



# Welcome

## Boston Green Tourism March 9, 2017



BLACKSTONE  
GAS COMPANY



Columbia Gas  
of Massachusetts  
A BGE Energy Company

EVERSOURCE



nationalgrid  
HERE WITH YOU HERE FOR YOU



# Agenda



- Welcome
- PA 2016 Results
- Customer Facing Teams
- 2017 Program Priorities
- Enhancing the Energy Efficiency Experience
- Program & Application Highlights
- Closing Remarks

# 2016 MA Statewide C&I Highlights



- **Overall, successful start to the 2016 – 2018 3 Year Energy Efficiency Plan**
- **Electric Highlights:**
  - 11,638 electric C&I customer participants
  - 847,340,000 Annual kWh in energy savings
  - 131,943 kW in demand capacity
  - \$262,000,000 in Budget expenditures
  - Resulted in \$1.38 Billion in total program society benefits

# 2016 MA Statewide C&I Highlights



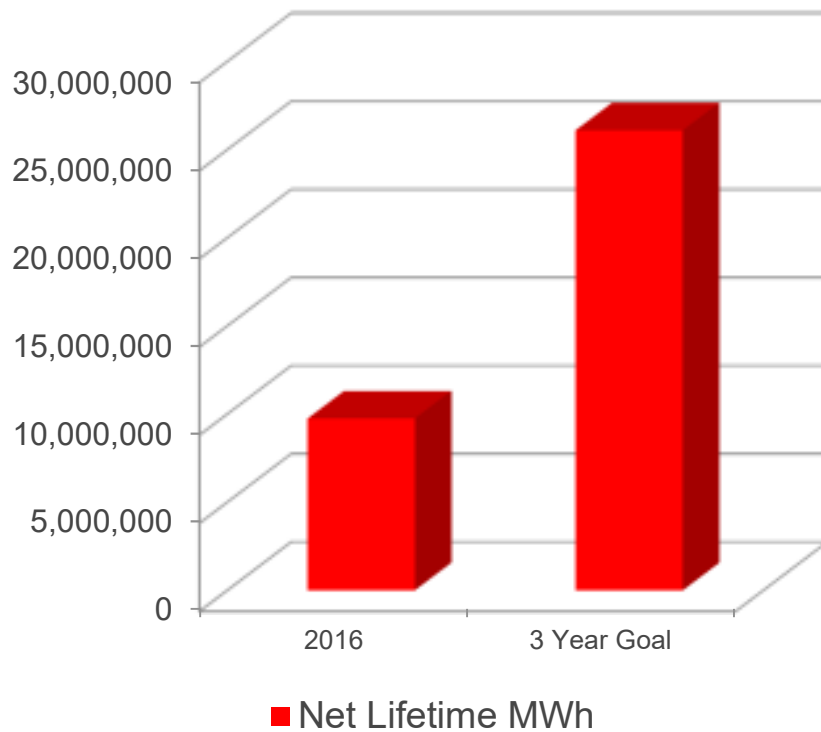
## ■ Natural Gas Highlights:

- 8,672 natural gas C&I customer participants
- 10,786,247 annual therm savings
- \$43,761,873 in total budget expenditures
- Resulted \$166 Million in total program benefits

