Upstream Delivery Model

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mass save
berkshire gas
A UIL HOLDINGS COMPANY
BLACKSTONE GAS COMPANY
Cape Light Compact
Columbia Gas of Massachusetts
A NiSource Company
EVERSOURCE
Liberty Utilities
nationalgrid
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Agenda

- Relevance
- Design
- Delivery
- Evolution & Performance
- Future Plans

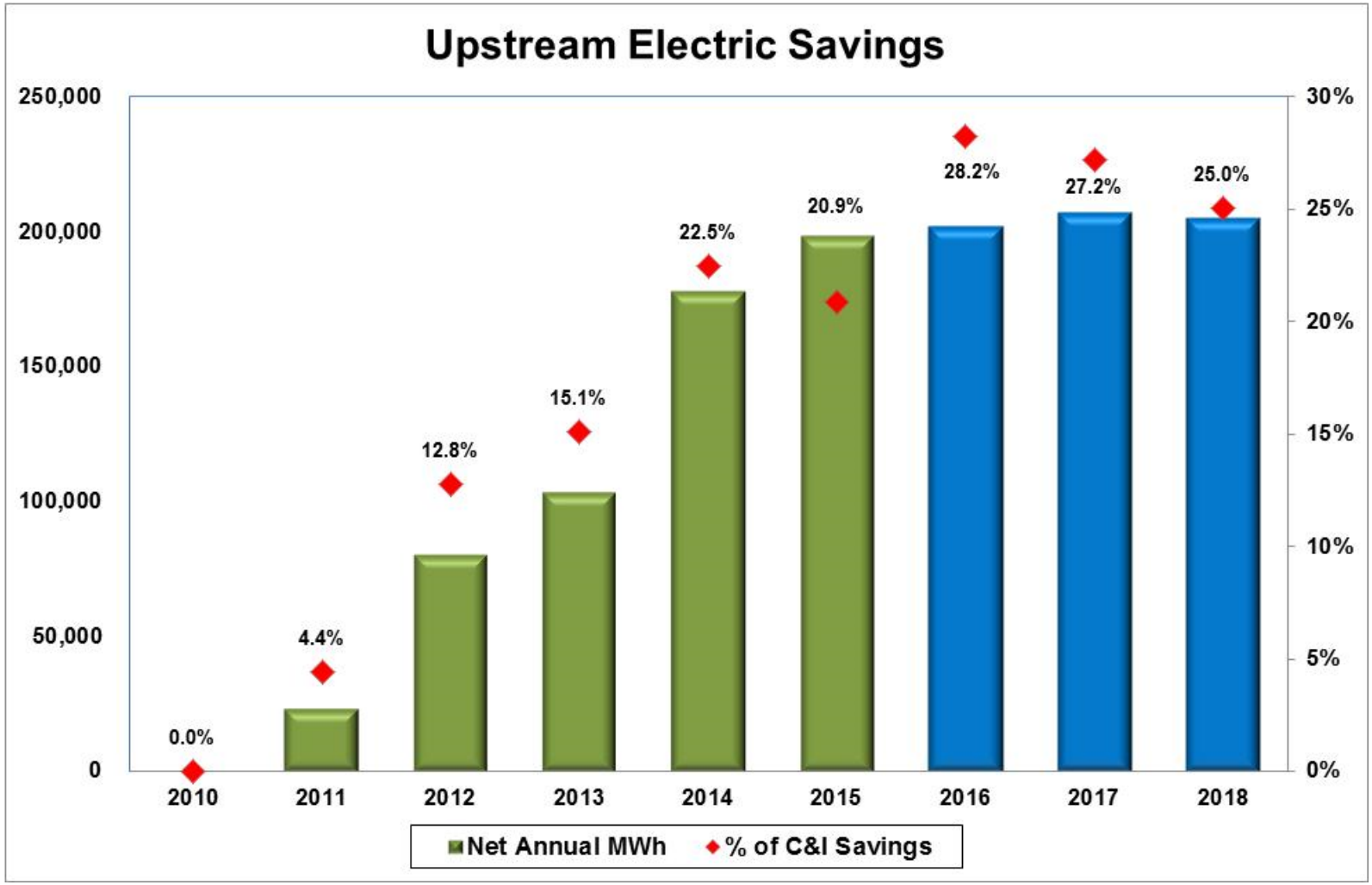
Relevance

Relevance

C&I Portfolio of Incentive Delivery

- Applications and Rebate Forms
- Turnkey Install
- Upstream

Relevance


Upstream Electric Savings
250,000
200,000
150,000
100,000
50,000
0
30%
25%
20%
15%
10%
5%
0%
0.0%
4.4%
12.8%
15.1%
22.5%
20.9%
28.2%
27.2%
25.0%
2010
2011
2012
2013
2014
2015
2016
2017
2018
Net Annual MWh
% of C&I Savings

