

Cambridge Energy Alliance: A Community Response to a Changing Climate

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National Building Museum

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Kendall Foundation

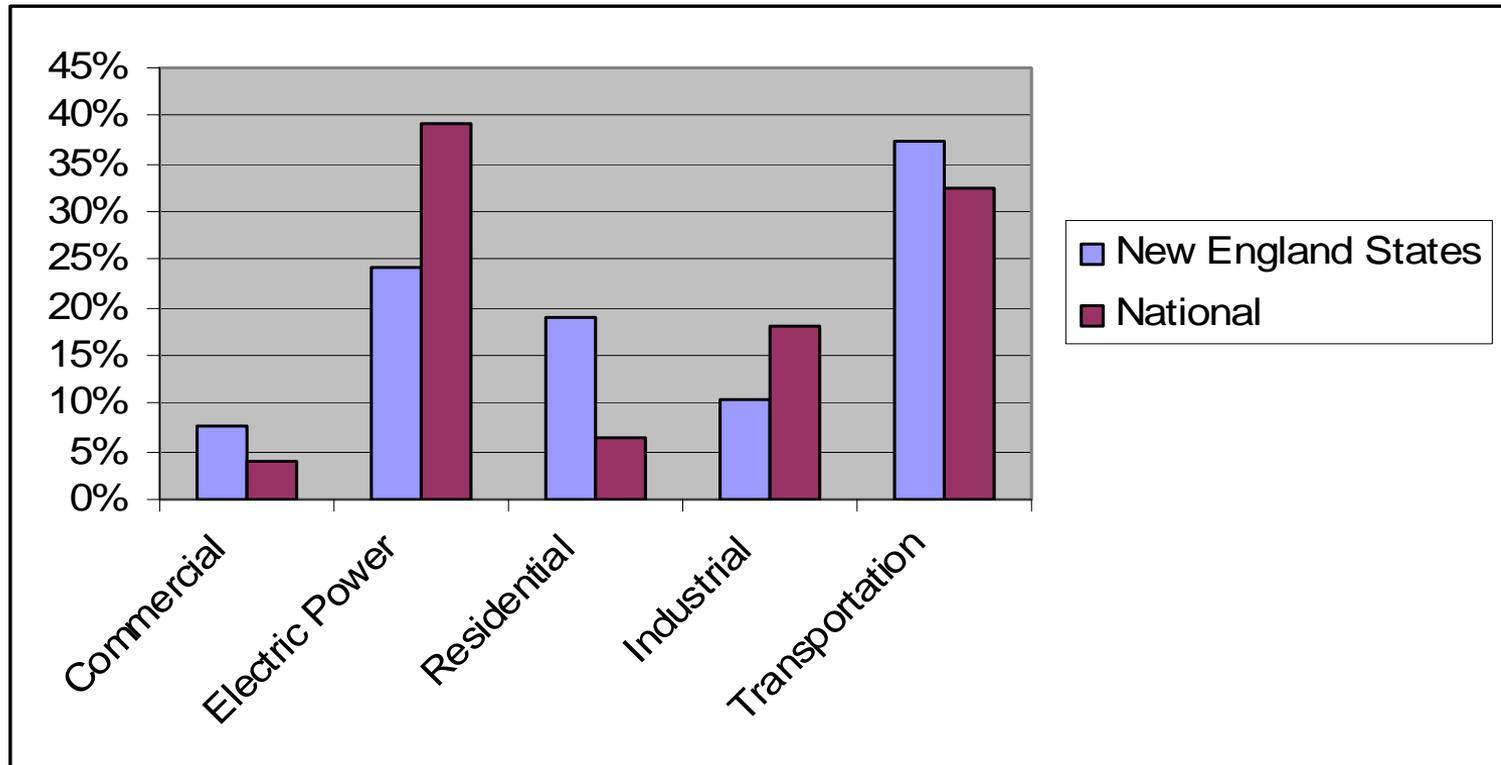
Philanthropy focused on Climate Solutions

- Located in Boston, MA, over 50 years in existence
- Trustees transformed mission to Climate Change in 1999; in view of climate imperative, passive philanthropy is not sufficient
- Focus on Advocacy, Entrepreneurial and Collaborative Approaches throughout our programs and grant decision-making
- Climate and Energy Team with more than 100 years of entrepreneurialism, private sector experience and policy leadership



It's All About Emissions

	Commercial	Electric Power	Residential	Industrial	Transportation
New England States	7.79%	24.20%	18.90%	10.50%	37.47%
National	3.90%	39.10%	6.40%	18.10%	32.30%



