



Getting towards Net Zero

Big Ideas for Reducing Carbon Emissions from Buildings

Tuesday, September 23, 2014

6:00 PM - 8:30 PM

City of Cambridge Community Development Department



This program will air on CCTV

In case you missed tonight, this program will air on:

Channel 9:

- -Friday, Oct 17 - Fri, Nov 7, 2014 @ 7 PM
- -Saturday, Oct 18 - Sat, Nov 8 @ 4 PM
- -Sunday, Oct 19 - Sun, Nov 9 @ 1 PM
- -Tuesday, Oct 21 - Tue, Nov 11 @ 10 AM

Thanks CCTV!

Tonight's Agenda

6:00 PM Welcome & Purpose

6:15 PM Audience Poll

6:30 PM Panel Introduction

Net Zero Task Force Background & Preliminary Ideas

6:55 PM Questions to Panelists

7:40 PM Public Comment

8:10 PM Audience Poll & Final Comments by panelists

8:25 PM Closing remarks

8:30 PM END

Audience Poll: Poll Everywhere

About this polling tool...

- This is just a standard rate text message, so it may be free for you
- The polling tool we are using is serious about privacy. We cannot see your phone numbers and you'll never receive follow-up text messages outside this presentation
- All answers are anonymous

.....Let's try it!

Audience Poll

There are two ways to participate in the poll:

1. Sending a standard rate text message to **22333**

OR

2. Visiting the voting webpage: www.pollev.com/netzero

Please only select one response. If your neighbor doesn't have a mobile device, please help them out by inputting their vote!

Audience Poll

To participate by voting on the webpage:

- STEP 1 – Go to: www.pollev.com/netzero
 - You may have to connect your smart phone or mobile device to the Public Library's Wi-fi (if it hasn't already done it) – go to "Settings", then "Wi-fi", and then select "Cambridge Public Internet"
 - If you participate by voting on the website, simply "click" or select your response and it will automatically be counted
 - Just vote once please! (unless you are helping your neighbor to vote)

Audience Poll

To participate by text

- STEP 1 - You must first join the polling session by typing the message **netzero** and sending it to **22333**
 - **netzero** is all one word
 - Lower or uppercase – it doesn't matter!

Audience Poll

To participate by text

- STEP 2 - Once you have joined the session you can submit poll responses by texting the corresponding letter (A,B,C,D, etc.) to **22333**
 - You just text a letter! That's it



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Guest Panelists

- **Ralph DiNola**, Executive Director, New Buildings Institute
- **Luke Falk**, Sustainability Manager, Related Companies
- **Christina Halfpenny**, Director, Energy Efficiency Division, Massachusetts Department of Energy Resources

Net Zero Task Force: Background

- In December 2013, the City of Cambridge created the “Getting to Net Zero Task Force”.
- The Task Force is charged developing actions that will set Cambridge on the trajectory towards becoming a “net zero community”, with focus on carbon emissions from building operations.
- The Task Force was created in response to a proposal made by residents that would have required new, large buildings to be Net Zero or pay an annual fee.

Thank you to our Task Force

Community Advocates/Residents

Henrietta Davis, former Mayor of Cambridge

Andrea Love, Resident, Payette Architects

Barun Singh, Resident, Founder & CTO, Wegowise

Quinton Zondervan, Executive Director, Climate Action Liaison Coalition

University/Climate Compact Representatives

Heather Henriksen, Director of the Office for Sustainability, Harvard University

Julie Newman, Director of Sustainability, Massachusetts Institute of Technology

Planning Board

Tom Sieniewicz, Planning Board member, Partner, NBBJ

Business/Property Owner/Developer Representatives

Bill Kane, Vice President, Leasing & Development, BioMed Realty

Joseph Maguire, Vice President at Alexandria Real Estate Equities, Inc.

Subject Matter Experts

Jane Carbone, Director of Development, Homeowner's Rehab

Caitriona Cooke, Program Director, Conservation Services Group

Emily Grandstaff-Rice, President, Boston Society of Architects, Associate, Cambridge Sevens Associates

Shawn Hesse, Architect, Sustainability Expert, Emersion Design

Marc Hoffman, Energy Efficiency Advisor

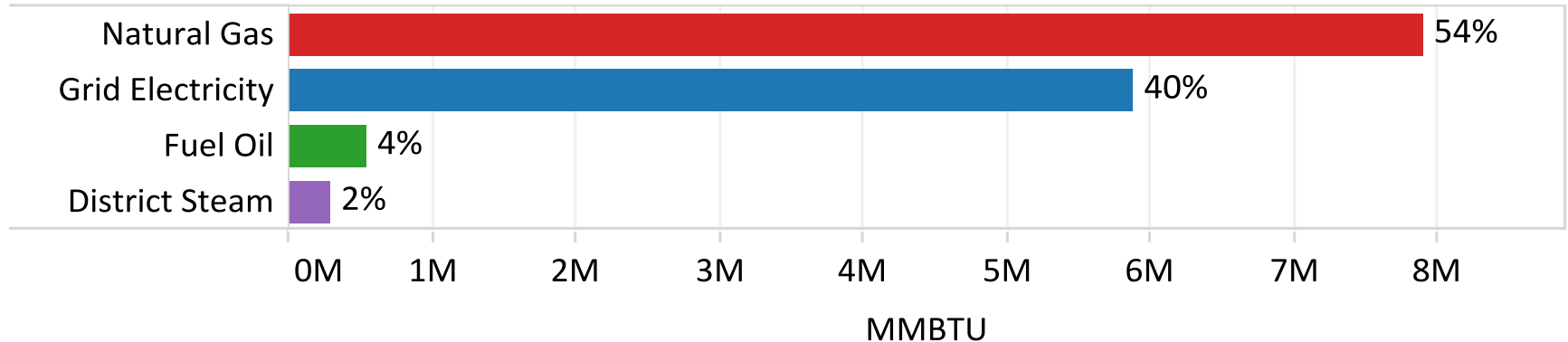
Paul Lyons, President, Zapotec Energy

What is NetZero?

