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# The Town of Stoughton Local Energy Action Plan

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## Part II – Action Strategies

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Prepared by the Metropolitan Area Planning Council (MAPC)

for

The Town of Stoughton





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# Outreach Strategies for Energy Efforts

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**Action:** Partner with energy service vendors, utilities, the Chamber of Commerce and other stakeholders to design and implement an outreach campaign to promote participation in MassSave and distribute information on the benefit, incentives, rebates, and other financial opportunities for energy efficiency upgrades, and solar development.

**Target Sectors:** Residential Sector; Commercial Sector; Municipal Sector

**Goals Met:** Reduce fossil fuel energy use in Stoughton; Distribute information to Town departments, residents, and businesses about sustainability, climate change, and energy and resource conservation.

**Implementation Time Frame:** Ongoing

**Key Implementers:** Energy & Sustainability Committee; National Grid and Columbia Gas; Energy Service Vendors; Chamber of Commerce

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<sup>1</sup>**

### **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

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<sup>1</sup> This section builds upon Doug McKenzie-Mohr's *Fostering Sustainable Behavior*.

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.

#### *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;
- Door hangers or mailers praising those who have taken steps to pursue clean energy efforts;
- Door hangers or mailers with reminders about next steps for those who may have pledged to do something, such as have a home energy assessment, but have not yet followed up.

### **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

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

More Effective:

*“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.”*

Less Effective:

*“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.”*

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.

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 tabling efforts can sometimes be effective, many groups struggle to table at a) events where people are already interested in energy and know what to do, or b) locations such as grocery stores, where people are busy and do not want to stop to talk. Some methods to improve tabling success may include:
  - **Ask passersby to make a written pledge.** Encourage them to sign a written statement committing to whatever action you are promoting (e.g., “I will get a MassSave home energy assessment”), and then follow up with them via phone and email to remind them of the pledge and their commitment.
  - **Offer a reward for signing up, either directly or through a raffle/drawing.** A gift card to a business located near the tabling location can provide an immediately relevant incentive, and is also a good way to engage surrounding businesses in your efforts.
- **Advertising in Newspapers and Mailings** – While traditional advertising and mailings can be informative and educational, this outreach strategy can easily be overlooked by its intended audience. Some ways to increase the effectiveness of this strategy could include:
  - **Present injunctive and descriptive norms in an easily digestible form.** Compelling images, visualizations of relevant behavioral data, and a clear and succinct layout can all contribute to a message that is more likely to be viewed and comprehended. However, even a simple advertisement can be effective so long as the intended outcome is clear (e.g., “Attend a free workshop next Tuesday on how to reduce home oil heating costs this winter!”)
  - **Advertise in media that is more likely to be viewed.** This could include official mailings from the municipality, power and water bills, 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 proceed with your outreach, it is important to make note of the external barriers that prevent residents from moving forward with particular behaviors or actions. These barriers should be reported to the relevant key stakeholders, e.g., municipal leadership, MAPC energy staff, utility and MassSave program administrators, to ensure stakeholders are aware of the issues or problems that need further attention.

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### References

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<sup>2</sup>

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**Action:** Partner with energy service vendors, utilities, the Chamber of Commerce and other stakeholders to design and implement outreach campaign to promote participation in MassSave and distribute information on the benefit, incentives, rebates, and other financial opportunities for energy efficiency upgrades, and solar development.

**Target Sectors:** Residential Sector; Commercial Sector

**Goals Met:** Reduce fossil fuel energy use in Stoughton; Distribute information to Town departments, residents, and businesses about sustainability, climate change, and energy and resource conservation.

**Implementation Time Frame:** Annually

**Key Implementers:** Town Manager; Energy & Sustainability Committee; National Grid and Columbia Gas; Energy Service Vendors; Chamber of Commerce

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 used 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 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

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<sup>2</sup> 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.

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.