Central Climate & Energy Themes

Large-Scale Energy Efficiency Implementation

- Energy Efficiency offers most cost effective and impactful energy and climate solution
- Quintupling Efficiency beyond what has been done previously
- Emphasis on reduction of greenhouse gas emissions as the foremost criterion for actions taken

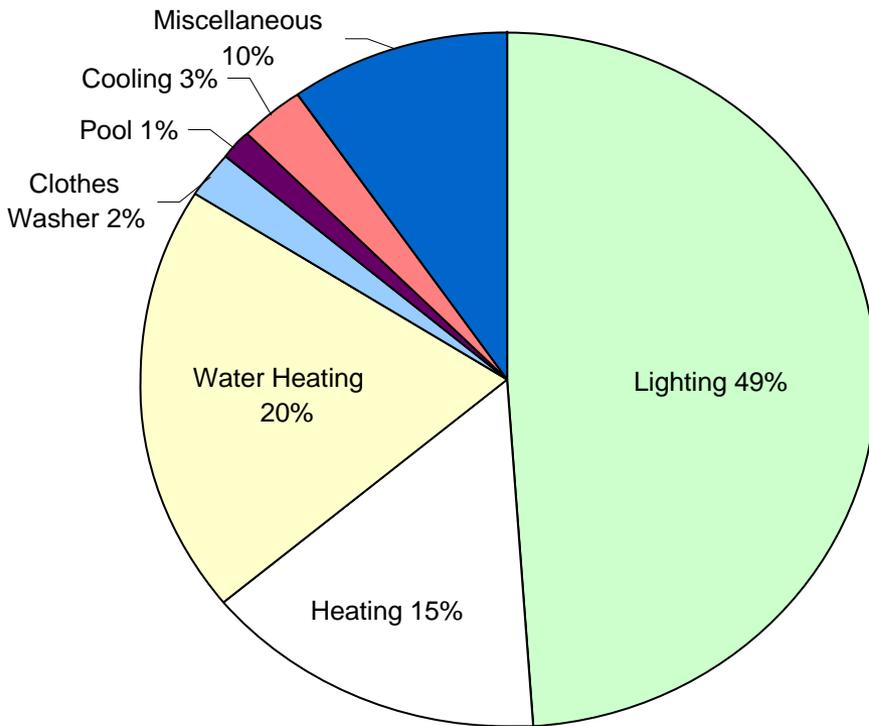
Innovative Financing

- Leverage as the central tenet
- Goal of \$4–8 of implementation from each public dollar committed

