



Northeast Energy Efficiency Partnerships

# Are we Breaking Up?

## The Future of Residential Lighting Programs

2016 Northeast Residential Lighting  
Workshop

Tuesday, September 20<sup>th</sup>

1:15pm-2:30pm

# Background

- Lighting programs are in flux
  - Nearing market transformation/Regional goal
  - EISA legislation on the horizon
- Viable now, but for how long? Depends where...
- This discussion:
  - Present immediate, near, medium, and long term opportunities



# Speakers

- Brad Piper, Lockheed Martin
- Jesus Pernia, Eversource CT
- Glenn Reed, Energy Futures Group

# Immediate Opportunities

Brad Piper

***LOCKHEED MARTIN***



# Increasing Savings While Decreasing Incentives



- **As retail prices of LED lamps naturally fall, incentives can be reduced**
- **Addition of 15k lamps with even lower price points and a shorter lifespan require lower incentives**
- **Combine promotions, package well known products like LED lamps with lesser known products like Tier 2 APS.**

# Opportunities in Replacement?

- Per a Massachusetts study, the CFL median burnout rate is 6% per year.
  - Based on all CFLs regardless of time in service
- At this rate, the 2013 socket saturation, and households in Utility territory,
  - 3,523,714 CFLs will need replacing each year for near-term future.
- The replacement opportunities for remaining incandescent and halogen bulbs should be much, much higher.
- There should be strong replacement opportunities for LEDs if aggressively promoted.



Empowering you to make  
smart energy choices

September 20, 2016

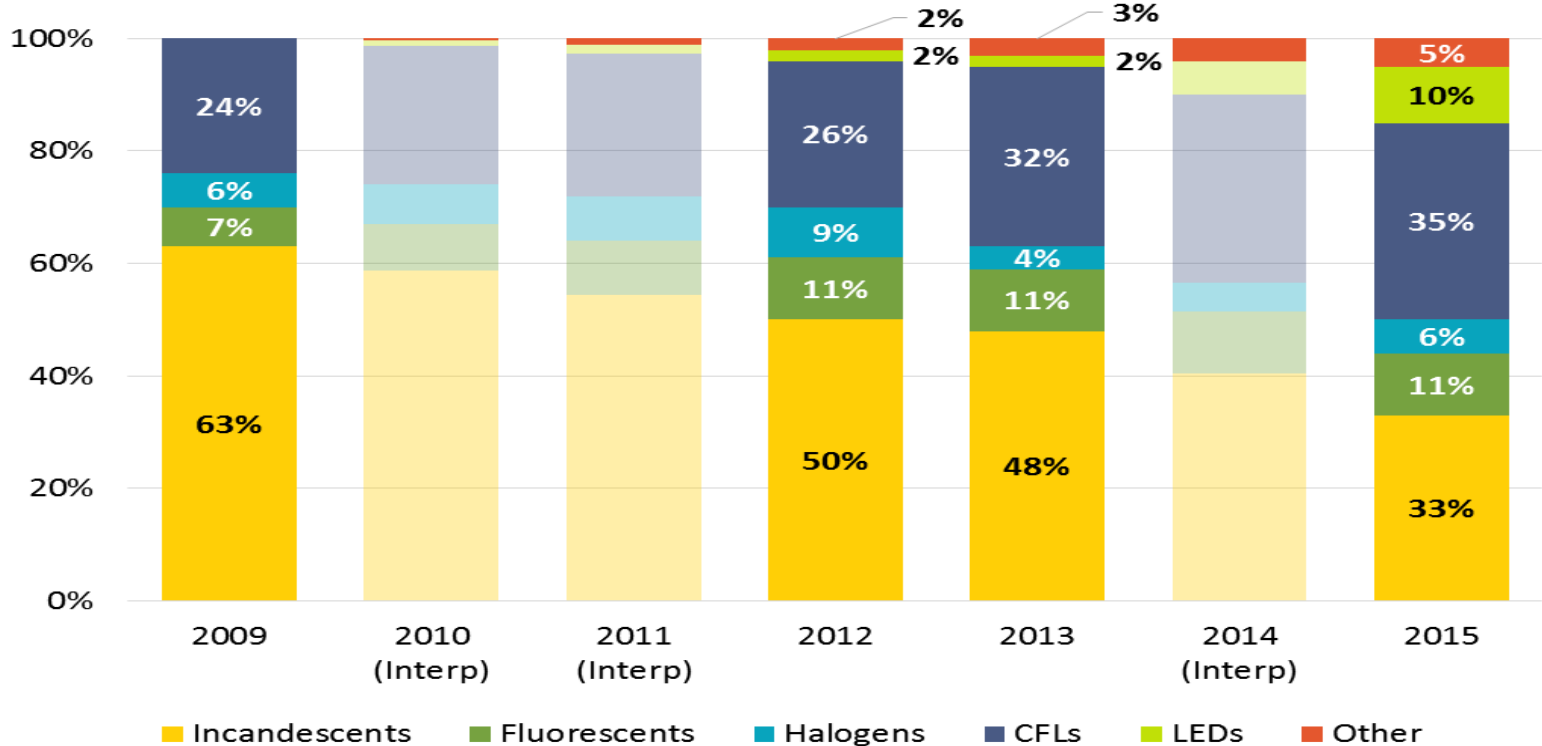
# Connecticut Residential Lighting Program