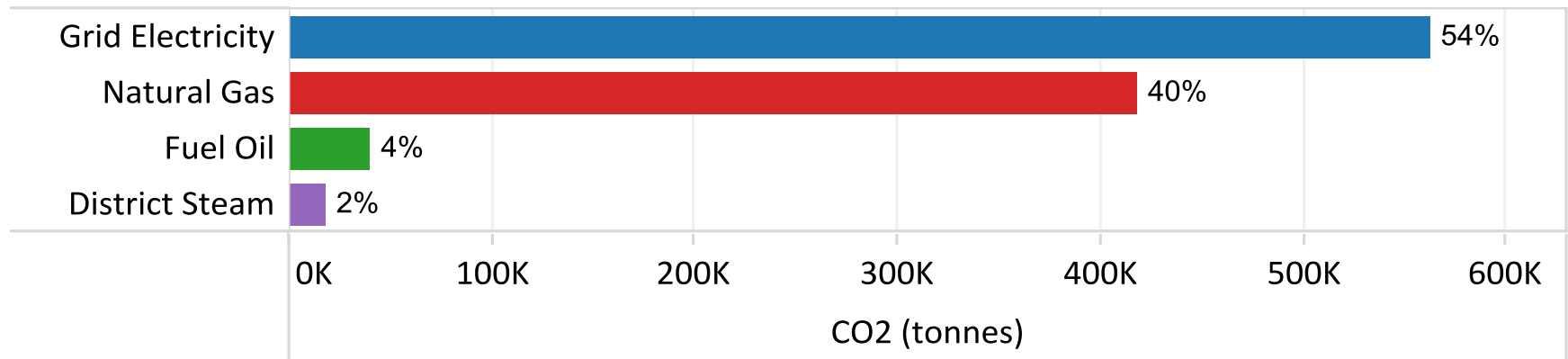
It includes:	Its does NOT include:
GHG emissions from new buildings	Transportation emissions
GHG emissions from existing buildings	Emissions from waste or garbage
Net zero emissions on a citywide scale, not building by building	Every building having to be net zero on its own
Energy used to heat, cool, light and “plug loads”	“Embodied” energy or carbon
	Water use