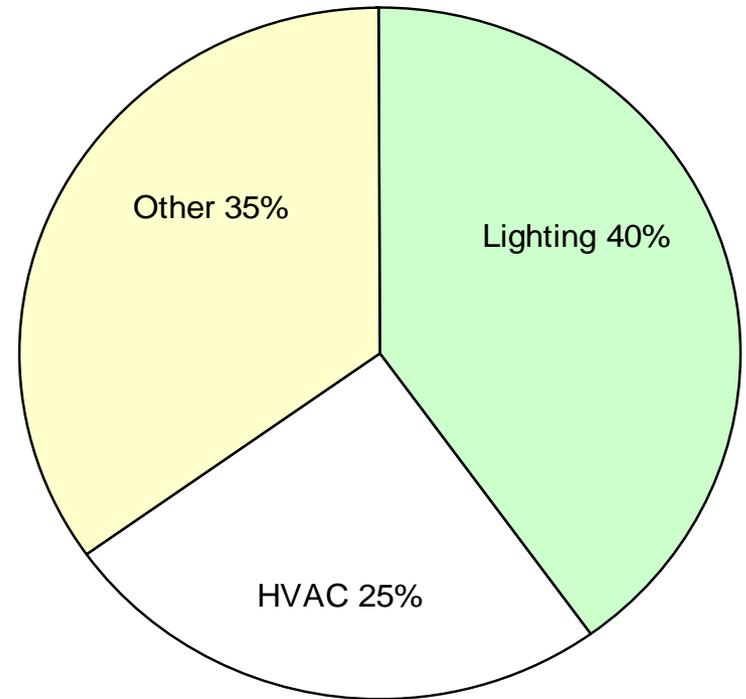


Major “Reservoirs” of Energy Efficiency Potential in 2013 by End Use*

Residential Savings



C&I Savings

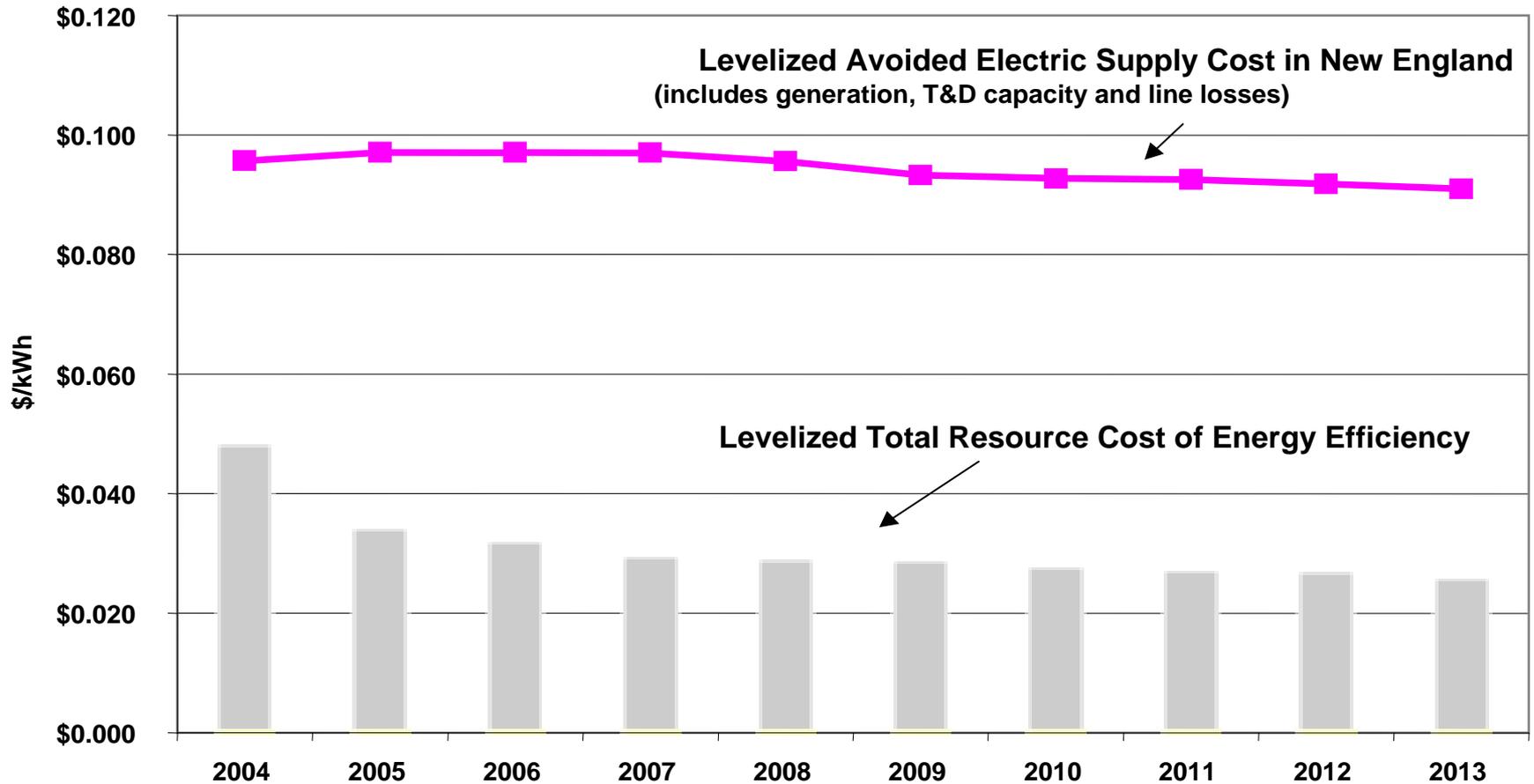


*Does not include transmission and distribution losses or heat wasted in electricity generation.