Relevance

Lighting

- Linear Fluorescent
- LED

HVAC

- Air Conditioning
- Heat Pumps

Gas Water Heaters

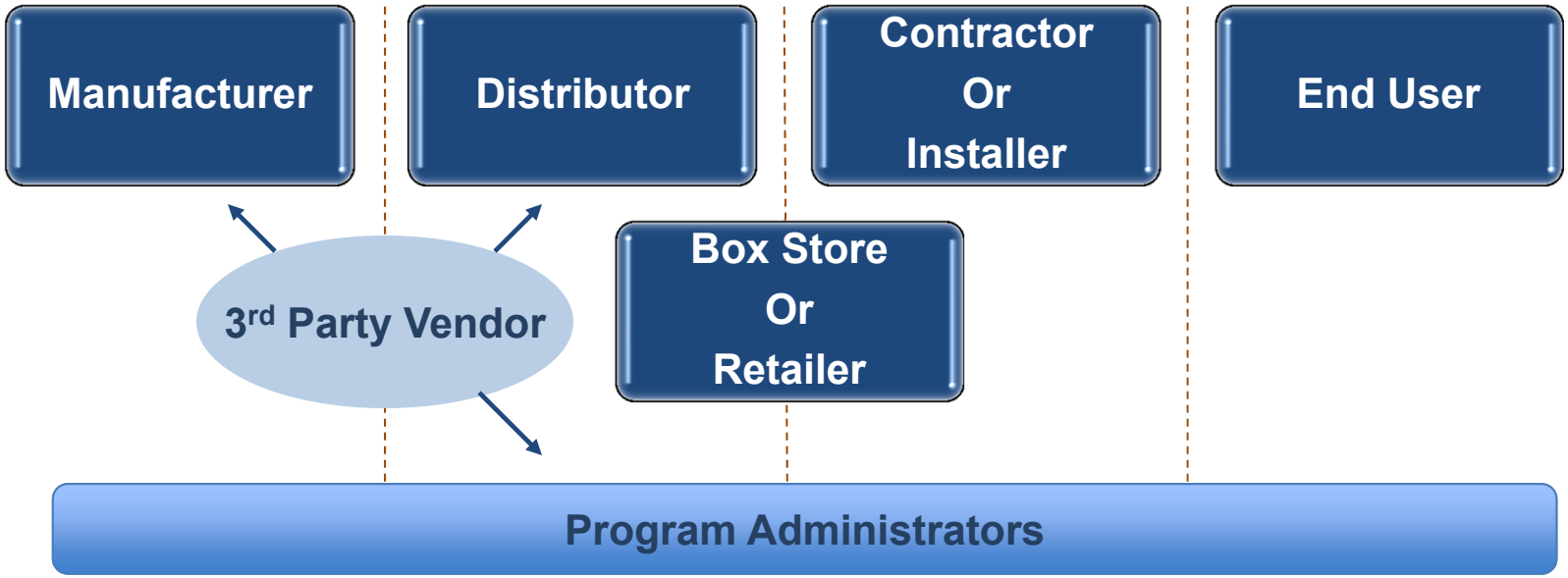
- Storage Tanks and Indirect
- Tankless/On Demand

