ee–2020

TOOLKIT

How to Launch Scalable Energy Efficiency Initiatives in Your City

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Introduction

Serrafix, joined by Peregrine Energy Group and Clark Strategic Communications, worked for two years with partner cities in Massachusetts to help them start or improve efficiency programs and initiatives that could serve as models for other cities. This effort was funded by the Barr Foundation. EE2020 has created this toolkit to share what we learned. It is intended to be helpful to mayors, city leaders, and community activists who seek guidance on either starting or accelerating energy efficiency retrofits in their communities.

Section I begins with an overview of why city leadership matters and the twelve steps you can take to move forward. Here we also discuss how marketing and data are used to target efforts and measure success. Section II describes in more detail our experience in the three essential sectors: municipal, commercial and industrial (C&I), and residential. Within that section, we cover several tools that were useful in the EE2020 effort, such as financing municipal building retrofits, using a concierge service, PACE financing, partnering with intermediaries, data targeting, and social marketing.

EE2020 worked most intensely with five Massachusetts cities: New Bedford, Newton, Northampton, Pittsfield, and Somerville. We also provided advice and assistance to Chelsea, Fitchburg, Greenfield and Leominster. This toolkit comes directly from on-the-ground experiences in these cities, and we thank each municipality, and all the community and utility partners within them, for their role in deriving the lessons we have all learned.

The EE2020 team hopes this toolkit will help inform and inspire your efforts to save energy, fix buildings and combat climate change. Best of luck!

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Section I: The Basics

A. Leadership

All energy efficiency initiatives are challenged by outreach and uptake. Simply put, it is difficult to get people to fix their houses, apartments and businesses even when the services are free or the economic advantages are clear. Nonetheless, Mayors and city leaders can play meaningful roles in encouraging businesses and residents to take advantage of existing efficiency programs. Here are some of the reasons why:

1. Use the Bully Pulpit

Mayors can leverage the power of their office to draw attention to climate change. From winning coverage in the local media to communicating with residents via municipal channels to encouraging opinion leaders to take part, people listen to city leaders. They can hammer home the importance of the following messages:

- Energy efficiency reduces energy costs for local businesses and residents.

- Energy efficiency keeps dollars in the community.

- Efficiency measures improve the local building stock and raise property values.

- Energy efficiency measures harness additional resources from utility programs, increase local influence over their operations, and position the community for state and federal grants.

- Building upgrades = New jobs

2. Fix city buildings

Mayors can lead the charge on energy efficiency by making the decision to first upgrade municipal buildings. That will give you leverage in negotiating with utilities and/or energy service companies (ESCOs), who will be key partners.

3. Set Goals

Mayors can set the tone of the campaign by committing to energy savings goals. There are a variety of ways to identify goals, including adopting state or utility goals, setting targets related to carbon or energy reduction, or picking a well-defined achievement to reach in either the short or long term. The goal might be city-wide or sectoral, depending on the city's energy profile. Whatever goal is chosen, the priority should be to pick something inspirational to engage the community and, most importantly, to allow for measurement. See the data section for more details on what to measure and how to measure various metrics.

4. Use Convening Authority: Build Partnerships

The Mayor's office is in a unique position to engage and challenge the business community to fix its buildings. People listen to the mayor; that leadership translates to leverage in linking businesses to utilities and ESCOs and recruiting support from community groups.

5. Use Regulatory Authority

Mayors can set policies that advance energy efficiency. Some examples include:

- Authorizing PACE financing, which makes upgrades easier to pay for;

- Implementing mandatory benchmarking, rating, and disclosure policies, which apply market pressures to building owners

- Passing building energy codes and enforcing compliance for both new & existing buildings

- passing retrofit ordinances, which require that buildings are upgraded to meet certain energy performance standards before selling or leasing; and

- Pursuing municipal aggregation, which allows a city, town, or set of collaborating communities to become their own retail utility, where they buy electricity in bulk and take charge of running their own efficiency programs. A city might pursue aggregation when looking for lower energy prices, power from renewable energy sources, and/or increased control over efficiency program delivery.

Mayor Setti Warren announces the launch of Energy Smart Newton
Photo by Amy Stitely - March 2012

B. Sequencing

After a Mayor decides to make a commitment to reduce building energy use, there are important decisions to make. Whose buildings will be retrofitted? By when? Who takes responsibility for making this happen? What partners are needed for what activities?

The good news is that you don't have to reinvent the wheel. After working with a half-dozen cities, the EE2020 team has developed a set of guidelines on how to choose targets and move ahead. Below, we share this advice and outline a 12-step process on how to build your initiative.

Which Buildings?

We recommend starting city programs by retrofitting (i.e., upgrading the energy efficiency of) municipal buildings. That allows for leading by example – and can provide leverage in negotiating with utilities and/or energy service companies (ESCOs) who will be key partners throughout the city.

A city's next target should be the business sector – also known as C&I, or commercial and industrial - because the savings opportunities are greatest, both in the aggregate and per building. The city has a major role to play here through setting policies and leveraging its relationships with the local Chamber of Commerce and other key business groups.

Finally, residential buildings shouldn't be ignored, even though the savings per building are small compared to the C&I sector. Dealing with thousands of homeowners means that progress can be slow, but engaging the residential sector is essential for building support among voters and for giving them the opportunity to benefit from energy savings. One key is to identify partners, such as community groups, that can help reach this audience most effectively.
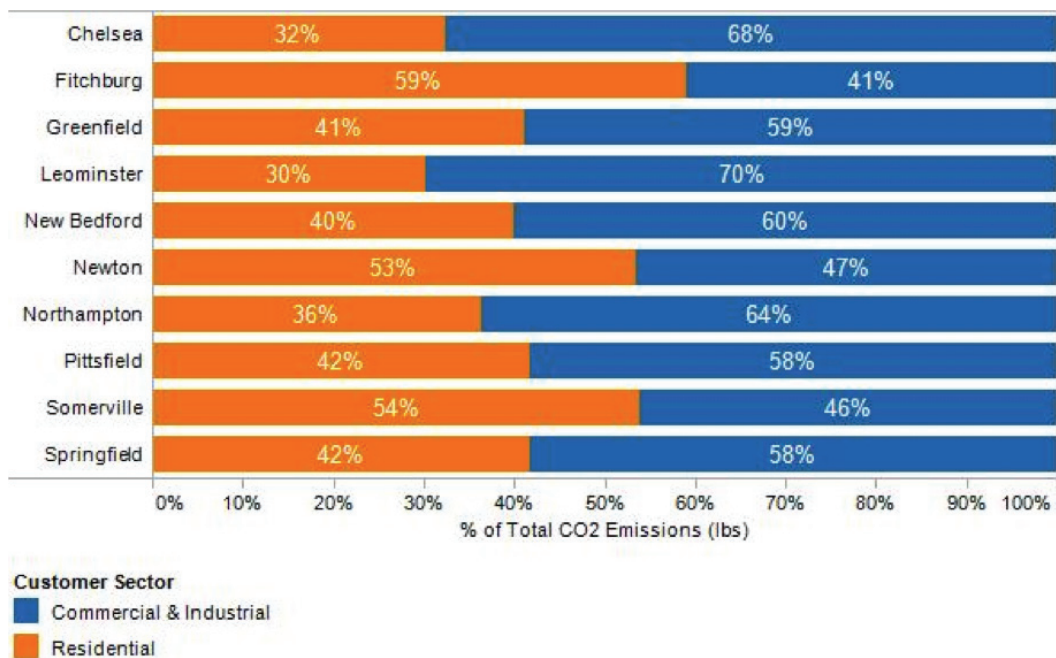

Figure 1: Electric and Gas Emissions by Sector for EE2020 cities

12 Steps For Building Your Initiative

1. Commit: Mayor and senior staff commit to energy efficiency as a priority.

2. Self Assessment: Mayor and staff evaluate the capacity to design, implement, and sustain a program.

3. Goal Setting: Mayor adopts an energy savings goal (20% carbon reduction by 2020, in this case)

4. Design Program on Paper
   - look at overall energy use profile
   - scan for unique opportunities & leverage points
   - identify potential target sectors
   - marketing strategy
   - project management strategy
   - evaluation/tracking strategy
   - identify partners needed
   - identify resource needs

5. Recruit Local Partners

6. Secure Resources, from
   - Utilities
   - State/Federal government
   - Foundations

7. Build Capacity
   - train implementers
   - build management infrastructure (communications/ tracking)

8. Ramp Up with Early Adopters

9. Public Launch

10. Implement/Evaluate/ Learn/ Refine

11. Grow to Critical Mass

12. Sustain

C. Marketing and Communication

The fundamental premise of an energy efficiency marketing strategy is to determine three things:

1. Target: Which businesses (or residents) should be targeted?

2. Message: With what message?

3. Marketing Outreach: Via which means?

Target

To create a successful outreach strategy, the first step is determining your target audiences, because:

- You simply can't be "everywhere." You need to focus your time and resources.