## PROGRAM IMPLEMENTATION OVERVIEW

Implementation Steps and Responsibilities	Key Implementers	Timeframe
<b>Design Program &amp; Identify Core Team</b>	Town Manager; ESC	Months 1-3
<b>Build Partnerships &amp; Recruit Volunteers</b>	ESC	Months 1-2
<b>Issue RFP &amp; Select Vendor(s)</b>	Town Manager	Months 2-4
<b>Launch Program &amp; Advertise</b>	Town Manager; ESC; Chamber of Commerce	Month 4
<b>Conduct Outreach, Education and Customer Enrollment</b>	ESC; Chamber of Commerce; Energy Service Vendors; National Grid and Columbia Gas	Months 4-6
<b>Conduct Home Performance &amp; Site Assessments; Complete Installations</b>	Energy Service Vendors	Months 4-9
<b>Program Wrap-Up &amp; Evaluation</b>	Town Manager; ESC; Energy Service Vendors; National Grid and Columbia Gas	Month 9

## PROGRAM IMPLEMENTATION STEPS

1. **Design Program & Identify Core Team.** The Town Manager and/or a dedicated ESC 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 National Grid, Columbia Gas, Massachusetts Clean Energy Center, Department of Energy and Resources and/or Department of Environmental Protection 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.<sup>3</sup>
- Dedicating a volunteer from the ESC 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.

<sup>3</sup> 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.

- 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 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 ESC 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, ESC members, or representatives from state agencies or National Grid and Columbia Gas. 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 Town 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).



Source: Solarize Mass

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

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## Resources

The primary resource used in developing this 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](http://www.mygroupenergy.com)

“Lighten Our Load” was developed for Columbia Sportswear by Energy Trust of Oregon in 2008. [www.energytrust.org](http://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](http://www.mnrenewables.org/MakeMineSolar)

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

# Energy Curriculum in Schools

**Action:** Develop school curriculum and events that educate students and parents on clean energy science and policy and energy opportunities.

**Target Sector:** Residential Sector

**Goals Met:** Reduce fossil fuel energy use in Stoughton; Distribute information to Town departments, residents, and businesses about sustainability, climate change, and energy and resource conservation.

**Implementation Time Frame:** 2015 – 2016

**Key Implementer:** Energy & Sustainability Committee; Stoughton Public Schools; Parent- Teacher Association

Schools can be a valuable portal for distributing information about clean energy to Stoughton youth and their parents. The ESC 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 Stoughton Public Schools curricula, building upon the examples from the National Energy Education Development (NEED) Project, as well as those from across the Commonwealth.



Source: National Energy Education Development

## 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](#).



Source: Vermont Energy Education Program

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.

<b>I. Efficiency and Conservation</b>	<ul style="list-style-type: none"> <li>• <b>Energy Conservation Contract</b></li> <li>• Energy Expos</li> <li>• Exploring Climate Change</li> <li>• Learning and Conserving</li> </ul>	<ul style="list-style-type: none"> <li>• Museum of Solid Waste and Energy</li> <li>• Plug Loads</li> <li>• Saving Energy at Home and School</li> <li>• <b>School Energy Survey</b></li> </ul>
<b>II. Sources of Energy</b>	<ul style="list-style-type: none"> <li>• Energy Enigma</li> <li>• <b>Energy Expos</b></li> <li>• Exploring Hydroelectricity</li> <li>• Exploring Nuclear Energy</li> <li>• Exploring Photovoltaics</li> <li>• Exploring Wind Energy</li> <li>• Fossil Fuels to Products</li> </ul>	<ul style="list-style-type: none"> <li>• Great Energy Debate</li> <li>• Great Energy Rock Performances</li> <li>• LNG: Liquefied Natural Gas</li> <li>• Marine Energy</li> <li>• Secondary Energy Infobook+ Activities</li> <li>• U.S. Energy Geography</li> </ul>
<b>III. Transportation</b>	<ul style="list-style-type: none"> <li>• Energy Expos</li> <li>• H<sub>2</sub> Educate</li> <li>• <b>Transportation Fuels Debate</b></li> </ul>	<ul style="list-style-type: none"> <li>• Transportation Fuel Enigma</li> <li>• Transportation Fuels Infobook</li> <li>• Transportation Rock Performances</li> </ul>
<b>IV. Raising Awareness</b>	<ul style="list-style-type: none"> <li>• Carbon Capture and Storage</li> <li>• <i>Current Energy Affair</i></li> <li>• Energy Analysis</li> <li>• Energy and Our Rivers</li> <li>• Energy Around the World</li> <li>• <b>Energy Carnival</b></li> <li>• Energy Jeopardy</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Math Challenge</li> <li>• <b>Energy on Stage</b></li> <li>• Energy Rock Performances</li> <li>• Global Trading Game</li> <li>• NEED Songbook</li> <li>• Yesterday in Energy</li> </ul>

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 utilities and energy 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.

