I Upstream
Lighting	EISA lowers C&I and Res Savings. Updated NTG values also lower most savings	**Initiatives Impacted:** Res Lighting, HES, Res Multi-Family, LI SF & MF, C&I New Buildings, C&I Upstream Lighting, C&I Existing Buildings, C&I Small Business, C&I MF Retrofit
New IECC	New code has lowered potential savings from 2013-2015 levels by at least 15%	**Initiatives Impacted:** Residential New Construction, C&I New Buildings
Net-To-Gross	2016-2018 incorporates all new net-to-gross studies from 2012 forward.	**Initiatives Impacted:** Res Cooling & Heating, Res Lighting, C&I Upstream, C&I Existing Building, Res New Construction,
Baselines	Updated baselines decrease savings (i.e. early retirement boilers, spray valves	**Initiatives Impacted:** C&I Existing Buildings, C&I New Buildings, Res Cooling & Heating, Res Lighting, Res Products, Res New Construction
Avoided Costs	Lower avoided costs hinder some measures from passing screening; lowers potential	**Initiatives Impacted:** All Programs; Res Behavior, Res Cooling and Heating, Res New Construction, and Low Income

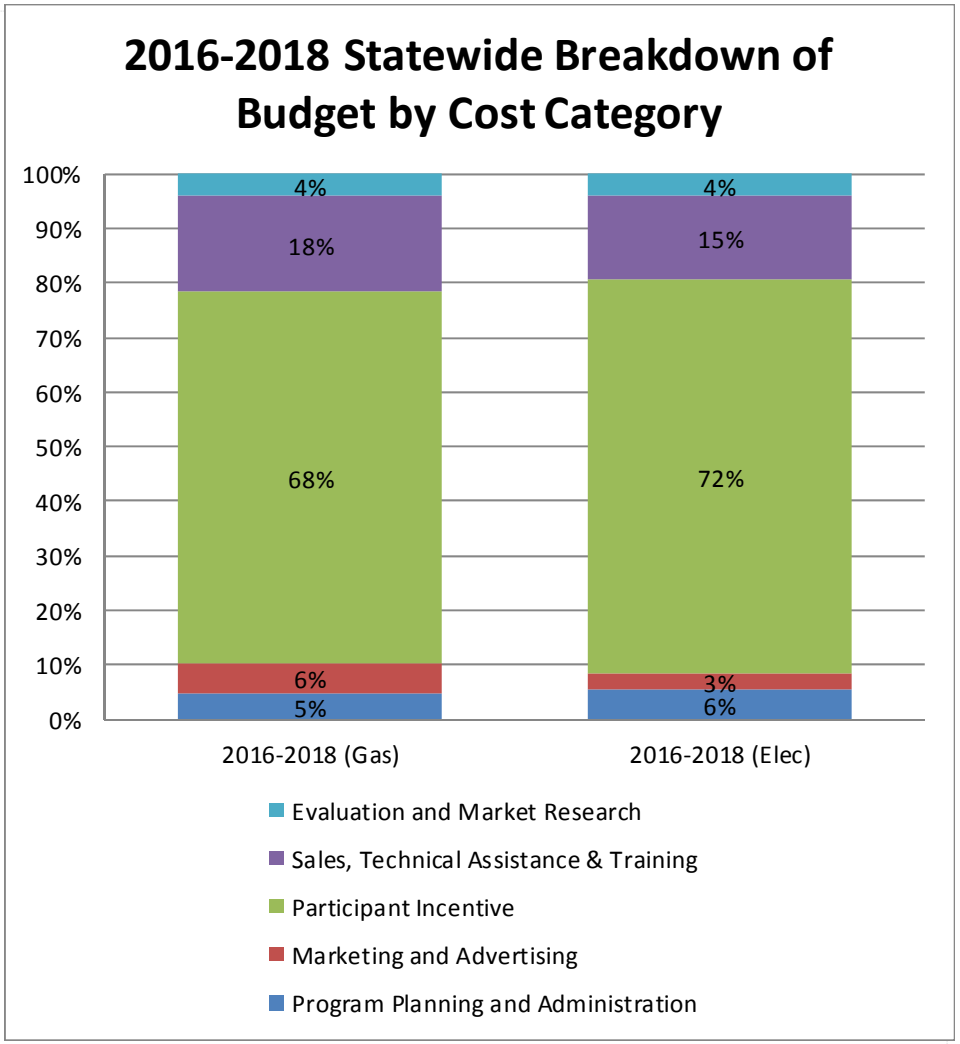
All evaluation studies are available or will be available when completed. Studies will be filed with either the 2014 Plan Year Report or with the 2016-2018 Plan. Evaluation results and savings assumptions will be reflected in the appropriate TRM.