Design

Design Principles

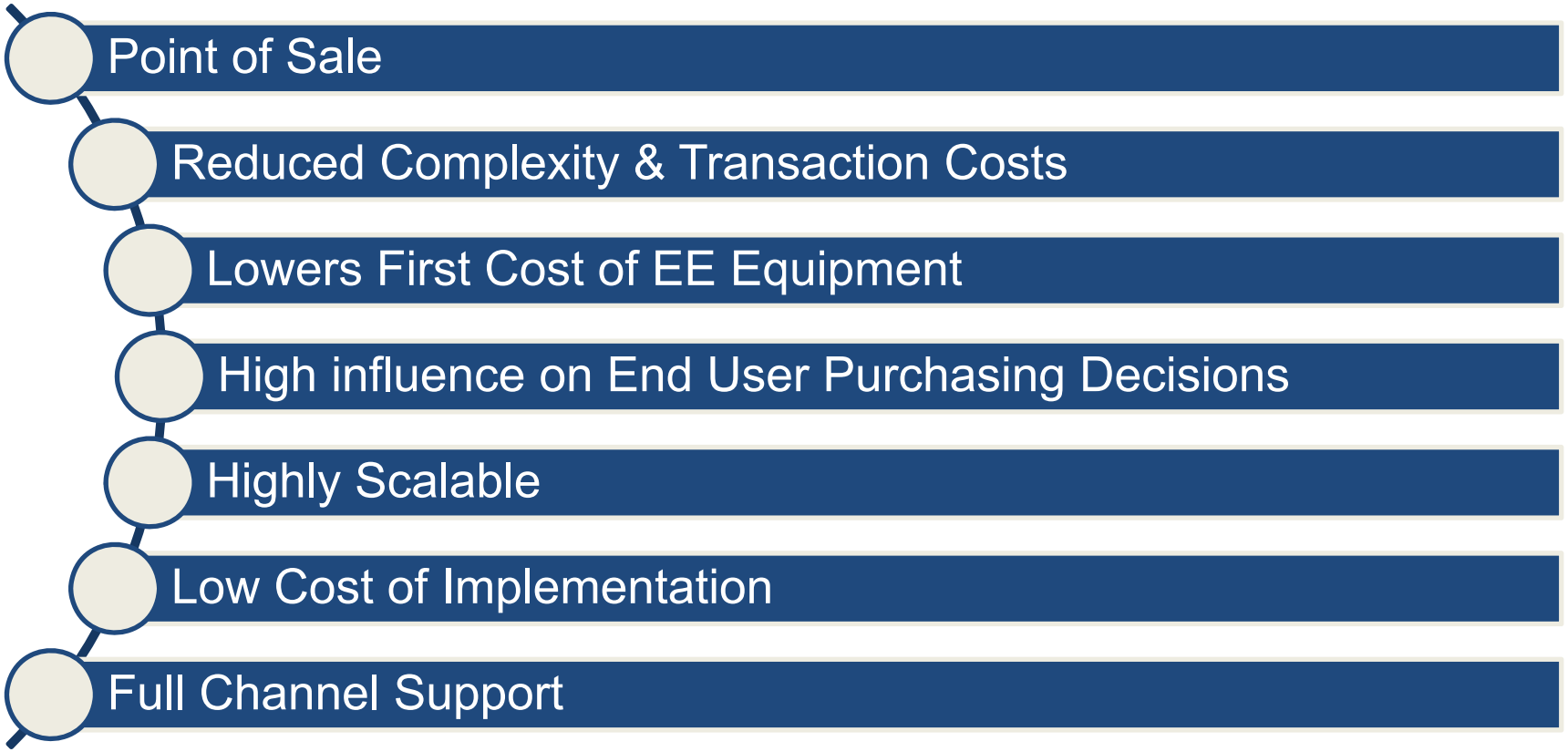
Upstream Approach

- Typically a product-focused incentive not directed to the end user
- Results driven via the Manufacturer and Distributor
- Leveraging the full channel to optimize the savings impact



Design Principles

Upstream Impact



Design Principles

Upstream Criteria

- “Off the shelf” technology
- Limited customization and feature set
- Incentive recipient has high degree of influence
- Market actor alignment can be achieved
- Savings value must support realization impact

Design Principles

Foundation & Launch

- Market Characterization and Opportunity Assessment
- Resource and Back-Office Integration
- Stakeholder Engagement
- Program Launch

Post-Launch

- Data Review & Management
- QA/QC Efforts
- Continued Market Engagement
- PA and C&I Management Committee Updates

Delivery

Mechanics

Manufacturer

- Price & Availability
- New Technology
- Market Education

Distribution

- High Influence on Contractor & End User
- Price & Availability
- Market Education

Contractor

- High Influence on End User Decision
- Equipment Install

End User

- Investment Decision

- Identify Points of Influence (POI) & Degrees of Influence (DOI)
  - Apply Incentives to POI with highest DOI
  - Provides clear focal points for Program Design & Management

Mechanics

- Channel Partnering
- Program Data Management
- Incentive Processing
- Program QA/QC

3rd Party Program Manager

- Channel Partnering
- Program Design
- Implementation
- Savings Processing
- Program QA/QC
- PA Alignment

