



# BUILDING ENERGY 15

MARCH 3-5, 2015 AT THE SEAPORT WORLD TRADE CENTER

AIA Provider: Northeast Sustainable Energy Association

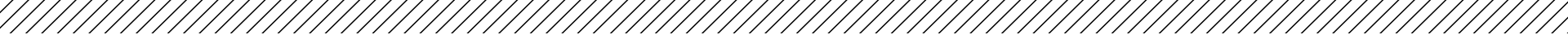
Provider Number: G338

## It Takes a City

Course Number

Russell Koty, Brian Bowen, William  
Stack, Harrison Grubbs, Craig Foley

3/4/2015



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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



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GREEN  DIVISION



**EVERSOURCE**  
ENERGY

# Course Description

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In 2011, Somerville launched a two-year, city-wide residential energy efficiency program aimed at a difficult-to-reach demographic: middle income rental properties.

This session will reveal insights from implementing Somerville's program, including utility collaboration, data management, incentive design, and the role of implementation partners.

This session is meant to spark discussion among city energy managers, community energy efficiency advocates, and residential energy consumers on the best ways to partner with key stakeholders within the community.

# Learning Objectives

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At the end of the this course, participants will be able to:

1. Have the tools needed to plan and implement a city-wide energy efficiency program.
2. Understand the motivations of residents that participated in Somerville's program.
3. Collaborate with local utilities and key stakeholders to meet municipal energy efficiency goals.
4. Quantify the value of energy efficiency from a real estate perspective

# GETTING STARTED

Our theme is...



# AGENDA

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- Somerville's Residential EE Program
- University Collaborations
- Utility & Vendor Partnerships
- Real Estate Impact of Energy Efficiency
- Interactive Q&A

# DISCUSSION QUESTIONS

1. How do you **define** a partnership?
2. What **advice** would you give your town about creating partnership for a home energy efficiency program?
3. Who are some **unusual partners** towns and cities can work with to support energy efficiency, and what do they provide?

Bonus question: What's your "**wild card**" takeaway?



# ABOUT SOMERVILLE

- Most densely populated city in New England
- Aging housing stock
- 88% multi-family housing
- Transient rental population with landlord-tenant hurdles



# PROGRAM GOALS

- Address energy efficiency in **multi-family and rental** units.
- Assist **moderate-income** residents in reducing energy costs.
- *“Achieve a significant number (60 or more) of whole-building **retrofits for 2-4 family rental properties.**”*

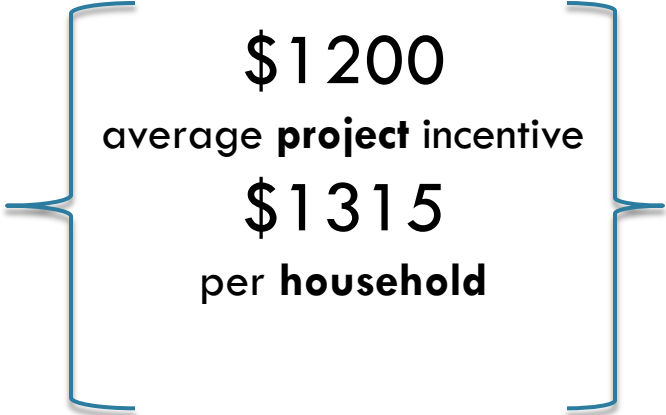
# RESIDENTIAL EE PROGRAM (REEP)

A joint project of Somerville's Housing Division; Office of Sustainability; and Commission on Energy and Climate Change

- Ran from November 2011 through December 2012
- Funded through Recovery Act block grant
- Eligibility: 60-120% of area median income
- Up to \$1500 in cash incentives for:
  - ▣ Insulation
  - ▣ Heating systems
  - ▣ Water heating

# REEP BY THE NUMBERS

In addition to hundreds of home assessments, REEP helped...