- The more targeted the message, the more effective it is. You don't want your audience to have to extrapolate from general messaging and wonder whether what you're saying applies to them.

- Success breeds success. Showing results in one neighborhood/industry/ demographic is powerful proof of concept and will help get others on the bandwagon.

As discussed previously in the "Sequencing" section, you identify your target audiences based on a combination of the following factors:

- **Impact.** Who are your biggest energy users? You may get the most "bang for your buck" by reducing their consumption.

- **Low-hanging fruit.** Where do we have pre-existing relationships? Who will be easiest to reach or to convince?

- **Clusters.** Does your city have a large number of restaurants that can be effectively targeted for specialized services? How about manufacturing businesses or other industry clusters? Or on the residential side, is there a big development with similar construction and tight social ties? A plethora of homes that consume a lot of fuel?

- **Visibility.** Attention – from the media, residents, or other businesses – is key to getting people onboard the effort. What businesses or people will prompt people to take notice?

Message

Depending on your community's interests and perspective (you can find out via holding community focus groups or conversations with local leaders), you may want to use some of the messages below. Note that it's most effective if you don't overload people with different messages – try to select one for overall use, or at a maximum, one message per target group.

- Civic Pride. [Your Town] businesses are innovative and always looking for ways to work smarter, help the community, and help the environment. This initiative is a great way for businesses to do their part and live out the community values we share.

- Economic Benefit. This initiative makes it easier and better to do business in [Your Town]. We're working with businesses to reduce their energy costs and increase their profits – and that helps our city grow sustainably.

- Environmental Benefit. [Your Town] businesses are innovative and are always looking for ways to work smarter, help the community, and help the environment. This initiative is a great way for businesses to do their part and live out the "green values" we share. (This may be a particularly strong message for participating businesses to share with their customers.)

- Join Us. Business leaders all across [Your Town] are joining together to make our community a better place to live and work. Come be a part of this growing movement. (Psychology research has repeatedly shown the value of "social proof" or peer pressure as a motivating factor in behavior change.)

Program Name and Logo

Unfortunately, many people equate marketing with slogans. Your community can waste hours, days, and weeks coming up with a mutually-agreeable program name when that is the least important part of your initiative – but one that everyone has an opinion on. Your overall strategy, from targeting to messaging to marketing outreach, is so much more important. Instead, save yourself the trouble and pick something from the list below, or use it to spark your own ideas. But don't spend too much time on it. [1]

The same goes for logos. If you do have a logo (and, while they're nice to have, they're frankly not essential), make sure it looks reasonably professional (i.e., not created in Microsoft Word). But don't agonize over it.

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[1] See Dorie Clark's article "How to Craft a Great Slogan – and Why You May Not Need One." http://www.huffingtonpost.com/dorie-clark/making-memorable-slogans_b_1190180.html.

SUGGESTED PROGRAM NAMES

[Your Town] Current

[Your Town] Charges

Powering [Your Town]

Energy Smart [Your Town]

Efficient [Your Town]

Sustainable [Your Town]

Building a Better [Your Town]

Moving [Your Town] Forward

[Your Town] Better Buildings

[Your Town] Together

[Your Town] Energy Independence

[Your Town] Energy Action

[Your Town] Energy Progress

[Your Town] Smart Energy

[Your Town] Energy Smart

[Your Town] Energy Savings

Energize [Your Town]!

[Your Town] Energized!

[Your Town] Pride

[Your Town] Values

Together for [Your Town]

[Your Town] Smarter Future

Marketing Outreach

Your goal should be to win media coverage in major outlets (daily newspaper, major weekly newspaper, TV news, local radio, influential blog, etc.) at least monthly, as well as coverage you can control (local access TV, blog posts created, social media outreach, article in partner group's newsletter, etc.) at least every 1-2 weeks. An approximate schedule is listed below, for guidance, with marketing ideas.

Month 1-2: Ramp Up

- Find organizational partners. City identifies lead organizational partners (e.g., Chamber of Commerce, sustainable energy NGO, etc.)

- Find early adopters. Chamber and city identify "early adopters" – i.e., a few businesses in each target audience segment who are eager to get started.

- Develop fact sheets. Or identify ones that may have already been developed.
  - Document successes to date ("pioneers") with the objective of selecting ones that help sway target audiences; and
  - Summarize programs/incentives available.
  - Describe arrangements to "localize" the energy efficiency effort, e.g., energy concierge service.

Month 2-3: Launch

- Media unveiling. With partners and early adopters in hand, stage a media rollout to announce the program more broadly. This could include possibilities such as:
  - Local newspaper editorial board.
  - Mayoral op-ed in newspaper, inviting businesses to join the initiative and highlighting recent success stories (perhaps could co-author with business leader).
  - Mayor speaks to Chamber and/or other business groups (solicits early adopters).
  - Press conference at a participating business site.
  - Unveiling of "Take the Pledge" campaign (perhaps with visible sticker that can be displayed), in which businesses sign on to green efforts.
  - Identify a prominent business willing to be highlighted as the "Before and After Business" – with publicity along the way including newspaper coverage, etc.

- Broad outreach begins. Utilities, city, and other partners may reach out personally to target audiences via phone calls, personal visits, leveraging peer pressure from colleagues, etc.

Months 4-12: Sustain

Here are some ideas for maintaining visibility and momentum for the program:

- Hold a mayoral press conference to mark progress.

- Conduct a "Main Street Challenge" to identify the businesses that can cut energy usage the most, attain Energy Star status or undertake the most green initiatives.

- Encourage local access TV to do a segment about a particular company's retrofit process.

- Urge a newspaper columnist to profile business success stories.

- Suggest that participating business owners write about their reasons for participating for key media outlets (well-read local blogs, etc.).

- Prompt your partners to communicate about their energy efficiency efforts through their own channels (e-newsletters, blogs, program booklets, menus, signage, etc.).

- Yard signs for participating residents or businesses.

- Mayoral tour of participating sites, showing off new improvements.

- "Green Awards" ceremony recognizing businesses that have already taken action.

- Continue city's social media outreach (Facebook, Twitter, videos of participating businesses via YouTube or Pinterest, etc.).

- Mayoral walking tour of retrofitted municipal buildings.

- Mayoral appearance (perhaps with business leader) on local access TV talk show.

- Mayor speaks to Rotary or other groups in the city, highlighting the program.

These ideas are just a start. You'll want to think of the ways that people get information and news in your community and find the best possible ways to tap in.[2]

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[2] For further information about social marketing – i.e., the practice of marketing to achieve social change, such as gains in energy efficiency – you may find the following articles in the *Huffington Post* to be of interest:

"Setting the Right Goals for Your Social Marketing Campaign."
http://www.huffingtonpost.com/dorie-clark/social-marketing-goals_b_1011641.html

"How to Market Your Social Marketing Campaign."
http://www.huffingtonpost.com/dorie-clark/social-marketing-campaigns_b_1011623.html

"How Do I Know It's Working? Monitoring and Evaluating Your Social Change Marketing Campaign." http://www.huffingtonpost.com/dorie-clark/how-do-i-know-its-working_b_984952.html

"The Five Most Common Mistakes in Social Marketing - and How to Avoid Them."
http://www.huffingtonpost.com/dorie-clark/the-five-most-common-mist_b_972677.html

D. Using Data to Target, Manage & Learn

Data is important for your energy efficiency efforts in several ways:

- Knowing where you are now (in terms of energy use, demographics, building stock);

- Identifying target customers; and

- Defining quantitative goals and measuring progress.

Available Data and Its Uses

There are four main types of data that your city might collect and analyze.

1. Energy use data collected from utilities

- Useful for benchmarking current city use and for identifying targets.

- Easy to get on a city or sector level; hard to get on a customer by customer level.

2. Data on audits and energy efficiency work done from utility vendors and partners

- Useful for estimating energy savings and identifying barriers and opportunities.

- Useful for knowing what work has been done in the past by utilities.

3. City data (Assessors data about building stock and Business office data)

- Useful for identifying targets.

4. Outreach effort data (which customers were contacted, when, where, responses, and follow-ups) collected by city and outreach partners

- Useful for measuring progress towards goals, and for identifying barriers and opportunities.