Program Administrators

3rd Party QA/QC

Field Install QA/QC

Manufacturer

Distribution

Contractor

End User

Evolution & Performance

Evolution & Timeline

2011 — Upstream Lighting Launch

2012 — LED Lamps Added

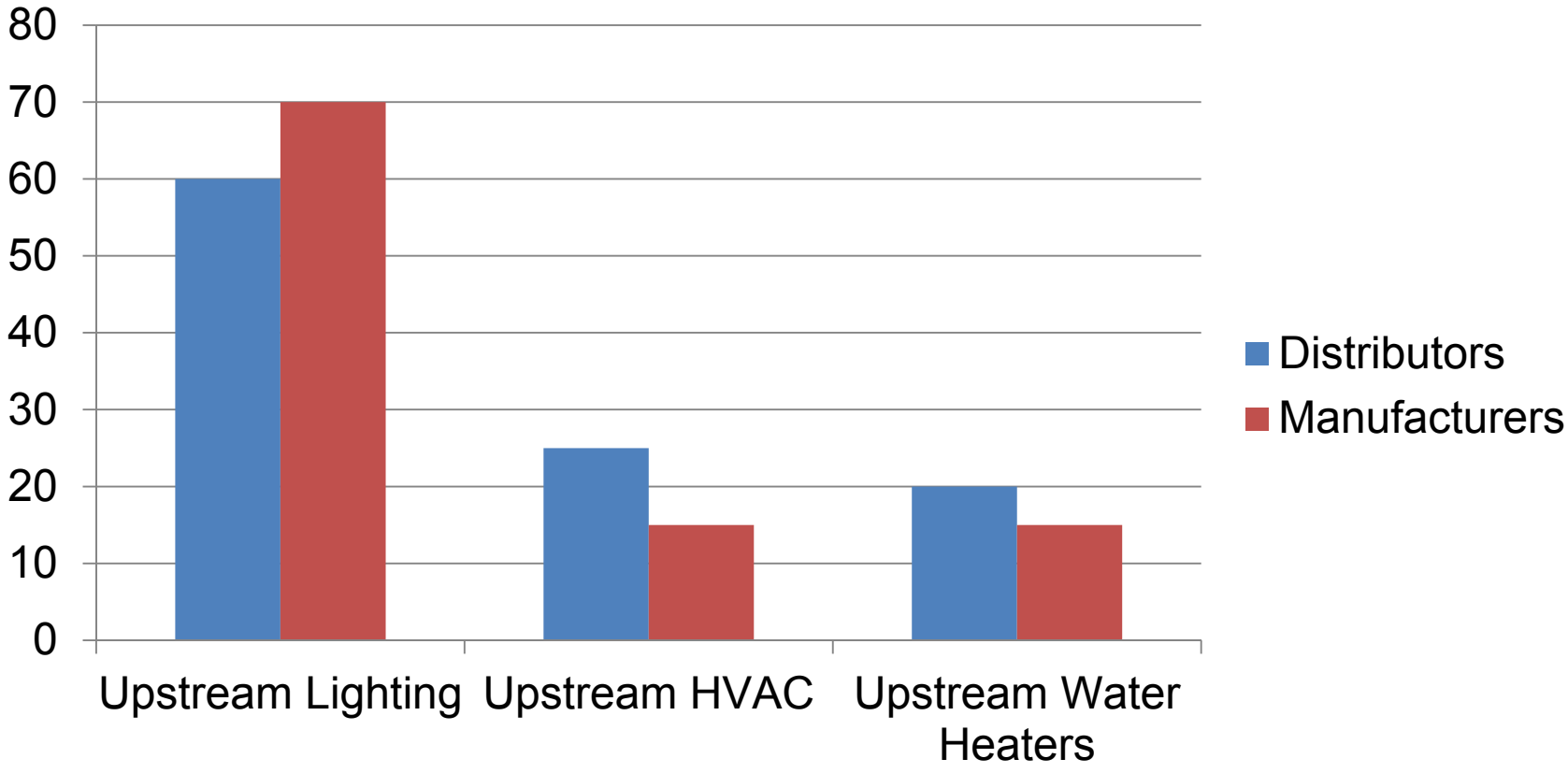
2013 — Upstream HVAC Launch

2014 — LED Fixtures Added to Lighting

2015 — Upstream Water Heaters Launch