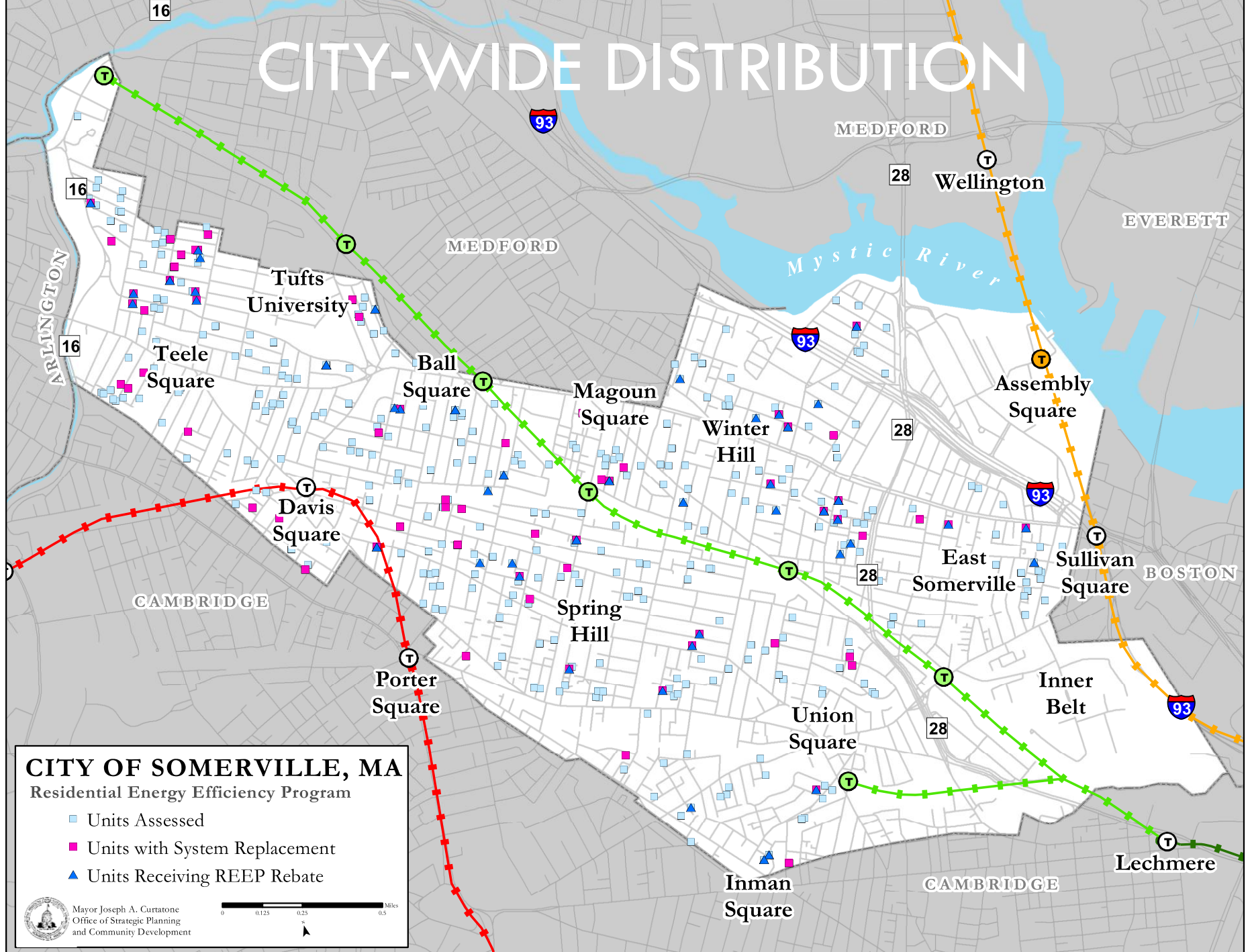


# PROGRAM PARTICIPATION

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- 34 homes were **insulated**
- 30 **heating systems** replaced
- 16 **water heaters** replaced
- 90% of projects in **multifamily homes**

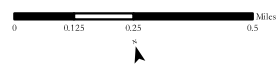
# CITY-WIDE DISTRIBUTION



## CITY OF SOMERVILLE, MA Residential Energy Efficiency Program

- Units Assessed
- Units with System Replacement
- ▲ Units Receiving REEP Rebate

Mayor Joseph A. Curtatone  
Office of Strategic Planning  
and Community Development