Cost Impacts PAs Incorporated for 2016-2018 Goals

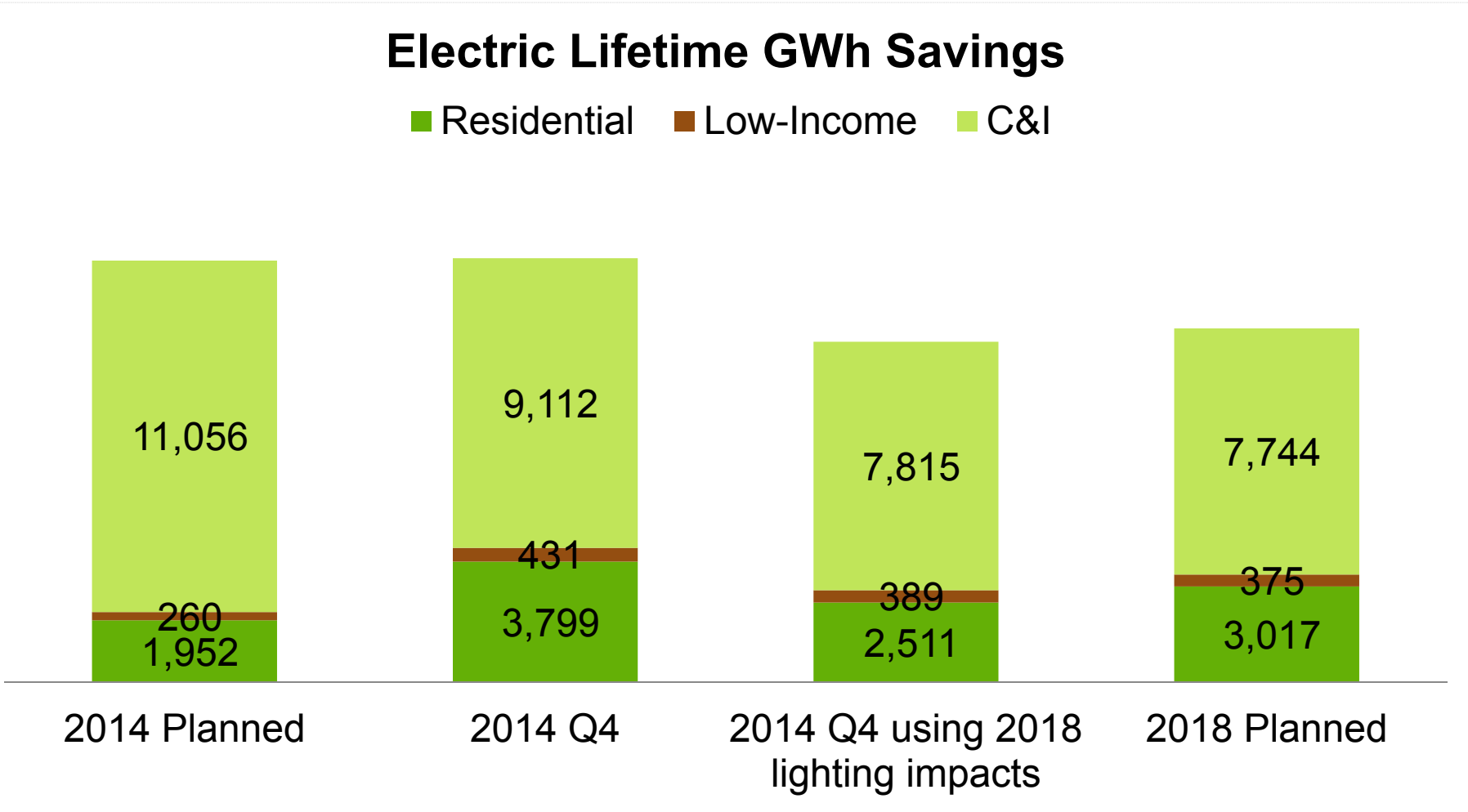
No "Easy" Savings	Low-cost, high-savings lighting measures have been adopted. Upstream potential lower.	**Initiatives Impacted:** Low Income Single/Multifamily, C&I Upstream, Res Lighting, Res Cooling and Heating.
Lighting	LEDs are still much more expensive than CFLs. Shifting to all LEDs has significant cost impact	**Initiatives Impacted:** Res Lighting, Res Multi-Family, Res Home Energy Services, Low-Income Single & Multi-Family
Oil	Including weatherization measures for oil-heated customers increases the $/kWh – benefits increase but no added savings	**Initiatives Impacted:** Res HES, Res Multi-Family, Low-Income Single & Multi-Family
Large Projects	In 2014, several uncharacteristically large projects significantly lowered costs to achieve for some PAs	**Initiatives Impacted:** C&I Existing Buildings Retrofit (Gas), C&I New Buildings (Electric and Gas)
New Approaches	Reaching customers who have not yet participated is expected to come at a higher cost	**Initiatives Impacted:** Many, see PA Matrix Response to Council Recommendations for list of new approaches