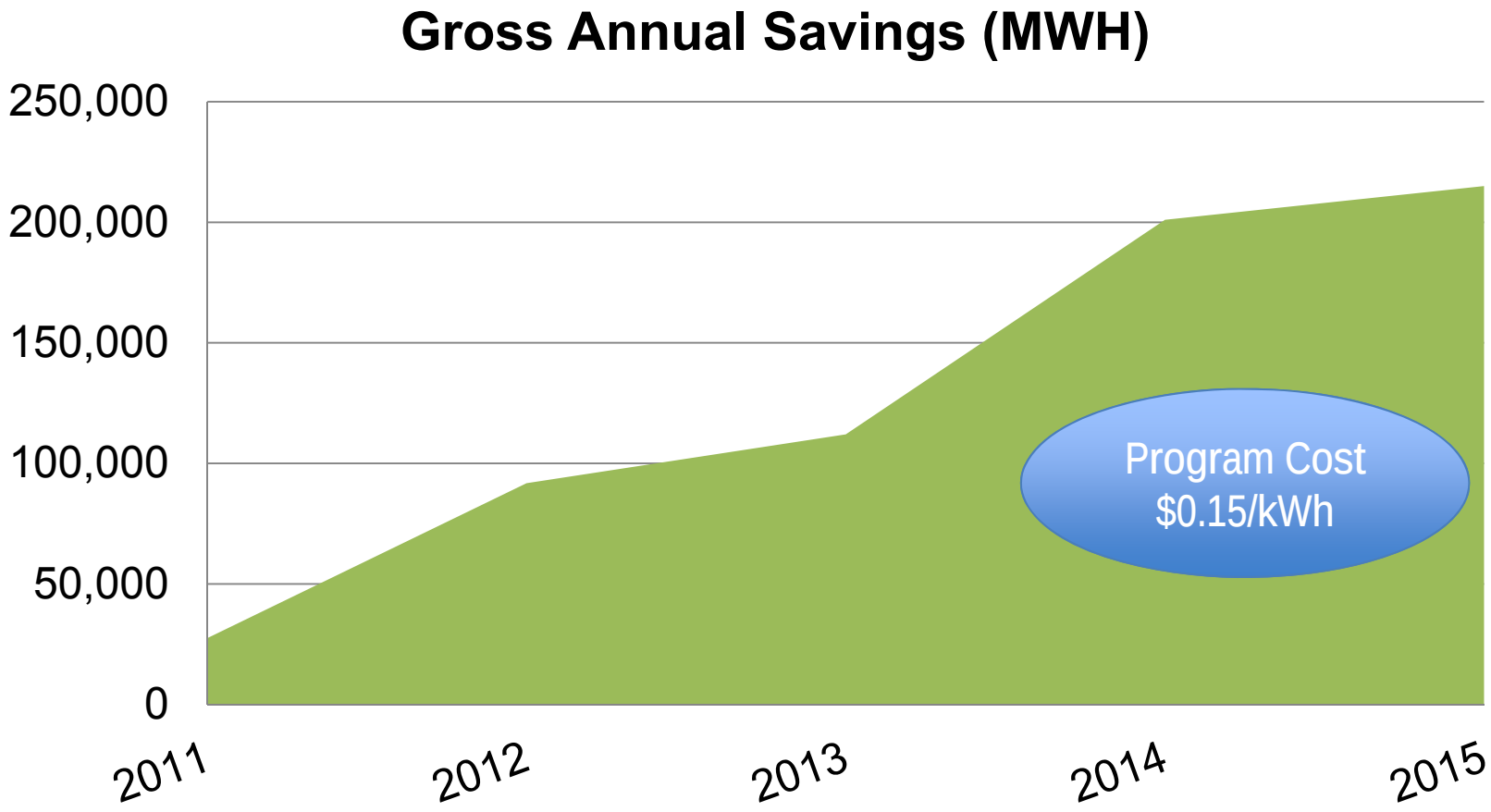
Performance & Results

Full Channel Engagement



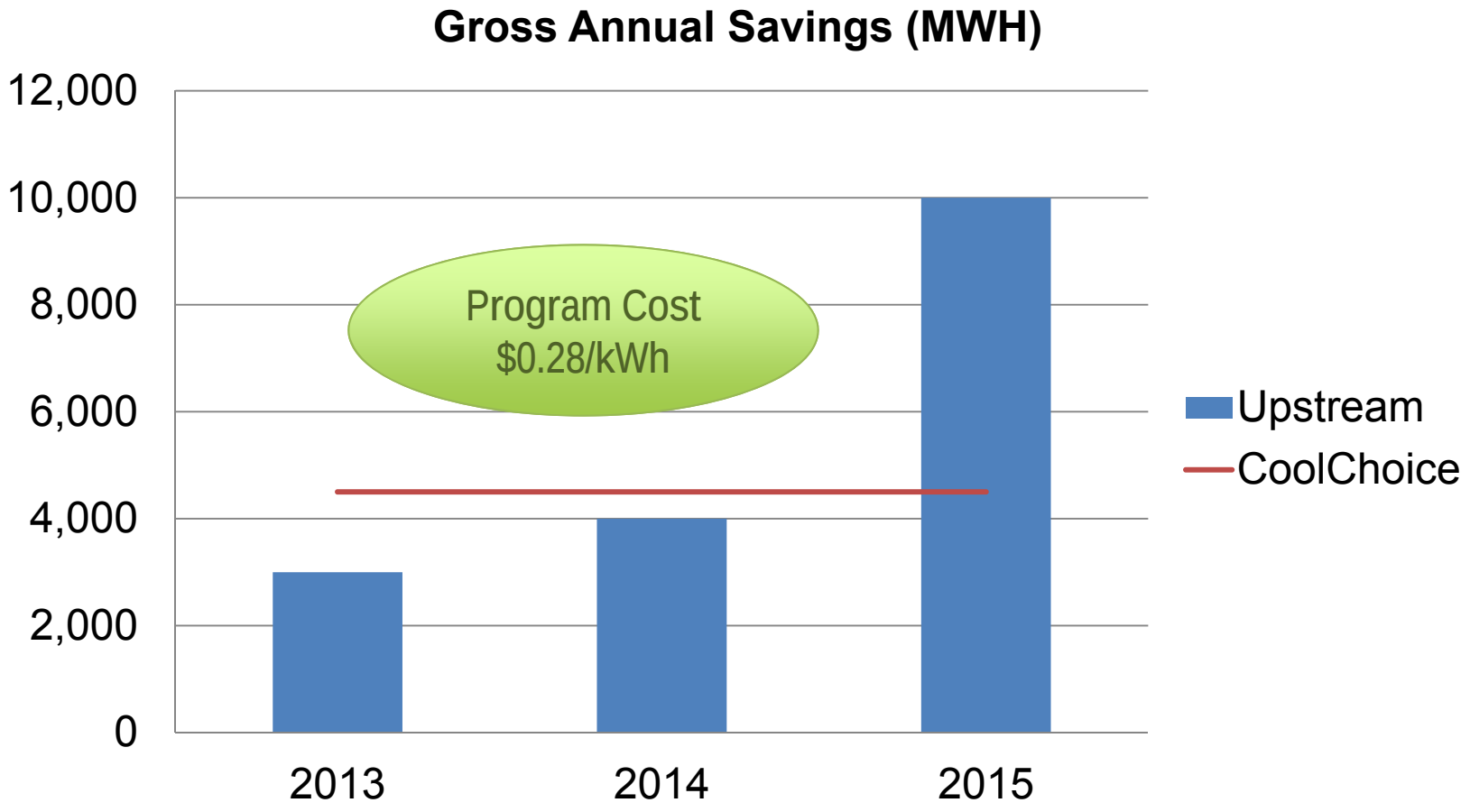
Performance & Results

Upstream Lighting



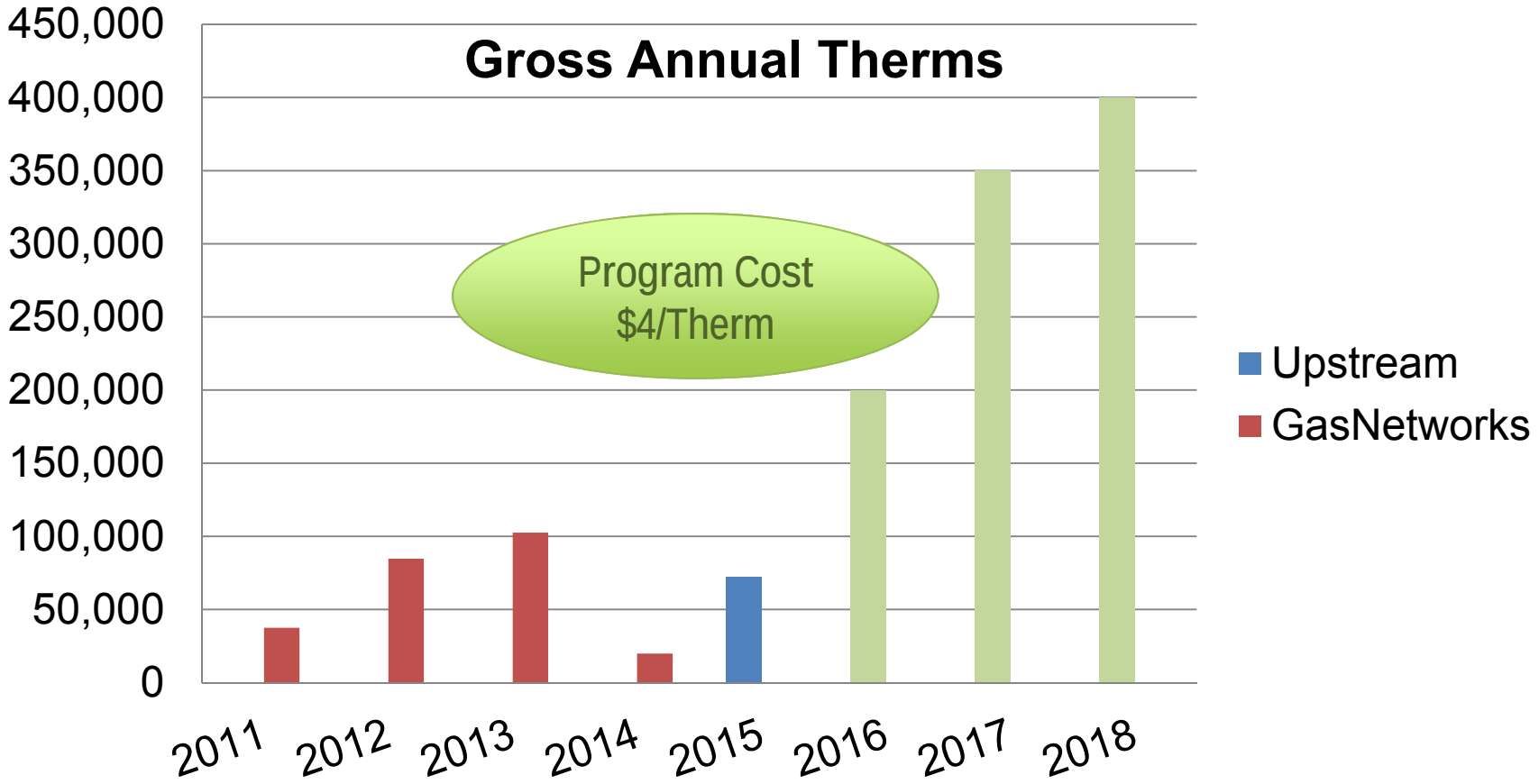
Performance & Results

Upstream HVAC



Performance & Results

Upstream Water Heaters



Performance & Results

Manufacturer Impact

Fixtures with Integral Controls

GX23/24 Development

TLED & TLED w/Sensors

Water Heater Product Mix

Water Source HP

Performance & Results

2014 MA DOER Upstream Lighting Promotion

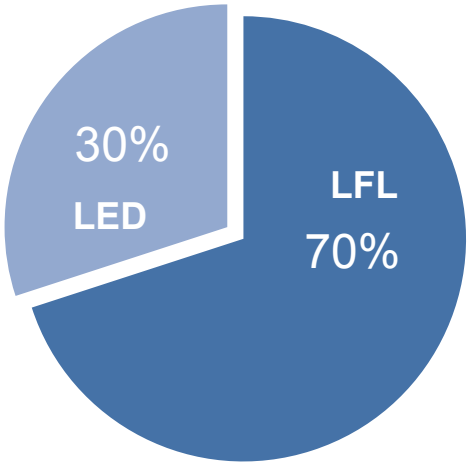
1,000 State and Municipal Facilities
500,000 lamps installed
23M kWh saved annually
$3.2M of energy costs removed

