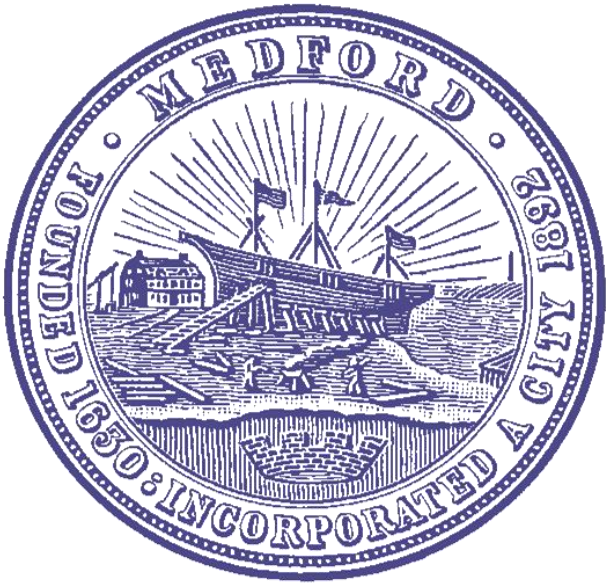
The City of Medford
Local Energy Action Plan

Part II – Action Strategies

February 25th, 2013



Prepared by the Metropolitan Area Planning Council (MAPC)

for

The City of Medford

MAPC
METROPOLITAN AREA PLANNING COUNCIL
Smart Growth & Regional Collaboration

LOCAL ENERGY ACTION PROGRAM

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Outreach Strategies for Energy Efforts

Action: Design and implement residential/commercial outreach strategies to develop consistency and a common way for residents/businesses to recognize and become familiar with energy and sustainability efforts and to promote Go Green Medford projects, programs, and information.

Target Sectors: Residential Sector; Commercial Sector; Municipal Sector

Mission Met: Promote clean energy actions and policies in Medford.

Implementation Time Frame: On-going

Key Implementers: E&E Office; E&E intern; Energy Committee

Research has found that outreach campaigns that focus entirely on education are not effective:

> *The failure of mass media campaigns to foster sustainable behavior is due in part to the poor design of the messages, but more importantly to an underestimation of the difficulty of changing behavior....Information campaigns alone will rarely bring about behavior change.*
>
> - Doug McKenzie Mohr

There are several factors that influence the success of an energy campaign. Based on research in the field and MAPC's past experiences, key elements to successful outreach efforts include:

- A clear vision of targeted behaviors or actions
- A streamlined process to adopt targeted behaviors or actions
- Effective and knowledgeable leaders
- Focused and personalized messages

Community Based Social Marketing

Community based social marketing (CBSM) is an outreach strategy that is gaining increasing popularity in sustainability campaigns across the country. CBSM goes beyond traditional outreach efforts by leveraging community relationships and social interactions to build upon informational campaigns. Specifically, CBSM requires those performing outreach to think carefully about their desired goals and how they can utilize local, community-based interests, values and relationships to achieve such goals. MAPC recommends that groups use the CBSM techniques to expand their outreach efforts to promote energy goals.

THE 7 STEPS OF COMMUNITY BASED SOCIAL MARKETING[1]

1. Identify behaviors and barriers.

To effectively promote energy actions, you must first identify what energy behavior(s) you are looking to change, since each behavior might have different barriers. Are you trying to encourage people:

- To sign up for an energy audit?
- To turn off lights more frequently?
- To use a programmable thermostat?
- To collect and review energy data and project information on an ongoing basis?
- To do something else?

After you identify the energy-related behavior(s) you would like to promote, you must then identify the barriers to such behaviors. Do people not exhibit the preferred behaviors because of:

- Lack of awareness?
- Lack of interest?
- Lack of time?
- Lack of resources?
- A combination of these reasons?
- Something else?

You may be able to identify these barriers using knowledge gained from past experiences. You may also want to do additional research, such as creating a survey or holding a focus group, to make sure you know what the real barriers are to convincing people to pursue the desired energy-related behaviors.

2. Build commitment.

Research has found that people have a strong desire to be seen as consistent, and therefore building commitment is an important step in encouraging a particular behavior. Collecting written pledges is a simple and effective way to build commitment. Such pledges not only give a person more incentive to follow through with an action, but the pledges can also be displayed to advertise community members' commitment and actions.

[1] This strategy section builds upon Doug McKenzie-Mohr's *Fostering Sustainable Behavior*.

Written Pledge Guidelines:

- Keep it simple and non-authoritarian (e.g., "I pledge to sign up for a MassSave audit" or "I pledge to lower my thermostat at night and when I leave the house").
- Offer a pledge card to remind people of their pledges.

Local leaders and influential community members should be used to assist with the pledge collection, as they will help legitimize the cause among a large number of constituents.

3. Use prompts.

Prompts are effective reminders. Examples of prompts include:

- Pledge displays, such as yard signs or pictures of people holding their written pledges posted in town hall or a public library
- Stickers on light switches, thermostats, dishwashers, and washing machines
- Notes of praise for actions taken on door hangers or mailers that are given to those who have taken steps to pursue clean energy efforts
- Reminders for next steps on door hangers or mailers to those who may have pledged to do something, such as have a home energy assessment.

4. Build social norms.

Incorporating social norms into a group's messaging can make outreach more effective. Descriptive norms indicate which behaviors are normally engaged in by a community. When a hotel sign states that most guests reuse their towels, it is using a descriptive norm to encourage guests to reuse towels. You can use descriptive norms to promote an energy behavior by describing or displaying people's participation in whatever action you are trying to promote. However, it should be noted that research has found that if an undesirable behavior is a frequent occurrence, showcasing the frequency of the negative behavior may actually encourage others to engage in that action. For example, showing that people do not recycle will actually encourage more people to do this negative action instead of a positive action. Therefore, one should only use descriptive norms to promote a desirable behavior.

Tip #1: Use descriptive norms only to promote desirable behaviors.

<u>More Effective:</u>
"90% of guests at Hotel Eco-Friendly choose to re-use their towels. If you do not require towel service, please hang your towels back on the rack."

<u>Less Effective:</u>
"Hotel Eco-Friendly uses 100,000 gallons of water per month to wash towels. Help us conserve: hang your towels back on the rack if you do not require daily service."

Injunctive norms provide information on behaviors of which a community approves or disapproves. The use of happy or sad emoticons when reporting on someone's success in

Tip #2: Back up an injunctive norm ("praise") with a descriptive norm ("information").

Not Helpful:
"☺ -- You used 10% less energy in June than in May. Thanks for helping the planet!"

More Helpful:
"☺ -- 15 of the 25 houses on this block used less energy in June than in May. Keep up the good work!"

reducing energy consumption is an example of using injunctive norms. However, sometimes using just an injunctive norm fails to result in a desired outcome. For example, in a study that used door hangers to promote energy conservation, researchers found that residents who received a message that just used an injunctive norm, such as praise or smiley face for their level of energy conservation actually increased their energy consumption. However, those who received a message with a descriptive and an injunctive norm of praise were more likely to maintain their level of energy conservation. When using social norms, one should think carefully about the potential impact of the message and consider using descriptive information with praise to promote desirable actions.

5. Offer incentives.

Incentives can create motivation. MassSave, the state's energy efficiency program, already provides financial rebates and incentives to businesses, residents, and municipalities. If the people you are trying to reach are not motivated by financial incentives, you might find it more effective to explain to residents or businesses that they have actually already paid into the MassSave system through a System Benefits Charge on their utility bill.

Other incentives that you can offer that may be effective include:

- Offering prizes for competition or challenge winners. Prizes should be meaningful (no one really cares about getting another free reusable bag). Some energy campaigns have sought donations from utility providers or private businesses to provide incentives such as solar panels on schools and gift cards to local businesses.
- Providing public recognition in the local paper, on the municipal website, etc. Public recognition uses injunctive norms to praise people for good behavior and this type of incentive may be particularly effective for those who are not motivated by financial incentives.

6. Market your message.

A key component of CBSM is using social interactions to market a campaign's message. Although the media and informational campaigns can be effective in encouraging a small group of people to become early adopters of a particular action, research has found that personal interactions are crucial in promoting a the adoption of a behavior more broadly.

Promoting residential and business energy efficiency actions through social means can be challenging because such actions are often invisible to neighbors, friends, and peers. This challenge further highlights the benefit of using prompts and commitments to make actions more noticeable in the community.

Tips for designing your message:

- Know your audience: listen to people's interests/concerns and use this to design outreach methods (e.g., if people don't care about costs, don't use "free" as a selling point; if people are busy, be able to show them how little time/effort the action requires)
- Use nonpolitical language
- Make the message easy to remember
- Make the message specific
- Always stay positive
- Use the right messengers

Competitions & Challenges

Competitions and challenges can be designed in a variety of ways, such as among local businesses, among schools, among municipal departments, among municipalities, etc. Before creating a competition or challenge it is important to build partnerships with community leaders and organizations that will participate in and/or promote local energy efforts. Such leaders or organizations may include:

- Schools (school superintendent, school board, teachers, etc.)
- Places of worship (clergy)
- Youth (school clubs, Boy Scouts, Girl Scouts, etc.)
- Neighborhood associations
- Local businesses and business organizations

Examples of competitions and challenges in Massachusetts:

- **Greenfield's 10% Challenge** – The Greening Greenfield Challenge asks residents to participate in the challenge by pledging to do a range of energy reduction actions. Those who join the challenge receive a lawn sign and monthly information/tips on how reduce energy consumption. 40 plus businesses have also joined the challenge. For more information see: http://greeninggreenfield.org/

- **SouthCoast Energy Challenge** – The SouthCoast Energy Challenge is a regional campaign that challenges residents to make an online pledge to participate in a range of energy reduction activities either individually or as part of a team. The challenge has users track their progress on MyEnergy, an online webtool. For more information see: http://southcoastenergychallenge.org/press

Themed Workshops & Parties

Themed workshops or parties are a great way to have people who are not initially interested in energy-related issues get together to talk about an issue of interest that does in fact relate directly to energy issues. The workshops or parties can be held in various places depending on the audience (e.g., house parties, community centers, Mass Audubon sanctuaries, schools, places of worship, etc.)