Budget Dollars Flowing Back to Customers

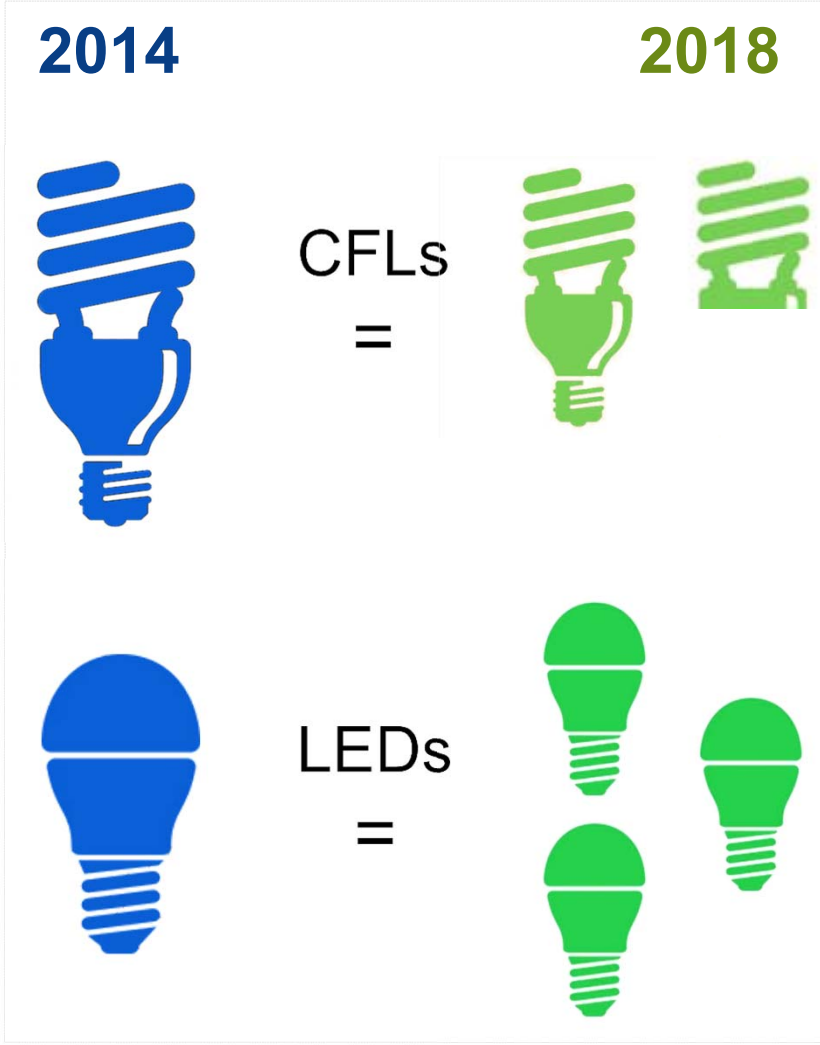
- Majority of cost returned directly to customers
- 72% of electric budget and 68% of gas budget goes to participant incentives
- Other cost categories also include customer benefits (i.e. audit fees, permit fees, etc)