Stakeholders

To prepare for your data collection and analysis efforts, it's useful to get in touch with the following stakeholders:

- City Assessing department;

- City GIS (geographical information systems) department;

- City business licensing office;

- Utilities and their vendors; and

- Community partners

Goal Setting Using Data and Quantitative Metrics

Besides identifying targets, the other very important use of data is for defining goals and measuring progress towards achieving them. Some example goals used in EE2020 cities include:

- Having X number of customers signed up for audits by a certain date.

- Having X number of weatherization jobs done by a certain date.

- Having X savings in electric use.

Outreach efforts can be tracked in spreadsheets or a cloud-based customer relationship management (CRM) software like Salesforce, which offers free licenses to nonprofits.
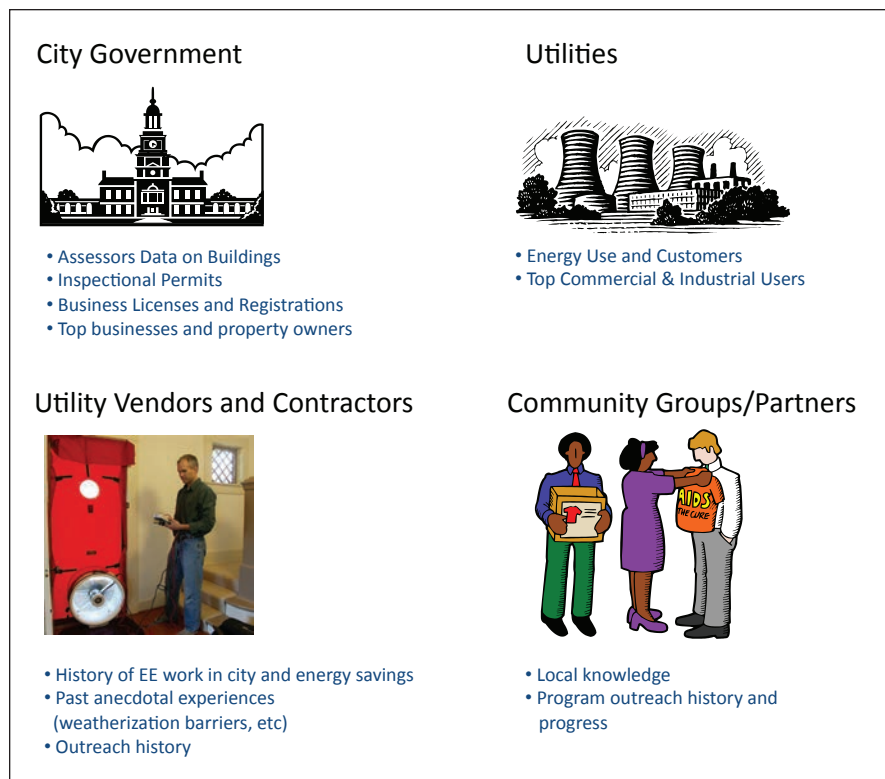

Figure 1a: Data Stakeholders and the Knowledge They Can Provide

Section II: Sector by Sector

Earlier in this document, we suggested that cities should first tackle municipal buildings, then prioritize C&I, and deal with residential last. In the following section, we dive deeper into the nuts and bolts of how to effectively deal with all three of these sectors, whether you decide to tackle them in sequence or all at once.

A. Municipal Buildings

Why Start with Municipal Buildings?

When local governments want to jumpstart an energy efficiency initiative, it makes sense to first target municipally-owned buildings. Why? First of all, the City leads by example and inspires others to follow in its footsteps. From a fiscal standpoint, municipal building retrofits are sound investments, because the City captures savings on utility bills. These savings can then be used to support citywide efficiency programs moving forward.

Since most municipal buildings are of an older vintage and may suffer from deferred maintenance, the savings potential is attractive to both utilities and energy service companies (ESCOs). That means the city can often negotiate agreeable financing terms or other community benefits, like those listed below, when structuring agreements or contracts with them.

- With the utility, the City might agree to meet certain energy savings goals in exchange for funds to support a dedicated program manager.

- Partnering with the utility will enable the City to work with preferred vendors, which are pre-qualified by the utility programs. This can streamline the procurement process and save the City time and money.

- Utility staff can assist a community in the proper scoping of its projects.

- It may also be possible to negotiate a deal where the utilities pay for installation of some measures and may offer terms that meet the needs of the community, so long as all the savings are captured and re-invested in efficiency to support achieving an overall municipal goals for building upgrade.

- With an ESCO, the City might be able to negotiate financing terms, depth of retrofit, measures installed, and community benefits.

To summarize – take care of your own buildings first, either before or at the same time as broader efforts that include residential, commercial, and industrial stakeholders. In the former case, they demonstrate how the retrofit process works and can attest to the value of participating. In the latter, then the City can bring savings to the table when approaching utilities or ESCOs and perhaps garner support for targeting the whole community.

In most Massachusetts cities, city municipal energy use is tracked using software such as the Massachusetts Department of Energy Resources' MassEnergyInsight, which can provide a starting point for identifying savings opportunities.

EE2020 Municipal Toolkit – Deployed in Newton

Most of the EE2020 cities had begun to work on their own municipal buildings before consultants arrived on the scene. However, in Newton, the City was unable to proceed with the third phase of its ESCO contract due to budget constraints that limited its ability to fund debt service. The City, despite its relative affluence compared to other EE2020 cities, was in the same fiscally-challenged position as most cities in Massachusetts: unable to find the upfront cash needed to fund efficiency projects that made long-term economic sense but that created short-term financial liabilities. So – how to structure a funding approach that worked in the early years and enabled Newton to enjoy the benefit of long-term savings?

Energy Smart Newton Municipal Tool:
Partnering with Utilities

The City of Newton has developed an approach to funding efficiency improvements in its municipal buildings that relies on a long-term commitment by the City to improving its municipal portfolio in partnership with the utility. The City has taken the following steps:

- Made a multi-year commitment to improve the energy efficiency performance of its building stock;

- Committed funds to an energy efficiency staff person who will manage and oversee projects;

- Created an energy efficiency reserve fund that enables it to capture and retain the savings on efficiency from departmental operating budgets before they are lost to Free Cash; and

- Committed to self-funding the improvements from municipal debt supported by utility backed incentive payments and the savings generated from the projects themselves.

An agreement, not yet finalized, between the City and the utility (NStar in this case) addresses the up-front cash flow concerns of the City. The City and the utility are working together to define the scope of the efficiency projects. The City will then use the utility preferred vendor program to select a contractor to install the measures in 12 City buildings. The strategic selection and sequencing of projects, combined with the bundling of the utility-funded incentive payments, allow the City to start installing measures on a cash flow neutral basis. As measures begin to lower the utility costs for the City, these savings will be captured and reinvested in additional energy savings measures that extend to other buildings.

Outcomes: The City will improve the energy performance of 12 buildings that make up 80% of the square footage of its portfolio.

Advantages: Yields long term and extensive upgrade of City's entire building portfolio; Use of the utility Preferred Vendor Program can streamline procurement process and associated costs; Builds collaboration between City and the utility.

Challenges: City staff must be able to work with the utility and its vendors to develop detailed project scopes and cash flow and payback analyses. Requires in-house expertise to interact effectively with the utility and vendors to ensure that the projects result in deep energy savings and are suited to the funding needs of the City.

B. Commercial and Industrial (C&I)

According to the U.S. Energy Information Administration (EIA), commercial and industrial (C&I) buildings consume the largest share of all building energy use in the U.S.--C&I comprises 73% of national building energy use, while residential use comprises only 27%. It's the same in New England: C&I buildings account for 55% of the state's building energy use while residential use comprises 45%. If a City wants to make a dent in reducing carbon emissions, it's mandatory to target the C&I sector.

C&I Challenges

The C&I sector may be a ripe target. But it's not necessarily easy. A major challenge is what's called the 'split incentive' problem, where tenants and landlords are responsible for different utility costs and therefore lack either self-motivation or agency to seriously invest in energy efficiency. (For instance, if a landlord pays for the heat but tenants pay for electricity, the tenant has the incentive to upgrade lighting, but not to reduce heating load. On the other hand, if the tenant pays for both heating and electricity, the tenant may have an incentive to reduce heating costs but will not be able to make any improvements to the building shell. In this case the landlord has no incentive to improve the shell or mechanical systems because the tenant will capture the benefits of the savings.) For these reasons, when it comes to multi-tenant commercial properties, you'll often see uneven and awkward attempts to improve building energy efficiency. A tenant might have installed compact fluorescent lighting, but the building shell is still leaky. Or, a landlord might have installed a high efficiency boiler, but the tenant uses incandescent track lights in its retail space. What to do?

