After Lighting: Utility Program Claimable Savings

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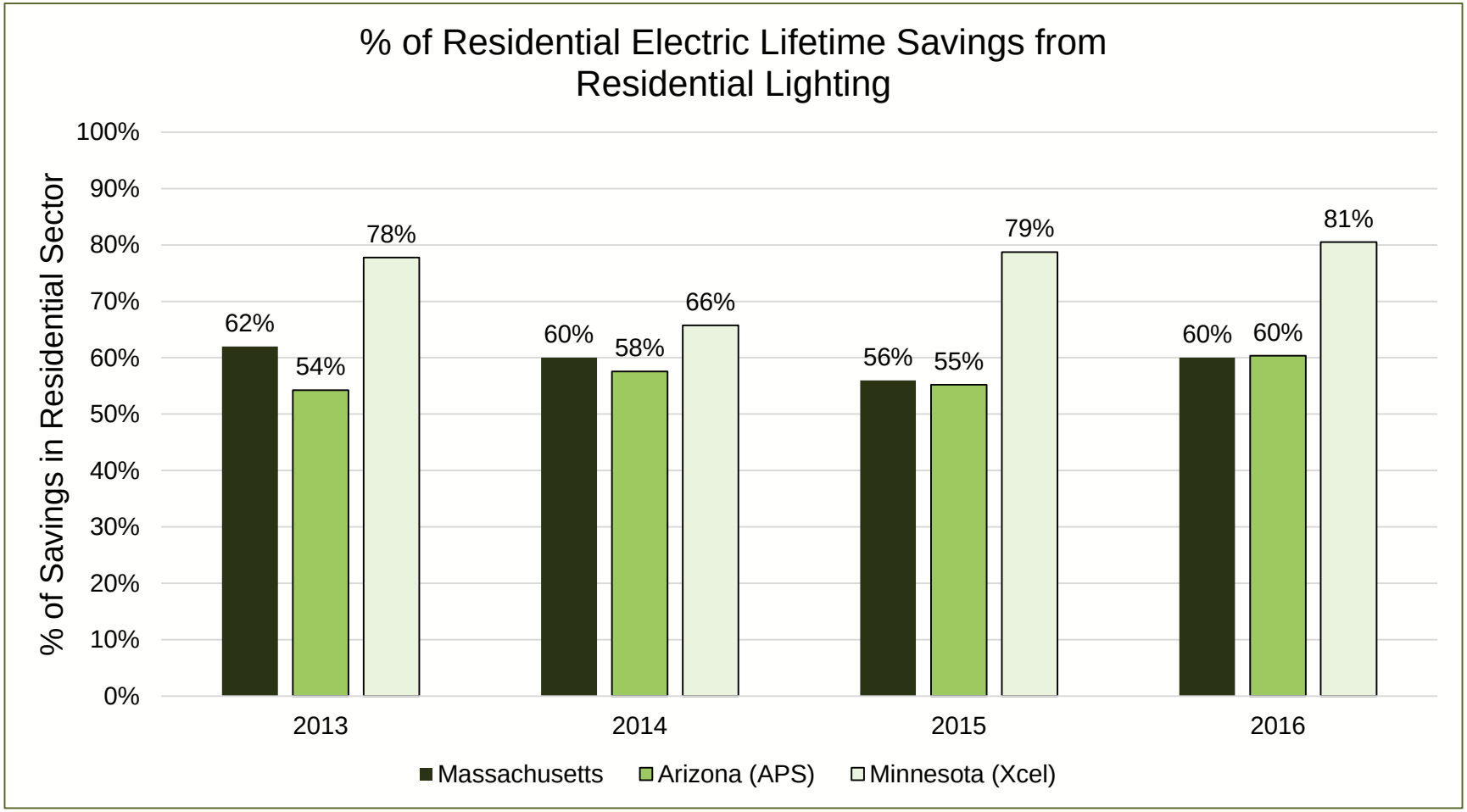
Introduction

- Not going to comment on status or forecast of lighting market, or transition to the future
- Provide a little data on how important lighting has been to EE programs
- Highlight a few issues, challenges, and opportunities