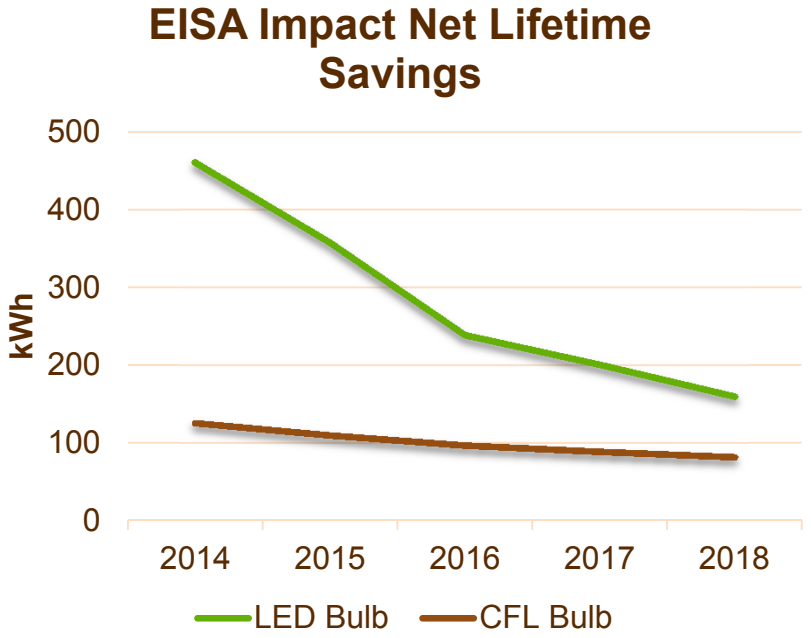


What Happens to 2014 When 2018 Impacts are Used for Lighting?



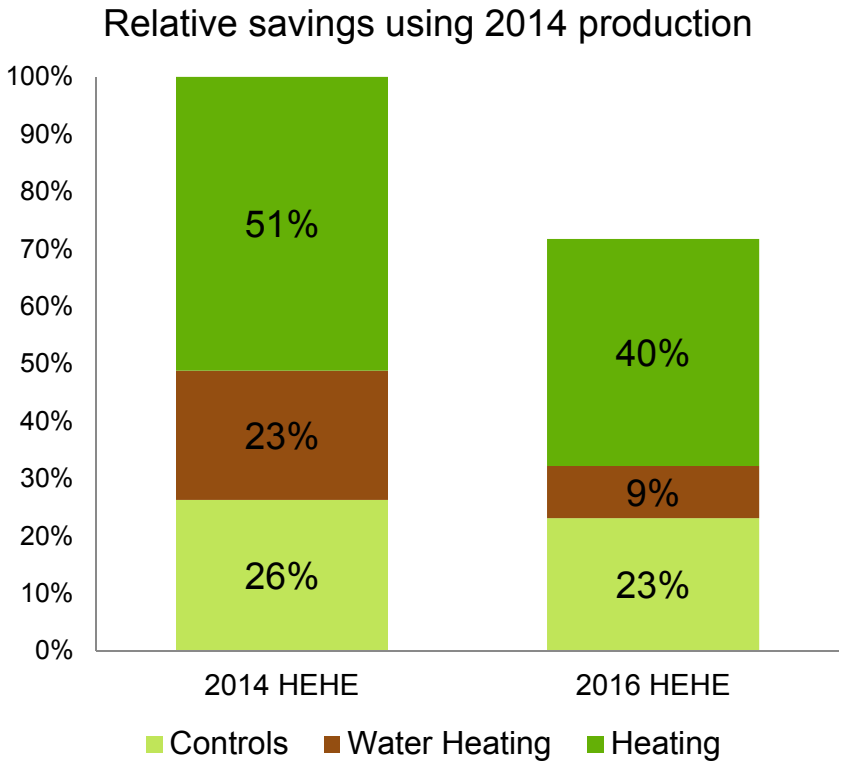
How Many Bulbs in 2018 Equal Savings From 1 Bulb in 2014?