Jesus Pernia



# Where We Are Now in CT Homes:

- Onsite Socket Saturation Study: 56% efficient lamps



Note: Other includes cold cathode lamps, xenon lamps, lamps whose type could not be identified, and empty sockets.



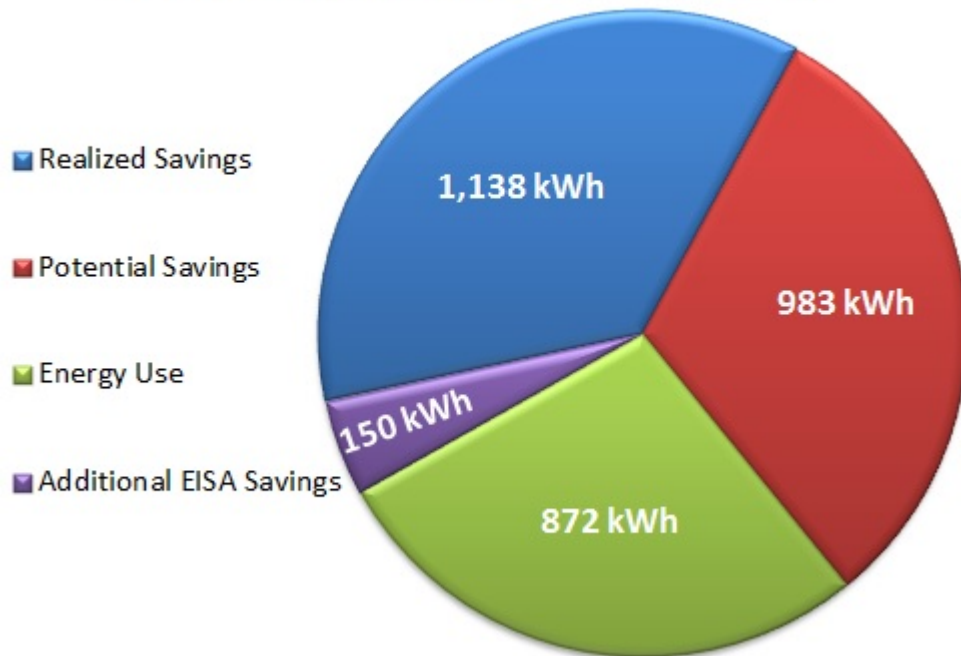
Source: CT LED Lighting Study Report FINAL, January 28, 2016



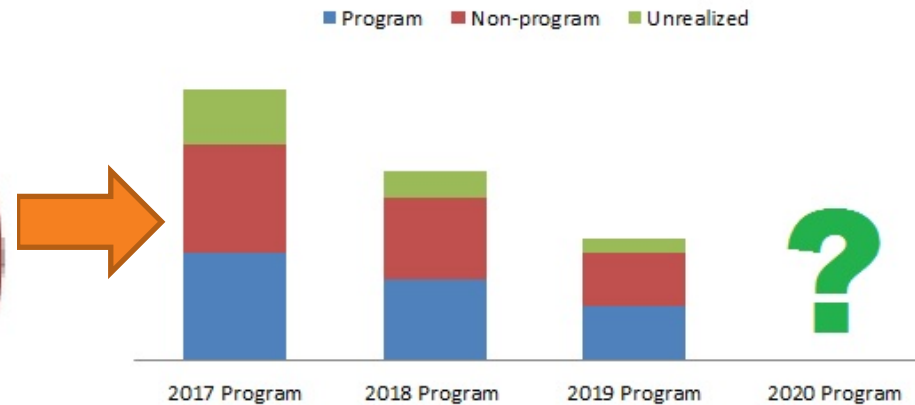
# Potential Energy Savings

If all inefficient sockets were changed to LEDs, CT Homes could potentially save 983 kWh annually