Examples of workshops or parties in Massachusetts:

- **Ice Dams Workshops** – The Center for EcoTechnology (CET) holds a workshop entitled "Ice Dam Prevention: Why they happen and what to do about it." During the workshop CET discusses why ice dams are a problem, their underlying causes, building science, options for remediation and prevention and resources available for weatherization. For more information see: http://www.cetonline.org/

- **Climate Change at the Local Level** – Mass Audubon hosted a workshop in Worcester that focused on the potential impact of climate change on local resources (e.g., the Blackstone River watershed) and local action steps that can be taken to address these potential impacts. Mass Audubon's workshop focused on the MA Green Communities Act, but a group could just as easily talk about residential audits and retrofits. For more information see: http://www.nbcares.org/node/865

- **New Homebuyer Workshops** – The Housing Assistance Corporation on Cape Cod (HAC) holds new homebuyer workshops that include sections on the benefits of energy efficiency. A group could hold a similar workshop both for new homebuyers, as well as for those who are planning to do major renovations to their home. For more information see: http://www.haconcapecod.org/

Enhanced "Traditional" Outreach

- **Tabling** – Although some tabling efforts yield great results, many groups struggle with tabling because they are either at events where people are already interested in energy and know what to do or they are at places like grocery stores, where people are busy and do not want to stop to talk. One way to improve tabling success is to ask folks to make a written pledge to commit to whatever action you are promoting and then follow up with them via phone and email to remind them of the pledge and their commitment. Another way is to offer rewards for signing up for something, like a gift card to a business located near where you are tabling.

- **Advertising in Newspapers and Mailings** – While traditional advertising and mailings are often informative and educational, most people overlook such advertising. Using catchy images in conjunction with social norm messaging could help increase the effectiveness of such advertising. You can also think about putting messages on mail that people already look at, like water bills, mail from the municipality, etc.

- **Email** – These days everyone is overwhelmed with email. To increase the number of viewers of a mass email, consider asking a well-known leader or organization to send out the email on behalf of an effort. One town in Massachusetts had great success having the municipal government send out an email about residential energy opportunities. Further, emails that focus just on the energy action you are promoting will likely be more effective than embedding a message about the action somewhere in a general newsletter that touches on multiple topics or has multiple articles.

7. Identify external barriers.

As you move forward with your outreach, it is important to make note of the external barriers that are preventing residents from moving forward with particular behaviors or actions. These barriers should be reported to the relevant key stakeholders, such as the municipal leadership, MAPC or MassSave personnel, to ensure stakeholders are aware of the issues or problems that need further attention.

Resources

Hollander, Amy (2011). "Community Based Social Marketing: Fostering Energy Conservation Behavior." National Renewable Energy Laboratory. http://www.nrel.gov/docs/fy11osti/50349.pdf

McKenzie-Mohr, Doug (2010). *Fostering Sustainable Behavior*. http://www.cbsm.com/pages/guide/fostering-sustainable-behavior/

Community Solar and Efficiency Program[2]

Action: Design and conduct local outreach program based on Solarize Mass model to increase participation in MassSave's audit and retrofit opportunities, as well as to inform residents/businesses of solar opportunities and encourage the use of financial incentive options for solar installation.

Target Sectors: Residential Sector; Commercial Sector

Missions Met: Improve energy efficiency and encourage conservation in Medford; Promote sustainability efforts to meet present energy needs while considering future generation needs.

Implementation Time Frame: 9 months from design to program close; repeatable

Key Implementers: E&E Office; National Grid; Energy Service Vendors

For communities that want to encourage their residents to think comprehensively about their energy use, it makes sense to bundle both efficiency and solar services into one program in which residents are encouraged to get a home energy assessment at the same time as a solar site assessment. A community collective purchasing model can be use to bundle solar and energy efficiency services.

The community collective purchasing model can be used to overcome market barriers to the installation of energy efficiency upgrades and renewable energy systems in the residential sector, including: high upfront costs, complexity in the purchase and installation process, and customer inertia. Buying in bulk at the community level and/or at the neighborhood level helps drive down costs and builds momentum around, and trust in, the selected vendor. Further, offering pricing as a limited-time-only proposition motivates residents to act. By administering a competitive procurement process for efficiency and solar services, a municipality can create confidence for its constituents that the selected vendor is qualified to meet the needs of the community and will serve the public interest.

Effective outreach and education is essential to the success of a community collective purchasing effort, and is best done by volunteer partners in addition to municipal employees who can access residents directly through multiple channels. As part of the educational component, program administrators should be sure to emphasize that reductions in energy use are just as, or even more important, than installing distributed renewable generation, such as solar.

[2] Much of the information in this section is taken from *The Solarize Guidebook: A Community Guide to Collective Purchasing of Residential PV Systems*, prepared for the National Renewable Energy Laboratory.

PROGRAM IMPLEMENTATION OVERVIEW

Implementation Steps and Responsibilities	Key Implementers	Timeframe
Design Program & Identify Core Team	E&E Office; Energy Committee	Months 1-3
Build Partnerships & Recruit Volunteers	Energy Committee	Months 1-2
Issue RFP & Select Vendor(s)	E&E Office	Months 2-4
Launch Program & Advertise	E&E Office	Month 4
Conduct Outreach, Education and Customer Enrollment	E&E Office; Energy Committee; Energy Service Provider	Months 4-6
Conduct Home Performance & Site Assessments; Complete Installations	Energy Service Provider	Months 4-9
Program Wrap-Up & Evaluation	E&E Office; Energy Committee; Energy Service Provider	Month 9

PROGRAM IMPLEMENTATION STEPS

1. **Design Program & Identify Core Team.** Municipal staff or a dedicated Energy/Sustainability Committee member should take responsibility for organizing the program at an institutional level. It is important to, early on, identify a core program coordination team that designates responsibilities for program management, volunteer coordination, and technical support. This team should develop a timeline and work plan for the entire course of the program prior to issuing a solicitation or beginning outreach.

   Depending on resource availability, it may make sense to delegate program management responsibilities to municipal staff, and volunteer coordination/outreach efforts to the Energy/Sustainability Committee. The technical support role can be filled in a variety of ways, including some or all of the following:

   - Identifying [a] point[s] of contact at the utility, MassCEC, DOER and/or DEP that is able to answer questions and point the program manager to helpful resources throughout the program. Municipal leaders and volunteers who participated in the Solarize Mass program may also be able to offer guidance.[3]
   - Dedicating a volunteer from the Energy/Sustainability Committee or the public at large who either has pre-existing knowledge of home efficiency and solar projects, or who is willing to do research and become knowledgeable, and can be available to answer questions and "coach" residents on participating in the program.
   - Hiring a separate consultant who can help with technical aspects of the program, ranging from drafting and issuing an RFP to providing customer support during the outreach and installation phases of the program.

   Note: If program funding is a challenge, organizers may want to consider assessing a small fee for program participation, either by building a per-watt fee into the contractor's scope of work (for solar installations) or by charging a flat participation fee, both of which would be

[3] Municipalities participating in the Solarize Mass program include: Action; Arlington; Boston; Hopkinton; Melrose; Mendon; Montague; Newburyport; Palmer; Pittsfield-Lenox; Shirley Millbury-Sutton; and Wayland-Sudbury-Lincoln.

passed on to the customer. The funds collected can go towards producing marketing materials for the program and associated overhead costs.

These fees are best collected as part of a single bill issued by the contractor, but any process chosen for fee collection should be explicitly agreed upon in any Memorandum of Understanding signed between a community and a contractor. In general, charging an administrative fee will not affect the ability of a vendor to offer competitive pricing, as the infrastructure of a community collective model allows them to save money on marketing.

2. **Build Partnerships & Recruit Volunteers.** Municipal staff or Energy/Sustainability Committee members should first identify strategic partners that can help with outreach for the program and that may be able to offer volunteers for other components of program administration (including serving on the Selection Committee or hosting educational events). Such partners could include: the NorthEast Sustainable Energy Association (NESEA), community groups and local nonprofits, local manufacturers of solar equipment, churches, rotary or other service clubs, credit union or local banks, schools, etc.

   It may be helpful to advertise widely for these various volunteer requirements (from program design to outreach coordination to vendor selection) in neighborhood papers, at public committee meetings, through formal presentations, and word-of-mouth outreach.

3. **Issue RFP & Select Vendor(s)**

   i. **Assemble Selection Committee**. A selection committee could include representatives from community groups that are committed to help with outreach, municipal staff, Energy Committee members, or representatives from state agencies or National Grid. The goal should be to have a selection committee that represents a diverse group of interests, and includes particular knowledge of the community and its residents, as well as (if possible) expertise on home performance contracting and solar PV systems/solar developers.

   ii. **Draft RFP.** MassCEC has sample RFPs for its Solarize Mass program, into which language for requesting efficiency services can be integrated. Other communities can be a resource, as many have issued RFPs for and/or signed MOUs with companies to deliver these types of services to their residents. Some factors to consider when drafting the RFP include:

   - Consider whether you want to allow companies to bid on either one or both services (efficiency or solar), and whether an award will be made to one, two, or more than two vendors.
   - Require vendors bidding on the efficiency component to be certified MassSave Home Performance Contractors.
   - Consider how you will require the vendor to manage its contact database. Will the vendor need to submit frequent reports on outreach numbers/follow-up work?

Will leads be collected by the municipality and turned over to the vendor, or will the vendor collect leads directly?

- Consider whether you will allow bidding vendors to offer additional services such as low-interest financing for home efficiency projects.
- Consider whether you will require bidding vendors to develop a plan for community engagement and recruitment and be responsible for marketing the program as a whole, in addition to their own services.

iii. **Interview Top Candidates & Select Vendor(s).** Procurement for these services is not subject to Chapters 30B or 25A of Massachusetts General Law, but the Selection Committee should be encouraged to conduct the evaluation process in the general spirit of a public procurement process.

iv. **Negotiate Memorandum of Understanding with Selected Vendor(s).**

4. **Launch Program & Advertise.** Once the award(s) have been made, municipal staff should be ready to issue a press release and begin advertising the program. Consider hosting a kick-off party where residents can meet the selected vendor(s) and sign up for home energy and solar assessments on the spot.