Energy Use & Emissions

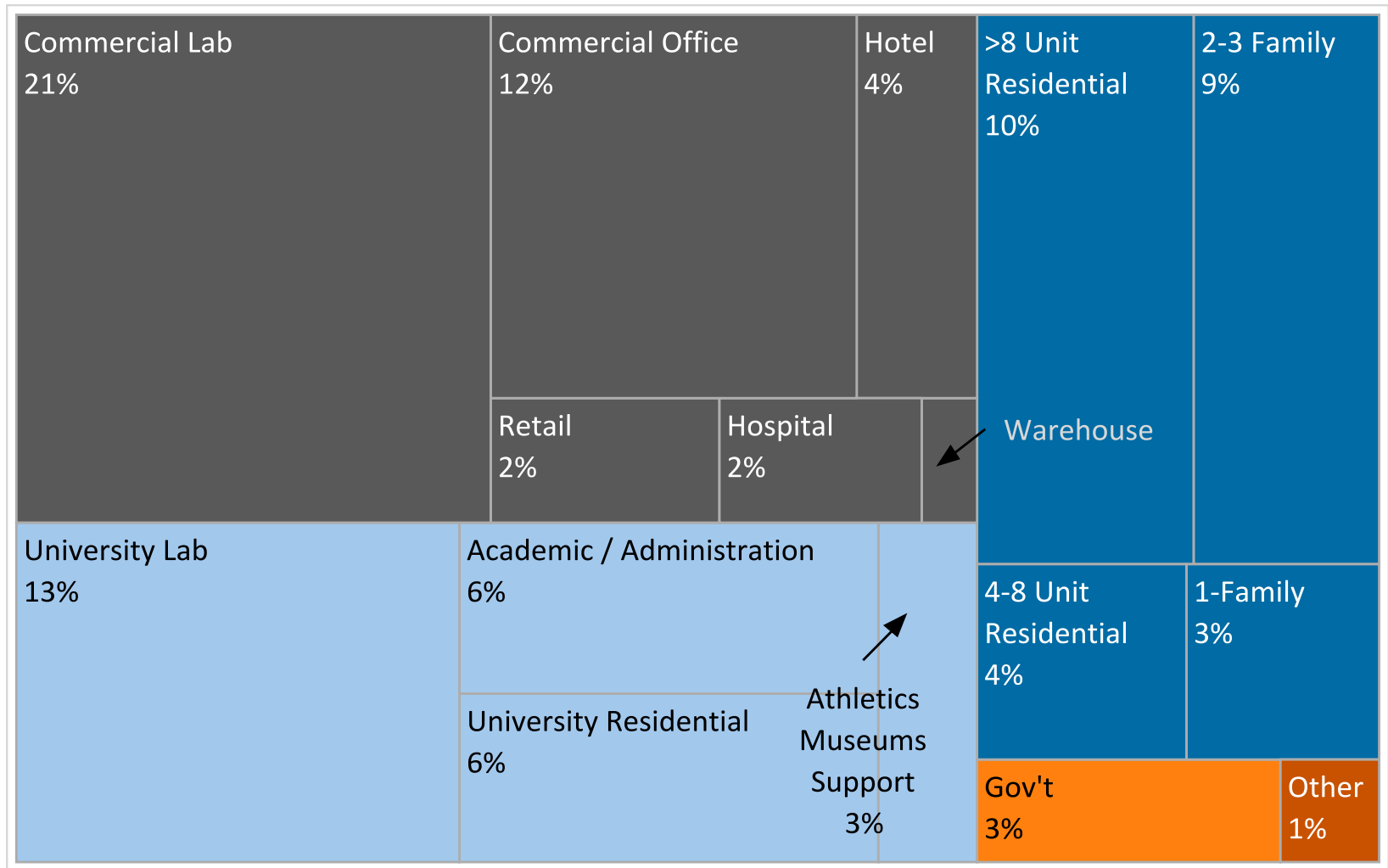
Energy Use (MMBTU) by Fuel 2012



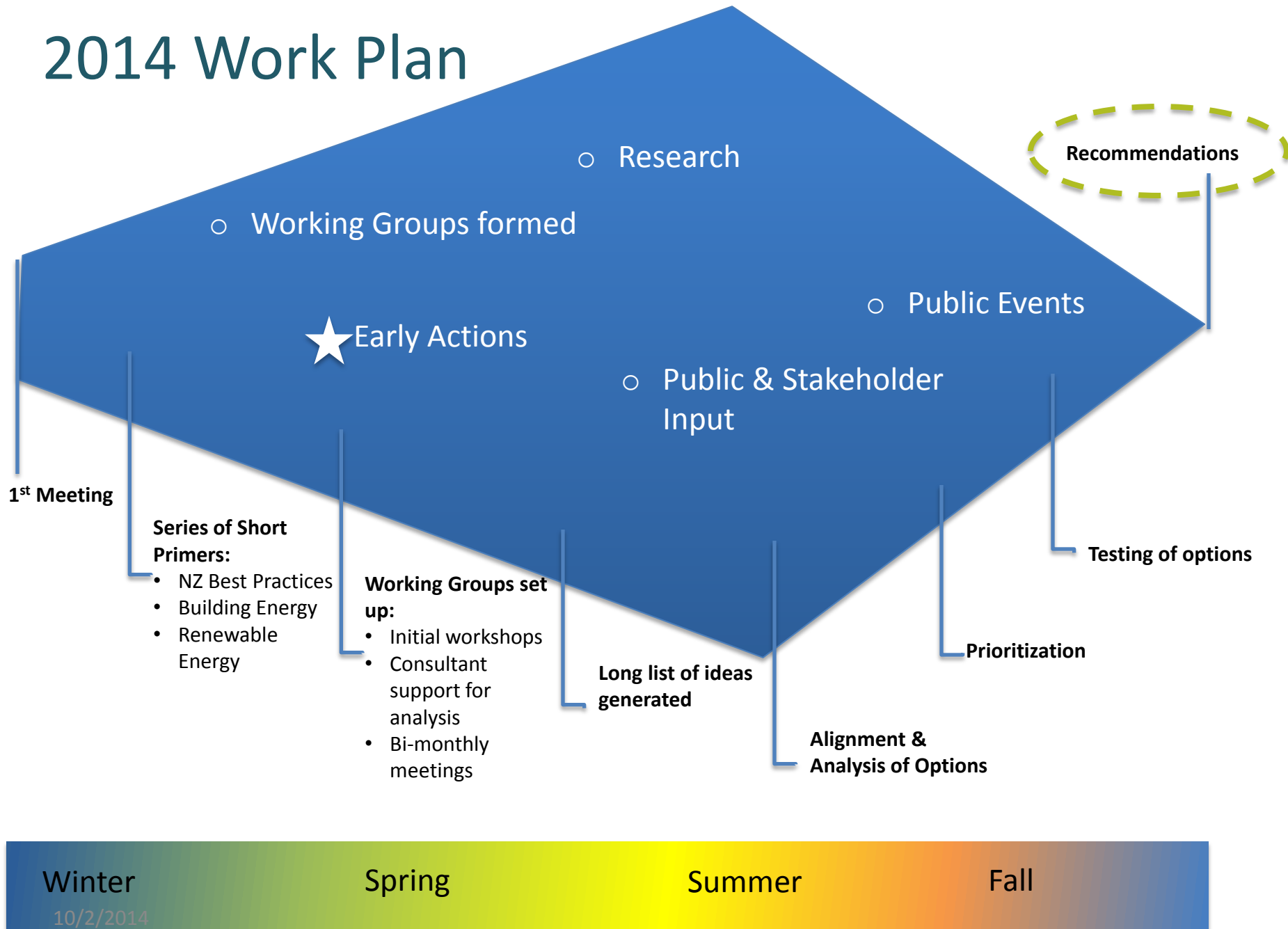
CO2 Emissions by Fuel 2012



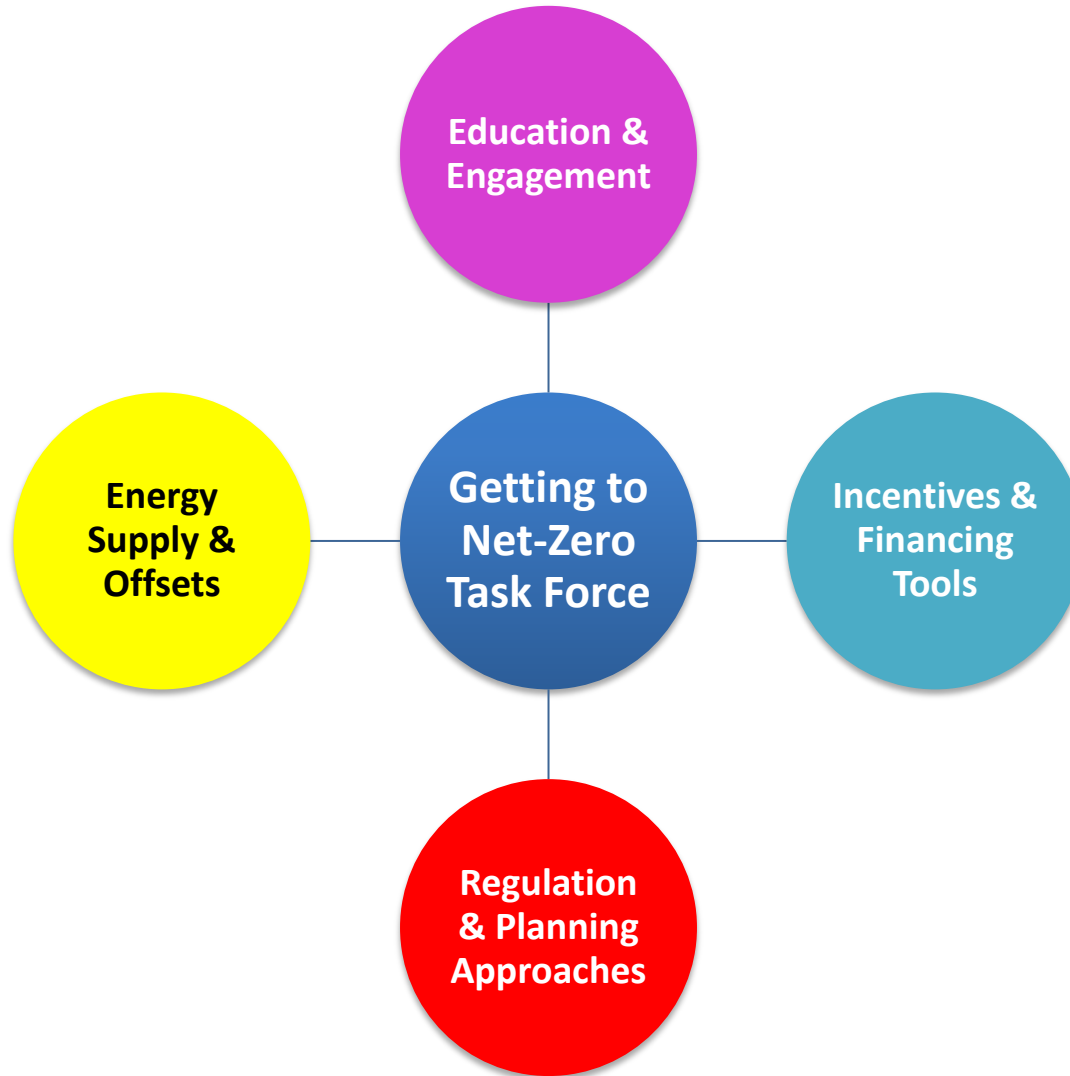
Estimated Energy Use by Space type:



2014 Work Plan



Working Groups



Endorsed Early Action Items

1. An update to Cambridge's zoning ordinance for design of new buildings from LEED Silver to LEED Gold
2. City advocacy for an update to the State 'stretch' building code which mandates better energy performance
3. City adoption of a building energy reporting and disclosure ordinance
4. Support for multi-family energy efficiency pilot program

The Ideas

Energy Sources & Offsets Working Group

- Go beyond rooftop solar; exploit all available renewable resources to the fullest extent
 - Promote fuel switching, city owned solar, district energy projects
- Develop adequate energy storage to support maximum build out of renewables
 - Storage in locations and vehicles,
- Position Cambridge to be a test bed for microgrids and grid modernization
 - Partnerships for grid-modernization
- Provide alternatives for residents to participate in local solar projects
 - Community Solar Projects

The Ideas

Behavior Change Working Group

- Cambridge launches a comprehensive and pervasive communications campaign that touches everyone living, working or studying in Cambridge
 - Communications network & improved engagement
- Cambridge property owners and tenants engage utility programs
 - Promote utility programs
- Building industry professionals (and property owner/management companies)
 - Collaborate with partners
- Competitions, challenges & rewards drive progress towards NZ
- The 'cool' factor of technology is exploited to engage people
- Building performance data is leveraged to drive energy efficiency and behavior change.

The Ideas

Incentives & Finance Working Group

- Create a new source of funding for incentives
- Prioritize incentives to reduce energy consumption in all sectors
 - Provide additional incentives to augment utility programs
- Work with private sector property owners to develop internal programs
- Develop nonfinancial incentives for new development projects
- Make carbon tangible
- Develop competition, recognition and awards programs