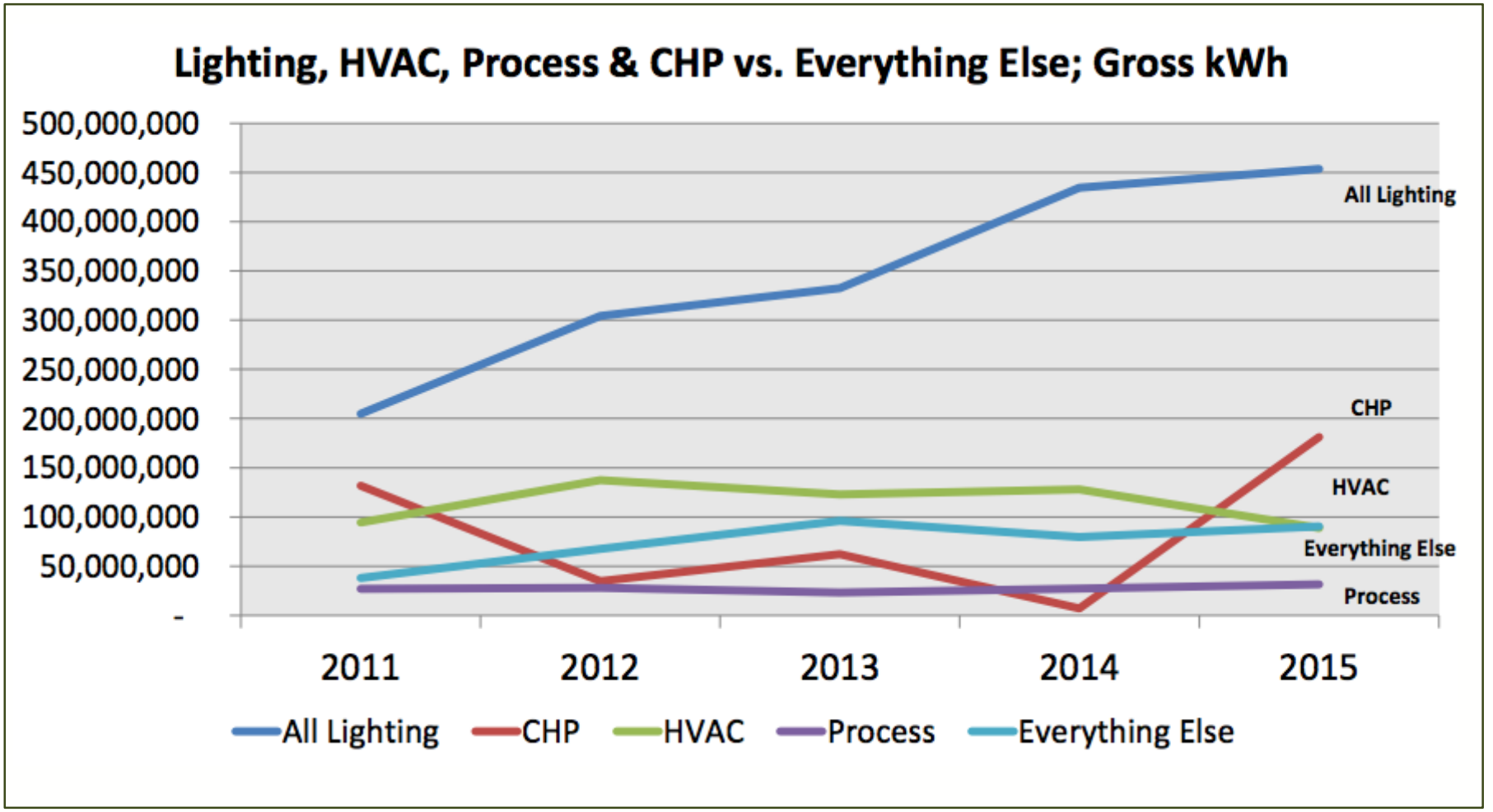
- Thanks to co-authors and colleagues in other states for contributions

Lighting has been a major contributor to program lifetime savings in many states



Source: Arizona Public Service (APS) Company Annual Demand Side Management Reports, 2013-2016; Xcel Energy Status Report & Associated Compliance Filings Minnesota Electric and Natural Gas Conservation Improvement Program, 2013-2016; Massachusetts Energy Efficiency Advisory Council, "New Approaches in the Face of Rising Baselines and Other Trends: Challenges and Innovative Options," Sept. 21, 2017.