Program Specific Looks – EM&V Results & Baseline Changes Decrease Savings

2016 Savings for HEHE are lower than 2014 due to baseline and evaluation changes



For Example: While forecasted production for Eversource Gas increased by 17%

Measure Category	2014 Actual Production	2016 Forecasted Production	Percent Increase
Gas Heating	2,225	2,743	23%
Gas Water Heating	1,448	1,850	28%
Gas Controls	3,279	3,525	8%
Overall	6,952	8,118	17%

The annual program savings compared to Q4 2014 only increased by 4%

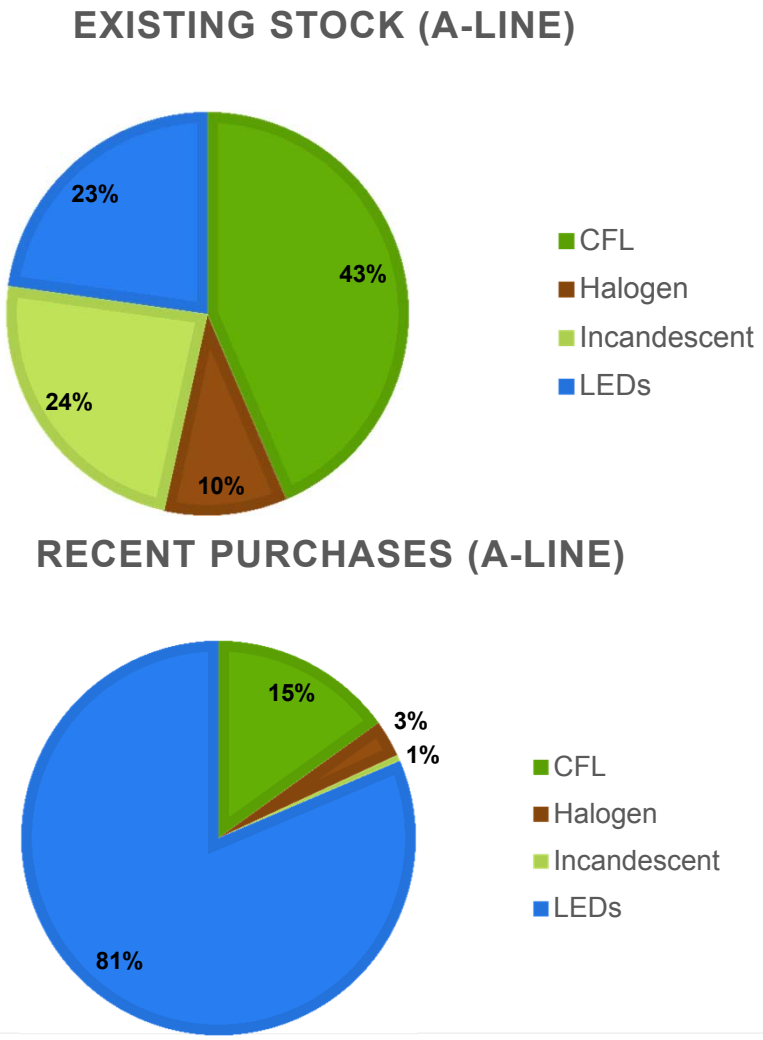
Period	Annual Savings
2014 Q4	456,845
2016	475,177
Percent Increase	4%

Upstream Program has captured the market for C&I A-Lamps

Based on a 400 recent onsite visits:

A Line Bulbs

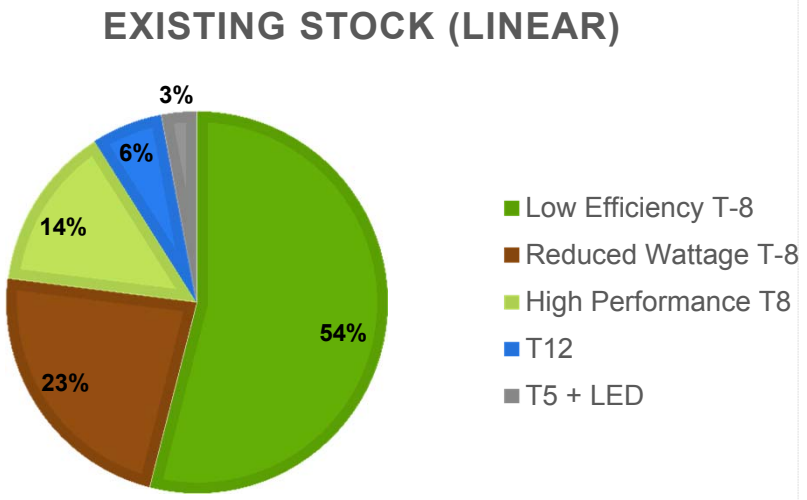
- 66% of lighting is efficient
- **34% remains** (2015-2018)
- **96%** of bulbs sold are efficient.
  - There is no more room to increase production for A lines
- EISA is also decreasing Savings on C&I side:
  - Estimated decrease between 30-60%