The Ideas

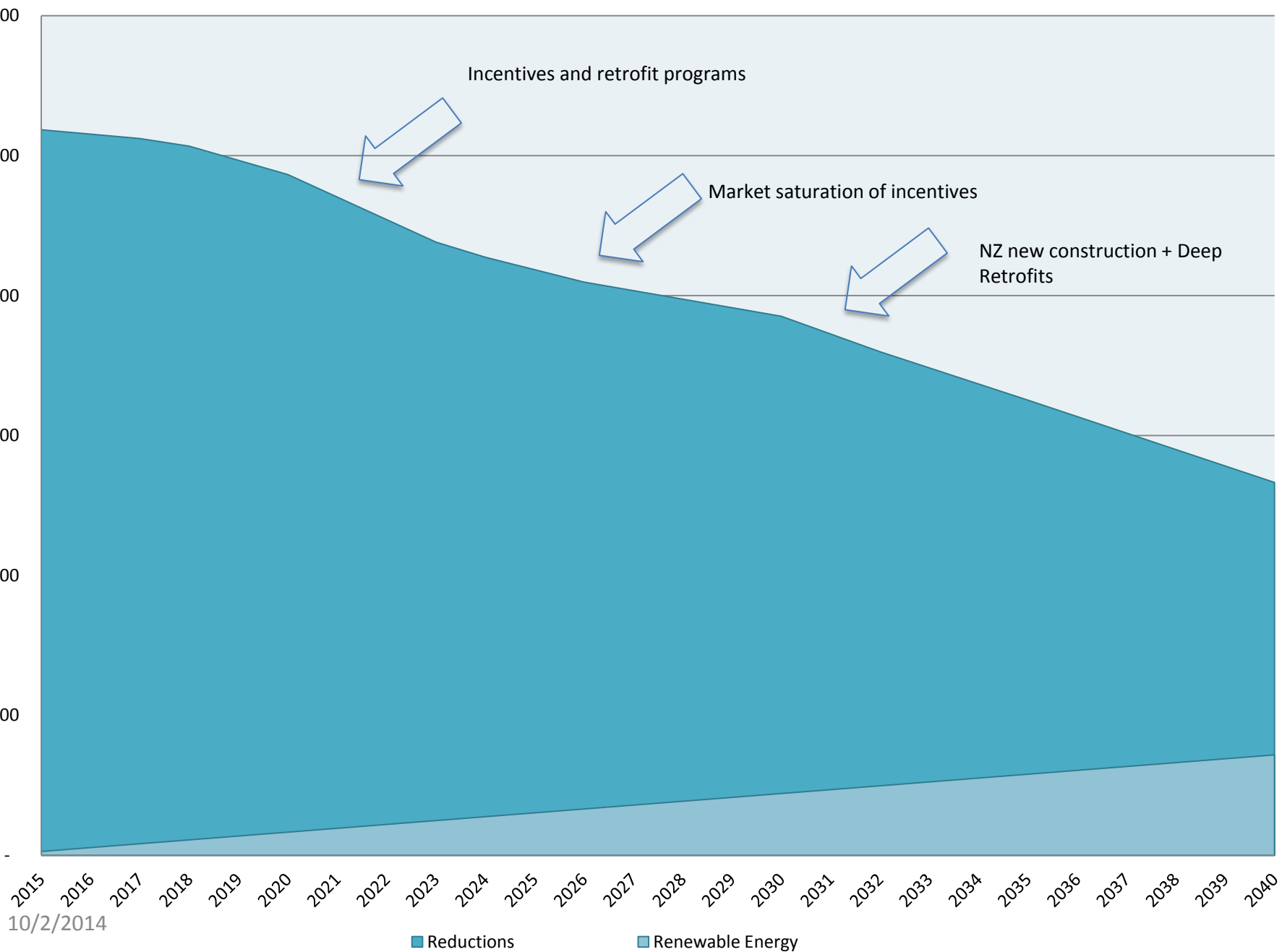
Regulation & Planning Working Group

- Regulations drive maximum engagement in energy efficiency and renewables across all sectors
- New districts or overlays are created, dedicated for specific clean energy uses
- Tenant guides & Green Leases
- Leverage funding sources to require new elements

The Overarching Ideas

- **Adopt a data tracking platform to track progress over time**
- **Utility Engagement**
- **Expand capacity within the City**
- **Identify any 3rd party resources needed:** to support program development and execution.
- **Develop training/education programs for staff:** so they are best prepared to support new programs.
- **Engage in regional advocacy**

Preliminary Cambridge Emissions Reduction Model



Some Important Facts/Ideas

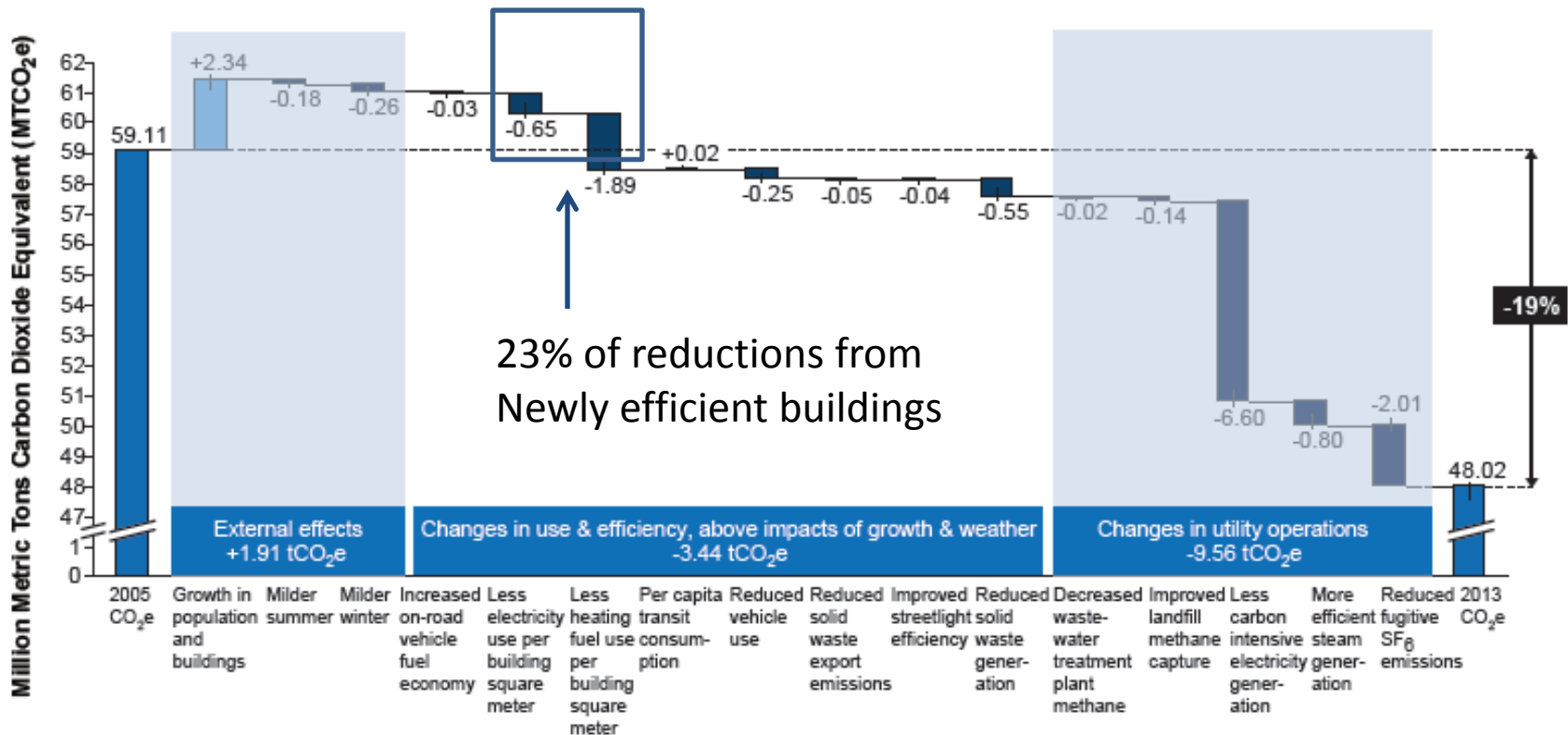
- A 70% reduction by 2040 sets us on track to meeting the widely adopted goal of 80% by 2050.
- Renewable energy generation in Cambridge will largely depend on solar; current technical and economic potential for solar would cover 5% of our electricity needs.
- But, more energy efficient buildings and more efficient solar technology would increase this percentage.
- State/federal requirements regarding carbon pricing, renewables and utility energy efficiency programs will influence progress.
- Additional actions need to be explored, e.g. impact of increased usage of steam from the Veolia plant.
- There is no silver bullet and planning needs to be on-going.