The importance of lighting to C&I programs



Source: Optimal Energy analysis for Massachusetts Energy Efficiency Advisory Council, C&I Workshops

Society will still receive savings from lighting; savings just won't be "claimable" by programs

- Evolution of the market means that businesses and residents will continue to reap the savings and benefits of efficient lighting – which is a success story.

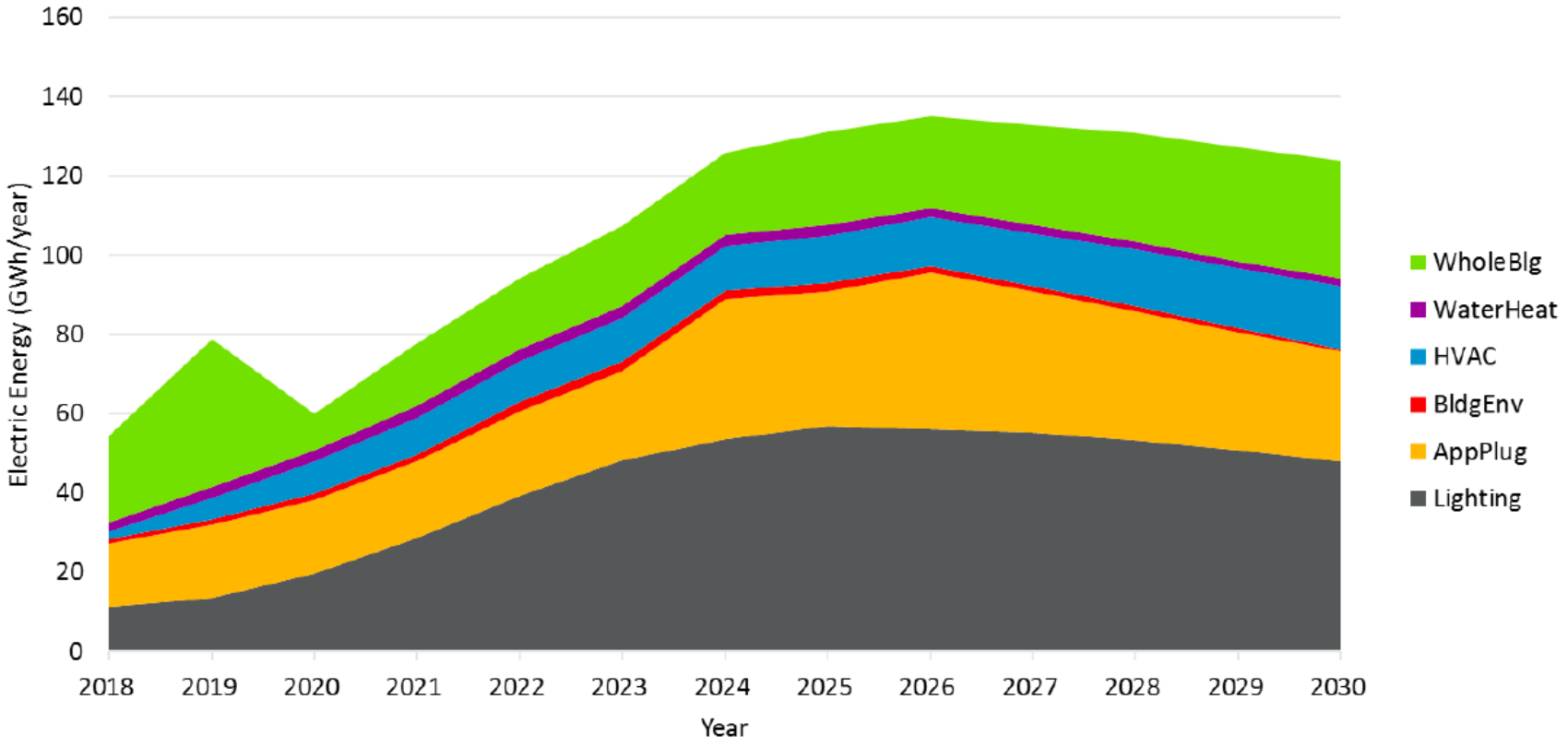
- However, federal standards and market developments (which impact net-to-gross ratios) mean utilities will not be able to claim *program* savings from lighting.