# NEXT STEPS FOR THE CITY

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- Weatherization Program Partner
- Local Banking Partner
- Nonprofit Partnerships
- Shared data Partnerships

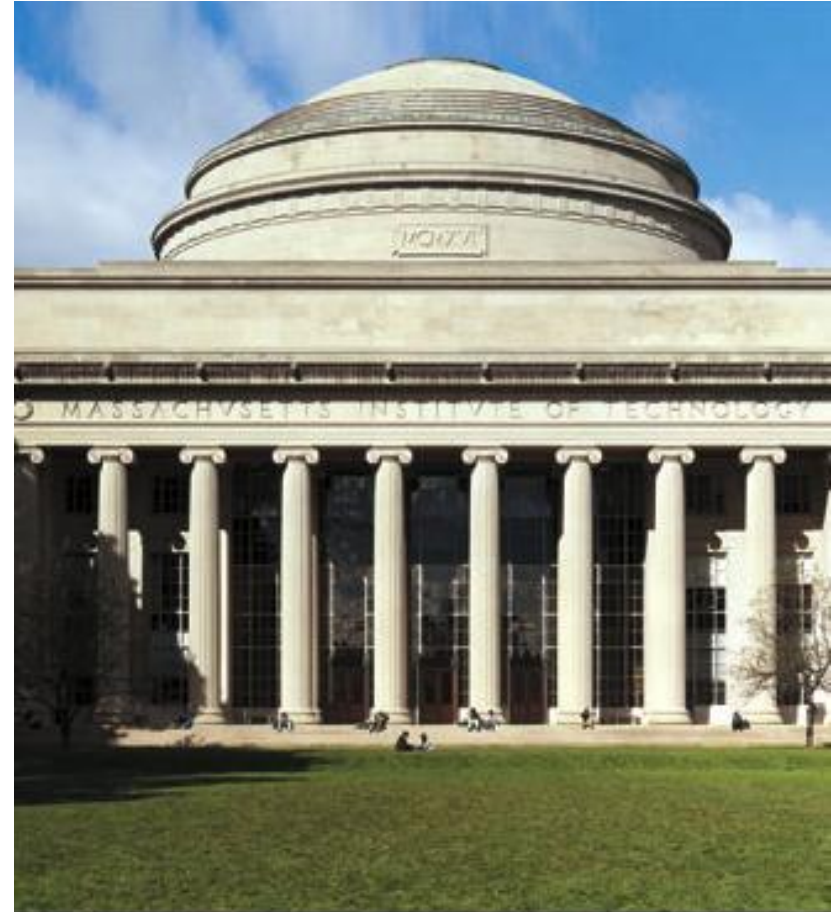
# UNIVERSITY PARTNERSHIPS

BRIAN BOWEN

MIT DEPARTMENT OF URBAN STUDIES AND  
PLANNING



# EDUCATIONAL INSTITUTIONS



# TUFTS PLANNING STUDY

- Partnered with OSE and Housing
- Semester-long project
- Community-based strategies
- Proposed options for city, multiple partnership models
- Skilled team



Tufts University  
Department of Urban and  
Environmental Policy and Planning



**RETROFITTING FOR  
RESIDENTIAL  
ENERGY EFFICIENCY  
IN SOMERVILLE:**

**A PROGRAM FEASIBILITY  
STUDY FOR THE  
CITY OF SOMERVILLE**



May 7, 2010

Erin Brandt  
Marcus Rozbitsky  
Rowan Spivey  
Jennifer Warner  
Brittany Zwicker

# MIT EVALUATION STUDY

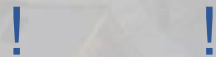
## SOMERVILLE RESIDENTIAL ENERGY EFFICIENCY PROGRAM

Program Evaluation

Brian Bowen and Judith A. Layzer | Massachusetts Institute of Technology  
Department of Urban Studies and Planning

### PREPARED FOR:

Somerville Energy and Climate Commission | June 2014



- Collaboration with city Climate and Energy Commission.
- Evaluated kWh and therm savings from upgrades.
- Conducted survey on participant motivations.