How Local Government Can Help

Alas, there's not a silver bullet that solves the split incentive challenge. But there is a (harder-fought) solution: negotiating relationships and aligning interests. Here's where local governments and Chambers of Commerce can play a role. The Mayor, the economic development department, the sustainability commission, and/or the chamber can influence business owners and landlords to invest in efficiency. You can begin to make real progress when you're working with both landlord and tenants, and buildings as a whole, rather than working within just one party's frame of reference.

A combination of City-led policies and programs and peer-to-peer outreach are key for success. A citizen group can motivate people via social and professional networks. However, the City is ultimately responsible for officially adopting community-wide efficiency goals, selecting targets, and perhaps passing legislation that drives demand for C&I retrofits. The City starts the ball rolling, and the network of peer groups (like the Chamber) and citizens (such as energy or climate commission members) can respond in coordination.

However, Cities should be forewarned that a holistic approach to retrofitting isn't easy through current Massachusetts C&I utility programs, which are fragmented in their offerings to all but the very largest customers. There is a subsidized prescriptive program for small businesses seeking maximum return for minimal investment, but the process does not serve those who want to undertake a comprehensive retrofit. The lighting, refrigeration, heating, cooling, and other gas opportunities all require individual

audits and contracts. In such cases, it becomes important for the City or a third-party coordinator to help the business owner obtain deeper analysis and coordinated contracting. For deeper retrofits, cities can also launch Property Assessed Clean Energy (PACE) finance programs that help business owners make longer-term investments (See Northampton Story below for more details)

How To Choose a C&I Target

In the earliest phase of launching a C&I efficiency effort, the City and its partners must pick a target (or small group of targets) to influence. A well-defined target helps focus attention and capacity and allows everyone to easily track progress. In choosing a target, the City and partners must consider four main points:

1. City's overall C&I energy usage patterns to identify target sectors or businesses

A high level analysis of an entire city's C&I energy usage patterns helps Cities identify the biggest opportunities. Utilities or third party data analysts can help Cities identify the highest energy users, building characteristics that might indicate good candidates for upgrades, and common types of C&I users in the City (for instance, you may want to target commercial users of a prevalent type, such as restaurants). The figure right shows our analysis of one Massachusetts city's top C&I electric users by sector, along with what percentage of total C&I use that sector represents. Determining the top industries helps the city know which business groups and companies to target.

2. C&I market segments

Utility program offerings are divided by the customer's electricity consumption level. In Massachusetts, the gas and electric utilities offer a small business program for customers with demand less than an average of 300 kW of electricity per month. Qualifying businesses that participate in this program get a free audit and up to 70% incentives for installing efficiency measures with relatively fast paybacks. Typical measures include: lighting, controls, thermostats, shower heads, faucet aerators, duct insulation, some HVAC, and refrigeration. Businesses access this program through the electric utility. This is the only standardized retrofit program for C&I customers.

A business of this size that wishes to pursue more aggressive or custom efficiency measures will have to be more creative, since the path to deeper retrofits is not so obvious. However, if a City is committed to working with those owners who want to do more aggressive retrofits, then owners will probably need a project facilitator. This facilitator, or "concierge," acts as a trouble-shooter, educator, and advisor on efficiency projects where there is no pre-packaged, utility retrofit offering. The facilitator helps business owners get what they need in terms of audits, contractors, and incentives, and they help the owners see a broader range of retrofit options. Even if an initiative limits its outreach to C&I customers below 300kW, some businesses or property owners will face unique situations that require deeper, more comprehensive building analyses that recommend measures with longer-term paybacks. The facilitator ensures that these businesses can find the right auditors, financing agents, and contractors to meet their needs.

C&I customers with demand greater than 300kW of electricity per month have different program options. These large businesses often get more specialized attention from utilities than the small to medium-sized businesses mentioned above. If the City decides to target large users, then the City should coordinate with the utilities. In some cases the utilities will gladly welcome City collaboration and coordination, but, in other cases, the utilities may want to safeguard their relationship with large customers.
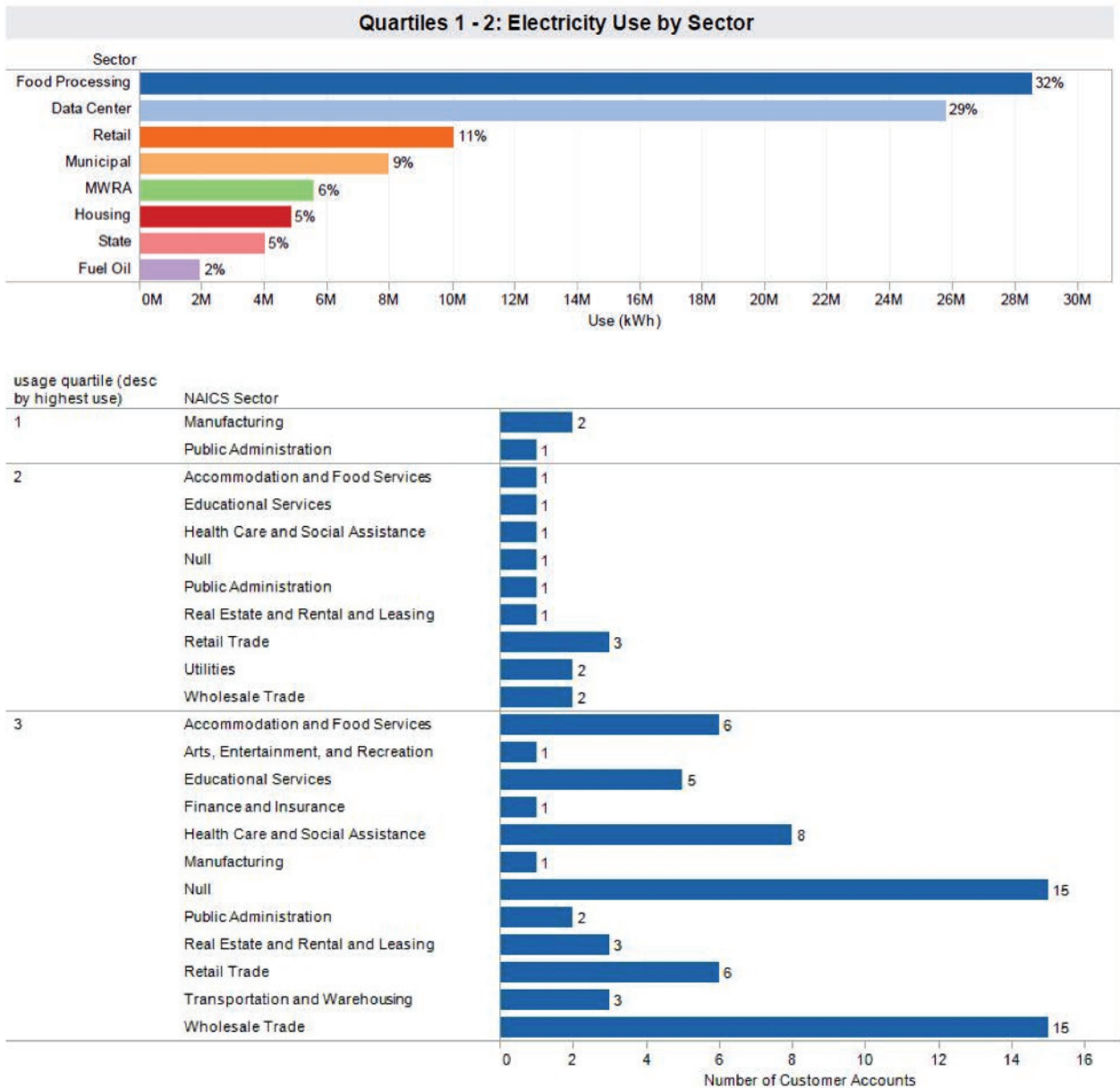

Figure 2: C&I Electric Customers in city identified by use quartile and industry

3. Political and social sphere of influence

If an energy analysis reveals the need to target a certain set of businesses, a City must consider whether or not it has the ability to engage and ultimately motivate the owners to invest in efficiency. An energy analysis might suggest that large grocery stores are the best target, but if the City has no deep connection to the owners of these stores, then the City should keep looking. On the converse, a City might have great relationships with small retailers, but the small energy savings may not be sufficient to justify the investment of labor and resources. Nevertheless, if these small retailers are the key civic leaders and they have a major impact on the city's culture and identity, then perhaps they are a worthwhile target. This all suggests that Cities should take the time to overlay a map of social networks on top of an overall energy analysis. Broad participation in the program helps build momentum, so cities should build off the social infrastructure that is already present.