There will still be lighting opportunities in programs – program-claimable savings

- Residential:
  - Hard-to-reach customers and market segments
  - High lumen and specialty products
  - Lighting opportunities in the near-term (to ~2020)
  - Early replacement of lighting
- C&I
  - Better lighting products and systems still needed
  - Solid state lighting opportunities, especially with the integration of controls and DR capabilities
- How to guard against a premature exit from the markets/technologies while avoiding unnecessary support for already transformed markets/technologies

California potential study – Residential

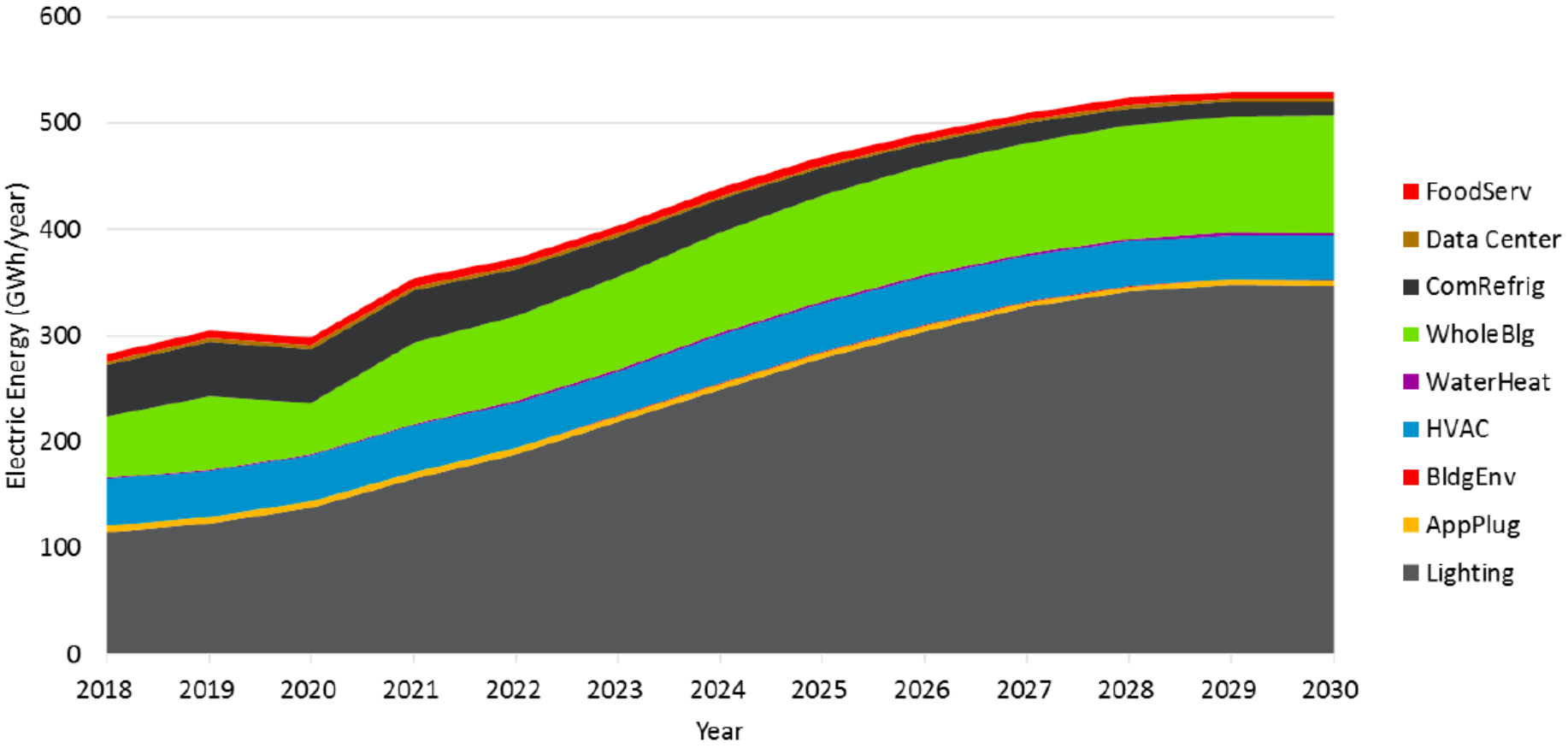
Figure 4-21. Statewide Residential Incremental Electric Market Potential by End Use for Equipment Rebate Programs in Scenario 1 (TRC Reference)



Source: Energy Efficiency Potential and Goals Study for 2018 and Beyond. Prepared for the California Public Utilities Commission. September 25, 2017.