5. **Conduct Outreach, Education & Customer Enrollment.** Over the course of the following months, outreach and enrollment in the program should be the primary focus for municipal staff, volunteers, and the selected vendor(s). The program coordinators should work with the vendor to develop marketing materials that ensure that each vendor's services is branded consistently with any marketing that the community is already doing around the program. Ideas for an outreach campaign include:

   - **Website -** Centralize program information, upcoming events, and updates, and provide an easy way for customers to sign up for home energy and solar site assessments. A countdown clock until the final date of the program and/or an updating total of customers enrolled in the program may also be an appropriate website feature.
   - **Other Social Media -** Consider creating a Facebook profile or page that residents who have enrolled in the program can "like" and share with their friends, or create a Twitter "hashtag" and encourage customers to "tweet" their experience receiving assessments or having work done. This can be helpful tool in communities with a younger, more transient population that may consume news more regularly from social media platforms than local papers or neighborhood newsletters.
   - **Workshops -** Consider hosting a series of workshops that range from introductory to more advanced topics. Community partners may be helpful for finding venues that residents feel comfortable visiting (i.e., other than City Hall) and advertising to their constituents.

- **Ambassadors -** Enlist residents who have completed efficiency upgrades or installed solar to be advocates for the program – have them present at workshops, record testimonial videos and post them on social media pages, etc.

6. **Conduct Assessments & Complete Installations.** This work is the responsibility of the contractor(s), but the program coordinators can decide to what extent they and their volunteers will be involved (i.e., following up with residents to obtain program feedback). If possible, there should be regular feedback between the contractor(s) and the program coordinators to determine which outreach efforts are being effective, track successes, and mitigate challenges.

7. **Program Wrap-Up & Evaluation.** Once the final date of the program is reached, the program coordinators should be prepared with a wrap-up event to celebrate the success of the program and reflect on what could have been done differently or propose next steps. The contractor(s) could be asked to sponsor this event, and the media should be invited.

Program Monitoring

1. Check in with vendor(s) periodically after program close to monitor demand for efficiency and solar services after the limited-time offer expires.

2. Hold a follow-up meeting with key stakeholders to discuss how to support a continued residential program. Determine whether another campaign will be helpful at some point or whether certain services should just be provided on an ongoing basis (i.e., website maintained where residents can sign up for home assessments/solar audits any time).

3. Survey residents after the fact to identify obstacles and opportunities for improvement.

Example Programs

The section below summarizes examples of community collective purchasing programs in places around the country that have proven to be effective at driving adoption of renewable technologies in the residential sector.

Place	Portland	Massachusetts	Vermont	San Diego
Program	**Solarize Portland**	**Solarize Mass**	**Vermont Solar Communities**	**Reduce, Then Produce**
Lead Implementer	Energy Trust of Oregon/Neighborhood Coalitions	MassCEC	VPIRG	CA Center for Sustainable Energy
Targeted Technology	Solar PV	Solar PV	Solar PV and hot water	Efficiency upgrades and solar PV
# Campaigns	6	13	10	1
Installations	560	162	60	7 solar, 11 efficiency upgrades
Contractor Selection	Multiple, smaller contractors	One contractor selected per community	One contractor selected overall	Two solar contractors, 30 efficiency contractors invited
Unique Attributes	"Buy local" manufacturer option	Tiered pricing; state-provided outreach toolkit	Collection of lead generation fee	Requiring home performance assessment prior to solar assessment

Resources

The primary resource used in developing this action strategy was The Solarize Guidebook: A community guide to collective purchasing of residential PV systems. (Produced for the National Renewable Energy Laboratory, May 2012.) Communities considering launched a community collective effort should read this document in full for an expanded version of this strategy summary.

Eugene: The Resource Innovation Group won a utility grant for Solarize Eugene 2012, addressing PV and hot water. http://solarenergydesign.com/solar-electric-systems/solarize-eugene

GroupEnergy launched multiple collective purchasing programs for the workplace in early 2012. www.mygroupenergy.com

"Lighten Our Load" was developed for Columbia Sportswear by Energy Trust of Oregon in 2008. www.energytrust.org

MadiSUN Group Solar Program serves residential and commercial customers in Madison, Wisconsin. http://www.cityofmadison.com/sustainability/city/madisun/

Make Mine Solar is a collective hot water purchasing program, based in Minneapolis, Minnesota. www.mnrenewables.org/MakeMineSolar

One Block Off the Grid is active in 20 cities nationwide, supporting volume purchasing for residential customers. www.1bog.org/

San Jose Employee Solar Group Buy was offered to City employees and retirees in 2010. The program became the model for the SunShares Program of the Bay Area Climate Collaborative. http://baclimate.org/impact/sunshares.html

Solar Beaverton offers PV, hot water, and even EV charging stations in a group purchase format. http://www.beavertonoregon.gov/index.aspx?NID=412

Solarize Pendleton: The City of Pendleton, Oregon, offered zero-interest loans to finance solar installations and created program replication materials http://solarizependleton.com/main/replication

Solarize Portland: With over six campaigns and 560 installations, Portland leads the way and helps other cities run Solarize campaigns. http://www.portlandonline.com/bps/index.cfm?c=51902

Solarize Salem: The Salem Creative Network organized a co-op to help fund its PV and hot water campaigns. http://solarizesalem.org

Solarize Santa Barbara: More than 49 neighbors went solar through a program from Community Environmental Council. http://www.cecsb.org/solarize-santa-barbara

Solarize Washington: A series of residential PV campaigns from Northwest SEED began in 2011. www.solarizewa.org

Solarize Massachusetts: Massachusetts Clean Energy Center (MassCEC) in partnership with Green Communities Division of the Massachusetts Dept of Energy Resources ran campaigns in four cities. http://www.masscec.com/index.cfm/cdid/12093/pid/11159

VPIRG Energy ran successful "Solar Communities" programs for PV and hot water across Vermont. The co-directors of VPIRG Energy have subsequently launched SunCommon. http://suncommon.com

Outreach Techniques for Energy Efficiency in Rental Housing

Action: Design and conduct energy efficiency outreach campaign for rental housing to increase landlord/tenant participation in MassSave's audit and promote energy efficiency retrofits at rental units.

Target Sector: Residential Sector

Mission Met: Improve energy efficiency and encourage conservation in Medford.

Implementation Time Frame: 1Year

Key Implementers: Energy Committee; National Grid; Energy Service Vendors

Rental units make up of 40% of Medford's housing stock. Unlike homeowners, landlords and renters are often much more reluctant to participate in energy efficiency programs and make home energy improvements due to incentive and liability barriers. If the City is concerned with reducing residential energy consumption, the City should design and implement landlord/tenant outreach program to encourage retrofit and weatherization work in rental housing. This strategy discusses a seven-step process for designing and implementing an energy efficiency outreach campaign for rental units in Medford that focuses on:

- Increasing landlord and tenant awareness of energy efficiency retrofit opportunities;
- Building trust in energy efficiency programs; and
- Realigning the financial incentives for energy efficiency investments.

Source: National Development

Program Overview

Implementation Steps	Objective	Key Implementers	Time Frame
1. Create Medford landlord/ tenant profile.	Identify who landlords are and where tenants live.	Energy Committee; E&E Office Intern	Month 1
2. Increase visibility.	Help landlords, property owners, and renters become familiar with MassSave and other energy efficiency opportunities.	Energy Committee; National Grid; Energy Service Vendors	Months 1-12
3. Build on existing resources.	Build on existing resources and institutional knowledge to develop cost-effective outreach strategies.	Energy Committee; National Grid; Energy Service Vendors	Months 2-4
4. Design targeted outreach.	Design outreach programs that target specific landlord and renter groups that have unique energy use patterns, incentives, and challenges.	Energy Committee; National Grid; Energy Service Vendors	Months 2-4
5. Eliminate concerns.	Eliminate property owners' concerns regarding the disclosure of minor code violations through MassSave.	E&E Office; Energy Committee; Mayor's Office	Month 4
6. Tackle the split incentive challenge.	Realign the incentives of energy efficiency investments in rental units with Building Efficiency Ordinance, Green Home Label Program, and Green Leases.	E&E Office; Energy Committee; National Grid; Energy Service Vendors	Months 4-10
7. Promote the multi-family retrofit program.	Design outreach campaigns to promote energy efficiency retrofit work in multi-family 5+ unit housings.	E&E Office; Energy Committee; National Grid; Energy Service Vendors	Months 10-12

Program Implementation Steps

1. Create Medford Landlord/Tenant Profile.

A landlord/tenant profile will help the City, National Grid, and energy service vendors identify target specific outreach efforts that will be effective in promoting participation in MassSave and other energy efficiency programs. This section provides guidance on how the City can better understand what the rental population is like and if there are other populations in the community that may require more specific outreach efforts. The City can use various resources to build a Medford landlord/tenant profile. The following chart summarizes existing data that can be used:

Source: National Development

Source	Information Provided	Last Updated	How to Use
U.S. Census/ American Community Survey	*Tenure, Household Size, and Age of Householder:* • Tenure by age of householder *Physical Housing Characteristics for Occupied Housing Units:* • Units in structure for renter-occupied housing units • House heating fuel for renter-occupied housing units	2010	The U.S. Census and American Community Survey provide information that can be used to create a general snapshot of Medford's rental housing profile. Using this data the City will be able to identify landlord and tenants that have unique incentives and challenges for participating in MassSave.
Medford Energy Action Plan	*Medford Residential Energy Profile:* • Energy consumption by fuel type and housing type • Energy expenditure by fuel type and housing type	August 2012	The Community Energy Profile section in the Medford Energy Action Plan provides a rough overview of the City's residential energy consumption and expenditure. The data provides insight into the types and scale of energy use in the residential sector. The City can use this information to identify general energy use patterns among renters.
Medford Assessor's Database	• Homeowner • Housing type • Number of occupied households • Heating fuel	Ongoing	This database can be used to identify rental units based on the housing type and the number of occupied households per building. The City should use this information to map out multi-family housing units and rental units. This information is valuable for designing outreach that is neighborhood-specific. The City can also use this information to create a mass mailing list of homeowners and rental units in Medford.