# SURVEY POPULATION

- 67 people
- Non-randomized
- Distributed over email and phone
- 25% of respondents participated in REEP

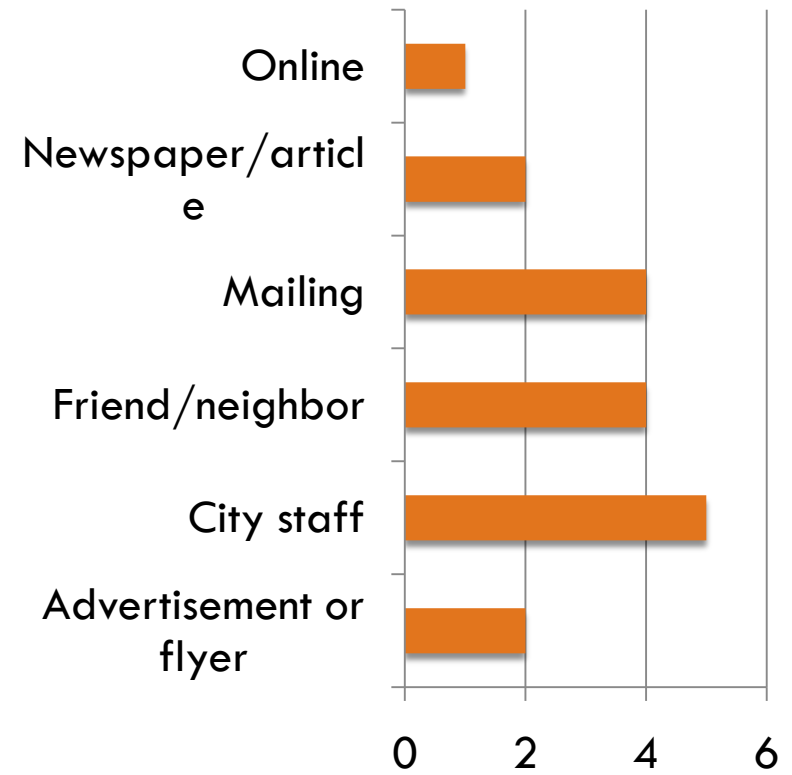
**REEP Participants Are  
25% of Sample**



# AWARENESS

- Survey indicates a **30% awareness rate.**
- Compares favorably to MassSave overall at 20%\*
- Multi-mode awareness

## Marketing Mode



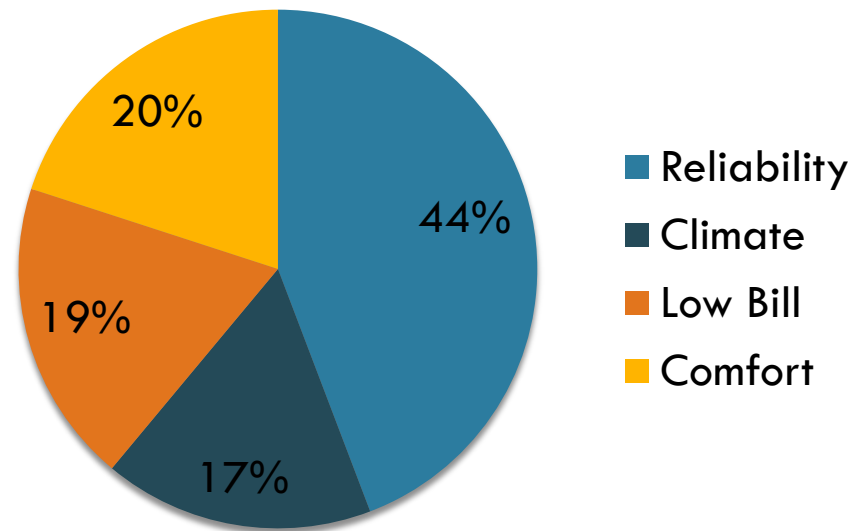
\*Opinion Dynamics Corp

# MOTIVATIONS

*“With regard to home energy use, please rank the following factors in terms of their importance to you.”*

- Reliability
- Climate/Environment
- Low energy bill
- Comfort

**“Most Important”  
Ranking**



# SATISFACTION

One  
participant's  
comments

- *“Thank you, for what you have done. It meant a lot to us and hope you **continue you to help people who cannot get funding** because they do not fit the low income guidelines but are unable to update and take on any more debt.”*

# KEY POINTS

What can cities learn from Somerville's university partnerships?