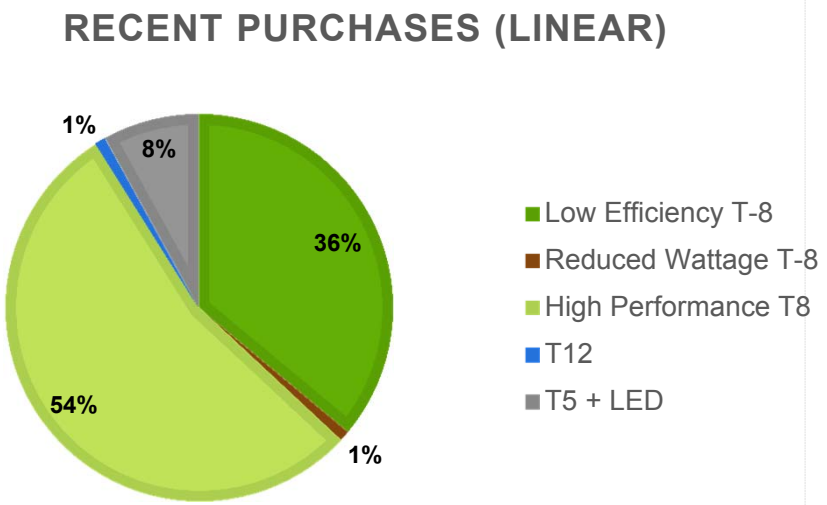


Source: DNV-GL Itron Onsite Interim Report Results

Opportunity in T-8s and Controls

- Good Opportunity remains in T8 market, but efficient baselines have increased
  - No T-12s or Halogens expected past 2015
- Upstream program having significant impact
  - Baseline will drop T-12s
  - Cost of LEDs and Controls higher
- Research needs to be refined on recent purchase data on LED and Reduced wattage T-8s