The City can also create and distribute a landlord/tenant survey at workshops, panels, community events, and local university events to collect information on Medford's rental housing stock. This survey will help City, National Grid, and energy service vendors learn about Medford's current rental housing condition, landlord/tenant awareness of the benefits of and processes for energy efficiency retrofits, and existing energy efficiency incentives. The information collected in the survey will help the City better understand how to reach out to tenants and landlords. The following list is an example of information that can be collected from a landlord/tenant survey:

- The income level of tenant(s);
- The location of rental units;
- Who is responsible for paying the utilities;
- Whether a building is owner-occupied;
- Whether energy efficiency upgrades were performed in rental units in the past; and
- Landlord/tenant awareness of MassSave, energy efficiency retrofits, and financial incentives.

2. Increase Visibility.

Source: Medford Patch

As part of its outreach efforts, the City should focus on building trust in, and increase local awareness of, MassSave and other energy efficiency retrofit opportunities by helping local landlord and tenants become familiar with available energy efficiency programs. The City, in conjunction with the National Grid and potentially an energy service vendor, should use both National Grid and Go Green Medford branding to design and promote an outreach campaign that local residents can trust and feel comfortable participating in.

The following chart lists available outreach methods that the Energy Committee, National Grid, and energy service vendors can use to increase the visibility of and promote MassSave and energy efficiency retrofit options. These outreach actions are key to a longer-term outreach process that aims to help landlords and tenants become comfortable with, and confident in, participating in MassSave.

Outreach Type	How to Implement	Things to Consider
Information sheet	Distribute a handout/information sheet on the Go Green Medford website, via mail and email distributions, to parents through student packets, and at local restaurants, retail stores, the Public Library, the Senior Center, and the Medford Farmers Market.	**Create easy-to-read and accessible material.** Prepare information sheets and marketing material that is easy to understand for all audiences at a basic reading level. *Avoid jargons and abbreviations.* Hand out user-friendly program participation forms that are simple and easy to understand. Ask short and direct questions and provide straightforward instructions. Avoid opinion or comment questions that are time-consuming to complete.
Existing community events	Have poster boards and information tables at community events including: Harvest Your Energy Festival, Earth Day, Tufts Community Day, and the Jingle Bell Festival.	**Stand out at events.** Design creative and fun tables/booths that draw the attention of local residents. Create energy efficiency related games and prepare giveaways that appeal to residents, such as candies, pins, stickers, and pens. Put on interactive demonstrations that inform residents of home energy efficiency technology or show videos that showcase local stories.
Presentations	Presentation topics should be tailored to audiences such as home buyers workshops, community college classes, and student orientations.	**Clearly identify the target audience on the invitations and event flyers** (e.g., "This event is a 1-4 Units Building Owner/ Homebuyer/ Landlord Energy Efficiency Retrofit Workshop".

Outreach Language

The Medford outreach campaign should aim to help target audiences realize the incentives available to them and their particular role in participating in MassSave. When designing outreach to landlords, homeowners, building owners, and renters, the City should consider their target audiences and the language used to advertise MassSave and other energy efficiency programs. Language and framing the Energy Committee, National Grid, and energy service vendors should emphasize during their outreach effort include:

a. Outreach to Landlords/ Homebuyers/ Building Owners

The City should help landlords and building owners better understand the direct benefits to them for performing energy efficiency retrofits. The outreach campaign should emphasize topics such as increased property values, increased competitive power in the rental/sales market, and home comfort.

b. Outreach to Renters

Unlike landlords and building owners, renters are often not involved in the decision-making stage of performing home energy assessments and efficiency retrofits. The goal of renter outreach is to inform tenants of MassSave and to educate them about their roles in helping their landlords participate in the program. The Energy Committee, National Grid, and energy service vendors can engage tenants and potential renters using the outreach methods listed in the chart above to inform renters of the process of and the benefits to the tenants for participating in MassSave. The outreach can also help tenants understand what a tenant's liability is if the landlord decides to participate in the program.

3. Build on Existing Resources.

Source: Medford Patch

National Grid and energy service vendors are experienced in coordinating and participating in residential outreach programs. The City should build upon this institutional knowledge and potential resources to develop cost-effective outreach strategies. The City should utilize this expertise to design and implement an efficiency outreach strategy that incorporates the Go Green Medford, National Grid, and energy service vendor branding.

The City should also capitalize existing programs and events to deliver presentations and information sheets about MassSave and energy efficiency retrofits to building owners and renters to reduce the time and cost required for organizing new events or workshops/panels. The following chart highlights existing events the City, National Grid, and energy service vendors can take part in to promote participation in MassSave and energy efficiency services.

Event/ Program	Time Frame	How to Implement	Key Contact
First Time Homebuyer's Workshop	May, September, November	Present to homebuyers about MassSave and energy efficiency retrofit options, as well as how to choose an energy efficient home.	Susan Collins Executive Director at Medford Community Housing 978-873-5650 info@medfordcommunityhousing.org
Harvest Your Energy Festival	October	Set up tables/ booths to increase the visibility of MassSave and other energy efficiency retrofit opportunities under the Go Green Medford branding. Distribute "MassSave" package and energy efficiency retrofit flyers.	Alicia Hunt Energy Efficiency Coordinator at E&E Office, 781-393-2137 ahunt@medford.org
Medford Farmers Market	June - October	Set up tables/ booths to increase the visibility of MassSave and other energy efficiency retrofit opportunities under the Go Green Medford branding. Distribute "MassSave" package and energy efficiency retrofit flyers.	Susan Fairchild President at Medford Farmers Market susancfairchild@gmail.com

4. Design Targeted Outreach.

The Energy Committee should use the Medford Landlord/Tenant Profile such as described in Step 1to identify landlord and renter groups that have special interest or experience unique incentive challenges in participating in MassSave and other efficiency retrofit incentives. The City should work with National Grid and energy service vendors to design and implement outreach programs using information for a targeted group, such as their energy use patterns, available incentives, and existing challenges to retrofit work. The following chart summarizes two target outreach campaigns the City can implement.

Outreach Campaign	Details	How to Implement
Owner-Occupied Rental Housing Campaign	Owners that reside in their rental buildings have greater incentives to invest in energy efficiency retrofits since they will directly benefit from home energy improvements. The City should design an outreach campaign that targets owner-occupied rental housing since the program is likely to experience the most successful outcome.	**Map out owner-occupied rental housing.** Identify multi-family buildings with multiple owners using the Medford Assessor's Database. Distribute mailing inserts and information sheets that highlight specific benefits of MassSave and energy efficiency retrofits, such as home comfort, the ability to attract better tenants, and increase in property values.
Student Outreach Campaign	It is estimated that 8% of local renters are students (householder 15-24 age). Outreach to student tenants can be challenging since students do not have the same incentives as landlords do to invest in energy efficiency retrofits due to their short lease terms and limited financial resources. In addition, students are usually inexperienced renters and feel that they are not empowered to ask their landlords about energy efficiency opportunities.	**Engage local universities to design outreach campaign.** Local student groups, particularly those focused on renter rights and the environment would be ideal messengers for this campaign. National Grid and energy service vendors can also present at student orientations and other sustainability and environmental-related events to educate students about the Go Green Medford clean energy campaign and what roles they can play to motivate their landlords to participate in MassSave.

5. Eliminate Concerns

Rental units that are under-repaired or under-maintained can be subject to minor code violations. Rental property owners may be hesitant to perform home energy assessments through MassSave if they are concerned that participating in the service will put them at risk for being reported for building code violations. In order to eliminate property owners' fears and build their trust in MassSave, the City should educate residents to assure building owners that energy service vendors are only responsible for conducting home energy audits. If there is a health or safety hazard in the home, the advisors will make residents aware of the issue, and when it poses a serious risk they hold a responsibility to act upon it, such as when gas is leaking at an unsafe level. However, energy advisors do not work for the municipal inspectional services department and are not responsible for enforcing building codes.

6. Tackle the Split Incentive Challenge.

A key barrier to energy efficiency retrofits in rental units is the split incentive challenge. When tenants are responsible for paying the utility bills, landlords are reluctant to invest in energy efficiency upgrades due to the lack of direct financial savings. Tenants, on the other hand, have little incentive to make capital investment in units they do not own, let alone buildings they may not live in for more than a few years. Various policies and programs have been developed to address the split incentive challenge. The following chart highlights existing solutions that have been implemented across the country to overcome this barrier.

	Key Implementers	Target Outreach	Example Practices
I. Building Efficiency Ordinance	E&E Office	Building owners	Medford Stretch Energy Code; Berkeley Residential Energy Conservation Ordinance
II. Green Home Label Program	Energy Committee; National Grid; energy service vendors	Building owners	California Green Point Rated Program; Los Angeles Green Label rebate Program
III. Green Leases	E&E Office	Landlords and tenants	PlaNYC Energy Aligned Clause

I. Building Efficiency Ordinance

Many municipalities have adopted a building efficiency ordinance that enforces the adoption of cost effective energy efficiency measures by owners of new and renovated residential buildings. This policy reduces the split incentive barrier because landlords are required to incorporate energy efficiency measures during the construction or renovation of their units. Medford has already adopted a building efficiency ordinance. In 2010, the City adopted the Stretch Energy Code, which tightened the City's building energy efficiency code requirements to a higher standard than Massachusetts's base building code, as a partial requirement for the Green Community status.

City of Berkeley, CA – Residential Energy Conservation Ordinance (RECO)

The Residential Energy Conservation Ordinance was adopted in 1987, and revised in 1992 by Berkeley in contribution to the Berkeley Climate Action goal of reducing the City's greenhouse gas emissions by 80% by 2050. All residential properties must be complied with the RECO upon the sale or transfer of the property or upon renovation and construction. Property owners can obtain a RECO audit through the City's Community Energy Services Corporation. All records are maintained by the City. Renters and home buyers can access the information through the Building and Safety Department.

For more information, please see:
http://www.ci.berkeley.ca.us/reco/

II. Green Home Label Program

The City can create a Green Home Label Program under the Go Green Medford branding to motivate landlords to pursue energy efficiency retrofits. A Green Home Label Program requires participating landlords and building owners to disclose the historic energy use and energy audits for its housing units to the City. Buildings with high energy efficiency ratings will receive a Green Home Label. Owners of a Green Home Label building enjoy the benefits of (1) increased property value, (2) increased competitive value in the rental/sales market, and (3) the ability to attract better tenants or home buyers by advertising their housing units as City-approved energy efficient homes. A Green Home Label Program can encourage landlords and building owners to pursue home energy assessments through Mass Save. The program also helps renters and buyers identify energy efficient housing options and make informed decisions when choosing a housing unit.