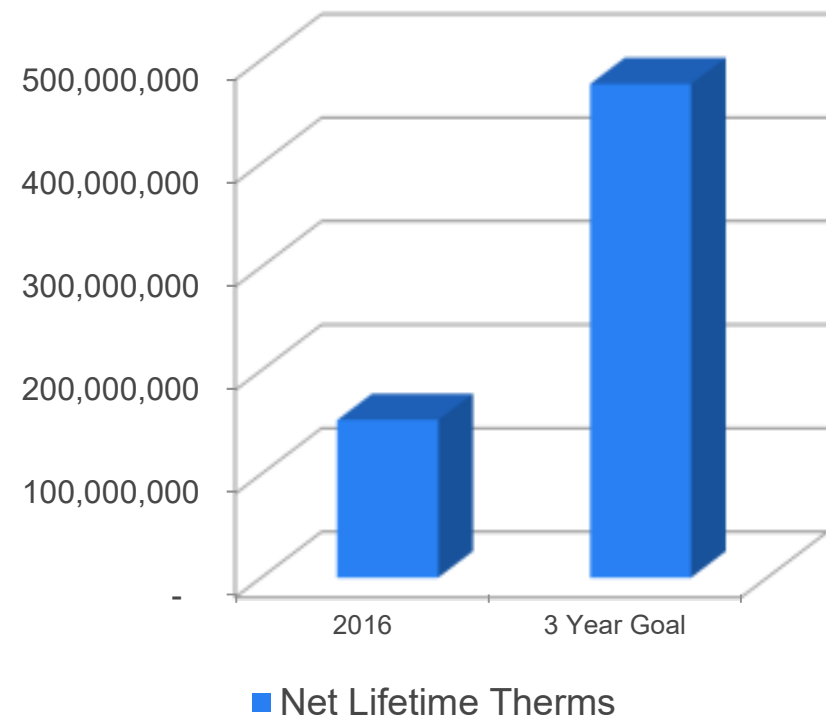
# 2016 Statewide vs 3 Year Goal



**2016 Actual vs 3-Year Plan  
(MWh)**



**2016 Actual vs 3-Year Plan  
(therms)**

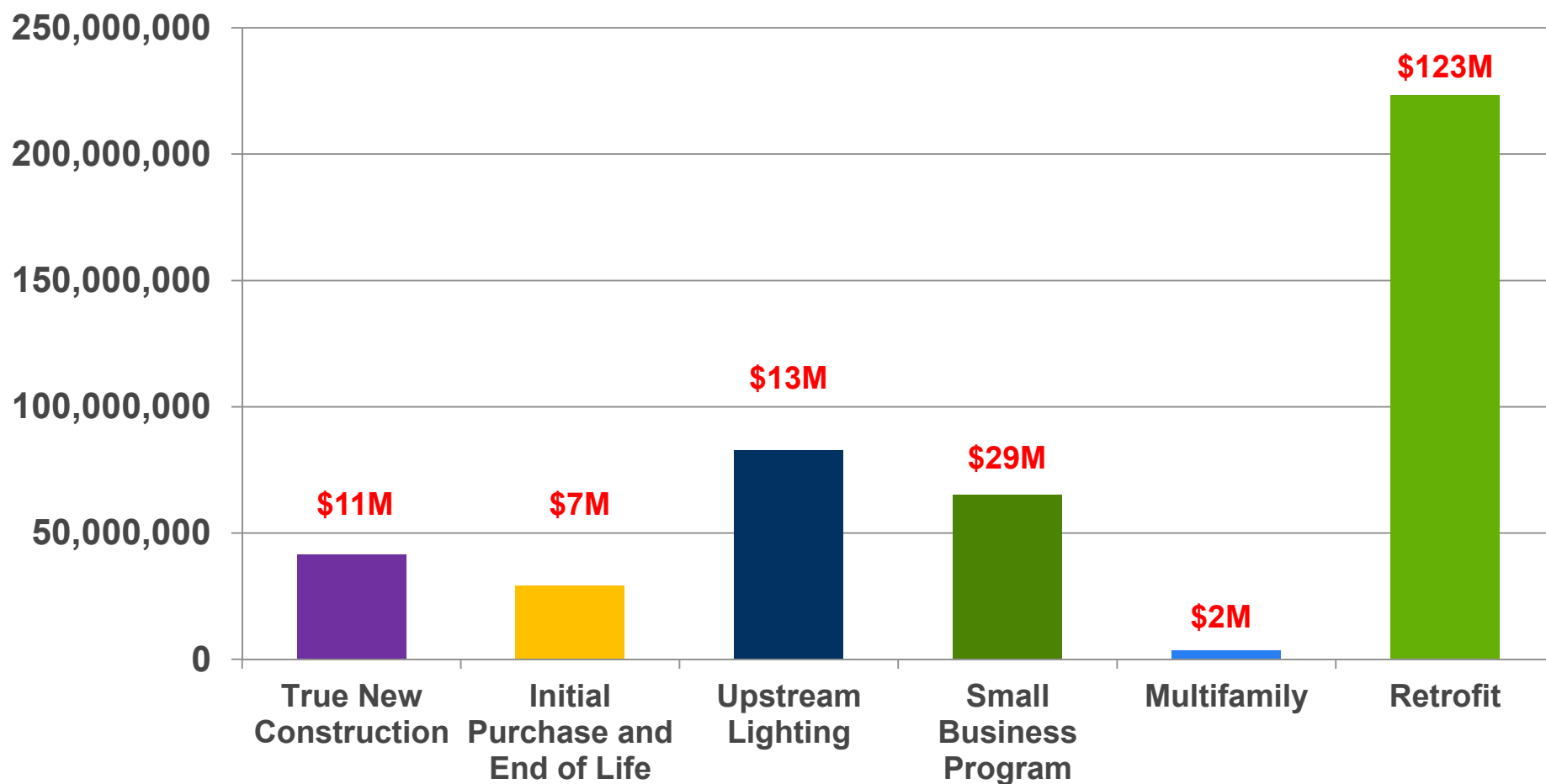