## Remaining Potential Energy Savings

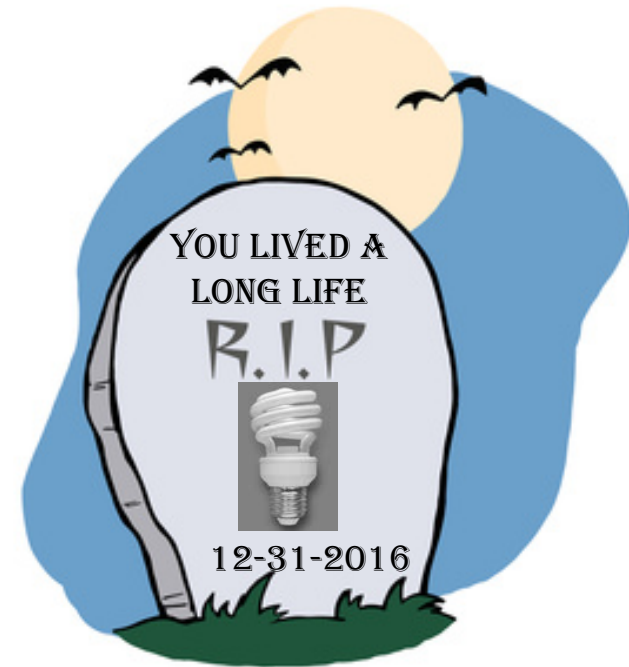


## Energy Savings Through 2020



# What to Expect in Coming Years

- In 2017, remove support for CFLs and transition to all LED program
- LED penetration will likely continue to increase as prices fall and CFLs are less available
- Target LEDs in hard-to-reach markets
- Prices on high lumen bulbs are still high so additional efforts maybe needed
- Impacts of EISA 2020 remain unclear



# What to Expect in Coming Years

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- Exploring smart lighting, lighting controls, and day lighting opportunities
- Cross-promote lighting design with new construction projects
- Evaluating and expanding the appliances and consumer electronics program:
  - Air purifiers
  - Room air conditioners
  - Dehumidifiers
  - Sound bars
- Evaluating smart appliances integration with home energy management systems (HEMS)

# Thank you

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## Contact Information:

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# Are We Breaking Up?

## The Role of Lighting In PA Residential & Low Income Portfolios

NEEP Lighting Workshop  
September 20, 2016



Albert, Righter & Tittmann Architects, Inc.

## PA SAVINGS GOALS

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### MA 2013-2015 Residential Annual Savings

- 46.7% from Retail lighting
- 19.9% from Direct Install (DI) lighting
- **67% from all Lighting**
- 23.8% from Home Energy Reports
- *9.7% from everything else*

MA 2016-2018 Plan is even more dependent on lighting: **69% of all Residential Annual Savings**

# LIGHTING IS CRITICAL TO MEETING PA SAVINGS GOALS (cont.)



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## MA 2013-2015 Portfolio Savings