The City should advertise the Green Home Label Program and inform renters and home buyers of the benefits of selecting a Green Home Label. The City should make the energy data of the buildings that have obtained a Green Home Label easily accessible on Medford Assessor's Database and/or at the Go Green Medford website. Via a user-friendly online database, potential renters and buyers should be able to search for the energy efficiency data, along with other important decision factors such as historic sales price and assessed value for comparing their housing/building options. The information can also be showcased on local university student housing websites.

How to Implement:

a. **Plan the program.** Meet with landlords, property managers, and National Grid to identify opportunities and challenges regarding building energy data disclosure.

b. **Establish Green Home Label standards.** The City should work with National Grid and energy service vendors to identify energy efficiency standards that verify a building as a Green Home Label building.

c. **Design a standard report format for building energy data.** Create an energy data report template that aligns with the report formats of MassSave Home Energy

Assessment and existing energy data management tool, such as ENERGY STAR Portfolio Manager.

d. **Create an energy data database.** Create an online Green Home Label database to provide a user friendly method for renters and home buyers to access the energy data of buildings that have obtained a Green Home Label.

e. **Designate a program coordinator.** Identify a program coordinator from the Energy Committee/ E&E Office who serves as a direct point of contact for the program.

f. **Launch the program.** Hold workshops/presentations and distribute information sheets to inform building owners of the Green Home Label Program.

g. **Advertise the program.** Hold workshops/presentations and distribute information sheets at community events and at schools to inform renters, home buyers, contractors, and real estate agents of the benefits of choosing a Green Home Label housing unit.

h. **Maintain the program.** Work with National Grid and energy service vendors to track MassSave and home energy program participation data. E&E Office should maintain the online Green Home Label database.

California State – GreenPoint Rated Program

California's GreenPoint Rated program recognizes housing units that are being built or remodeled according to outstanding environmental standards. Participating building owners hire a GreenPoint Rater to evaluate their buildings. Buildings that fulfill the environmental standards in five categories – energy and water conservation, indoor air quality, sustainable building materials, and community benefits such as proximity to public transportation – receive a GreenPoint Label that verifies the outstanding green effort. The program allows building owners to advertise their homes under a recognizable and trustworthy branding. It also helps buyers compare the green features of housing units and make more informed decisions when purchasing a home.

Los Angeles County – Green Label Rebate

Los Angeles County's Green Label Rebate Program incorporates the statewide GreenPoint Rated Program and provides building owners with the incentives to perform green home upgrades. Building owners that have received GreenPoint Labels are eligible to receive up to $8,000 in rebates for the construction/ remodel projects.

For more information, see:
http://greenpointrated.com/ and http://www.energyupgradegreenlabel.org/

III. Green Leases

The purpose of Green Leases is to ensure that both property owners and tenants can benefit financially from energy efficiency retrofits. Green Leases are contracts made between landlords and tenants to realign the financial interests of energy efficiency investments in rental housing. Under the contract, a landlord and the tenant(s) work

together to determine the upfront cost and tenant(s)' energy saving from efficiency retrofits. Based on the predicted savings, the landlord and tenant(s) come to the agreement on an additional amount the tenant(s) will pay each month to the landlord. The additional payment will be less than the utility savings the tenants will see as a result of the retrofit but enough to recover the landlord' upfront investment over an agreed-upon time period.

It is important to note that Green Leases may not be beneficial to all residential leases. Challenges remain with shorter (1-2 year) leases since the payment term is short while the payment rate is high. Student tenants and inexperienced tenants, who often have limited understanding of leasing language, may also be reluctant to agree on additional terms and payments. The City should carefully examine its renter population and rental status and evaluate the cost and benefits before implementing a Green Leases program.

One step further: To facilitate the adoption of Green Leases, the City can develop a model Green Lease Clause or an Energy Aligned Lease Clause that will provide a standardized leasing language that can be easily inserted into typical residential leasing contracts. Model language benefits both the landlords and tenants by reducing the transaction cost needed to negotiate a new "green lease."

New York City – The Energy Aligned Lease Clause

As part of New York City's sustainable master plan, the City created the Energy Aligned Lease Clause, a standardized leasing language that eliminates the split incentive barrier in typical modified gross commercial leases. Under the lease clause, "the building owner's cost recovery is based on a prediction of savings as determined by an energy specialist agreed upon by both parties, but the owner's capital expense pass-through is limited to 80 percent of such predicted savings in any given year." Tenants are protected against underperformance of the energy efficiency investments, while property owners receive cost recovery for their upfront energy efficiency investments.

For more information, see:
http://www.nyc.gov/html/gbee/html/initiatives/clause.shtml

7. Promote the Multi-Family Retrofit Program

Among the City's 9,003 renter-occupied housing units, multi-family housing with 5+ units makes up over 35% of the housing stock. The significant number of multi-family rental housing stock highlights the necessity for Medford to design outreach efforts that specifically engage multi-family landlords and building owners.

A retrofit project in buildings with 5 or more units often occurs when appliances or HVAC systems in one or multiple residential buildings need to be upgraded at the same time. To help property managers make informed decisions when performing large scale retrofits, the City can:

- **Help property managers identify energy efficiency retrofit opportunities -** The City can connect the manager to the MassSave® Multi-Family Retrofit Program when the manager begins scoping work for the building.

- **Help property managers explore energy efficiency retrofit options -** The City can help property owners and managers learn about available options for energy efficiency upgrades at their buildings by distributing a newsletter to inform property owners and managers to inform them of updated building appliance technology, new financing models, vendors recommended by other local property owners, case studies, workshops, and networking events. Each year, the City can hold an annual energy efficiency retrofit event and invite building appliance vendors and finance professionals to showcase new technology and financing options available for performing large scale energy efficiency retrofits.

Resources

This strategy builds upon the following report: Brandt, E., Rozbitsky, M. Spivey, R., Warner, J., & Zwicker, B. "Retrofitting for Residential Energy Efficiency in Somerville: A Program Feasibility Study for the City of Somerville." Tufts University. May 2010. Available online at: http://www.somervillema.gov/sites/default/files/SomervilleResidentialEnergyEfficiencyReport1.pdf

Green Label Rebate Program. "Energy Upgrade California." Available online at: http://www.energyupgradegreenlabel.org/

GreenPointRATED. "Green Point Rated." Available online at: http://greenpointrated.com/

"Increasing Energy Efficiency in Existing Multifamily Buildings: An Overview of Challenges, Opportunities, and Policy Tools." City of Berkeley. October 2011. Available online at: http://www.icleiusa.org/action-center/learn-from-others/BEES2011FINALfullWeb-1.pdf

PlaNYC The Energy Aligned Lease Clause. "Green Buildings and Energy Efficiency." Available online at: http://www.nyc.gov/html/gbee/html/initiatives/clause.shtml

Energy Curriculum in Schools

Action: Design and implement a school and youth group outreach campaign to educate students on clean energy science, actions, and policies.

Target Sector: Residential Sector

Mission Met: Promote clean energy actions and policies in Medford.

Implementation Time Frame: Ongoing

Key Implementers: E&E Office; E&E Intern: Energy Committee; Schools

Schools can be a valuable portal for distributing information about clean energy to Medford youth and their parents. Municipal and school staff can develop clean energy-related curricula to educate students about energy issues and increase their awareness of energy opportunities, both in terms of their behavior and their future interests. This action strategy highlights how clean energy education can be integrated into the Medford Schools curricula, building upon the examples from the National Energy Education Development (NEED) Project, as well as those from across the Commonwealth.

Medford Clean Energy Education Overview

The Medford Schools has demonstrated great effort in promoting clean energy education to Medford youth in the past. Below is a list of energy education projects the City has implemented.

Program	Description and Outcome
See the Light Program	The City of Medford and Medford High School participated in the See the Light Pilot program to initiate energy conservation efforts in school buildings. A teacher from the Medford Vocational Technical High School was trained to monitor energy and resources consumption in the school buildings. The data collected was intended to be used to identify inefficient buildings or energy use habits at the school and develop tailored consumption reduction strategies. The teacher also helped with outreach to other staff to encourage energy saving behaviors.
Wind Turbine Project	The City of Medford, with support from its Energy Committee, erected the Medford Turbine at McGlynn School in 2009. The project currently provides 10% of the school's energy and has saved over $25,000 on annual energy expenditures. McGlynn School students can assess real-time data on wind speed and the energy output of the system, gaining knowledge on renewable energy generation through this live demonstration. The school teachers have established middle school wind curriculum, Northwind 100 Lesson, around the project to educate students about the different parts and vocabularies associated with the engineering behind, and the energy and cost savings of the wind turbine.
Power 2 Save	Beginning in January 2012, Andrews Middle School in Medford worked with National Grid to launch Power 2 Save, a monthly newsletter that shares energy saving tips and updates families on clean energy progress in the school. Every month families receive a newsletter about energy saving tips for a selected theme, such as "The 3Rs," which teaches families the importance of the environmental 3Rs – Reduce, Reuse, and Recycle – and "Cool Your World This Summer," which shares energy efficient tips on cooling.

OPTIONS FOR CURRICULUM EXPANSION

The NEED Project provides energy education and support to teachers and students across the country with the goal of increasing youth understanding of energy issues. Teachers and students can access a range of educational materials, including activity guides, information books, games and puzzles, at the NEED website.

The table below summarizes the NEED resources available for intermediate to secondary education energy curriculum. Those bolded are highlighted in more detail in this document.

I. Efficiency and Conservation	• ***Energy Conservation Contract*** • Energy Expos • Exploring Climate Change • Learning and Conserving	• Museum of Solid Waste and Energy • Plug Loads • Saving Energy at Home and School • ***School Energy Survey***
II. Sources of Energy	• Energy Enigma • ***Energy Expos*** • Exploring Hydroelectricity • Exploring Nuclear Energy • Exploring Photovoltaics • Exploring Wind Energy • Fossil Fuels to Products	• Great Energy Debate • Great Energy Rock Performances • LNG: Liquefied Natural Gas • Marine Energy • Secondary Energy Infobook+ Activities • U.S. Energy Geography
III. Transportation	• Energy Expos • H_2 Educate • ***Transportation Fuels Debate***	• Transportation Fuel Enigma • Transportation Fuels Infobook • Transportation Rock Performances
IV. Raising Awareness	• Carbon Capture and Storage • *Current Energy Affair* • Energy Analysis • Energy and Our Rivers • Energy Around the World • ***Energy Carnival*** • Energy Jeopardy	• Energy Math Challenge • ***Energy on Stage*** • Energy Rock Performances • Global Trading Game • NEED Songbook • Yesterday in Energy

The ability for schools to utilize or pursue the educational materials and events in the chart above will depend upon available resources, capacity, and student interests. Teachers and school administrators should assess what strategies will be most beneficial to the students and will be most successful given the unique circumstances of the school.