Questions for Panelists



PlaNYC and Greener Greater Buildings Plan Results

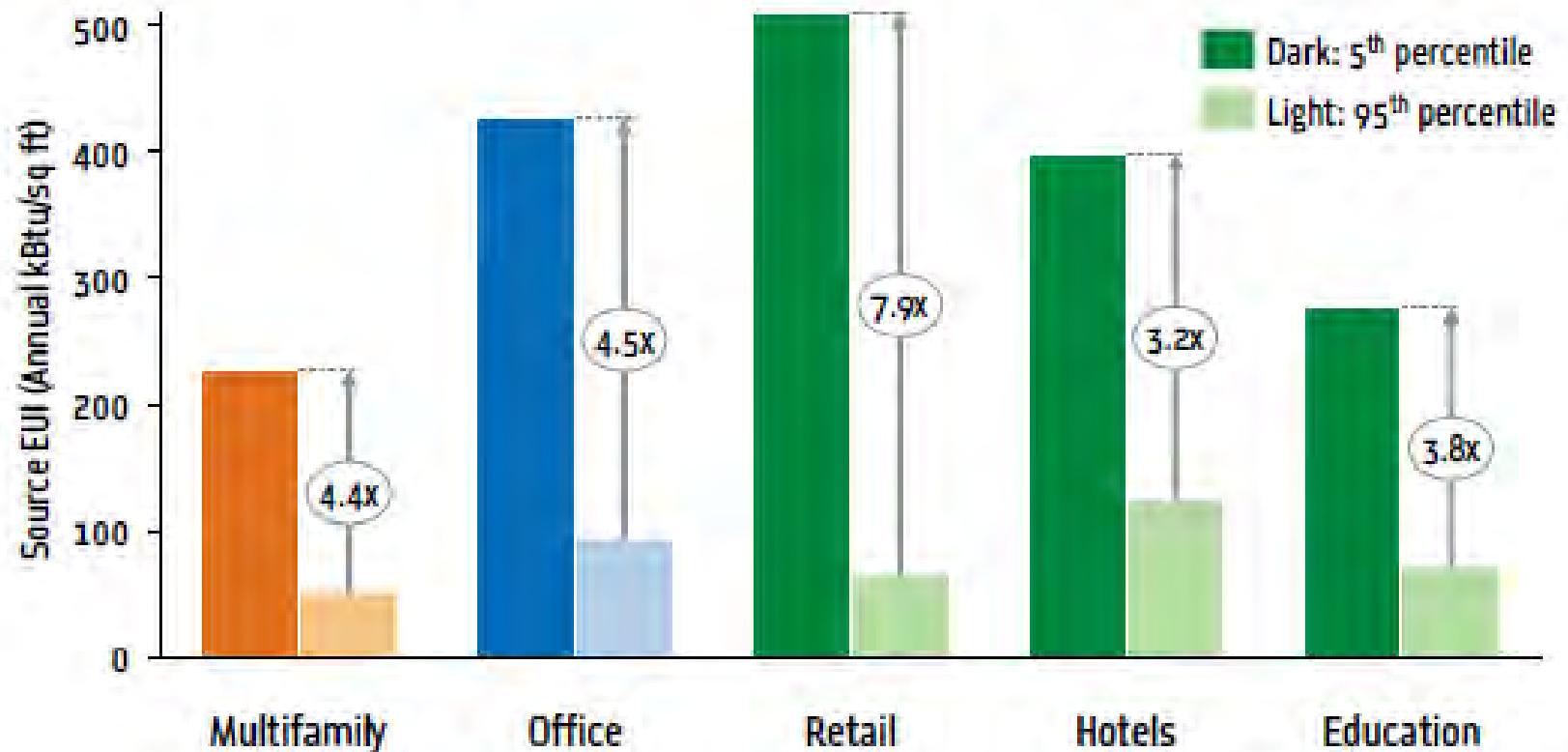
New York City's Greenhouse Gas Emissions Drivers of Change, 2005-2013