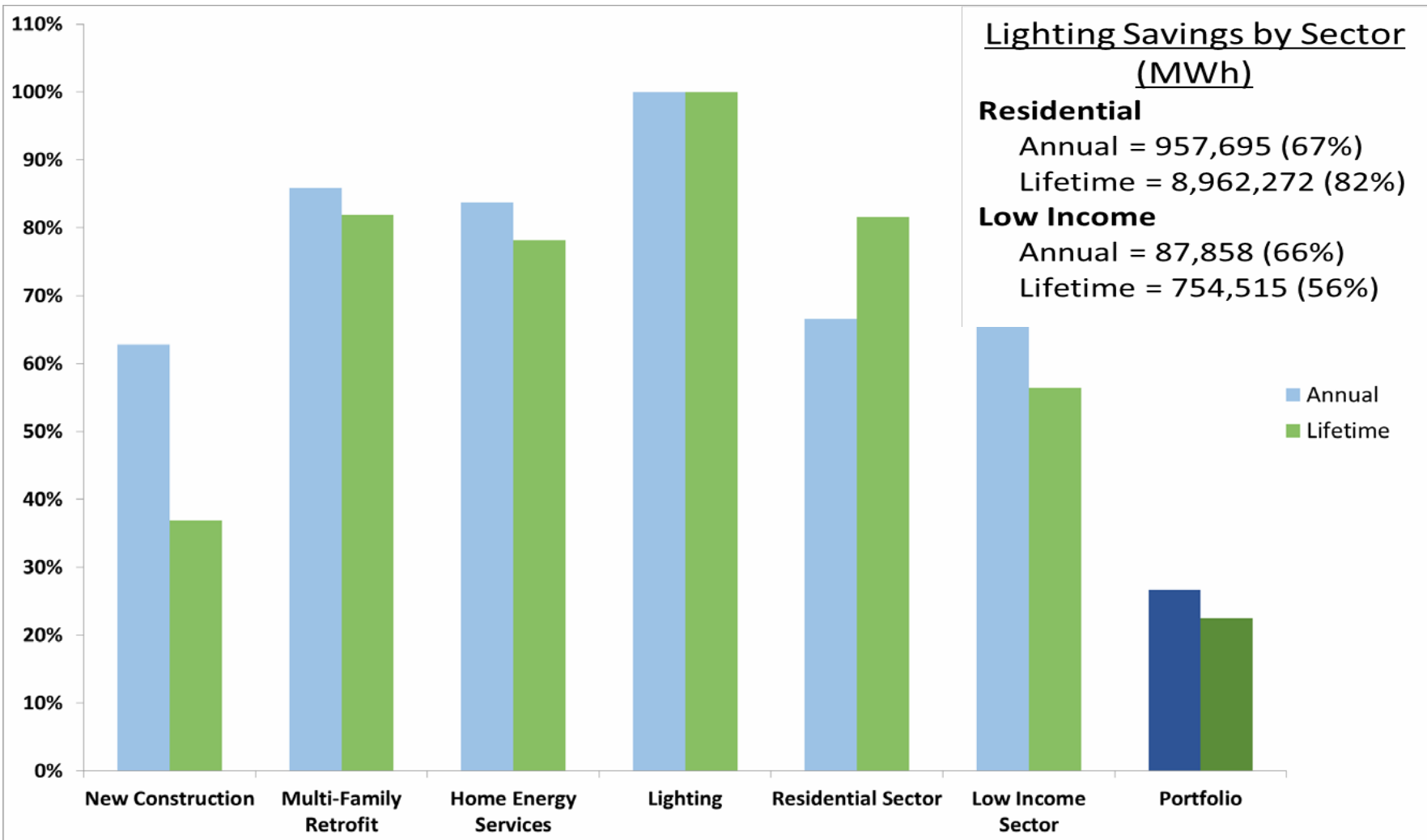
- 27% of Annual Savings from Residential and LI Lighting
- 22% of Lifetime Savings from Residential and LI Lighting

## MA 2016-2018 Portfolio Savings

- 31% of Annual Savings from Residential and LI Lighting
- 29% of Lifetime Savings from Residential and LI Lighting

## CONTRIBUTION

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# WHEN (*NOT IF*) LIGHTING SAVINGS ARE GONE, HOW DO WE FILL THE HOLE?

- Can we realistically find savings to make up a loss of over 50% of residential savings?
- Challenges in the Northeast
  - Low penetrations of electric space heat and hot water
  - Low, but growing, penetration of central cooling
    - Low cooling FLHs compared to much of the country
  - Federal standards – and the market- have addressed much, but not all, of appliance and consumer electronics opportunities

# WHEN (*NOT IF*) LIGHTING SAVINGS ARE GONE,



## HOW DO WE FILL THE HOLE? (cont.)

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- Will the cost effectiveness of whole house programs be imperiled?
  - From an *electric* PA perspective:
    - Depends in large part on inclusion of non-electric resource (oil) and non-resource benefits
- Opportunities
  - Controls, e.g., Home Energy Management Systems
  - Heat pump technologies: space & water heating, dryers
  - Highly efficient cooling systems