- **Get a (free!) second opinion.** University students can be a great source of new ideas—usually at no cost.
- **Value of neutrality.** Students can do the legwork on surveys and provide a more neutral audience for authentic resident feedback.



# UTILITY & VENDOR PARTNERSHIPS

WILLIAM STACK

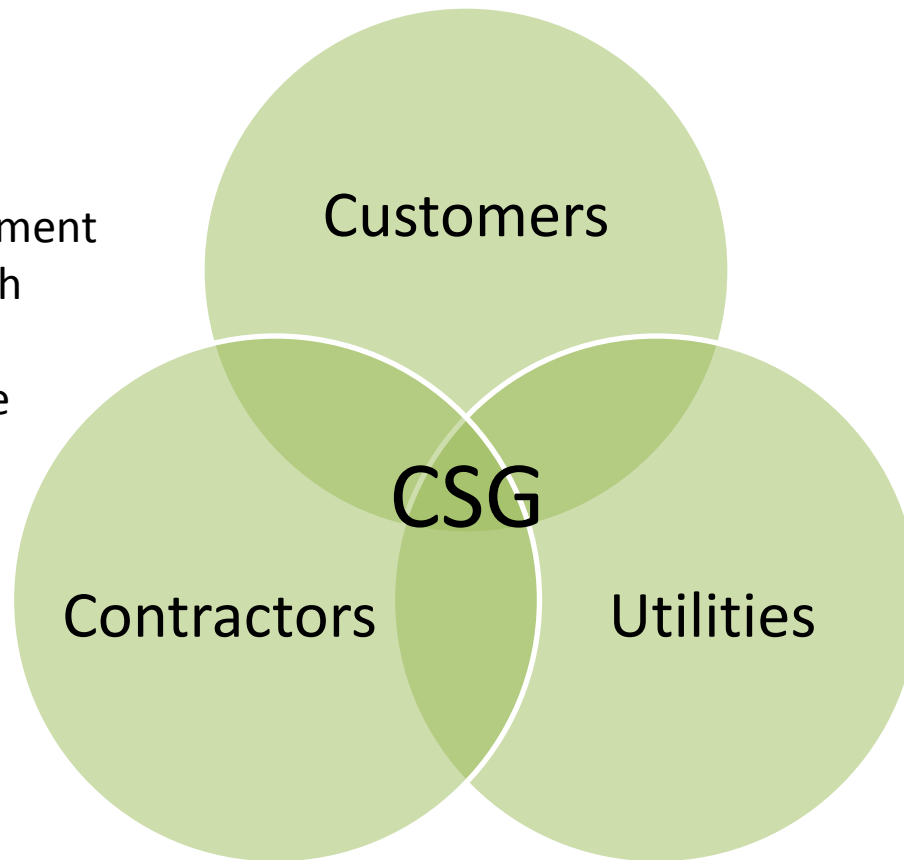
LEAD PROGRAM MANAGER, RESIDENTIAL EE  
EVERSOURCE ENERGY