Source: NEEP



Energy Efficiency is 67% Cheaper Than Supply



Source: NEEP



Innovative Finance & Leveraging

- Maximize new or existing public funding to leverage by a factor of 4–8x energy efficiency implementation
- Public funding may serve as the equity, allowing the bulk of the financing to come in as private debt
- Revolving lines of finance can be utilized, which continue to replenish themselves as energy savings are paid back
- Through government approved innovative financing programs, clean energy implementation -- ***per year*** -- could rise to:

Small states: \$500+ million

Medium states: \$1+ billion

Large states: \$2+ billion



Massachusetts Leveraging Example

- Potential **annual** funding sources in 2008–2012:

Regional Greenhouse Gas Initiative Auctions	\$30-60M
ISO – NE Forward Capacity Market	75-100M
EE & RE System Benefit Charges	150-300M
Carbon Offsets, RECs, pollution charges	10-25M

- Total of \$265-485M could be leveraged into \$1-1.5 billion in clean energy implementation per year
- With policies promoting RE and CHP, could generate up to **\$2+ billion in clean energy implementation per year**

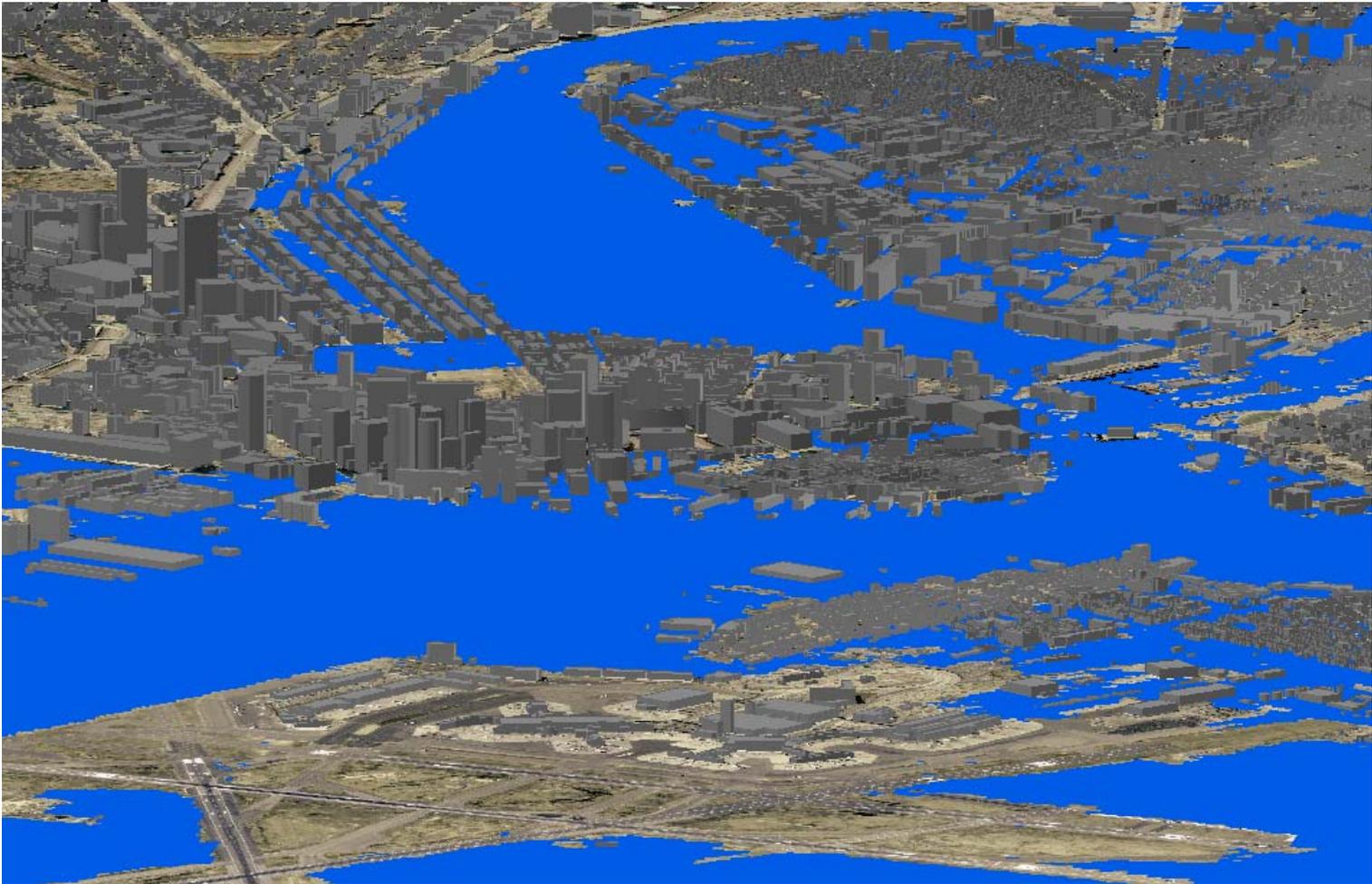


Why Cambridge is Taking Action

- Local governments will be on the front lines in responding to global warming impacts
- City Council is committed to reducing carbon emissions, energy efficiency, and clean energy
- Benefits to the community in terms of new jobs, economic development, stabilized energy costs, reduced pressure on grid
- Create a model for action elsewhere