California potential study – Commercial

Figure 4-31. Statewide Commercial Incremental Electric Market Potential by End Use for Equipment Rebate Programs in Scenario 1 (TRC Reference)



Source: Energy Efficiency Potential and Goals Study for 2018 and Beyond. Prepared for the California Public Utilities Commission. September 25, 2017.

One challenge for residential programs: on-site program delivery approaches

- Program delivery approaches will also be impacted.
- Will programs pencil out for cost-effectiveness?
- Will programs remain a viable business opportunity for contractors?

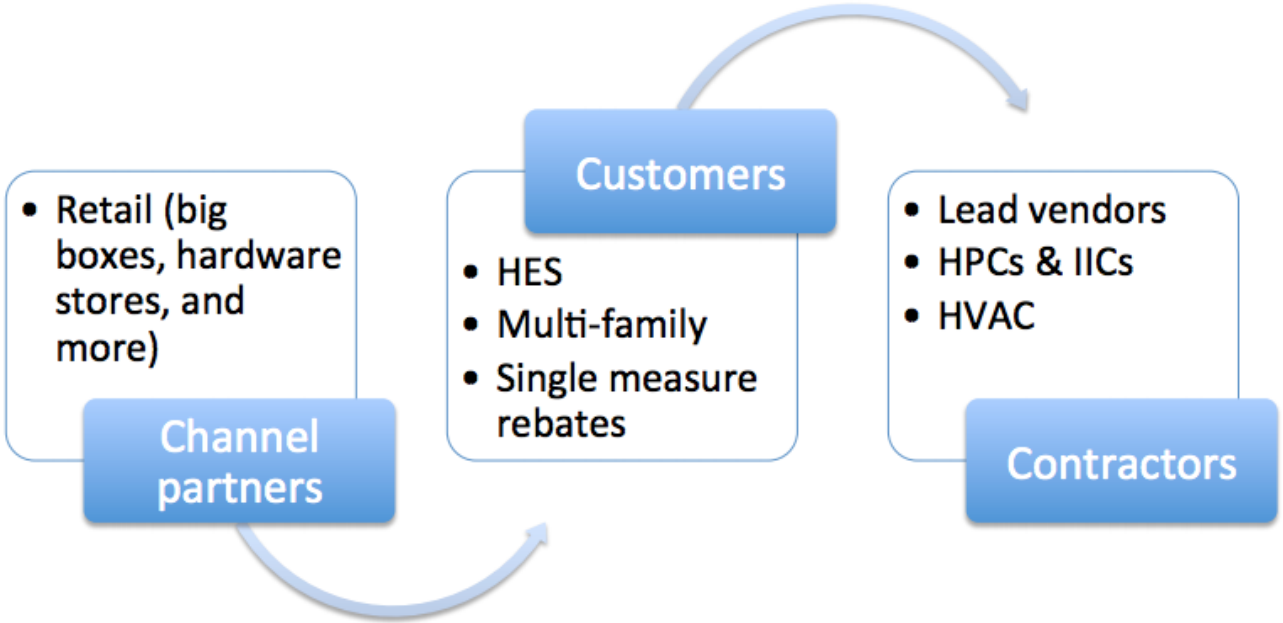


Image Source: Massachusetts Energy Efficiency Advisory Council

BEYOND SAVINGS: PROGRAM DESIGN IMPACTS OF NO LIGHTING

Impact to retail supply chain?

- $34 million in incentive costs in 2016

Impact to customer?

- What is the significance of no cost lighting as a driver of HES customer participation?

Impact to contractor?