HARRISON GRUBBS

DIRECTOR,  
CONSERVATION SERVICES GROUP

# CSG's Partnership in the Mass Save<sup>®</sup> Customer Experience

- Customer recruitment
- Scoping work with contractors
- Quality assurance



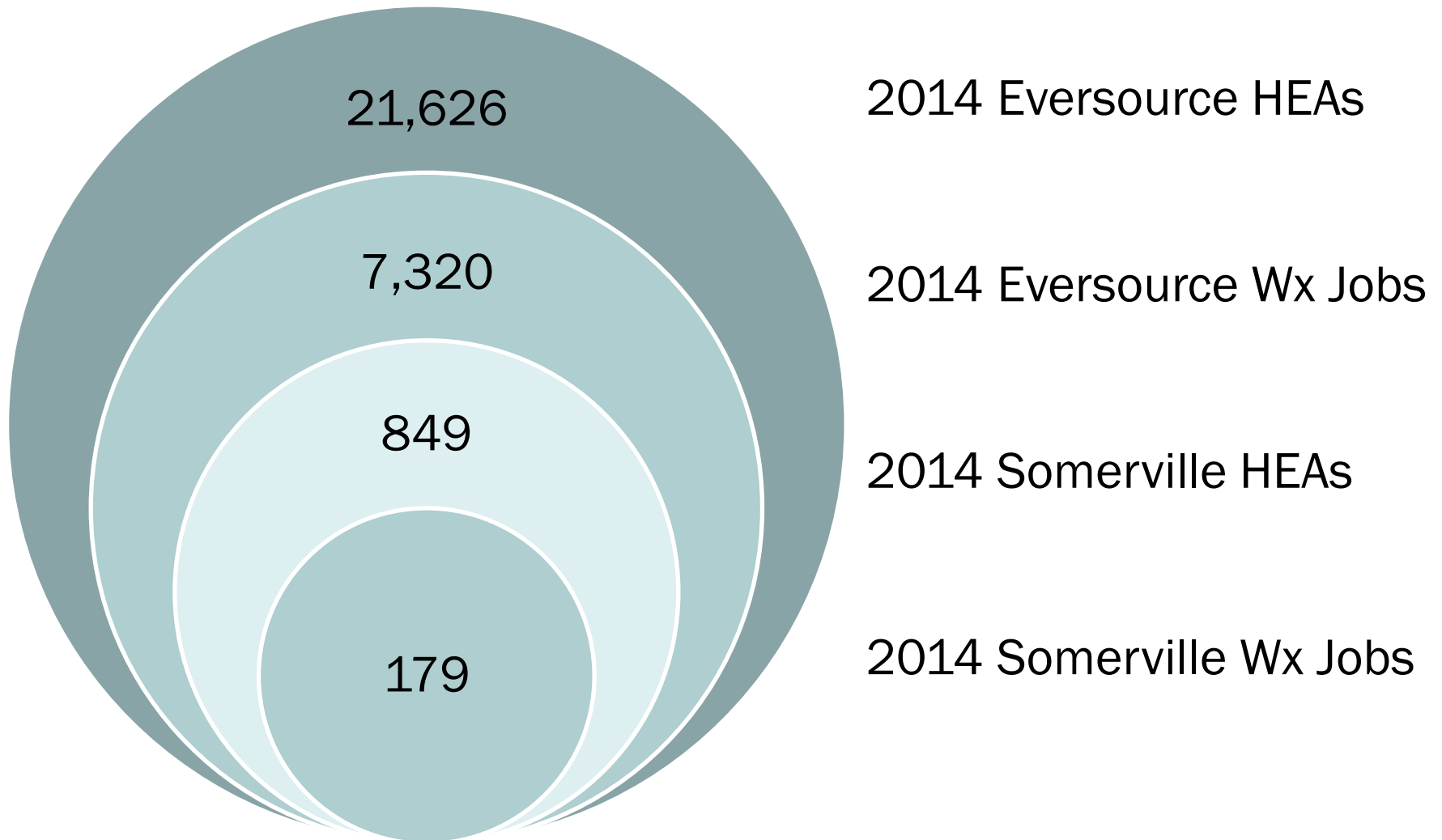
- Education and advisory role
- Provide HEAs and rebates

- Lead Vendor for Eversource

# Customers: The Most Critical Participants

- Contractors' Job Quality is measured on technical correctness and **customer service**
- What are **customer concerns**?
  - Comfort? Monthly bill? Out-of-pocket expense?
- What is the **best way to address them** through a range of Wx and Mechanical Equipment rebates?