# 2017 C&I Core Initiative Breakdown - Electric



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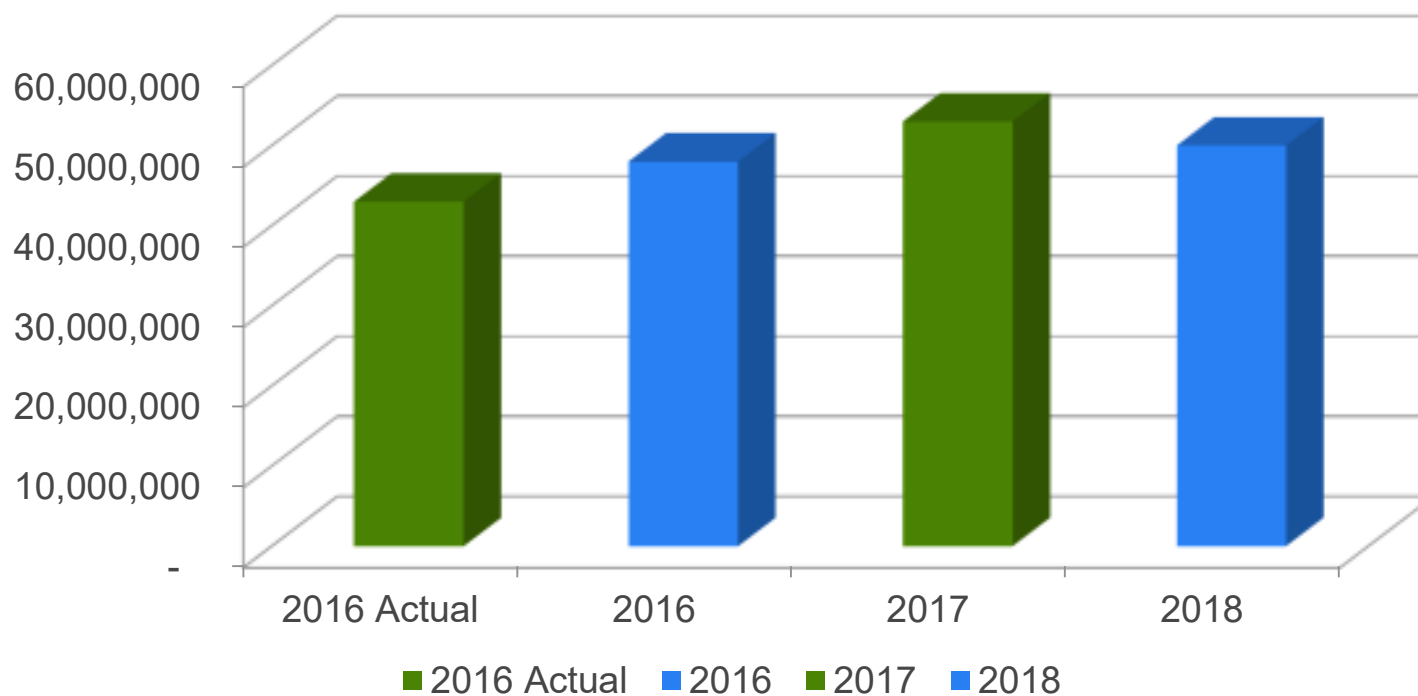
**2017 Electric Goal:  
401,000,000 kWh**