- 1.4 million bulbs installed in electric audits in 2016; 40 bulbs avg. per audit
- Lighting is 73% of electric audit direct install (DI) incentive (includes labor but not audit fees) costs ($385 electric DI/ $527 all DI)

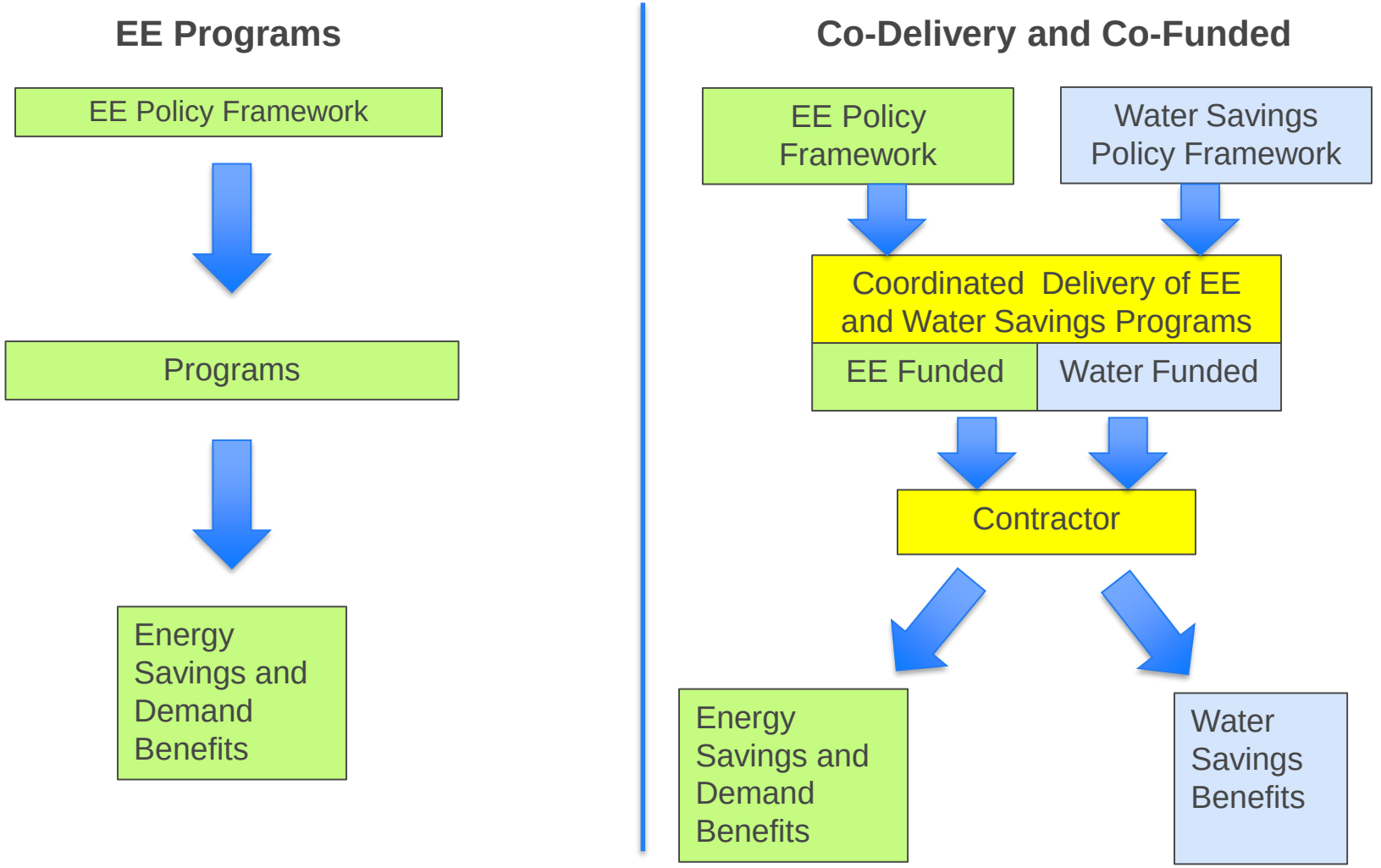
Impact to multi-family retrofit?