# Continued Traction in Somerville



# EN+ Enhanced Model

Enhanced Incentive Description	Enhanced Incentive	Existing Incentive
<b>Common Area Lighting</b> (LED or CFL depending on fixture)	<b>\$120</b>	<b>\$0</b>
<b>Pre-Weatherization Barrier Incentive</b>	<b>* Up to \$800</b>	<b>Up to \$800</b>
<b>90% up to \$3000 Insulation per unit/single family</b>	<b>\$1,980</b>	(Based on historical job costs) <b>\$1,650</b>
<b>2-4 Family Landlord Whole House Insulation with Adder (50% of Customer Contribution)</b>	2 Family	(Based on historical job costs) <b>\$4,000</b>
	3 Family	<b>\$5,130</b>
	4 Family	<b>\$7,695</b>
<b>Early Retirement Refrigerator</b> (ENERGY STAR® labeled)	<b>\$200</b>	<b>\$150</b>
<b>EN+ Boiler &amp; Furnace Incentive Adder</b>	<b>\$100</b>	<b>**\$0</b>
<b>Early Boiler Replacement (EBR) Rebate with Additional \$500 Incentive for Non-owner Occupied Properties</b>	<b>(\$4,000)</b> <b>Unrestricted Timeline</b>	<b>(\$4000)</b> <b>Restricted Timeline</b>
<b>EN+ Whole House \$500 Incentive Adder Package Insulation + Heating Equipment</b>	<b>\$500</b>	<b>\$0</b>

\*Multiple barriers allowed: Knob & Tube/Dryer Venting = \$250 each, High CO = \$300

\*\*Existing gas boiler rebates \$1,000-\$1,500, Existing gas furnace rebates \$300-\$450, Existing Oil equipment \$400-\$500

# 3 Family Example – The Whole Package

Incentive Description	Customer Contribution*	Incentive
Lighting in units and common areas	\$0	\$300
Low flow showerheads & faucet aerators	\$0	\$50
Programmable Thermostats	\$0	\$150
Targeted cost-effective air sealing	\$0	\$800
Fully insulated 3 family (includes adder incentive)	\$405	\$7,695
ENERGY STAR® refrigerator retrofits in all units	\$1,200	\$600
Early boiler replacement of 3 units (non-owner occupied)	~\$9,000	\$12,000
EN+2-4 family whole house landlord incentive adder	\$0	\$500
0% HEAT Loan up to \$25,000	Principal only - Interest subsidized	

Contribution	Incentives	Total
\$10,605	<b>\$22,095</b>	\$32,700

\*Estimates

## EN+ in Somerville

- 1,925 eligible customers in specific census blocks
- Program extends until March 15, so still time for customers to act



# REAL ESTATE COLLABORATION

CRAIG FOLEY

CHIEF OF ENERGY SOLUTIONS

RE/MAX LEADING EDGE



# My Role at RE/MAX Leading Edge



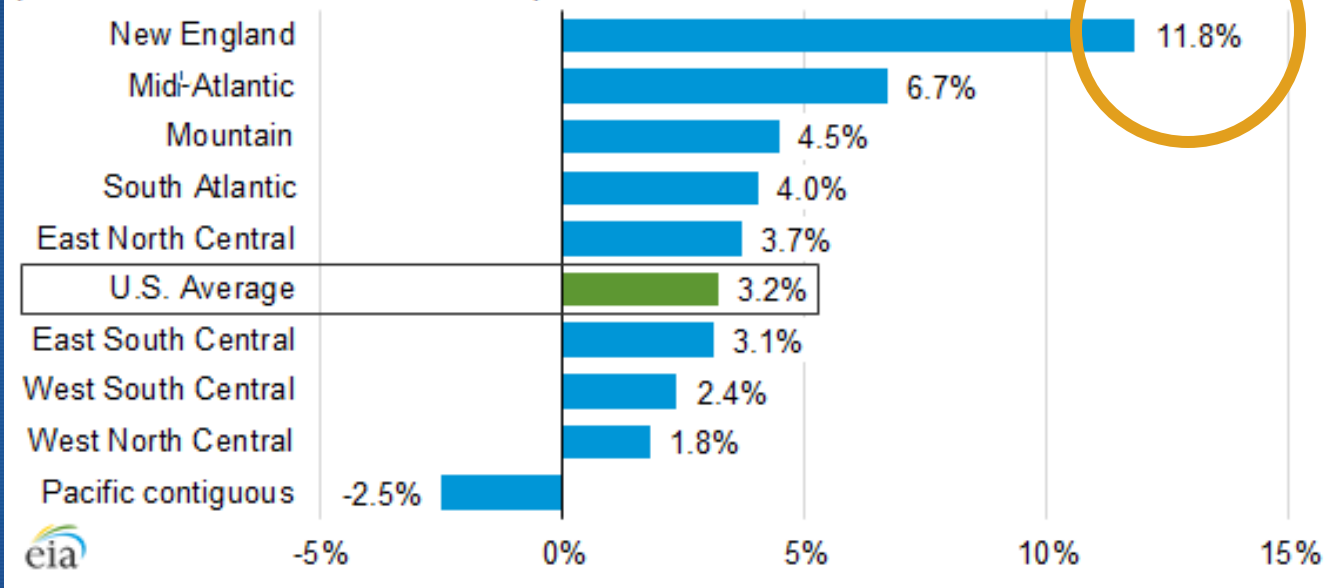
- Green brand and strategy
- Agent education
- Partnerships
- Advocacy for high-performance buildings