# C&I Gas Goals 2016-2018



## Progress to 3-Year Plan Goals Lifetime Therms



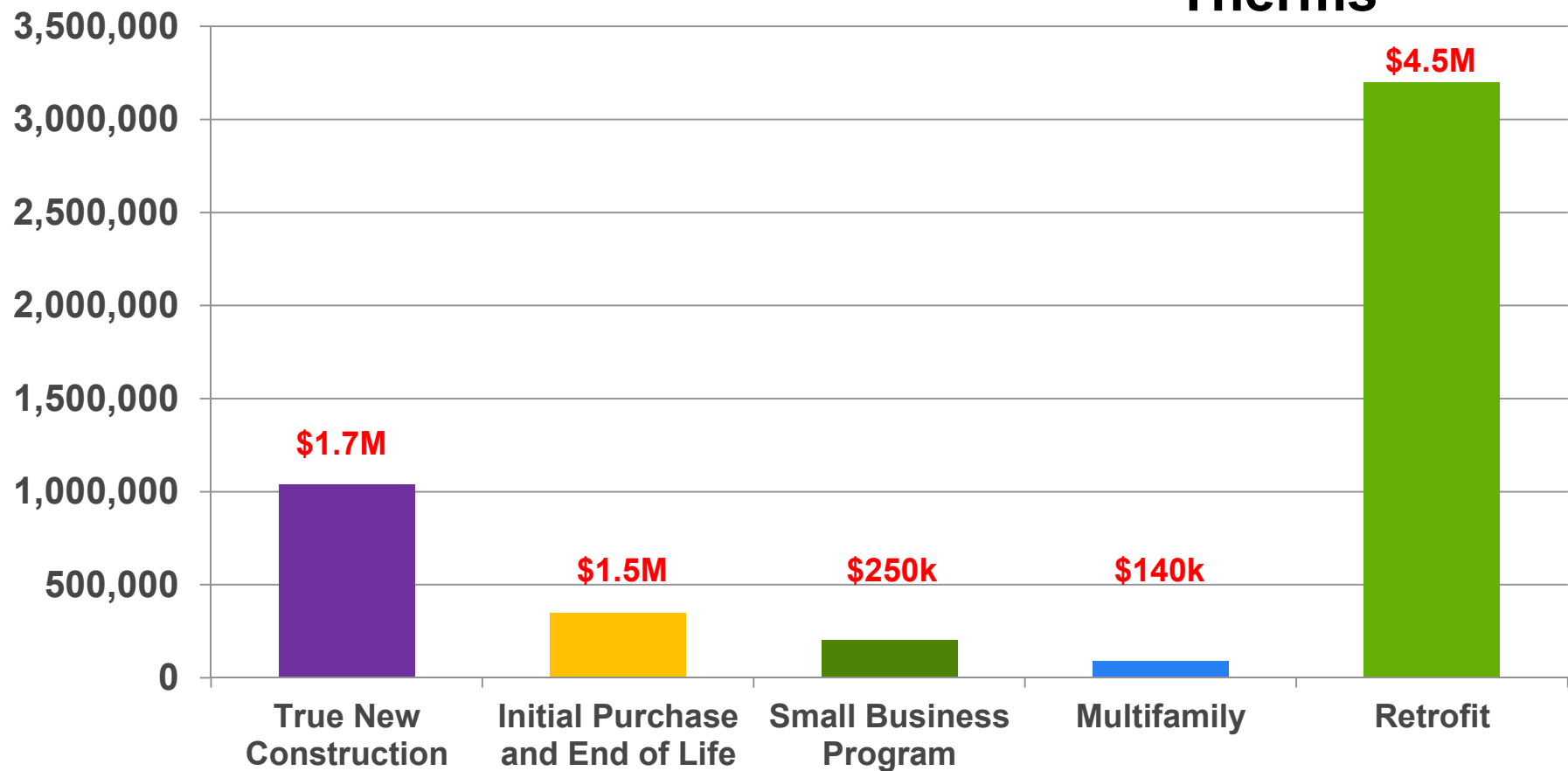
# 2017 Core Initiative Breakdown

## Natural Gas



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**2017 Natural Gas Goal:  
5,000,000 Annual  
Therms**







# **2017 Statewide Priorities**

# 2017 Priorities Statewide



## **Broaden our reach to more customer and business partners**

- Continue to expand diverse participation pathways
- Expedite project approval timelines
  - Streamline processes
  - Proactive engagement to address pain points
- Continue with Workforce development trainings and offerings to enhance skillsets and knowledge base
- Comprehensive solutions...beyond single measure projects
- Advancing innovative technologies & strategies

# Digital Application Portal (DAP) Solution Overview



- Purpose: The Digital Application Portal (DAP) provides Massachusetts Business customers a fully digital means to apply for incentives, replacing the existing paper based system.
- Expectation: An increase in program participation rates, and overall customer satisfaction.