Source: DNV-GL Itron Onsite Interim Report Results

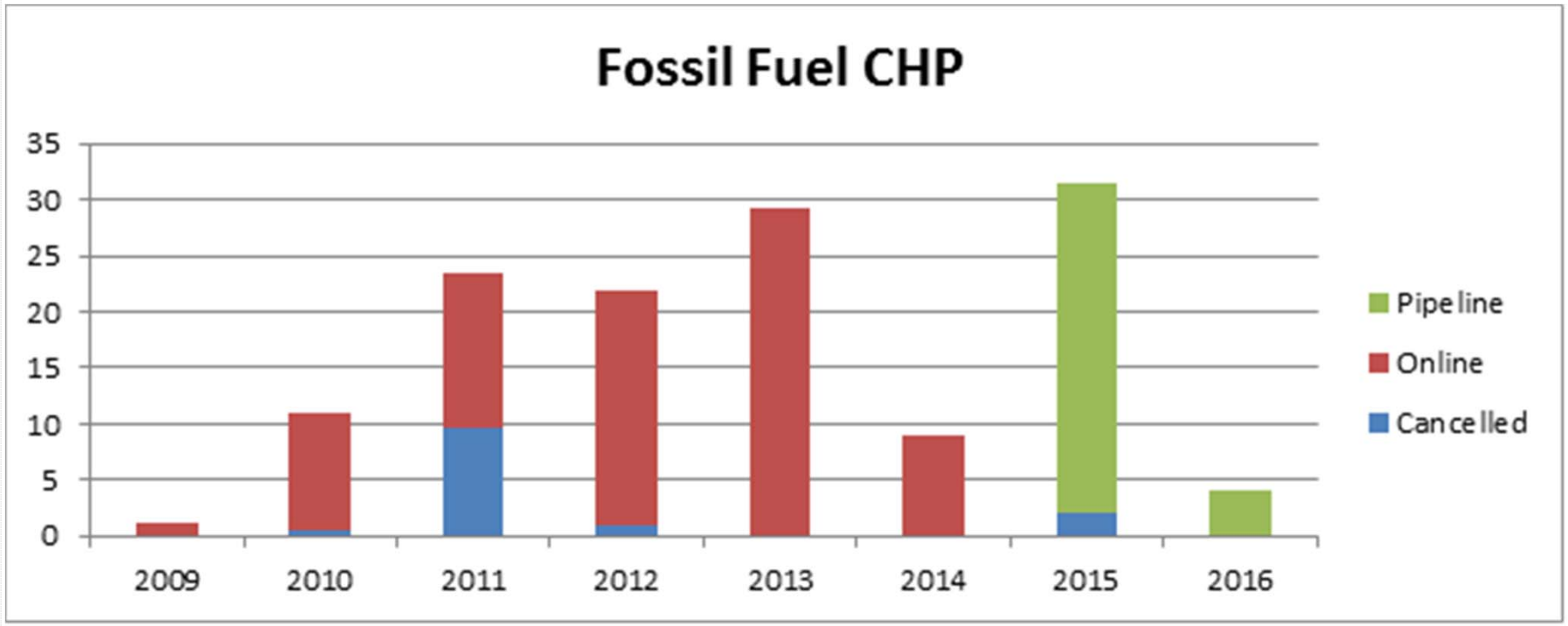
CHP

2016-2018 Statewide CHP consistent with historical results	• 2012-2014: Average of 38,478 Annual MWh per year • 2016-2018: Average of 40,306 Annual MWh per year
Gas Constraints & Locational Challenges	• CHP has become very locational and dependent on constraints in gas availability, a challenge that will persist through 2016-2018 Plan • Western Mass, Cape, Boston Metro all areas with gas constraints
Need To Factor in What Customers Want	• Risks for customers to take on CHP – long-term investment based on today's gas and electric prices • Despite potentially large savings and favorable economics, many commercial customers reluctant to move forward with CHP • In study performed by ICF in 2012 in CA, less than 40% of customers willing to accept a 3 year payback for proposed CHP project[1]
Future Pipeline	• PAs have to be realistic about how to plan for CHP • If no CHP savings beyond pipeline materialize, PAs have to replace CHP related savings in goals with savings that are likely to be more expensive.

1. "Combined Heat and Power: Policy Analysis And 2011-2030 Market Assessment." ICF International, February 2012

CHP

- List maintained by DOER of MW from active and historical interconnection applications, updated through April 17, 2015 (https://sites.google.com/site/massdgic/home/interconnection)



Looking Ahead – Next Steps

Engage

- EEAC and Consultants
- Seek to understand and narrow differences

Issues

- Discuss cost drivers, evaluation impacts, avoided costs, funding sources, PI and bill impacts

Refine

- Goals, Program Design and Plan

Appendix

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Major Evaluation Studies Used to Inform 2016-2018 Plan

STUDY	WHAT IS IMPACTED
DNV-GL Onsite Interim Report	Potential for C&I Savings
"High Efficiency Heating Equipment Impact Evaluation"	Decrease in gas furnace, boiler, and combination boiler savings
2012 Residential Heating, Water Heating, and Cooling Equipment Evaluation: Net-to-Gross, Market Effects, and Equipment Replacement Timing"	New gas heating, water heating, and cooling equipment NTG factors and lower NEIs (reflecting equipment replacement timing) since the 2013-15 plan
NMR Lighting Market Adoption Model	Shorter lighting measure lives and lower savings for bulbs affected by EISA as a result of the latest Market Adoption Model (MAM)
2014 DNV GL "Prescriptive Gas Pre-Rinse Spray Valve Measure Impact Evaluation"	A decrease in pre-rinse spray valve savings
2013 DNV GL "Process Evaluation of the 2012 Bright Opportunities Program Final Report"	New upstream lighting NTG factors since the 2013-15 plan
2015 Tetra Tech "2013 Commercial and Industrial Electric Programs Free-ridership and Spillover Study"	New C&I electric (non-upstream) NTG factors since the 2013-15 plan

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Major Standards & Code Changes Used to Inform Plan

WHAT IS CHANGING	INITIATIVES IMPACTED
Decrease to early retirement savings reflecting new baseline assumptions.	Residential Home Energy Services
Water heater savings decrease went into effect in 2015 due to code changes.	Residential Heating & Cooling Equipment (Gas)
Updated code change resulted in removing all savings associated with Heat Pump Water Heaters greater than 55 gallons.	Residential Heating & Cooling Equipment (Electric)
Updated federal codes and baselines will decrease savings from heating systems	Residential Home Energy Services

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