The section below highlights strategies that have proven to be both cost-effective to implement and successful in improving knowledge and awareness of clean energy issues, as well as local examples in the Commonwealth that have proven successful in integrating energy into intermediate education.

I. Efficiency and Conservation

Energy Conservation Contract

In the Energy Conservation Contract program, students discuss with their families their daily energy use and educate them about energy savings opportunities using the *NEED's Household Rating Guide*. Family members are asked to sign a one-month Energy Conservation Contract

to commit to making a conscious effort to reduce their energy use. The students and their families will revisit the Rating Guide and estimate energy savings at the end of the one-month period. Students are encouraged to ask family members to sign another contract for a 12-months energy conservation commitment.

Why it is Effective: This activity educates both students and adults about energy-saving opportunities, including conservation measures and appliances upgrades and weatherization.

One Step Further: Schools can work with National Grid and energy service vendors to distribute flyers on utility energy efficiency programs along with the Household Rating Guide.

School Energy Survey

Through the School Energy Survey activity, students follow *NEED's School Energy Survey Guide* step-by-step instructions to gather and analyze data on energy consuming appliances and systems in their schools. Students will document annual energy consumption, cost, and carbon emission of appliances using energy information gathered from the nameplates of the devices, Kill-A-Watt monitors, and any other data already collected by the school or municipality. Based on the findings, the students will assess the costs and benefits associated with potential solutions and put together a school energy action plan. As an extension, students can monitor and evaluate their interventions on the school energy consumption over time.

Why it is Effective: This student-driven program can educate students about all aspects of energy conservation, from cost to carbon emission. The program can raise students' awareness on energy conservation and help them apply their math skills, while providing them with a strong sense of accomplishment and of belonging to the school.

One Step Further: Allow student groups to prepare energy action plans and compete with each other. Teachers will be judges and select the best plan based on costs and benefits. The selected plan will be implemented and energy savings will be monitored. The school will announce the energy and cost savings on a regular basis to celebrate the students' success.

The City of Taunton – Gang Green (Student Energy Management Team)

In order to build the capacity to carry out energy management work and raise students' awareness on energy conservation, Friedman Middle School in Taunton created "Gang Green," a student group charged with monitoring and collecting energy data throughout the school building. The group is responsible for presenting data and creating an energy management bulletin board identifying data collection schedules and zones that each student is responsible for covering. To motivate participation, all Gang Green student members received special T-shirts, hard hats, and certificates. In 2009, the energy education program received the Massachusetts Executive Office of Energy and Environmental Affairs Secretary's Award for Excellence in Energy and Environmental Education.

Towns of Acton and Boxborough – Green Council (Student Energy Management and Conservation Team)

Student-driven projects are valuable tools for promoting energy efficiency and conservation at schools, since they provide hands-on educational experience and demonstrate visible results. A group of students from the Acton-Boxborough Regional High School initiated a series of waste reduction and energy efficiency efforts in the school following the "Eight Pathways" ECO Schools USA Program. The student-driven energy management organization, Green Council, was developed to support the sustainability efforts and goals of existing clubs and organizations, such as the Recycling Club and Envirothon Team. Since 2011, the Council has been working toward receiving the ECO Schools Program's Green Flag certification. The students' first action was developing a waste audit for the school. Based on their results, the students worked with faculty members and community organizations to identify and implement a list of waste reduction actions on campus.

The Acton-Boxborough Regional High School action plan focused on a complete reorganization of the school's waste system. By providing and labeling recycle and compost bins in the cafeteria, the Green Council helped the school increase recycling by 250% from the previous year. To strengthen energy reduction efforts, the students also developed the Power Down Project, an energy conservation initiative intended to promote energy and cost savings through monitoring the energy consumption of on-campus electric appliances through various outreach activities including an Energy Fair and a faculty light bulb exchange program. Other Green Council strategies included a campaign to encourage the use of reusable water bottles, drinking local tap water, and the construction of a rain garden with the aid of the local garden club.

To date, the school has reached a 10% energy consumption reduction and has reduced the amount of trash bags heading to the dumpster daily from 40 bags to 4. For the students' excellent effort, the Green Council received the Green Flag Award in 2012.

For more information, see:
https://sites.google.com/a/abschools.org/sustainabilityabrhs/resource-stream/cafeteria-project

II. Energy Sources

Energy Expos

Students work in groups to create an energy exhibition to reinforce their energy knowledge and share information on energy sources with other students. The activity covers a wide range of topics revolving around energy sources, such as renewable energy, fossil fuels, clean energy and greenhouse gases, the geography of energy sources, and the science of energy generation (examples can be found in *NEED's Energy Expos Guide*). The energy exhibits can be in any format, including posters, hands-on activities, demonstrations, presentations, and art and crafts. Students can use their academic skills and creativity to effectively present their energy knowledge and research effort to their peers, teachers, and parents.

Why it is Effective: The activity facilitates peer-to-peer information sharing on renewable energy knowledge. Students can learn about the different sources of energy and assess the pros and cons of each source. Through creating the exhibits, the activity can also reinforce the students' research, writing, public speaking, art, and other academic skills.

One Step Further: The schools can work with solar vendors and the municipality to co-host the event, as well as invite families and the community to attend. Students can present their energy exhibits during the expo, educating the community about renewable energy. Solar

vendors and the municipality can also participate in the event by helping residents access to credible solar and energy efficiency opportunities. Schools can also create a competition for the best exhibit(s). The winning students and their families could receive energy related prizes sponsored by the municipality, National Grid, and vendors, such as free assessment services.

United States Department of Energy – Renewable Energy Activities (Experiments Teaching Guide)

The Renewable Energy Activities Teaching Guide, developed by the National Renewable Energy Lab, consists of a series of hands-on activities teachers and students can work on to develop simple renewable energy systems. Using basic science knowledge and daily materials, students can create their own mini renewable energy experiments, such as building a hydro-mill, comparing different grasses for biomass output, and building hot-water solar collectors. The interactive activities can educate students about basic energy information and the science of renewable energy generation. It provides a great opportunity for students to develop an understanding of and interest in renewable energy through hands-on experiences.

III. Transportation

Transportation Fuels Debate

Students work together to research and prepare to participate in a debate on transportation. Each student group will first select a transportation fuel, such as gasoline, biofuel, natural gas, and diesel, and introduce basic information on the fuel to the class. The groups will follow with a presentation on the advantages or disadvantages of each fuel. The students will then debate on the pros and cons of each fuel for both personal vehicles and fleet vehicles. Teachers will judge and select the winning team based on each group's ability to defend their proposition and challenge others. Detailed rules and resources can be found in NEED's *Transportation Fuels Debate Guide*.

Why it is Effective: Students can learn about the pros and cons of different vehicle fuels through a constructive debate. The interactive activity facilitates information sharing and allows students to think about energy issues in a broader way. The activity also helps strengthen the students' analytical and critical thinking research, collaboration and public speaking skills.

One Step Further: Encourage students to interview local stakeholders that use the different transportation fuels. Students can learn about the rationale that motivates these drivers to pick the specific transportation fuel, as well as the challenges such users face, such as cost, availability, and energy efficiency.

Town of Norwell – Alternative Travel Group (Alternative Fuel Vehicles Project)

The South Shore Charter Public School initiated the Alternative Travel Group project, an initiative to educate students on alternative fuel vehicles and encourage the community to reduce vehicle emissions. In 2009, the school launched the Veggie Van, a non-hydrogenated-oil-fueled vehicle that transports students to field trips and sports events. The van ran on used vegetable oil collected from local restaurants. Used vegetable oil was chosen among other clean fuels because of its low carbon footprint and its educational and environmental values. This innovative project not only educates students on alternative fuel sources, but also provides students with the hands-on experience to learn about the science of alternative fuels. The project received a Secretary's Award for Excellence in Energy and Environmental Education in 2009.

IV. Raising Awareness

Energy Carnival

A school creates a school-wide or community-wide Energy Carnival that combines students' academic skills, energy knowledge, and physical fitness with games. Student teams will rotate around carnival stations to participate in games (examples can be found in NEED's Energy Carnival Guide) by answering questions, solving problems, and earning "energy bucks". Teams with the most energy bucks will be awarded with prizes. Games include solving energy-related math problems, energy jumbles, Pictionary, etc. Individuals and families can also participate.

Why it is Effective: Students and the community will learn about energy issues at a fun and entertaining event. Students cannot only apply their energy knowledge on various energy issues, they will also have the opportunity to exercise and develop team-building skills.

One Step Further: Partner with community stakeholders, such as local high schools, businesses, community organizations, and National Grid. Invite local restaurants to sponsor food and prizes at the community Energy Carnival. This event can be used as a great outreach activity to educate the community about clean energy opportunities and National Grid's energy efficiency programs.

Martha's Vineyard – Energy Carnival (School and Community Event)

The Vineyard Energy Project and the Cape Light Compact co-sponsored Oak Bluffs School's Energy Carnival in 2011. The Cape Light Compact provided volunteers and financial assistance for the carnival, and all stations were led by students in the Energy Club from Martha's Vineyard Regional High School. 350 students from Martha's Vineyard Public Schools and Martha's Vineyard Public Charter School participated in 15 station activities, which included making coin batteries, creating a human circuit, generating electricity from fruit, playing a wheel energy game, and demonstrations of a Van de Graff generator, energy efficiency efforts, and solar and wind power.

Current Energy Affair

The Current Energy Affair activity is modeled after a TV news broadcast and allows students to report on major issues related to electric power generation. Students present to classes on electric power generation using information from NEED's Electricity Factsheet and the lead stories provided in *NEED's Current Energy Affair Packet*.