## Provides:

- ✓ Statewide Solution
- ✓ Streamline in the participation process
- ✓ Further the customer experience with an intuitive participation pathway
- ✓ Better data quality and consistency
- ✓ Decrease end-to-end application processing time
- ✓ New visibility into customer behavior - enabling process improvements



# **2017 Program Administrator Priorities**

# 2017 EE Priorities (Individual PA)



## **Deliver Value to Customers through Energy Savings and Emphasize Continued Business Improvement**

- Reinforce and deliver on statewide priorities
- Continue to:
  - Increase participation rates
  - Build on success of existing vendor partnerships
  - Align internal resources to customer and market needs
  - Create clarity of pathways for engagement, ease interface and improve processes
  - Drive key initiatives towards successful outcomes – ie. Network Lighting Controls
- Lead comprehensive strategies and approaches with an eye to the next 3-year plan





# Customer Facing Teams

	Large		Mid-Size		Small Business
Market Segment	Account Executive	EE Consultant	Account Executive	EE Consultant	EE Consultant
Hospitals	Barry McDonough	Rob Melchionda	Barry McDonough	Paul Degnan Joe Hall Rob Josie	Maureen Kiely Augie Pimentel
Retail	Barry McDonough	Ivon Louis-Letang/ Steven Miller	Mike Fitzgerald	Noel Chambers	
Biotech	Tracy McDevitt	William O'Connor	Tory Kempf		
Colleges & Universities	Tracy McDevitt	Chris Patrick	Tory Kempf		
Government & Schools (K-12)	Mark Rooney	Steve Grattan	Mark Rooney		
Hotels	Greg Senosk	Kevin Lubinger	Greg Senosk		
Property Management	Patrick McDonnell Greg Senosk	Kevin Lubinger	Mike Fitzgerald		
Industrial	Patrick McDonnell	Matt Conway	Ed Mulligan		
Natural Gas*	Nate Audette	Sector Based*	Nate Audette		
Construction Services	ALL	Roshan Bhakta Kim Cullinane Nate Dick	Mike Fitzgerald	David Giza-Sisson	David Giza-Sisson
CHP	ALL	Jim Ruberti	ALL	Jim Ruberti	Jim Ruberti

# Systems Approach



## Prescriptive Path

- A standardized approach to energy efficiency incentive delivery
  - ✓ Chiller
  - ✓ Commercial Gas Equipment
  - ✓ Compressed Air Systems
  - ✓ Kitchen Equipment-Gas and Electric
  - ✓ Lighting Systems and Controls/Performance Lighting
  - ✓ Variable Speed Drives
- Sustainable Office Design (\$.50/sf for office fit-outs up to 50,000 sf)

## Custom Path

- Appropriate for energy conservation measures that exceed Mass Save baseline, but for which no prescriptive application is available.



# Systems Approach



## Lighting Designer Incentives (LDI): For SOD and Performance Lighting Projects

- Not eligible with projects working through the Whole Building Approach, whether participating in the Large Buildings or Small Buildings incentive path.
- Sum equal to 20% of the customer incentive offered for a project, up to a maximum of \$15,000 per project – paid to lighting designer
- Working towards Mass Save adoption
- Lighting designer is the party responsible for laying out and selecting fixtures.
- Lighting designer must have at least one of the following qualifications:
  - ✓ LC (Lighting Certified)
  - ✓ CLEP (Certified Lighting Efficiency Professional)
  - ✓ IALD (International Association of Lighting Designers)
  - ✓ CLD (Certified Lighting Designer)



# **Electric Non-Lighting**

# HVAC Equipment



- **Chillers**
  - **Efficiency levels and Incentives adjusted based upon MA Energy Code Update (IECC 2015)**
- Unitary, Split, Heat Pumps, & HVAC Controls
  - Distributor Incentives (Upstream)
  - **Efficiency levels and Incentives adjusted based upon MA Energy Code Update (IECC 2015)**
  - Control add-ons (Demand Control Ventilation and Dual Enthalpy) upstream for New Construction and on the EMS application for Retrofit
  - EC Motors for HVAC eligible under the Retrofit VFD applications and **removed from NC form due to MA Code**
- **Variable Refrigerant Flow (VRF)**
  - **Eligible under a Custom application**
  - **Distributor Incentive (Upstream) later in 2017**

# Energy Management Systems



**\*\*No changes to incentive levels or application form\*\***

- Incentive \$300 / point for all size buildings
- Building Sizes allow for more facilities and greater incentives:
  - Building Size (5,000–20,000 sqft): 16 electric & 4 gas
  - Building Size (20,001–80,000 sqft): 48 electric & 12 gas
  - Building Size (80,001 – <300,000 sqft): 128 electric & 32 gas
  - Building Size ( $\geq$  300,000 sqft): Eligible under Custom
- Intended for new systems or the expansion of existing operational systems
- Points not associated with energy-saving control strategies are not eligible (alarm points, etc.)