Performance & Results

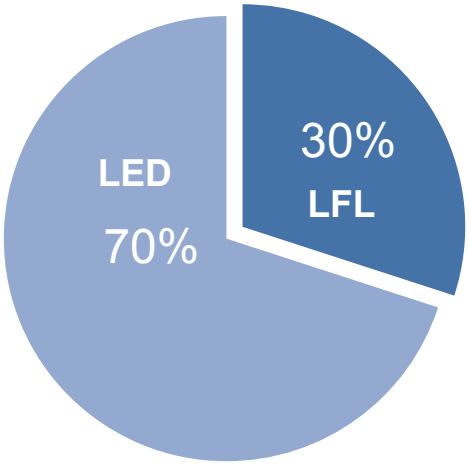
Upstream Impact on Inventory

- Impact of 2015 90-day LED Fixture Initiative

% of Fixture Sales Prior to Initiative



% of Fixture Sales During Initiative



Performance & Results

Stakeholder	Benefits/Value Proposition
Manufacturer	• Supply Chain Leverage • Technology Advancement
Distributor	• Increased Sales & Market Share
Contractor	• Lower First Cost • No Rebate Forms
End-users	• No Rebate Forms • Lower First Cost • Energy & Cost Savings
Program Administrators	• Capture More Savings • Deeper Customer Reach

Future Plans

2016 and Beyond

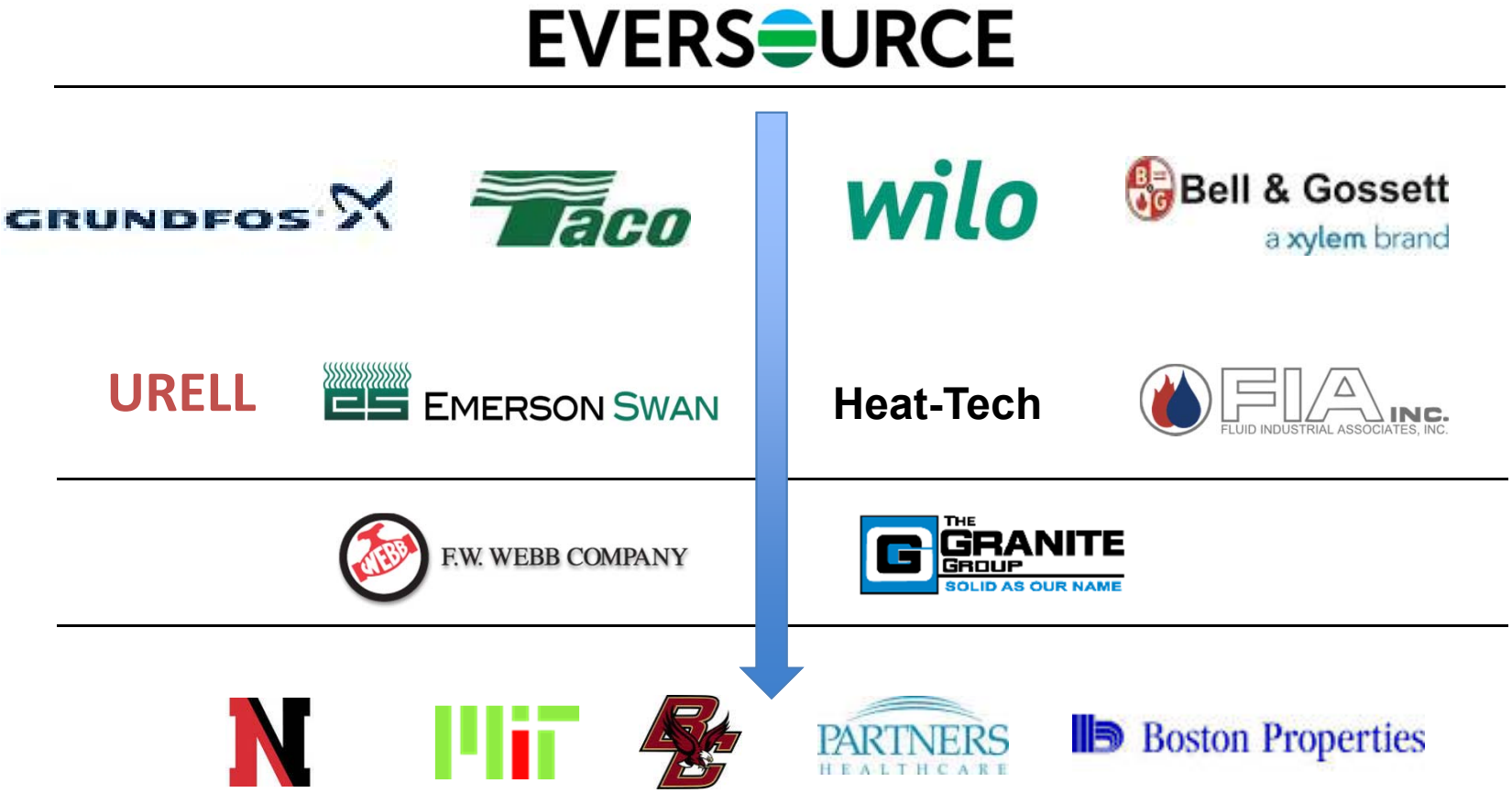
- New products and technology types added
- Key stakeholders fully engaged
- Incentive levels monitored
- “Push” and “Pull” marketing employed