Source: New York City Mayor's Office of Long-Term Planning and Sustainability

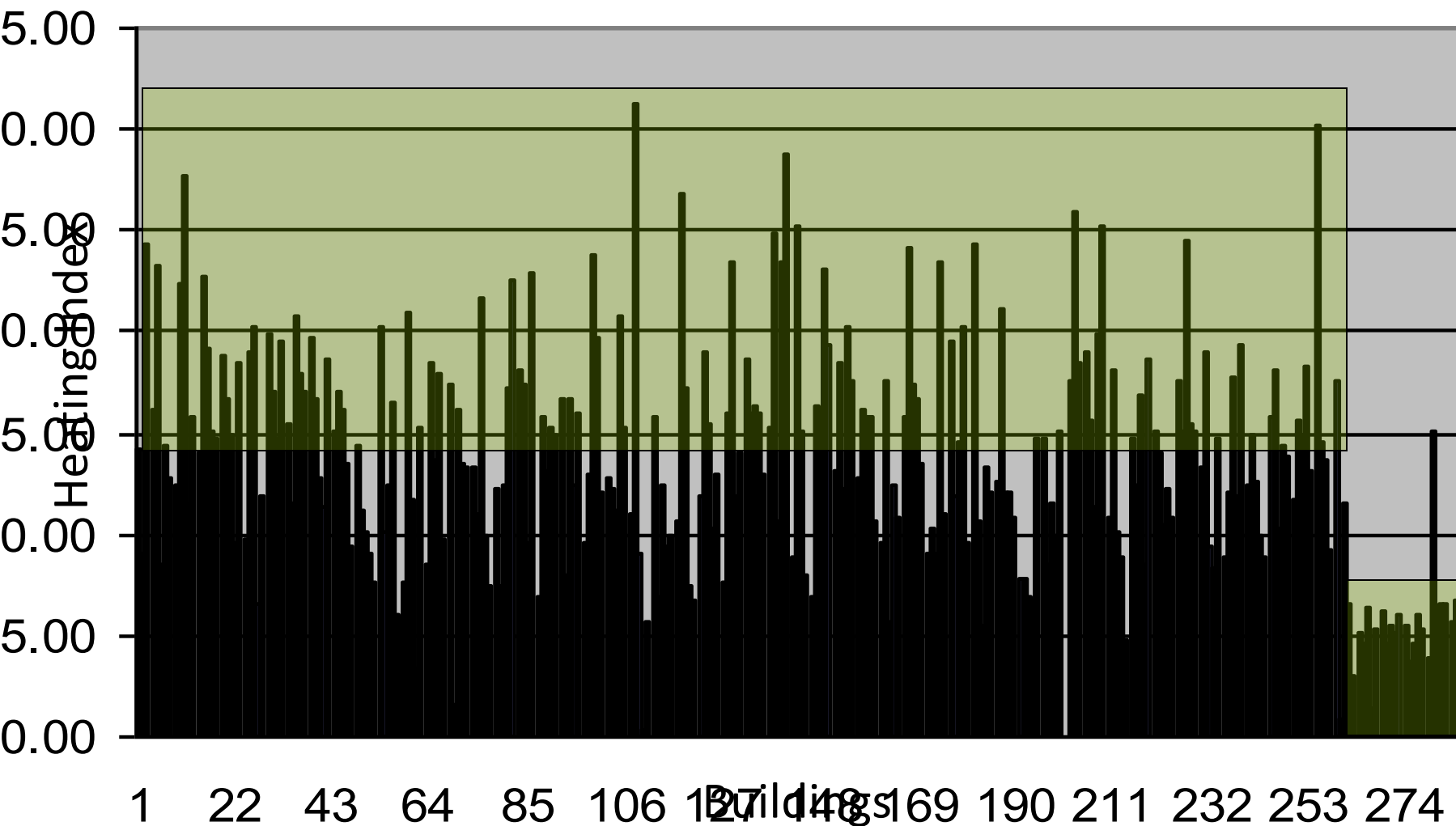
NYC LL 84 Results

Figure 10: Variation in Source Energy Use Intensity (EUI) Within Five Sectors

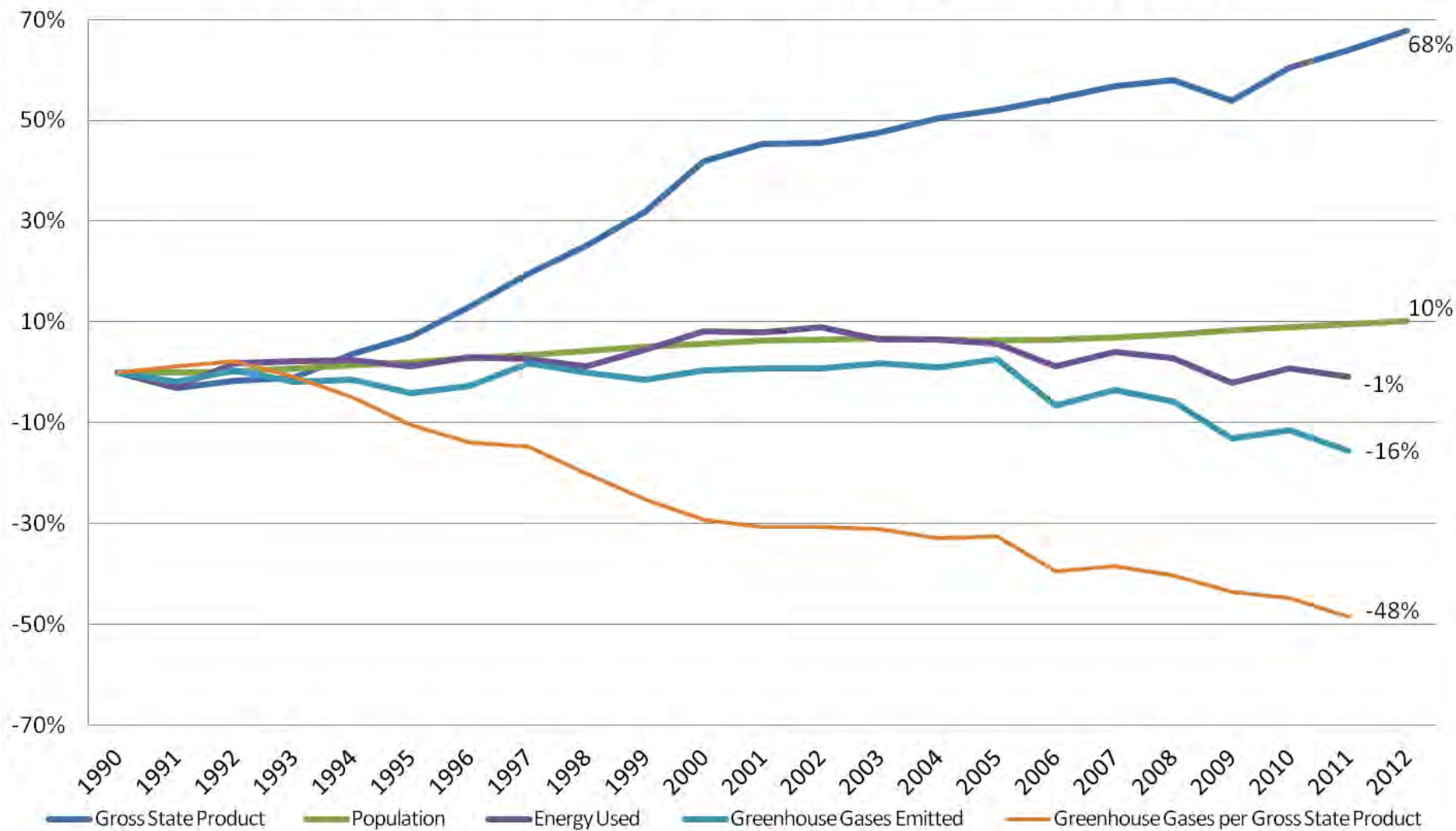


Source: NYC Mayor's Office

NYS MF Buildings Requesting Energy Audits 2001-2005



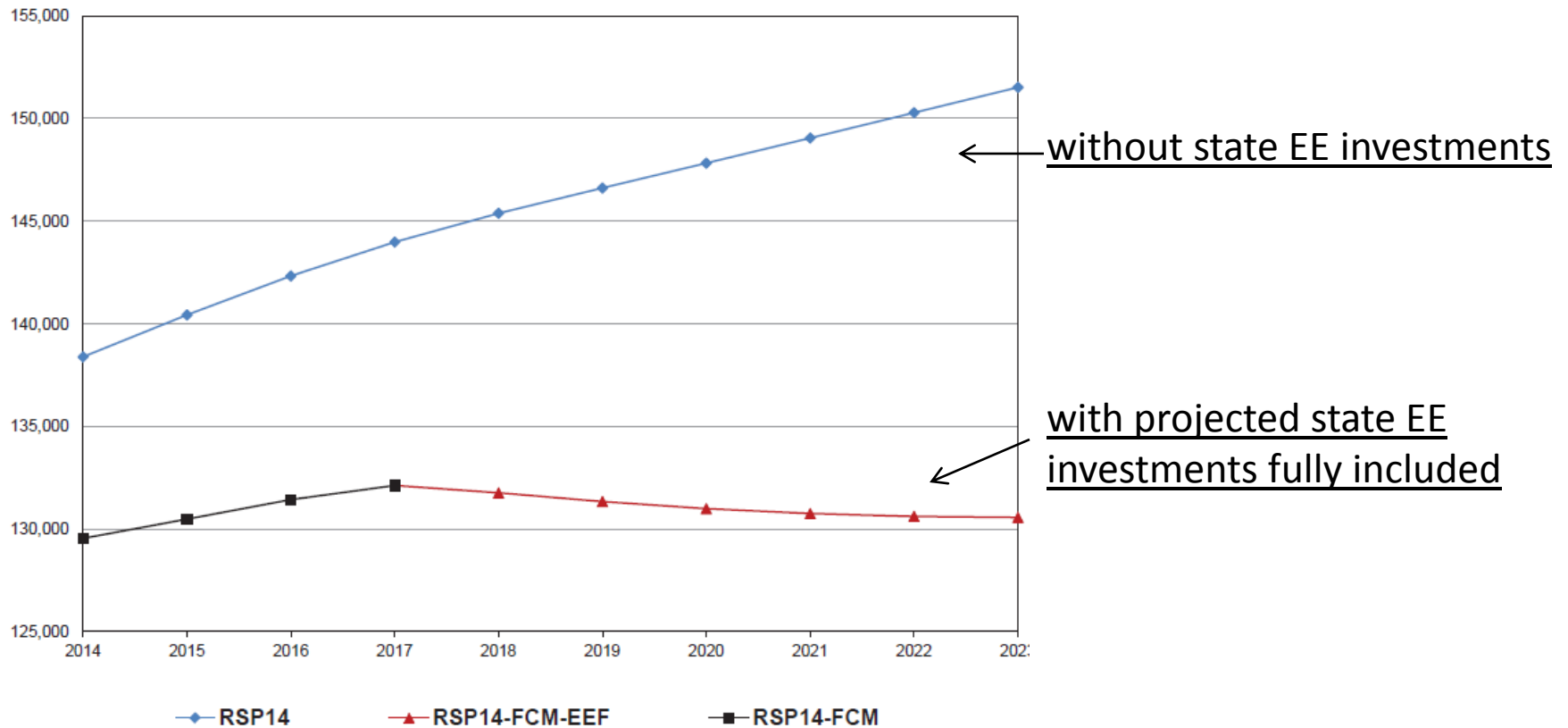
Massachusetts: Cleaner Air and a Growing Economy



Source: MassDEP, 4/2014

ISO-NE Load Forecast

New England: Annual Energy (GWh)



Source: http://www.iso-ne.com/committees/comm_wkgrps/othr/enrgy_effncy_frcst/2014frcst/iso_ne_final_2014_ee_forecast_2018_2023.pdf



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Net Zero Task Force

- To view the comprehensive list of ideas or to learn more about the Getting to Net Zero Task Force visit us on the web at:

www.cambridgema.gov/CDD/Projects/Climate/netzerotaskforce.aspx

#netzerocamb

- For more information on the Getting to Net Zero Task Force, please contact Ellen Kokinda in the Community Development Department at ekokinda@cambridgema.gov or 617/349-4618