4. Proximity and clusters

In many cases, energy use and social networks will correspond to a geographic area. For instance, downtown business owners may be members of professional association or a collection of industries might be clustered in a specific zone. In these situations, proximity-based targeting may be a good strategy. Adjacency presents bundling opportunities for outreach, audits, and contracting. These kinds of initiatives are also easy to brand, since the cluster of businesses already have a known identity. Plus, social marketing is bolstered to the extent that businesses feel connected a particular street or neighborhood.

EE2020 C&I Toolkit - deployed in Newton, Northampton, Pittsfield, & Chelsea

In order to give a sense of the variation that exists among C&I retrofit initiatives, below we present tools that act as the building blocks for a scaling strategy. After each tool, we explain how a particular city implemented it.

1. Outreach

Community-based outreach is the foundation of all EE2020 energy initiatives. The City is at the center of the energy efficiency campaign, working with the local Chamber of Commerce, the downtown association, and other community-based organizations to increase the buzz around efficiency. These groups direct business owners to sources of help with energy assessment, and they increase the uptake of efficiency measures. The message can then be strategically targeted to the interests of the audience and delivered through trusted sources. The premise: Business owners have a lot of competing demands and may otherwise tune out a pitch about energy efficiency – but they're far more likely to listen and invest in upgrades if the message is coming from a colleague or the city, rather than a stranger.

Energy Smart Newton C&I Tools:
Outreach + Social Networks + Proximity

In Newton, the Chamber of Commerce is helping 600 business owners along the Needham Street Corridor access the utilities' small business efficiency program. The City had previously identified Needham Street as an economic development priority, so it made sense to launch the C&I initiative there. The Chamber, whose office is on Needham Street, took the lead on outreach, promoting the utility program at meetings and special events and encouraging Chamber businesses to sign up for a no-cost audit. The Chamber would collect contact information at events and give it to the utility small business program vendor. The vendor then had access to "warm" leads that had been generated through a trusted entity, the Chamber.

Outcomes: Between February and May of 2012, 140 businesses in Newton had been audited and 23 had begun installing efficiency measures through the Small Business C&I Program.

Advantages: Low capacity drain on both the Chamber and the City government and fits within the confines of the standard utility program offerings.

Challenges: Limited up-front interaction with businesses may yield leads to utility programs that aren't warm. Doesn't easily meet needs of businesses wanting a more comprehensive, creative, or custom energy solution.

2. Process Facilitation (or 'Concierge' Function)

The slog from the initial audit to the actual upgrade can be tedious for all business and property owners. Even in the most straightforward of situations, it can be difficult to schedule, contract, and finance a project. A community-based process facilitator or 'concierge' can help reduce frustration and increase the probability of getting contracts signed and measures installed. The facilitator helps the business owner access the right utility program offerings, subsidies, incentives, and financing, and makes sure that any concerns or questions get addressed in a timely fashion. For business owners interested in more comprehensive or better-integrated retrofits than utility programs offer, the concierge has a particularly important role to play.

3. Aggregating Customers

In most situations, a single C&I customer does not offer enough savings potential to get the attention of ESCOs or other energy efficiency contractors. However, a group of businesses might jointly acquire ESCO services if there is an agent willing to bring them together. Here, the businesses get the benefit of a much more comprehensive energy analysis and set of contract offerings. Plus, favorable financing may be built into the contract.

Chelsea C&I Tools:
Social Networks + Aggregation

In Chelsea, there is a collection of industrial food processing and distribution facilities that account for a large share of the City's C&I energy consumption. Some businesses had been pursuing sustainability on their own, when the City Manager called them together to discuss the option of a coordinated effort to reduce energy use. The EE2020 team first asked the local utility to put a focused effort on this group of businesses. When the utility was not immediately responsive, the team changed course. Chelsea is part of a group of communities that has jointly procured an ESCO to upgrade their municipal buildings. EE2020 approached this same ESCO to determine if it would be willing to conduct an analysis of energy efficiency potential among an aggregated group of businesses in Chelsea.

Outcomes: As of June 2012, the ESCO has completed a high-level assessment of the investment potential for the group of major businesses within Chelsea. After completion of the detailed assessment of municipal buildings, Chelsea and the ESCO expect to jointly approach leading C&I customers to engage them in an effort to substantially reduce energy consumption in that group.

Advantages: Working with an ESCO under contract with the City reinforces the City's commitment to building efficiency. The partnership also brings significant engineering talent directly to C&I sector and potentially allows the efficient use of local contractors in a coordinated effort among the City and its major employers.

Challenges: ESCOs do not have significant market presence in the C&I market, in part due to the absence of efficient financing vehicles as exists in the tax-exempt market.

Northampton Leading the Way C&I Tools:
Outreach + Social Networks + Clusters + Concierge

The City of Northampton recruited a nonprofit community partner, the Center for EcoTechnology (CET), to connect one-on-one with business owners and tenants. The City decided to target the downtown commercial area and two industrial clusters. The City had good relationships with major property owners and the leadership of the Business Improvement District and was able to test the program through a few prominent downtown building owners who volunteered to be early adopters and supporters.

The City would act as the first line of communication with all business owners. Usually, the mayor sent an informational letter to a group of businesses. After that, CET followed up and did a walkthrough, where the concierge noted every potential efficiency opportunity. Then CET would refer these opportunities to the appropriate utility program vendor, depending on the type of measure. The vendors would then schedule a detailed audit and offer the owner a proposal for a contract if there was an opportunity considered cost-effective by utility standards.

Throughout the first few months, there were several challenges. Not all utility program vendors were responsive to referrals, and not all customers were responsive to vendors when they called to schedule audits. Also, businesses with multiple energy efficiency opportunities often required multiple audits and contracts, and that would wear out the patience of the owner. In such situations, CET proved the value of the concierge role by keeping the process alive.

CET also helped building owners who wanted to pursue deeper, custom measures at the building shell or common systems level. The concierge was vitally important in situations where business owners wanted to pursue opportunities beyond those offered by the utility's prescriptive, small business "direct install" program. In Northampton, the CET facilitation was very much at the center of the initiative. CET provided the management capacity to move a complicated collection of downtown buildings through an equally complicated set of disparate utility program offerings.

Outcomes: Over the course of ten months (September 2011 to June 2012), 44 businesses in Northampton received 66 audits, which led to 16 signed retrofit contracts.

Advantages: Businesses get high level of service and attention to needs. Addresses the many situations where utility programs cannot respond. Doesn't exceed City staff capacity. Community outreach partner is paid and, if outcomes are achieved, can sustain effort and build capacity. Utilities are invested in success.

Challenges: Community partner may require ramp-up and capacity building. Relies on utility willingness to invest in outreach and facilitation.

4. PACE Financing

Compared to other states, Massachusetts has better utility incentives for energy retrofits. But while incentives are available for measures with short payback periods, they're difficult to access or unavailable for many upgrades. In fact, utility incentives and other subsidies will never cover more than a fraction of the cost of energy upgrades to Massachusetts buildings. Businesses undertaking significant retrofits need to recoup most of the cost from future energy savings. So how can we enable them to do that?

The City of Northampton has taken steps to create a "property-assessed clean energy" or "PACE" finance program. Under a PACE program, a special assessment is used to finance energy efficiency or renewable energy upgrades. The municipality provides financing and the property owner makes repayments through a property tax surcharge secured by a lien.

PACE financing allows a property owner to make energy upgrades without upfront cost and, by amortizing the cost over 15-20 years, keep annual debt service below expected energy cost savings. Unlike most bank loans, PACE financing yields a prompt increase in cash flow. Also, a PACE assessment is tied to the property, and is not a personal obligation of the owner -- so if he or she sells the property before energy-saving measures have fully paid for themselves, the purchaser of the efficient property becomes responsible for the remaining payments. Finally, under many commercial leases, PACE payments may be passed through to tenants, thus avoiding the split incentive barrier. In short, it's a really good idea.

In 2008-2011, Massachusetts and most other states passed laws authorizing local PACE programs. Federal housing regulators currently oppose the use of PACE financing for single-family homes, but their objections don't affect the viability of PACE for commercial, industrial and multifamily buildings.

Northampton passed an ordinance providing for a PACE program in 2011. The City then faced a twofold challenge: finding capital and creating program administration arrangements. The City explored a number of options to finance PACE:

- Bonding, using either a Qualified Energy Conservation Bond or part of a municipal general obligation bond. (A taxable revenue bond was quickly determined not to be an option.) Alas, bonding wasn't feasible in the foreseeable future.