# ARE WE USING THE RIGHT PERSPECTIVE TO ASSESS SAVINGS OPPORTUNITIES?



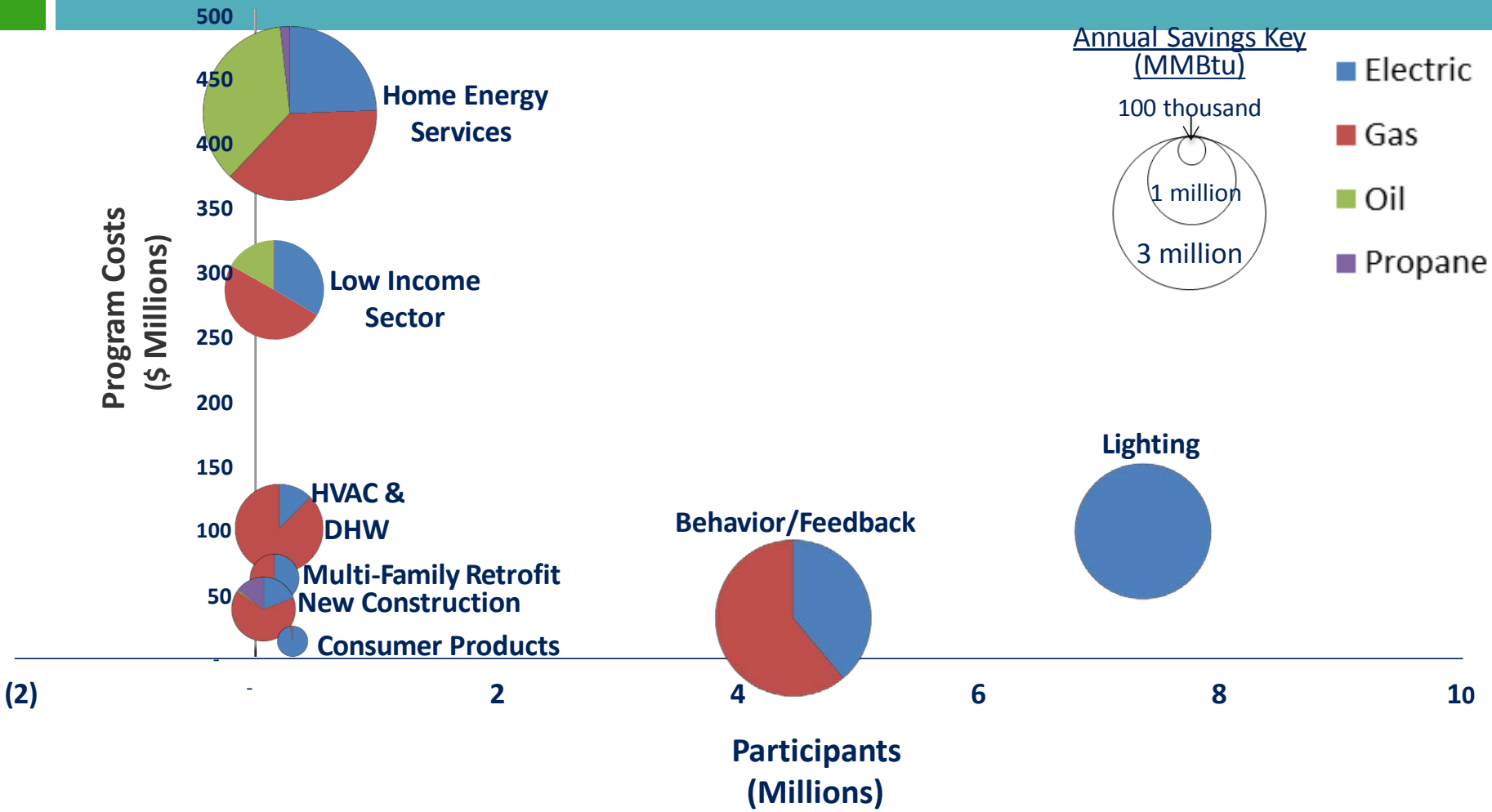
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- ❑ Should multifuel MMBtu savings goals be considered?
- ❑ Allows consideration of savings from combined gas and electric PA activities, e.g., new construction
- ❑ Better aligns with emerging efforts to promote strategic electrification/thermal renewables to address greenhouse gas reduction goals.
- ❑ Lighting is (much) less dominant

# COMBINED INITIATIVE ALL FUELS



## PERFORMANCE SUMMARY: MA 2013-2015



(2)

# THANK YOU

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## CONTACT INFORMATION:

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# Discussion

- How can we make the most of today's lighting programs?
- How can we realistically plan for the next 3 years?
- How can we position ourselves to take advantage of forthcoming opportunities?
- What is around the bend?



# Remaining Savings opportunity in Residential Lighting:

## Savings, More Than One Type?

### Passive vs. Active savings

- Lighting savings has traditionally been based on a “passive” methodology

For example: a lamp is sold, installed and the kWh associated with the lamp is accredited.

- Technology is evolving, and so must our approach and understanding of the potential savings. We (the industry) needs to get a better grasp of the potential of “Active” savings

For example: Lamps, fixtures or switches left “on” while the room or dwelling is left unoccupied can be automatically turned “off” without a negative impact on the customer life.

# Other opportunities around the bend?

- Tomorrow and next: Home Energy Management Systems (HEMS) and the Smart Home
- HVAC: Air Source Heat Pumps
- Home performance retrofits, building improvements
- Behavioral programs
- Heat Pump Water Heaters
- Plug loads
- Retail Products Platform
- NEEP's shifting lighting priorities
  - From Residential, which is in great shape
  - To Commercial, where further market developments and regional coordination seem needed
    - Currently seeing project funding, Development team



# Final Questions?