# Variable Speed Drives



- Incentive levels adjusted for 2017 based upon Market Analysis and Evaluation reports
  - New Construction – VSDs
  - Retrofit – VSDs
  - Retrofit – Motors & VSDs
- Added new code requirements to New Construction form
- Drop-down list to specify horsepower within each incentive range
- EC Motors for fan powered boxes, fan coils, and HVAC supply fans (removed from NC form due to MA Code)
  - Added field for cfm rating
  - Inventory table provided with form

# Compressed Air



- No change to incentive levels
- Added language to highlight Leak Detection & Repair
- Air Compressor Incentives
- VSD Compressors
  - $\geq 15$  hp and  $< 25$  hp     \$200 per HP
  - $\geq 25$  hp and  $< 50$  hp     \$150 per HP
  - $\geq 50$  hp and  $\leq 75$  hp     \$100 per HP
- Storage Incentives - \$2.75 per gallon
  - Clarified example and auto calculate minimum required (2 gal/cfm for VSD)
- Refrigerated Dryer Incentives - \$5.25 per CFM
- Zero-Loss Condensate Drains - \$125 per drain
- Low Pressure Drop Filters - \$0.80 per standard CFM
- Engineered Air Nozzle - \$20 each



# Vending Misers



**\*\*No changes to incentive levels or application form\*\***

- Refrigerated Beverage Vending Machine \$ 115
- Glass Front Refrigerated Coolers \$ 115
- Non-Refrigerated vending Machines \$ 45



# ENERGY STAR®

## Electric Kitchen Equipment



**\*\*No changes to incentive levels or application form\*\***

- Commercial Fryers \$150
- Commercial Steam Cookers \$1000
- Convection Oven \$500
- Combination Steam/Convection Oven \$2000
- Hot food Holding Cabinets
  - Full Size \$900
  - 3/4 Size \$750
  - 1/2 Size \$600
- Ice Machines
  - Ice Making Head \$250
  - Remote Conditioned/Split Unit \$200
  - Self Contained \$100
- Commercial Griddle \$400
- Pre-Rinse Spray Valves \$25
- Commercial Dishwasher
  - Under Counter or Door Type \$250
  - Single Tank Conveyer \$100





# Pay for Performance (P4P)



**\*\*No changes to incentive levels or application form\*\***

- Incentives
  - \$0.12 per kWh, \$1.20 per therm
- Retrocommissioning (RCx) and Monitoring Based Commissioning (MBCx)
- Clarification on Measurement & Verification (M&V) and TA Funds
  - Savings must be verified at the measure level in accordance with International Performance Measurement & Verification Protocol (IPM&VP)
  - PAs need to know the measure that resulted in the savings
- For projects where additional analysis is needed, TA funds may be provided
- Capital projects, not P4P ECMs

# Custom Project Applications



- Application form adjusted to highlight both positive and negative project benefits:
- Non-Electric / Non-Gas Benefits (Impacts)

Non-Electric / Non-Gas Benefits (Impacts)					
Oil (MMBtu)	Propane (MMBtu)	Water (Gallons)	Sewer (Gallons)	Annual O&M / Labor / Materials (\$)	Other One-Time (\$)

- More than 50% of our savings are derived from Custom Projects
- Retrofit – Potential for up to 50% of the project cost
- New Construction – Potential for up to 75% of the incremental cost
- Projects are evaluated with a screening model for cost effectiveness
- Additional incentives may be available for more comprehensive solutions
- Technical Assistance funds may be available

# Engineering Services Application



**\*\*No changes to the application form\*\***

- Developed joint Mass Save application
  - Ensures comprehensive gas and electric review of each facilities
  - Ensures coordination between Program Administrators for the customer's benefit and streamlining of potential projects
  - Establishes consistent expectations for details required in each technical assistance proposals



# Lighting

# 2017 Lighting Programs



- Lighting accounts for the majority of our electric energy savings for the commercial and industrial programs.
- Several participation pathways for our customers:
  - **Bright Opportunities (Upstream)** - buys down the cost of targeted lighting products including LED lamps and LED fixtures at the distributor level
  - **Custom Lighting** – for unique projects that don't fit normal parameters (case-by-case)
  - **Prescriptive Lighting** – Four Applications
    - (2) Performance Lighting: for design-based projects (NC & Retrofit)
    - (2) Equipment-Based: for one-to-one replacements (NC & Retrofit)

# Equipment-Based Applications

## - 2017 Updates



### ■ New Construction:

- New MA Code (IECC 2015) requires LPD compliance and limits the type of projects under the equipment-based form
- applications limited to code-compliant projects less than 20,000 sq. ft.