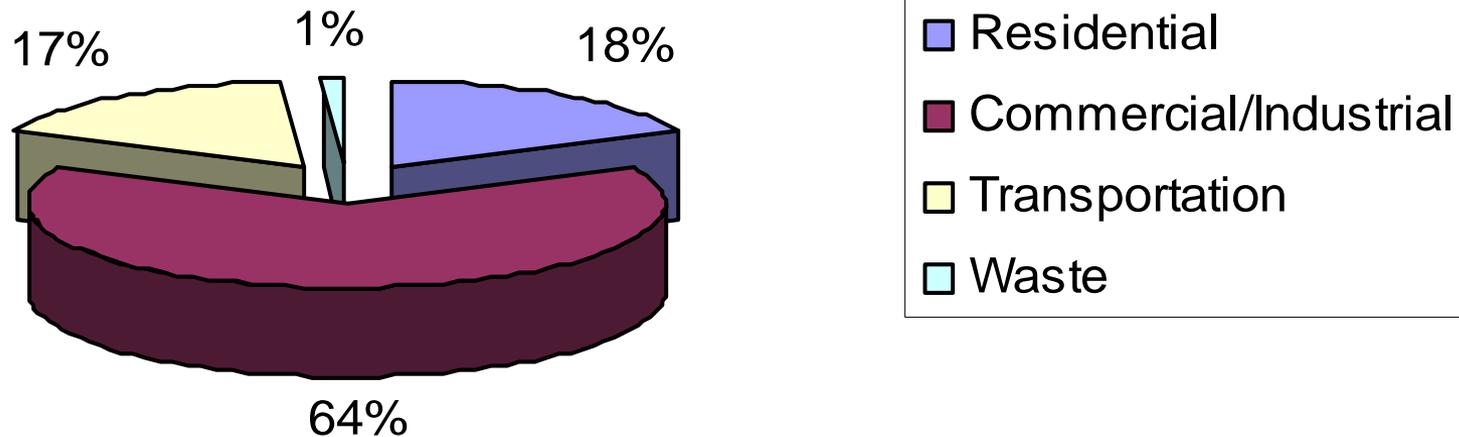
2100: Boston, Cambridge with 2-foot sea level rise & 100-year storm



Source: Paul Kirshen, Tufts University; Kelly Knee, Applied Science Associates; National Environmental Trust; Tufts University/University of Maryland/ Boston University CLIMB Study

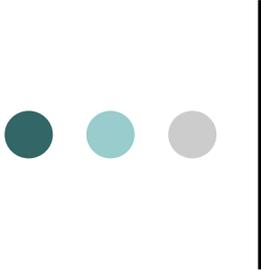
Building Energy Use is the Problem

2003 Greenhouse Gas Emissions in Cambridge



- Over 80% of GHG emissions are from building energy use, and about 2/3 is from the commercial, institutional, and industrial sectors; existing building stock is key





\$100 Million City Project ***“Cambridge Energy Alliance”***

- \$100 million, 5 year, massive energy efficiency project in Cambridge, Massachusetts
- All sectors – commercial, industrial, government, universities, hospitals and non-profits, housing and residents
- Goal of reducing peak demand by 50 MW and fuel and electricity use by 10% over 5 years; major reductions in GHG emissions
- Best way for city, companies and consumers to stabilize energy costs and reduce pressure on the grid
- Significant number of new jobs and economic development

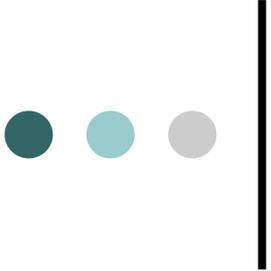


www.CambridgeEnergyAlliance.org



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City as Champion

Cambridge rallies its businesses, universities, organizations and citizens to reduce energy use and costs while making its infrastructure more efficient

- ***Reduce Cambridge's energy costs***
- ***Reduce America's dependence on foreign oil***
- ***Reduce Carbon and GHG emissions***

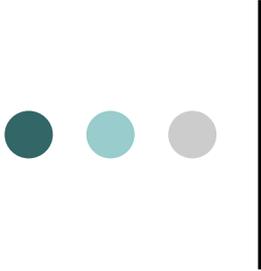
○ City Levers:

- “Brand” - credibility in Marketing and Investments
- Authority to deal with all parties
- Trusted relationship with large and small companies, university and nonprofit sector and residents

○ City as a Natural Aggregator of:

- Energy Demand
- Public Incentives
- Private Investment



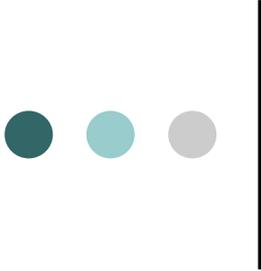


Cambridge Energy Alliance

Financial Model - Overview

- Assembling \$70 million revolving line of finance
 - \$15 million in public funding (ISO-NE, other)
 - \$2.5-3 million of Founders' Energy Notes for operating capital
 - \$50-60 million in private project financing debt
- \$50-60 million in private debt raised from pension and annuity providers, banks and life insurance companies
- Low risk debt, attractive interest rates
- Because savings are paid into revolving line, approximately \$100+ million in energy efficiency implementation will result over 5 years



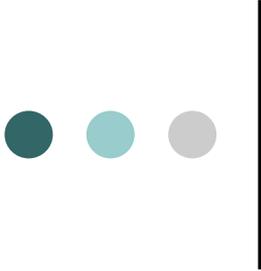


Cambridge Energy Alliance

Governance Approach

- Cambridge is closely partnering with a 501(c)(3) – Cambridge Energy Alliance
- The nonprofit is serving as a City-sponsored ESCO (Energy Service Company), reaching out to aggregate demand from all sectors
- The nonprofit:
 - Leads a public outreach and marketing campaign
 - Is raising debt financing through efficiency finance specialists
 - Combines all available public revenue sources (FCM, efficiency incentives, RGGI funding, carbon offsets, etc.)
 - Issues efficiency solicitations, i.e. for C&I, schools, hospitals, housing, residents
- All efficiency services are being delivered by **private** energy service companies, contractors and engineering firms





Cambridge Energy Alliance

High Profile Campaign

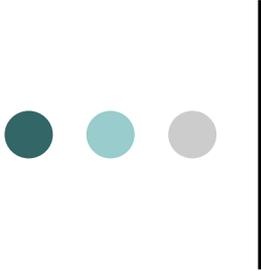
- Massachusetts Governor and Cambridge Officials announced on March 29, 2007
- Cambridge, Harvard, MIT, Chamber of Commerce, and other key representatives on Organizing Committee
- Seeks to involve all large Cambridge employers, hospitals, universities, schools, housing providers and small and medium size businesses
- Peer Pressure (decals and graphics to denote participants) and Media Attention
- SmartPower organizing messaging, graphics, radio spots and public advertising
- Religious leaders are involved; additional community partners engaged in outreach



Jobs & Economic Development

- \$100+ million investment over 5 years creates good jobs at all levels
- Partnership with MIT, Harvard and other universities, as well as entrepreneurial sector, will create new companies and approaches
- Efficiency reverses flow of money out of city and state
- Projection of Economic Multipliers





Municipal Innovators

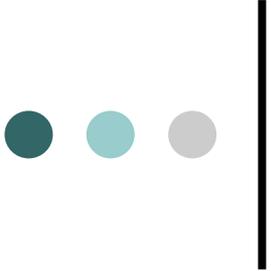
Energy Efficiency

- Boston Energy Alliance
- Energy Efficiency Partnership of Greater Washington
- Stamford and New Haven, CT

Renewable Energy

- Berkeley, CA
 - Financing the cost of solar panels through a 20-year property tax assessment

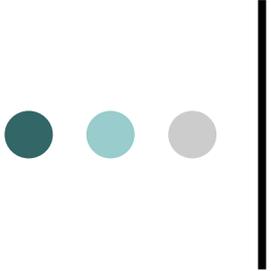




State Innovators

- California PUC, California Energy Commission
- Efficiency Vermont
- New Hampshire's Jordan Institute, State Partners
 - Granite State Energy Efficiency Revolving Loan Fund





Utility Innovators

- Save-A-Watt, Duke Energy (NC, SC, IN)
 - Increased energy efficiency program offerings – no predetermined cap on efficiency investment
 - Goal is to cover more than half of load growth with efficiency by 2015
- Sacramento Municipal Utility District, CA (SMUD)
 - Robust energy efficiency programs using rebates and loans



**For more information on CEA,
please visit:**

www.cambridgeenergyalliance.org