- Establishing a credit facility with local banks and/or a state financial institution. (In 2011-2012, Vermont was developing a similar mechanism for funding local PACE programs.) Unfortunately, the process for one small city to do this promised to be arduous, and the availability of existing capital sources is limited.

So what might work? It may be feasible to create a statewide pool of funds that municipal PACE programs can tap. Structured carefully, a bond issue could receive a high rating and supply funds at a comparatively low cost to property owners. Legislation will likely be necessary. Some communities will want to outsource their PACE programs, so a statewide program administrator will likely need to be designated as well.

A statewide framework would make it feasible for Massachusetts cities and towns to establish local PACE franchises and concentrate on arranging the outreach and facilitation services needed to help businesses develop deep retrofit projects.

C. Residential

According to the EIA, residential buildings account for 27% of the national building energy use in the United States. It's even more in Massachusetts, where about 45% of all building energy use is consumed in the residential sector. Residential energy efficiency programs, even though they generate less savings per building than C&I efforts, are important to generating broad support for reducing energy use and carbon emissions.

Residential Challenges

Principal residential sector challenges include finding efficient and effective outreach methods, the split incentive in rental property, so-called "pre-weatherization" barriers, the hassle and cost factors that prevent homeowners from acting on audits, and program complexity based on income segmentation.

- **Outreach:**

  The total consumption of energy in the residential sector is spread out among many individual homeowners, renters, and landlords. Thus, a lot of labor – in the form of organizing and outreach - is needed to sufficiently scale up an effort.

- **The Split Incentive Challenge:**

  Single-family homeowners are the easiest to engage since they have a direct interest in lowering utility bills. Renters' and landlords' interests are not aligned, and so the split incentive challenge applies in the residential sector as well as the commercial and industrial sector. Tenants have an interest in improved comfort and lower utility bills (if they pay them), but they have no incentive to invest in improving a property that they do not own. Landlords, on the other hand, are less likely to improve their properties unless it produces direct benefits, such as an ability to increase rent or capture savings from utility bills. However, many landlords do not pay their utility bills, and so it is difficult to motivate them to invest in efficiency. Given that 37% of all housing units in Massachusetts are renter-occupied and that this proportion is even higher in dense cities, the split incentive poses a real challenge to residential energy efficiency.

- **Income Segmentation:**

  Another complicating factor in the residential sector is that Massachusetts utility program offerings are segmented by customer income level (and it's not always considered polite to ask about that when you're conducting outreach). The low-income program offers a fully subsidized suite of weatherization services for households that earn 60% or less of the state median income. However, the demand for these services well exceeds the capacity, thus limiting the reach of the program. Those who earn above 60% of median income are eligible for the Mass Save residential program, which offers a no-cost audit and some incentives for installation of efficiency measures. But the cost of retrofit can be well above the level of those incentives, so the program requires out-of-pocket investment. This can be a barrier for moderate-income households where financing is not a viable option.

How Municipal Governments Can Help

The process can be complicated, but city and town governments can nonetheless help residents access energy efficiency programs. The City's assets include political force, convening authority, credibility, data, relationships, and local knowledge. By entering into partnership agreements with utilities, auditors, home performance contractors, banks and community-based organizations, the City can bring focused attention to the needs of its residents. More specifically, the City has the option to:

- Connect with property owners and major landlords and encourage them to invest in residential efficiency.

- Use the assessor's database to better target outreach and help direct residents to the best program options.

- Bolster programs with staff and funding that supports housing redevelopment and sustainability.

How to Choose Residential Targets

As is true for C&I, residential energy efficiency initiatives are best launched with defined targets in mind. In larger cities this is especially true, because efforts can get diluted if spread too thinly across geographies or networks. In smaller cities and towns, this concern is less of an issue, but in both situations, there are strategic considerations that should inform where an initiative lays its foundation. Before choosing a target, the City must analyze the following factors:

1. Demographics and Income

It's important to understand how income and demographics differ throughout the city geographically, since this can inform outreach strategies and identify cultural or economic barriers that might be encountered while trying to get certain customer segments into weatherization programs.

If targeting low-income residents, the City should check in with the local Community Action Program (CAP) to make sure that the weatherization program is not oversubscribed and that there is sufficient capacity to serve new clients. If targeting the moderate-income residents, then the City may have to offer special rebates to residents who do not have the ability to finance. The City might consider linking efficiency upgrades to other home renovation programs offered through community development block grants. If targeting renters, then the City will need to find the owner/landlords who will be most motivated to invest in efficiency. One idea is to target 2-4 family homes where the owner lives on the premises. Another idea is to target larger multi-family buildings, where a landlord pays for central heating.

Combining census data, economic data, or assessing data with GIS mapping can allow a city to see how incomes differs throughout different census tracts, or where the newest buildings are located. Mass GIS contains GIS parcel locations for many towns in Massachusetts.

The Census' American Community Survey, for example, provides data on building ownership that can be used to estimate owner occupied status by Census block groups in cities where the assessors database lacks this information. For instance, in New Bedford, the community group wanted to target owner occupied buildings. We overlaid census data on a GIS map of the city in order to help guide them to the best geographies. This map is shown in the following figure.
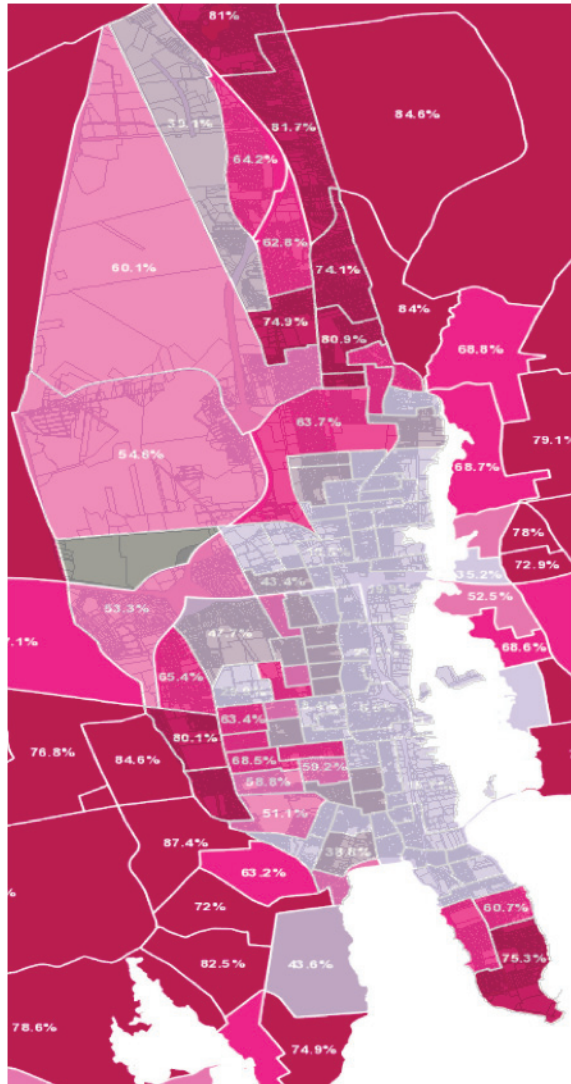

Figure 3: Percentage of Owner Occupied Housing Units for New Bedford from 2010 Census

2. Prevalence of certain housing types (single-family, 2-4 family, multi-family)

A City's housing stock will reveal opportunities. For instance, in a suburban setting single-family homes might be the most common housing type; there, it makes sense to focus efforts on their owners. However, in an urban neighborhood, 2-4 family homes might be the dominant form, so it may make sense to target owners who live in one unit and rent the other(s) out. In denser parts of a city, larger apartment buildings might be a common housing type, making major property managers and landlords the best target.