### ■ Retrofit:

- Only Minor Changes
- Updated the references Design Lights Consortium (DLC) – Technical Requirements Version 4.1
- Added New LED Fixture & Sensor Categories
- Maintained Two-Tier Incentive Structure & Levels (\$):
  - DLC Standard & Premium



# New LED Categories



## DesignLights Consortium (DLC)

### Technical Requirements Table

Version 4.1 (FINAL 11/1/16) -  
26 LED Categories

- Outdoor Applications (4)
- Indoor Applications (5)
- Retrofit Kits (7)
- Replacement Lamps (10)



***Over 280,000 products on the current QPL !***

***... Categories not DLC listed will still be considered !***



# Upstream



# 2016 Upstream Lighting Highlights



- 2.1M LED Products channeled into market in 2016
  - 1.2 M LED lamps
  - 500K LED TUBES
  - 51K LED Fixtures
- 190M kWh savings captured statewide
- \$24M in incentives provided to our customers in 2016
- 63 distributors participating statewide

# 2017 Upstream Lighting Highlights



- **Upstream Lighting** – Represents 22% of the overall portfolio
- **Removal** of Linear Fluorescent products, supporting strictly LED product
- Minimum Customer Contribution **\$2.50**
- 2017 Upstream Program Improvements
  - Implementing improved distributor resources Spring 2017
  - Participating **Distributor** Open House Spring 2017

# 2017 Upstream Lighting Incentives



## Supported Technologies

- LED Lamps/Screw & Pin Base
- LED Fixtures
- DLC & DLC Premium
- LED Fixtures with Controls  
- coming soon!!

### LED Lamps

- PAR/BR 20, 30, 40
- A-Line
- Decorative Lamps
- TLED, 4ft & 2ft Instant Fit Lamps
- MR16/PAR16/GU10
- G24/G23LED – 2pin & 4-pin

## Make the best CHOICE

- LED TUBES vs. Fixtures  
with CONTROLS!!

### LED Fixtures

- LED Downlight <25W
- 2' & 4' LED Stairwell Kit w/ Sensors <55W
- LED Troffers | 1X4 2X2 2X4

» THINK CONTROL «

# 2017 Upstream Lighting Incentives



## Reminders...

- Eligibility : DLC or ENERGY STAR® qualified products list
- Minimum Customer Contribution is **required** be collected at point of sale.
- All projects are subject to **100% Inspection**
- Product sold must be installed at Commercial address within Massachusetts
- These incentives cannot be combined with other offers at the point of sale.
- Upstream sales can not be combined with a Prescriptive Application
- DLC 4.1v Update will take place April 3rd – watch your inventory and specifications



# 2016 Upstream HVAC Highlights



- Over 10 MWh savings captured statewide
- Over \$3M of incentives paid in 2016
- 40 Distributor partners



# 2017 Upstream HVAC Highlights



## Update

- PAs have selected a new vendor to implement the HVAC program, they will be reaching out to all current and potential future distributors for program participation

## Categories

- Air Cooled Unitary and Split Air Conditioning Systems
- Large Commercial Air Cooled RTU and Split Systems
- Water and Evaporative Cooled Air Conditioning Systems
- Air Source Heat Pumps
- Water Source Heat Pump (WSHP)
- Ground Source Heat Pump (GSHP)
- Ductless Mini-Split Heat Pump
- Dual Enthalpy Economizer Controls



## Slide 38

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**LH3**

I changed this to 2017 and added that we selected a new vendor to implement program

Lindsay Henderson, 3/2/2017



# 2016 Upstream Gas Program- Hot Water Heaters



- Over 7,000 High Efficient Hot Water Heaters transitioned into the market in 2016
- 1.7M Therms captured statewide
- Over \$4M in incentives provided to our customers in 2016
- 27 distributors participating statewide
- Gas Program continues to GROW





# Natural Gas

# C&I Custom New Technologies



- HVAC Optimization Platform
- Cold Water Commercial Laundry Detergent
- High-speed Commercial/Industrial Doors
- Duct Sealing