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# Motivator: New England Electricity Prices

Change in average residential electricity prices by Census division  
(first half 2014 versus first half 2013)



# Proof Points: Value of Green

\$1 = \$15-20

Annual energy savings

at the point of sale



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# Proof Points: Value of Green

**\$1 = \$15-20**

Annual energy savings

at the point of sale

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At resale, solar PV adds

**\$4180**

per kW.



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# Proof Points: Value of Green

**\$1 = \$15-20**

Annual energy savings

at the point of sale

At resale, solar PV adds

**\$4180**

per kW.

Energy efficient homes are

**32%**

less likely to default.



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# Proof Points: Value of Green

87%

Of homebuyers said home's heating and cooling costs were "important" or "very important", regardless of the age of the home.


#1

Unmet housing need was energy efficiency



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# Energy Costs Drive Real Estate Values

It costs **2.5x** more  
 to heat your  
with oil than  
with natural gas.

Homes with natural  
gas sell for **\$22K** more.

**OIL**



**\$2553/yr**

**GAS**



**\$1007/yr**

Sponsored by



*\* based on a 2012 REMAX Leading Edge Study*




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# How EE Upgrades Are Valued



Documentation is key:

- ✓ Green building certificate
- ✓ Performance test results
- ✓ Local green disclosure form
- ✓ 12 month utility usage

 <p>AI Reports® Form 820.03*</p>	Client File #:	Appraisal File #:
	Residential Green and Energy Efficient Addendum	
	Client:	
	Subject Property:	
	City:	State: Zip:
<p>Additional resources to aid in the valuation of green properties and the completion of this form can be found at <a href="http://www.appraisalinstitute.org/education/green_energy_addendum.aspx">http://www.appraisalinstitute.org/education/green_energy_addendum.aspx</a></p>		



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# Integrating Green Measures Into MLS

Green Certified  Yes  No  Unknown  Unspecified

\*Green Certification Type  A- Energy Star Home Certified  B- LEED Certified  C- National Green Building Standard  D- Other (See Remarks)

## Green Certified

Yes  No  Unknown  Proposed  Unspecified

### \* Green Certification Type

A-Energy Star Home Certified  B-LEED Certified  C-National Green Building Standard  E-Passive House Certified  F-Deep Energy Retrofit Certified  G-EPA WaterSense Certified  H-EPA Indoor Air Plus Certified  D-Other (See Remarks)

### HERS Index Score

(Required if Green Certified)

### Completion Date of HERS Score

(Required if Green Certified)



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# WRAPPING UP

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Questions for the panel:

- *What can cities do to help you in your work?*
- *Tell us about a partnership that didn't work out—and why it didn't.*

# DISCUSSION QUESTIONS

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3. Who are some **unusual partners** towns and cities can work with to support energy efficiency, and what do they provide?

Bonus question: What's your "**wild card**" takeaway?

This concludes The American Institute of Architects  
Continuing Education Systems Course

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