3. Physical attributes of housing stock (age, size, heating fuel source)

You'll also want to look at the physical attributes of the housing stock and talk to local contractors who know the typical condition of homes in your area. This includes:

- **Fuel source**: Owners of homes heated by oil or electricity (which are more expensive than gas-heated homes) may be motivated to weatherize. For example, our analysis of houses in Newton found that many houses were still heated by oil, an expensive and high emissions fuel. Mapping the location of oil and gas heated houses in the city showed that oil and gas heating was more or less evenly distributed in the city, suggesting that the city could convert most of these houses to gas without having to build many new gas lines.
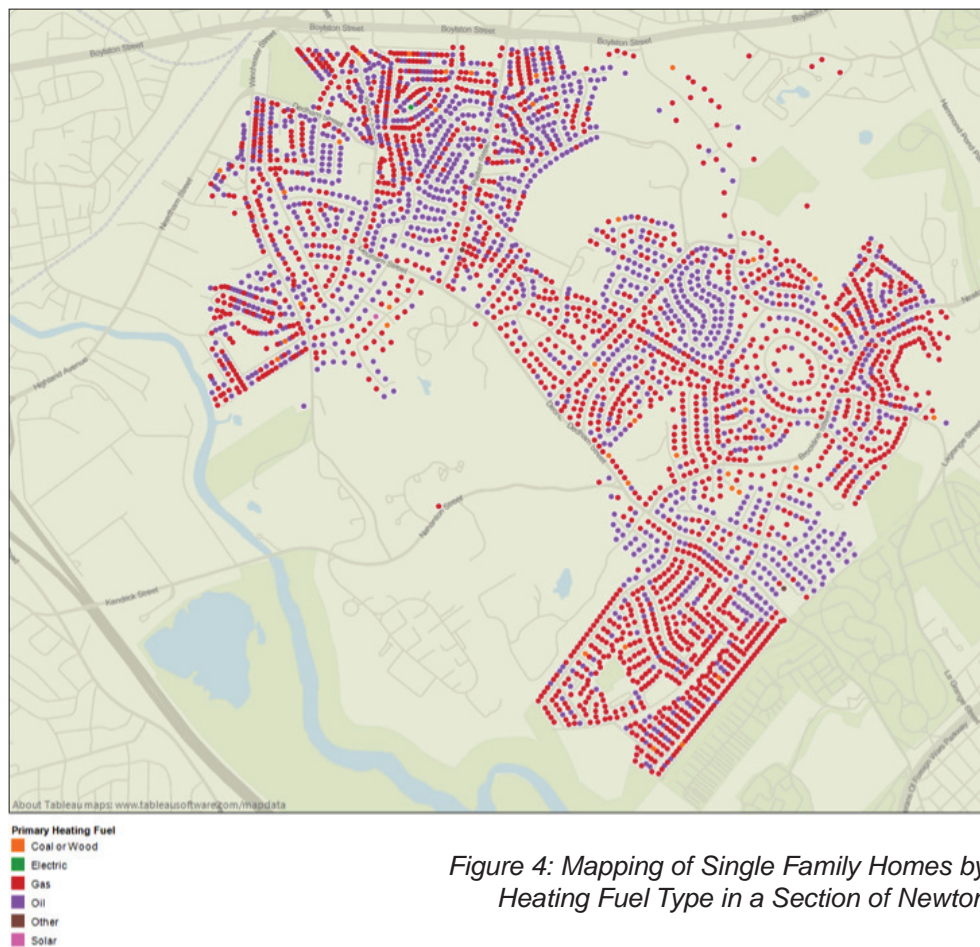

Figure 4: Mapping of Single Family Homes by Heating Fuel Type in a Section of Newton

- **Age**: There's a double-edged sword when it comes to homes built before 1950. They're usually draftier and more expensive to heat than newer homes, making them a good target. But they may also have old knob-and-tube wiring, which must be decommissioned or replaced before you can do any retrofitting work, adding to the overall cost. For example, through our conversations in New Bedford with POWER, a local community group in the city, we learned that houses built in the 1950s and 1960s were good candidates for weatherization because they didn't have major pre-weatherization barriers yet were old enough to likely be poorly insulated. As the next plot shows, there were a large number of houses built in these decades. This enabled us to use the assessors database to help POWER target homes of this type that were owner occupied.

- **Size**: You may consider targeting larger homes, which often use more energy and are more expensive to heat.

Figure 5: Number of Single Family Houses by Year Built in New Bedford, MA

4. Neighborhood opportunities

A neighborhood-based approach makes for easier outreach and branding. Here, a City can leverage organizations (like neighborhood associations) or tap into other geographic networks. This kind of limited-area focus works so long as the target area is large enough to reach scale and the residents demographically align with available program offerings (i.e., this approach may be best for large cities). The City should do some analysis of neighborhoods to make sure there is adequate market potential, considering all the attributes listed above.

5. Potential to engage residents through social or political networks

These days, social networks are not necessarily bound by geography. Rather than target a specific neighborhood, an initiative might instead target faith institutions, social clubs, or other membership-based organizations. The success rate depends a great deal on the cohesion of the group (for instance, a charismatic leader may leverage 'peer pressure' to encourage retrofits). EE2020 saw mixed results using this method for residential outreach. While there are many possible explanations as to why this method works in one community and not in another, the take-home point is that every City has different social pressure points, and it can take time to narrow in on them. Campaigns need a little room for trial and error.
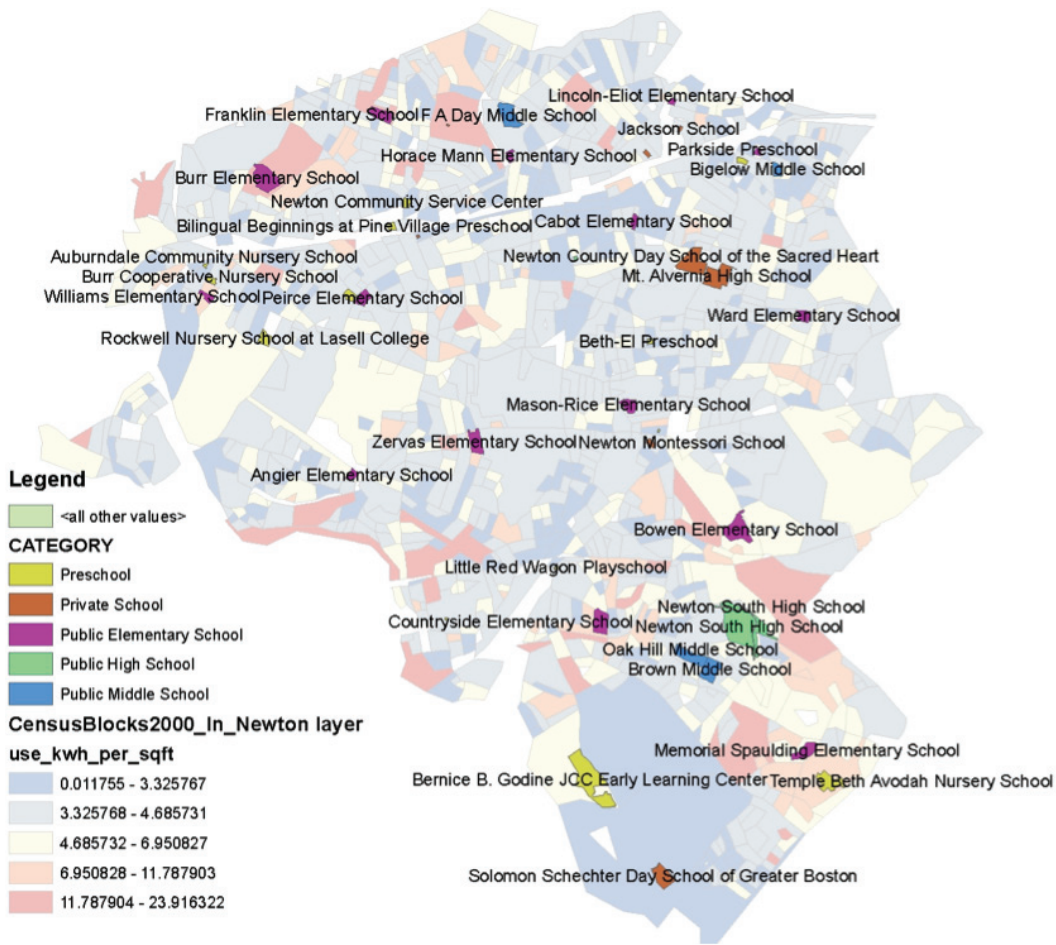

Figure 6: Map of Newton overlaying school locations and energy density by census block. We created this map to help Green Decade identify parent-teacher associations for residential outreach.

EE2020 Residential Toolkit – deployed in Newton, Northampton, Pittsfield, New Bedford, and Somerville.

There's a great deal of variation among residential retrofit initiatives; below we present tools and explain how particular cities implemented them.

1. Outreach

As is true for C&I, community-based outreach is the foundation for residential energy initiatives. The City works with one or more local community-based organizations to educate residents around efficiency. The community groups then help residents access the appropriate Mass Save or Low-Income home efficiency program and increase overall participation.