Source: “No lighting” assumption made solely as one scenario for analysis, for the purposes of assessing potential impacts on one end of spectrum; for discussion by Massachusetts Energy Efficiency Advisory Council

New approaches: new measures and strategies

- Co-delivery
  - Electric & natural gas integrated programs
  - Water efficiency
  - Health services
  - Resiliency
  - Rate education
- Fuel switching/electrification
- Active demand management, new measures
- Storage
- Electric vehicles
- Solar PV co-delivery
- Utility support of codes & standards adoption, implementation
- New funding sources (i.e. health insurance/services)
- New approaches for evaluating cost effectiveness

EE Programs vs. Co-Delivered and Co-Funded



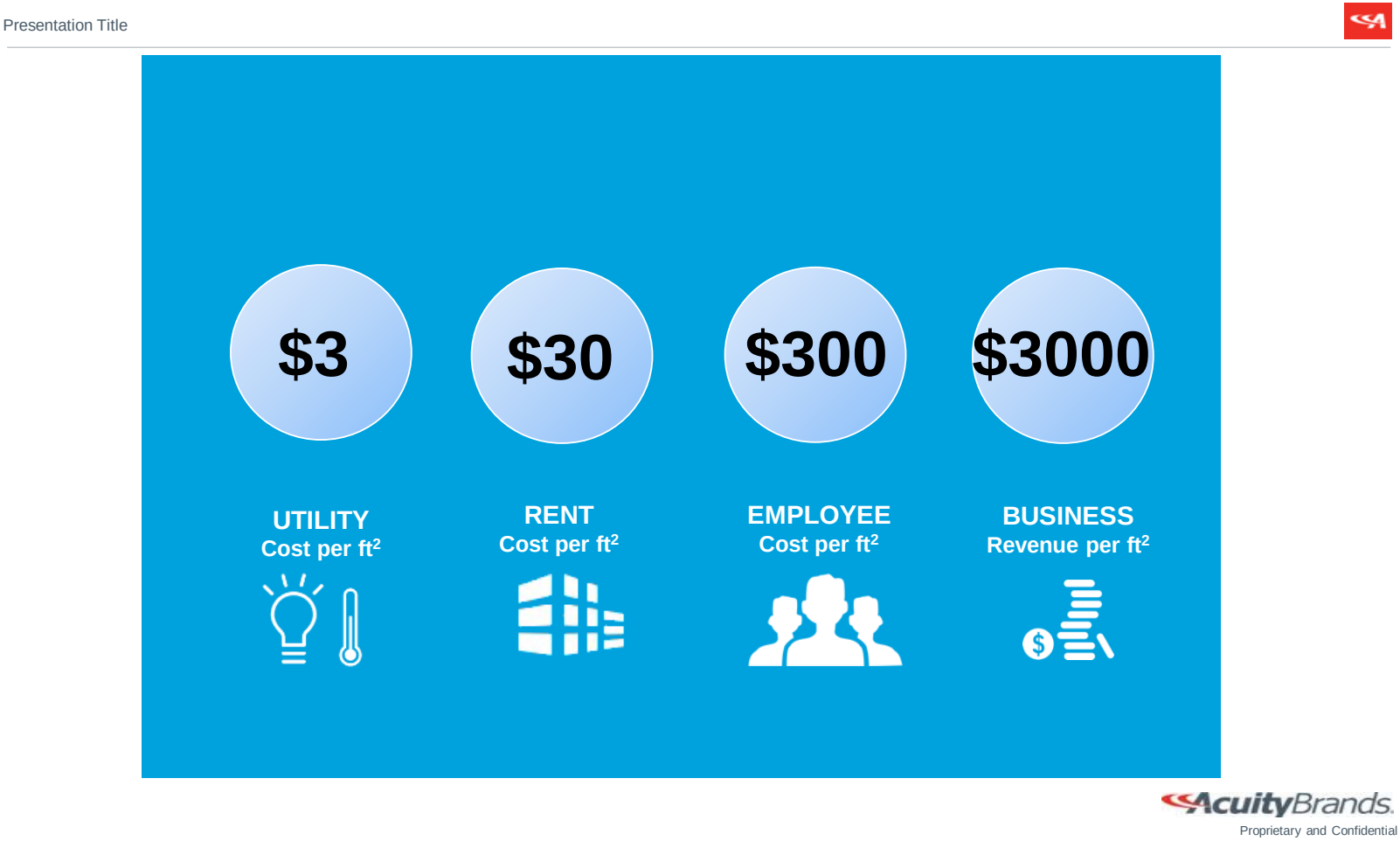
Value Propositions

Bringing Commercial Real Estate into the Internet of Things.