Why it is Effective: This role-playing activity facilitates peer-to-peer knowledge sharing among students and allows them to develop an understanding on a wide range of energy knowledge. Students conduct research and learn from each other's presentations about different aspects of electric power generation, including generation sources, distribution, management, and history.

One Step Further: Develop an ongoing news broadcast (e.g. during lunch time or morning announcements) and ask different groups of students to present on an energy topic or issue. Students can also give an update on the school's clean energy progress.

Energy on Stage

Students work together to put on energy plays based on familiar stories and characters, such as "Sparkle White and the Seven Dwarfuels" and "Harry Spotter and the Quest of Windy Myths" (examples of scripts can be found in *NEED's Energy on Stage Guide*). The plays can range from informal performances during class to elaborate theatre performances with props and costumes.

Why it is Effective: Students can learn about energy facts and reinforce their energy knowledge using a conversation method. This interactive and entertaining activity can enrich students' energy vocabulary and provide an opportunity for them to communicate with each other and build confidence through performance.

One Step Further: Put on a school ticketed energy play. Invite families and the local community to enjoy a performance by the students and learn about energy information. All funding can go to the school's clean energy projects and retrofits.

Resources

This strategy is developed based on the teaching guides and education materials available on the National Energy Education Development website. http://www.need.org/

Annual Review of Energy Action Plan

Action: Annually review Energy Action Plan, document achievements, and plan for next steps.

Target Sector: Municipal Sector

Mission Met: Promote clean energy actions and policies in Medford.

Implementation Time Frame: On-going on an annual basis in September

Key Implementers: E&E Office; Energy Committee

The Medford Energy Action Plan is intended to be a living document that can be continually supplemented and passed down to stakeholders in the community on an ongoing basis. To that end, the City should annually review progress made towards meeting the goals and implementing the actions described in the plan, and update it as needed. This strategy describes how the City and the Energy Committee can establish an annual review process to review and update the Energy Action Plan, evaluate action implementation processes, document achievements, and identify new opportunities and goals for the municipal, residential, and commercial sectors.

Program Overview

Implementation Steps	Objectives	Key Implementers	Projected Staff Time Requirement
Conduct annual review.	Create annual report to document the actions adopted and achievements made.	Energy Committee	5 hours
Annual public meeting.	Hold an annual public meeting to review the implementation process and celebrate achievements of the year.	Energy Committee; E&E Office	10 hours
Plan for next steps.	Establish clean energy task force.	Energy Committee	5 hours
	Hold annual meetings with local clean energy stakeholders to update goals and identify implementation projects for the project year.	Energy Committee	10 hours

Program Implementation Steps

The municipality can follow a 3-step procedure to implement an annual review strategy. The following section guides municipality through the process of documenting the community's clean energy effort, evaluating performances, updating the Energy Action Plan, and planning for future actions.

1. Conduct Annual Review.

Every year the E&E Office and the Energy Committee should conduct an annual review of the community's clean energy efforts, documenting the progress made in implementing the Energy Action Plan. The review should culminate in an annual Medford Clean Energy Report that serves as a written record of the community's clean energy work. The report should document the strategies and specific actions adopted over the past year, as well as the goals accomplished. The report will be uploaded annually onto the municipal clean energy website to inform the community of the municipality's clean energy effort and success. The following items should be included in the annual report:

- **Energy baselines and benchmarking -** An energy baseline should identify the aggregated annual energy consumptions and expenditures for the municipal, residential, and commercial sectors. A municipality should utilize the data and reports from the MassEnergyInsight account to benchmark municipal energy reductions. If possible, this section should also include information on the residential and commercial sectors, including participation in MassSave, utility programs, and other clean energy programs and the energy savings resulting from such participation.

- **Progress -** The report provides an annual review of the implementation of the Energy Action Plan. The report should provide an overview of the community's progress in implementing projects, as well as an assessment of whether the community is on track with achieving its goals as documented in the plan. The Energy Committee should revise the Energy Action Plan Chart at the end of every project year to adjust for changes, such as project's timeframe, key implementers, or new projects. If there are scheduled projects that have not advanced, the Energy Committee should discuss the challenges that have hindered the implementation process, as well as provide recommendations on how to overcome such challenges.

- **Adopted Strategies and Projects -** An "Adopted Strategies and Projects" section allows for comprehensive documentation of the adoption process of each action. It is important to keep a detailed record of the implementation process of the Energy Action Plan, so new employees, volunteers, and other municipalities can build upon this institutional knowledge for future project implementation. The Energy Committee should identify all strategies from the Energy Action Plan that have been implemented and/or are being implemented in this section. There should be a description of each action, as well as the resources contributed to the implementation process. Below is a list of attributes that should be considered for each action.

    - Overview of the action
    - Goals fulfilled by the action
    - Process of implementation
    - Key implementers
    - Key contacts
    - Financing mechanisms

- Current stage of implementation (planning, in progress, or completed)
- Specific actions (e.g. programs, policy, projects, outreach events)
- Short-term results
- Projected outcomes (e.g. energy and cost savings, payback year)

- **Performance Evaluation -** It is important that the review process acknowledge the effectiveness of previously adopted strategies. The Energy Committee should benchmark each action prior to the adoption for performance evaluation purpose and assess the outcomes of the strategies at the end of each year. The performance evaluation section highlights both strategies that demonstrate the best outcomes and ones that are experiencing the biggest challenges with implementation. For each of the listed strategies, the Energy Committee should discuss the factors that contribute to the success or difficulties with adopting the action and provide recommendations for future implementations.

2. Hold Annual Public Meeting.

The E&E Office and the Energy Committee should hold an annual public meeting with the municipal, residential, and commercial sectors to review the implementation process of the Energy Action Plan and highlight the achievements made. The annual meeting is an opportunity for local stakeholders to share their opinions on the opportunities and challenges they face when implementing the Energy Action plan. The Energy Committee should answer any inquires from the stakeholders and remind the different sectors of existing clean energy opportunities and policies. In addition, the meeting should serve as an annual celebration to acknowledge different sectors' efforts and achievements in promoting local clean energy work. The Energy Committee can announce each sector's aggregated savings for the given year and give out awards to stakeholders with outstanding clean energy performance.

The following list is an example of stakeholders that should attend the meeting:

- National Grid
- Energy service vendors
- Chamber of Commerce Board
- Municipal department heads
- Board of Selectmen
- Parents
- Teachers
- Landlords
- Local university representatives
- Business owners

3. Plan for Next Steps.

One purpose of the annual review is to identify new clean energy opportunities and to plan for next steps. The Energy Committee should establish an Energy Action Plan Task Force comprised of local stakeholders from the municipal, residential, and commercial sectors that is dedicated to meet annually and plan for new implementation actions for the upcoming project year. The Task Force will be responsible for identifying new goals, strategies, and implementable projects, as well as updating the Energy Action Plan, so that it continues to provide relevant guidance on how to pursue energy efforts in the community.

a. **Revise Energy Action Plan.** Edit strategies utilizing input from the annual report and annual process review. If necessary, adjust the recommended timeline listed on the Energy Action Plan Chart.

b. **Identify goals, strategies, and implementable projects for the upcoming year based on the following attributes**: Action Plan Chart, the progress of past projects, internal capacity, and availability of funding.

c. **Designate key implementers for each action.**

d. **Prepare for project implementation.** Identify the available resources and possible performance measures for each action to provide guidance for adoption. Create and distribute memos informing key implementers of the selected strategies for the upcoming year and recommendations for implementation. Update local clean energy websites to inform the community of the municipality's goals for the upcoming year.

Municipal Energy Internship Program

Action: Establish an ongoing internship program to provide assistance to E&E Office and to help with the implementation of the Medford Energy Action Plan.

Target Sector: Municipal Sector

Mission Met: Promote clean energy policies and actions in Medford.

Implementation Time Frame: On-going

Key Implementer: E&E Office

In order to sustain and expand Medford's clean energy efforts, the City should pursue opportunities to build greater municipal capacity for spearheading the City's clean energy work. Medford is well positioned to collaborate with students on the City's energy efforts. This strategy describes how the City can establish an ongoing internship program that will (1) provide assistance to the Office of Energy and Environment (E&E Office), (2) help with the implementation of the Medford Energy Action Plan, and (3) serve as a hands-on learning experience for students interested in the planning and implementation of municipal-led energy projects.

Program Implementation Overview

Implementation Steps	Actions	Estimated Staff Time Requirement
1. Identify internship program objectives and goals.	E&E Office establishes the objectives, goals, and deliverables of the internship program.	2 hours
2. Design internship program.	E&E Office drafts internship posting.	2 hours
	E&E Office explores internship program opportunities.	3-10 hours
	E&E Office creates a schedule for hiring.	3 hours
3. Launch internship program.	E&E Office distributes internship posting based on the hiring schedule.	2 hours
	E&E Office reviews applications, interviews candidates, and hires intern.	10 hours
	E&E office trains and supervises intern.	5-40 hours per week as-needed and depending on intern schedule
4. Maintain the program.	E&E Office updates internship posting.	4 hours annually
	E&E Office follows hiring schedule.	5-10 hours annually
	E&E Office monitors program's success.	10 -15 hours annually

PROGRAM IMPLEMENTATION STEPS

1. Identify internship program objectives and goals.

The design of a successful internship program should be objective-driven. It is important that the City understand the goals and deliverables of its internship program. Prior to establishing the program, it is recommended that the E&E Office work with the Energy committee to establish clear program objectives and goals. Aspects that should be considered when designing the internship program include:

- The immediate objectives and long-term goals of the internship program,
- Position responsibilities (i.e., immediate projects, ongoing tasks, research projects),
- Benefits to the intern (i.e., experience, training, travel opportunities, conferences, performance reviews, networking),
- Desired intern position qualifications (i.e., experience, education, skills, professional interests, availabilities),
- Length of each internship,
- Available funding source(s) for the position, and
- Identification of a municipal staff member who will provide senior-level support and day-to-day supervision of the position.