2016 and Beyond

End Use	Technology	Fuel
Food Service	Various	Electric, Gas
HVAC	Air Source Chillers	Electrc
	Variable Refrigerant Flow (VRF) Air Source Heat Pump Systems	Electrc
Lighting	LED Fixtures	Electrc
Multiple	Circulator Pumps (1.0-7.5 HP)	Electric, Gas
	Circulator Pumps (Fractional HP)	Electric, Gas
	Electronically Commutated Motors (ECMs)	Electrc
	Variable Speed Drives (VSDs)	Electrc
Space Heating	Furnaces & Boilers	Gas
Water Heating	Hot Water Boilers	Gas

2016 and Beyond

High Efficiency Pump Initiative - Deep Channel Engagement



2016 and Beyond

- Requires careful planning and management
- The model has delivered significant savings to date
- Upstream programs complement, rather than replace, traditional delivery models

“Results are obtained by exploiting opportunities, not by solving problems.”

- Peter Drucker

Thank You

Current Portfolio: Lighting

Product Category	Product
Linear Fluorescent	T5HO T828 & T825 U-Bend T8
LED Lamps	PAR/BR 20/30/40 A-Line 40/60w & 75/100w MR16/PAR16,GU10 Decorative TLED 2' & 4' G24/G23 2 pin & 4 pin
LED Fixtures	Down Light < 25w Stairwell Kit 2' & 4' < 55w

Current Portfolio: HVAC

MINIMUM EFFICIENCY LEVELS & INCENTIVE LEVELS				
HVAC Unit Size			LEVEL 1	LEVEL 2
Tons	Btuh		Minimum SEER/EER for Incentive	Minimum SEER/EER for Incentive
AIR CONDITIONING SYSTEMS				
Air Cooled Unitary and Split Air Conditioning Systems				
< 5.4	< 65,000	Split	14.0 SEER & 12.0 EER	15.0 SEER & 12.5 EER
< 5.4	< 65,000	Packaged	14.0 SEER & 11.6 EER	15.0 SEER & 12.0 EER
≥ 5.4 to < 11.25	≥ 65,000 to < 135,000		11.5 EER	12.0 EER
≥ 11.25 to < 20	≥ 135,000 to < 240,000		11.5 EER	12.0 EER
Large Commercial Air Cooled RTU and Split Systems				
≥ 20 to < 63	≥ 240,000 to < 760,000		10.5 EER	10.8 EER
≥ 63	≥ 760,000		N/A	10.2 EER
Water and Evaporatively Cooled Air Conditioning Systems				
≥ 20	≥ 240,000		14.0 EER	N/A

AIR SOURCE HEAT PUMP SYSTEMS				
< 5.4	< 65,000	Split	14.0 SEER & 12.0 EER & 8.5 HSPF	15.0 SEER & 12.5 EER & 9.0 HSPF
< 5.4	< 65,000	Packaged	14.0 SEER & 11.6 EER & 8.0 HSPF	15.0 SEER & 12.0 EER & 8.5 HSPF
≥ 5.4 to < 11.25	≥ 65,000 to < 135,000		11.5 EER & 3.4 COP	N/A
≥ 11.25 to < 20	≥ 135,000 to < 240,000		11.5 EER & 3.2 COP	
≥ 20	≥ 240,000		10.5 EER & 3.2 COP	

Current Portfolio: HVAC

MINIMUM EFFICIENCY LEVELS & INCENTIVE LEVELS		
HVAC Unit Size		LEVEL 1
Tons	Btuh	Minimum SEER/EER for Incentive
WATER SOURCE HEAT PUMP SYSTEMS (WSHP)		
Water Source Heat Pump (WSHP) Systems		
< 11.25	< 135,000	14.0 EER & 4.6 COP
GROUND SOURCE HEAT PUMP SYSTEMS (GSHP)		
Ground Source Heat Pump (GSHP) Systems (Open Loop)		
< 11.25	< 135,000	18.0 EER & 4.0 COP
Ground Source Heat Pump (GSHP) Systems (Closed Loop)		
< 11.25	< 135,000	15.0 EER & 3.2 COP

DUCTLESS MINI-SPLIT HEAT PUMPS		
Qualifying Products	**SEER**	**HSPF**
Ductless Mini-Split Heat Pump	18	≥9.0
Ductless Mini-Split Heat Pump	20	≥11.0

ENERGY SAVING CONTROL AND FAN MOTOR OPTIONS (when installed with new qualifying equipment)
Dual Enthalpy Economizer Controls
Outside Air Economizer utilizing 2 enthalpy sensors
Electronically Commutated Motors (ECM) for HVAC Fans
ECM motors installed on HVAC supply fans on small unitary equipment

Current Portfolio: Water Heaters

Tankless

Indirect

Storage

Water Heater Type	Size	Efficiency
Tankless/Instant	< 200 MBTUh	≥ 0.82 EF
	< 200 MBTUh	≥ 0.94 EF
Storage	≥ 75 MBTUh	≥ 95% TE
Indirect	All	N/A
Energy Star Freestanding	< 75 MBTUh	≥ 0.67 EF