Demand management and grid services

Source: Carol Jones, Enlighted; presentation at Design Lights Consortium Stakeholder Meeting, July 2017

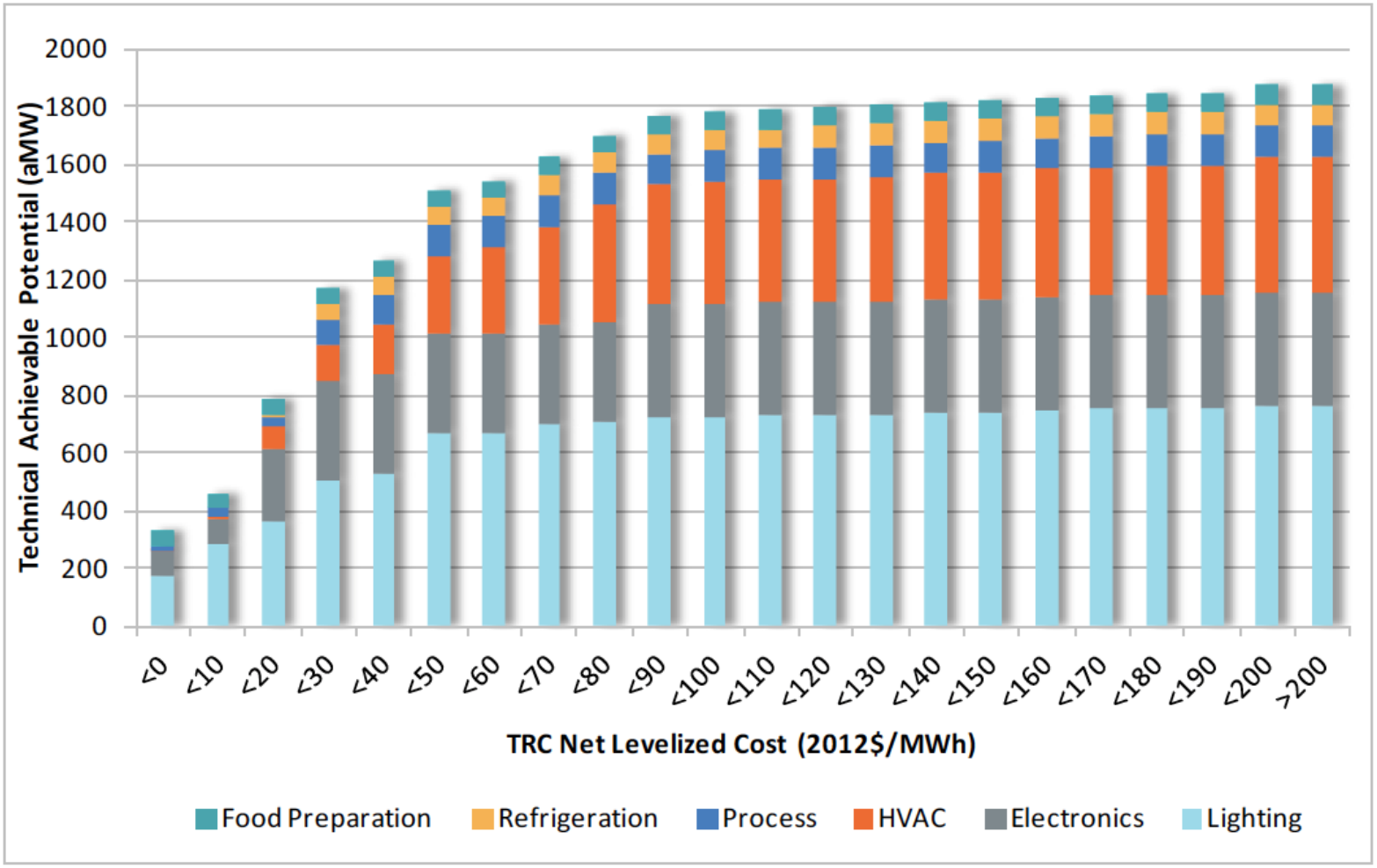
What motivates customers & action? Where is the value?



Source: Alex Do, Acutity Brands; presentation at Design Lights Consortium Stakeholder Meeting, July 2017
(Several people have used the 3/30/300 analysis)

NWPCC 7th Power Plan (2016)

Figure 12 - 10: Commercial Potential by End-use and Levelized Cost by 2035



Source: Northwest Power and Conservation Council. *Seventh Northwest Conservation and Electric Power Plan.* 2016.

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