Powering Pittsfield Residential Tools:
Outreach + Social Networks + Data Targeting

In Pittsfield, the City and a non-profit partner, the Center for EcoTechnology (CET), collaborated on an outreach campaign to increase resident participation in the Mass Save and Weatherization Assistance programs. The City had strong relationships with the Westside and Morningside neighborhood associations and so first targeted the campaign in those two neighborhoods. After meeting with neighborhood leaders over the course of several months, CET co-hosted a series of workshops, presentations, and EcoHouse parties with local residents. Neighborhood hosts would personally invite their friends to each event. There, CET would give an educational presentation to attendees and encourage them to sign up for weatherization. After the event, CET would then forward the list of leads to the appropriate residential auditing contractor.

After a few months, CET and the City found that the target area was too limited. They could not generate enough interest in these two neighborhoods to sustain a campaign. The City and CET therefore decided to shift their strategy. After sorting through assessor's data, the City sent a bulk mailing to all owners of oil-heated homes, alerting them about Powering Pittsfield and Mass Save. Those who inquired about an audit were given a chance to win a front-loading washing machine. This one mailing generated over 227 new leads.

Outcomes: Over the course of seven months (December 2011 to June 2012), using this kind of social networking approach, CET was able to generate 335 leads for residential weatherization.

Advantages: Flexible, multi-pronged strategy that leveraged capacity of local non-profit. City didn't put all "eggs in one basket." When neighborhood approach wasn't immediately effective, the City and CET shifted to a letter campaign that made good use of assessor's data and City's credibility.

Challenges: House parties, workshops, tabling, and canvassing are labor-intensive. These activities need to be monitored carefully for impact. Results to date do not confirm that they are more effective than less labor-intensive outreach methods, like letter campaigns.

2. Partnering with a Home Performance Contractor:

In many situations, the City and its community-based partner will have limited ability to manage the initiative. Tracking participants through multiple phases becomes quickly overwhelming, at least if, as is sometimes the case, the utilities and their contractors are unable or unwilling to provide information about audits and contracts. One way to address this challenge is to leverage the management capacity of a home performance contractor (HPC), a private business that offers services such as energy audits/ratings, weatherization, and energy efficiency upgrades. The HPC may have customer management infrastructure that can help with monitoring, evaluation, and course correction – and they may also be motivated to help with marketing, as it will bring in new clients.

Newton Eco Team Residential Tools:
Outreach + Social Networks + Partnering with HPC

In Newton, the community-based non-profit Green Decade used a network of EcoTeams to bring local residents into the Mass Save program. The teams worked across the entire city, marketing Mass Save through faith-based institutions, landlords, parent-teacher associations, and other social groups. This decentralized approach might have been challenging to manage as a small non-profit, but Green Decade entered a strategic partnership with Next Step Living, a home performance contractor that implements the Mass Save program.

Next Step Living provided Green Decade with a web portal to sign up customers and tracked all of Green Decade's leads through a customer relations management database. Next Step Living was in regular communication with Green Decade, so that Green Decade could see which leads were at which phase of the process and how their effort progressed over time. These ready-made web and data tools allowed Green Decade to focus on outreach and keep their operation lean.

Outcomes: Over the course of ten months (September 2011 to June 2012), Green Decade generated 534 audits, which yielded 164 contracts for home weatherization.

Advantages: Leverages capacity of home performance contractors (HPCs) that have a business interest in the success of a campaign. Allows outreach organization to focus on outreach and customer service, as opposed to management and evaluation.

Challenges: An exclusive municipal arrangement with an HPC might require a procurement process.

3. Data Targeting

The experience of Renew Boston, an efficiency program in Boston, shows that roughly 1 in 5 residential audits leads to a retrofit contract. In order to improve the overall rate of success, the City can use data to help zero in on the most promising customer types. These might include larger homes, oil-heated homes, or multifamily buildings with central heating systems.

New Bedford Energy Now! Tools:
Outreach + Social Networks + Partnering with HPC + Data Targeting

In the New Bedford Energy Now! initiative, a City staff person managed an effort that was spread among 14 contracted community partner organizations, including the Chamber of Commerce, immigrant centers and associations, churches, youth groups, and neighborhood associations. This effort also benefited from a partnership with Next Step Living; however, the Marion Institute POWER group, a local non-profit, has taken charge of the initiative's targeting, tracking, and facilitation.

POWER has also strategically deployed door-to-door canvassers after doing spatial analyses of all the homes in the City. They have targeted homes that are owner-occupied, oil or electrically heated, and built after 1950. They have thus directed their door-to-door effort toward those residents who are most likely to invest in weatherization or a heating system replacement.

Outcomes: Over the course of nine months (October 201l to June 2012), the New Bedford Energy Now! effort yielded 402 leads, 214 audits and 55 signed contracts for home weatherization. As of June 2012, there were more contracts pending.

Advantages: Combines all of the outreach strategies and adds "smart" targeting.

Challenges: Decentralized outreach through multiple organizations requires significant management and operational capacities and sufficient funds to pay for developing these capacities.

4. Partnering with a Local Bank and Recruiting Intermediaries

In Massachusetts, the utilities currently provide an interest rate subsidy that enables banks to offer 0% HEAT loans to qualifying borrowers who make home energy efficiency investments. Banks that become certified lenders can act as another channel for marketing city-based initiatives (for instance, by paying for mailings or outreach to their customers).

Somerville Residential Tools:
Outreach + Partnering with bank and intermediaries

The City of Somerville's housing stock presents unique challenges, with nearly 60% of its housing stock in 1- to 4-family buildings and 45% in 2- to 4-family buildings – a veritable laboratory to address the split-incentive challenge. The city wanted to develop an initiative that would save energy, save money, create local jobs and increase property values. Following a meeting with the Mayor of Somerville, EE2020 and city officials met with top officials at a local bank that expressed interest in supporting a residential energy retrofit program in Somerville. The bank wanted to use the interest rate subsidy from the 0% HEAT loan offered by the utilities to attract customers and was willing to absorb the risk of modest, unsecured loans in order to promote energy efficiency and increase its customer base in Somerville. The bank therefore financed early phases of the City's outreach, which included two letters from the Mayor to every tax-paying resident.

After some initial success, the City of Somerville decided that the best way to sustain its initiative was to identify an intermediary entity or team that could take on the challenge and commit to retrofitting 3,000 residential buildings containing 5,000 housing units by the year 2020. The City issued an RFQ in June 2012 for such an intermediary. The City will select an intermediary in September and launch the program in October 2012.

Outcomes: A Mayoral letter to all Somerville residential property owners yielded more than 500 inquiries to the City's housing department within three months. Over the course of four months (December 2011 to March 2012), the City of Somerville's outreach yielded 302 audits and 53 signed contracts for home weatherization through the Mass Save program.

Future program benefits are expected to include investments of up to $25 million in Somerville properties, an additional $25 million in utility-bill cost savings for Somerville residents within a decade and up to $6 million annually upon completion of the initiative, and creations of hundreds of local jobs available to area residents.

Advantages: Initiative is driven by the unique nature of city's housing stock. Leverages Mayoral credibility and outside partners' capacity. Might have applications in the small C&I sector.

Challenges: Uncertainty about strategy – both the level of interest by potential intermediary entities and how quickly the intermediary can penetrate the market.

Final Thoughts

For two years, the EE2020 team worked closely with Massachusetts mayors, city staff, utility program managers, utility vendors, and community partners to build durable, city-led energy efficiency initiatives. During this time, we provided technical assistance and advice to eleven cities, five of which launched new initiatives. Here are the key lessons that we've learned in this process:

1. **City government can be a primary market channel for energy efficiency.**

   Cities are uniquely positioned to influence energy efficiency investments. The City has channels to building owners that can benefit other market players.

2. **Mayors need strong senior staff.**

   While mayors must be supportive, senior staff have the responsibility for getting things done. Staff must commit a significant number of hours toward launching and overseeing the effort. An active energy or sustainability commission can lend extra support.

3. **Third parties are essential.**

   Cities have limited capacity, so they must partner with strong, third-party organizations. Locally-based non-profits—like CET in Northampton and Pittsfield, Green Decade in Newton, and the Marion Institute in New Bedford—can be the engines behind city-based initiatives. They coordinate and spur the City, utilities, community groups, building owners, auditors, and contractors.

4. **Blend patience with persistence.**

   The City-based model deviates from the status quo of rate-payer-funded utility programs. Allow six months to a year for ramp-up. It takes time to negotiate working agreements with the necessary partners—third parties, community groups, utilities, and their vendors (contractors and auditors). Once the initiative launches, expect a learning curve. Be swift in making course corrections. You'll need at least one full year of data before you can begin capturing lessons and evaluating success.

5. **Learn from others.**

   Connect with others who are doing the same work. Learn from their experience. For starters, you can visit the EE2020 learning network page on the Serrafix website - www.serrafix.com/.

Acknowledgements