# 2017 Gas Networks Form



## 2017 High-Efficiency Natural Gas Equipment Rebates

HEATING EQUIPMENT					
CONDENSING BOILERS	RATING	REBATE	INFRARED HEATERS	RATING	REBATE
1701 to 2000 MBH	90% Thermal Efficiency or greater	<b>\$10,000</b>	All Sizes	Low Intensity	<b>\$750</b>
1000 to 1700 MBH	90% Thermal Efficiency or greater	<b>\$7,500</b>	INTERGRATED CONDENSING BOILER / WATER HEATER WITH ON-DEMAND HOT WATER		
500 to 999 MBH	90% Thermal Efficiency or greater	<b>\$4,000</b>			
301 to 499 MBH	90% Thermal Efficiency or greater	<b>\$2,000</b>			
Up to 300 MBH	95% AFUE* or greater	<b>\$1,500</b>		Minimum AFUE Rating of 95%	<b>\$1,600</b>
Up to 300 MBH	90% AFUE* or greater	<b>\$1,000</b>		Minimum AFUE Rating of 90%	<b>\$1,200</b>
			<i>Must be considered one unit by manufacturer.</i>		
FURNACE	RATING	REBATE	CONDENSING UNIT HEATER	RATING	REBATE
Up to 150 MBH	97% AFUE* or greater & ECM motor	<b>\$600</b>	Up to 300 MBH	90% Thermal Efficiency or greater	<b>\$750</b>
Up to 150 MBH	95% AFUE* or greater & ECM motor	<b>\$300</b>			
OTHER MEASURE EQUIPMENT					
AFTER MARKET BOILER RESET CONTROLS		<b>\$225</b>	STEAM TRAPS		<b>\$ 50</b>
WIRELESS ENABLED THERMOSTATS		<b>up to \$ 100</b>	SHOWER HEADS		<b>up to \$ 20</b>
PROGRAMMABLE THERMOSTATS		<b>up to \$ 25</b>	FAUCET AERATORS		<b>up to \$ 8</b>

\* AFUE = Annual Fuel Utilization Efficiency, MBH levels are based on the unit's input. Equipment must meet program guidelines, rebates are given on a per-unit basis not to exceed purchase price.

Learn More: [www.gasnetworks.com/energy-efficiency-programs/commercial-rebates/](http://www.gasnetworks.com/energy-efficiency-programs/commercial-rebates/)

# Kitchen Equipment



## 2017 Natural Gas Kitchen Equipment Rebates

### QUALIFYING COMMERCIAL NATURAL GAS KITCHEN EQUIPMENT MODELS

TYPE OF EQUIPMENT	REBATE	TYPE OF EQUIPMENT	REBATE
High-Efficiency Combination Oven	<b>\$1,000</b>	ENERGY STAR® Convection Oven	<b>\$1,000</b>
High-Efficiency Conveyor Oven	<b>\$1,000</b>	ENERGY STAR® Steamer	<b>\$1,000</b>
High-Efficiency Rack Oven	<b>\$1,000</b>	ENERGY STAR® Griddle	<b>\$500</b>
ENERGY STAR® Fryer	<b>\$1,000</b>	High-Efficiency Pre-Rinse Spray Valves	<b>\$50</b>

A list of qualifying kitchen equipment is available at:

[www.gasnetworks.com/energy-efficiency-programs/commercial-rebates/commercial-kitchens/](http://www.gasnetworks.com/energy-efficiency-programs/commercial-rebates/commercial-kitchens/)

# High Potential Gas Energy Efficiency Measures



- Steam Traps – 97% IRR for Annual Maintenance
- Pipe & Valve Insulation – Typically 2-3 year payback
- Boiler Controls
- EMS
- Heat Recovery

*Stop by Solution Station with any questions*





# **2016 Key Projects**



# Key Projects



- Langham Hotel; Free Cooling-970,534 KWH
- Marriott Copley; Air Regulators/VFD's-731,556 KWH
- Revere Hotel; Garage Lighting-454,082 KWH
- Charles Hotel; ECM Motors Guest Rooms-291,241 KWH
- Mandarin Oriental; Chiller Optimazation-288,361 KWH
- Westin Copley; Garage Exhaust Fans VFD's-259,361KWH
- Dedham Hilton;Lighting-188,02
- Sheraton Boston; Retrofit Lighting Back of the House-176,262 KWH

### • QUESTIONS

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**Thank You**