2. Design internship program.

i. **Draft internship posting.** The E&E Office should draft an internship posting using the Medford Action Plan for guidance. When drafting the posting, the office should consider projects and ongoing tasks that can be fulfilled by an intern, as well as identify the responsibilities and qualification requirements the intern should have. The E&E Office should review the posting with the Energy Committee to ensure priority projects and tasks are considered.

ii. **Review internship program opportunities.** Once the City determines the role and responsibilities of the intern position(s), the City should consider the various options it has for creating an internship. The City of Medford's proximity to major universities including Tufts University, Harvard University, and the Massachusetts Institute of Technology provides a great opportunity for the City to increase city-university collaboration through an energy internship program. Tufts University, for example, has already expressed interest in working with the City to promote Medford's clean energy effort and to strengthen the relationship between the Medford community and Tufts students. Through an ongoing internship program, students can apply their academic knowledge and experiences to help the City implement clean energy projects in Medford, and the City can deliver practical experience and

professional development to the students. Based on the objectives of the internship program, the City can pursue one or a combination of several internship models. The following section describes four internship opportunities.

Internship Program Opportunities

	General Student Internship	Federal Work Study	Tufts Tisch Scholars Project	EDF Climate Corps
Time Frame	All year	Academic Year (Sept. – June)	Academic Year (Sept. – June)	Summer (June - August)
Resources for Position	Medford (Paid or Unpaid)	University and Medford	Tufts University	Environmental Defense Fund

Federal Work Study

Federal Work Study (FWS) is a federal government program created to provide assistance to students with financial aid. Universities receive federal reimbursement that pays for 50 to 100 percent of the cost for students to work at on-campus or off-campus jobs and the City pays for the remaining part.

Institution	FWS Reimbursement Rate
Tufts University	75%
Harvard University	70%
Massachusetts Institute of Technology	75%

An off-campus FWS position is confined to community service jobs in the non-profit sector. The City of Medford can take advantage of the financial benefits of off-campus FWS programs at local universities, including Tufts University, Harvard University, and Massachusetts Institute of Technology, to establish an ongoing student employment position at the E&E Office.

Setting up a federal work study program:

1. Look at university student employment websites to identify university requirements for creating an off campus FWS position.

Institution	Website
Tufts University **Harvard University**	• Tufts University Student Employment • Harvard University Off Campus Federal Work Study Program
Massachusetts Institute of Technology	• MIT Public Service Sector Community Service Work Study Program

2. Meet with identified university staff to formally establish an ongoing E&E Office FWS program.

Tufts University Tisch Scholars Program

The Tisch Scholars Program at Tufts University is offered by the Jonathan M. Tisch College of Citizenship and Public Service during the academic year (September to June). The purpose of the program is to utilize institutional resources and build capacity in local communities through student-driven collaboration with local organizations. Participating student scholars work with local organizations on community projects over the period of an academic year. The scholars may work on selected projects or design their own projects that use their academic skills to meet a community-defined need. Projects expenses of the program are funded by a Tufts University budget applied by student scholars.

Setting up a Tisch Scholars project:

1. Meet with Tisch College faculty to identify energy-related projects that will best meet the program's requirements.
2. Review the documentation and information required from the City to be part of the Tisch Scholar Program: Tisch Scholars Program FAQ.
3. Draft a RFP for the identified projects.
4. Review the RFP with the Energy Committee to finalize the document.
5. Submit the RFP to Tisch College.

For more information, see: http://activecitizen.tufts.edu/students/scholarsprogram/

Environmental Defense Fund Climate Corps

EDF Climate Corps is a summer fellowship program that connects graduate students with cities, universities, and companies to support energy efficiency planning efforts. The Climate Corps fellows work directly with the host organization for a minimum of 10 weeks to develop a tailored energy plan that identifies the financial and environmental opportunities of energy efficiency investments. EDF typically pays for a majority of the fellowship (~$12,500) for nonprofit and municipal clients and provides training and other professional support to the fellows. In return, municipalities are expected to deliver supervision, provide access to energy use data, commit to energy reduction, and submit updates on the implementation of energy efficiency measures.

Setting up an EDF Climate Corps position:

1. Work with Energy Committee to identify how a Climate Corps position could help the City achieve goals and projects outlined in the Energy Action Plan.
2. Review the program information in detail: EDF Climate Corps Details for Cities
3. Identify the municipal staff member that will provide daily management and supervision of the fellow.
4. Prepare and update all City energy records that can be used to both track energy consumption and benchmark reductions. Relevant records include: MassEnergyInsight account, building energy audits, purchase records, and facilities records.
5. Complete the 2012 Climate Corps host city application.

Action	Timeframe
Application submission	Late February
EDF Interview and matching period	February - April
EDF Climate Corps fellow confirmed	Late April
Fellow works with host to draft summer work plan	May
Fellowship	June - August
Fellow makes final presentation to host and prepare final reports	August
EDF review and aggregate results	August - September

For more information, see: http://edfclimatecorps.org/

3. Launch internship program.

i. **Distribute internship posting.** Once the City finalizes the internship program, the City should advertise the position opening based on the establishing hiring schedule.

ii. **Interview candidates.** The E&E Office is responsible for reviewing applications, interviewing candidates and hiring the intern. Upon hire, the office should complete any required documentation for the university or the intern.

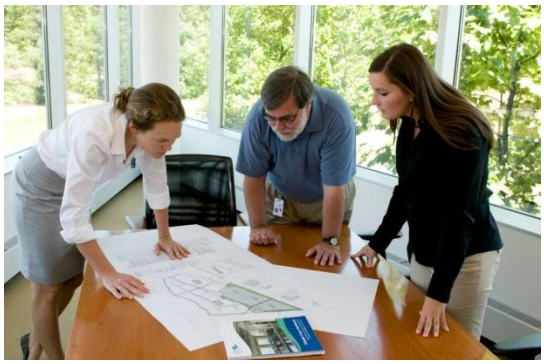
iii. **Supervise intern.** The E&E Office is responsible for giving assignments to intern and providing guidance and supervision on an as-needed basis.

4. Maintain internship program.

i. **Update internship posting.** Prior to each hiring round, the City should update the internship posting based on upcoming project needs.

ii. **Follow hiring schedule.** Each hiring round the City should send the internship posting to all university and program contacts.

iii. **Monitor the program's success.** On an ongoing basis the E&E Office should assess the effectiveness of the program. Example strategies for evaluating program performance include meeting annually with university contacts to assess the internship program structure (i.e. time frame, salary, student recruitment process, etc.) and conducting initial, mid-term, and final check-ins with each intern to establish and review internship project goals.



Source: EDF Climate Corps

Resources

This strategy builds upon the following report: Baskin, M., Fink, B., & Mullaney, B. "Student Residential Energy Efficiency in Medford." Tufts University. June 2012.

Contacts for Program Implementation

Entity	Contact	Title	E-mail/ Phone
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Planning For Municipal Retrofit Projects

Action: Create and maintain a plan for completing municipal retrofit work, which will include a list of priority projects, how projects will be funded, and how they will be completed.

Target Sector: Municipal Sector

Mission Met: Promote clean energy actions and policies in Medford.

Implementation Time Frame: Ongoing

Key Implementers: E&E Office; Building Department; Department of Public Works; National Grid

This chart should be used as a guide to help municipalities organize and plan municipal retrofit projects. Many of these actions can be done simultaneously. The time frame and implementers listed below should serve as a guide; each municipality should customize these two sections given their context.

Organize Data and Information.

Actions	Steps	Questions to Consider	Timeframe	Implementers
Organize municipal energy consumption data.	1. Set up a MassEnergyInsight (MEI) account. 2. Review the MEI account data. 3. Address any outliers or numbers that seem inaccurate: • Compare MEI data to hardcopy of bills. • Review building and equipment history to account for irregularities. • If necessary, conduct audits of buildings. 4. Make necessary changes to MEI. 5. Establish energy consumption baseline for benchmarking purposes.	• *Which department(s) receives invoices for the utility bills?* • *If recording vehicle fuel data: What is the process for refueling/payment (individual credit cards vs. municipal fueling station)?* • *Are there building occupants or contractors that can help explain outliers in the data?*	10 – 40 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments; Energy Committee
Document municipal retrofit and audit work by building.	1. Compile a list of past and current retrofit and audit work by building. For each building include: • Location, square footage, and employees/tenants. • Information related to last audit or past retrofit work, such as dates, costs, funding sources, estimated energy and cost savings, project leads, etc.		10 – 40 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
Identify potential upcoming projects.	1. Identify repairs or replacements that will likely be needed in the next five years. 2. Identify deferred maintenance projects, upcoming capital improvement projects, and any other municipal projects of interest.	• *Does your municipality anticipate any new construction, demolition, or major renovation projects in the next five years?* • *Does your municipality anticipate buying/selling or leasing/renting any new property in the next five years?*	5 – 10 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.

Review Decision-Making Processes.

Actions	Steps	Questions to Consider	Timeframe	Implementer
Identify reasons for retrofit work.	1. Identify both established and underlying goals that drive municipal retrofit work. 2. Identify additional factors that influence the municipal decision-making process for retrofits.	• *Do you have or do you plan to have a 20% reduction goal as part of the Green Communities Program?* • *Do you want to create operational savings?* • *Do you need to replace failing or broken equipment?* • *Do you want to tackle deferred maintenance?* • *Do you want to avoid upfront costs?* • *Do you want to take advantage of funding opportunities?* • *How do you think about costs and savings (e.g., simple payback, return on investment (ROI), long-term cash flow, net present value (NPV))?*	3 – 10 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
Identify project priorities.	1. Assess how your goals and your decision-making processes align. 2. Identify project priorities for the up-coming year.	• *What is your total budget for the year?* • *What likely emergency work is coming up and can avoid last minute decision-making?*	3 – 10 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.

Design Implementation Process.

Actions	Steps	Questions to Consider	Timeframe	Implementer
Establish an *Energy Management Plan*.	1. Identify a person and process for maintaining and monitoring MEI and documenting future retrofit/audit work 2. Establish cross-departmental energy management team to meet quarterly to discuss projects and identify new project priorities		3 – 10 hours	Municipal leadership (e.g., Mayor, Town Manager, Board of Selectman); Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
Create plan for retrofit projects for upcoming year.	1. Identify what project components are missing. 2. Meet with National Grid and additional stakeholders to address barriers or challenges.	• *Is there someone with capacity and time to do project management?* • *Is there someone to manage procurement?* • *Do you have financing secured?* • *Do you have contractors secure?*	5 – 15 hours	Municipal leadership; Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
Pursue retrofit work.	1. Procure or secure any additional project components. 2. Implement projects. 3. Benchmark and verify savings.		Will vary depending on projects.	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.