### **Towns of Acton and Boxborough, MA – 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 achieved a 10% reduction in energy use from the baseline year, 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.

## **The City of Taunton, MA – 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.

## **II. Energy Sources**

### **Energy Expos**

To put on an Energy Expo, students work in groups to create an energy exhibition that reinforces their own energy knowledge and shares 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 and the solar vendors, such as free roof-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, MA – Alternative Travel Group (Alternative Fuel Vehicles Project)**

The South Shore Charter Public School in Norwell 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 because of the educational and environmental opportunities. This innovative project not only educates students on alternative fuel sources, but also provides students with hands-on experience to learn about the engineering and chemistry 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 can create 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 utilities. 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 utilities' 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.

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## 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/>

# Local Green Business Program

**Action:** Establish an ongoing/annual Green Business Program to engage local businesses in clean energy opportunities, encourage businesses to pursue energy audits, implement energy efficiency measures, and celebrate local clean energy accomplishments.

**Target Sector:** Commercial Sector

**Goal Met:** Distribute information to Town departments, residents, and businesses about sustainability, climate change, and energy and resource conservation.

**Implementation Time Frame:** Annually

**Key Implementers:** Energy & Sustainability Committee; National Grid and Columbia Gas; Energy Service Vendors; Chamber of Commerce

The purpose of a Green Business Program is twofold: (1) to acknowledge the clean energy efforts and energy savings of the business community and (2) to encourage local businesses to take advantage of energy and renewable energy opportunities, such as MassSave. As part of the program, neighboring businesses or business sectors can compete to showcase their efforts in increasing local commercial energy efficiency and adopting clean energy practices. To celebrate their success, the Town can reward businesses with prizes such as window decals, certificates, marketing opportunities, and technical assistance.

## PROGRAM OVERVIEW

Implementation Steps and Responsibilities	Key Implementers	Projected Time Requirement
Establish program	ESC; Chamber of Commerce	10 hours
Prepare program material	ESC; Chamber of Commerce	10 hours
Review applications and select recipients	ESC; Chamber of Commerce	20 hours
Energy Efficiency Expertise	National Grid and Columbia Gas; Energy Service Vendors	

## PROGRAM IMPLEMENTATION STEPS

1. **Establish a program leader.** This may be a municipal staff person, a member of the Stoughton ESC, a passionate local business owner, or another local stakeholder/volunteer.
2. **Meet with local stakeholders to identify opportunities and challenges.** Focus groups, workshops, and surveys to stakeholders such as the Chamber of Commerce, utility representatives, local business owners and other local stakeholders may be helpful to gain further insight into how best to access the Stoughton business community.

3. **Establish specific program objectives and outcomes.** These may be based on a combination of Energy Action Plan goals and input from local businesses. Examples of program objectives could include:
  - Increase participation in MassSave by 25%.
  - Reduce commercial energy consumption in the food services sector by 10% by 2015.
  - Create a database to track local businesses' energy and cost savings from participation in energy efficiency programs through Mass Save.
4. **Design a Green Business Program that encourages and helps businesses access energy opportunities.**
  - a. Meet with local Chamber of Commerce Board, business associations, and local business stakeholders to design the most suitable Green Business program models based on the following factors:
    - Program objectives
    - Size of the commercial sector
    - Diversity of businesses
    - Target businesses if applicable
    - Nature of business districts
  - b. Develop a baseline survey to be used to verify eligibility to be in the program and assess businesses' existing efforts. Request energy audits from the past 3 years and documentation of energy efficiency upgrades within the past 5 years.
  - c. Create a list of performance measures and a scoring system that businesses must fulfill in order to receive a Green Business Award or technical assistance. Examples of program standards include adopting energy efficient operations, such as computer power management and walk/ride day or producing renewable energy on site.
  - d. Identify the budget available for the program and work with the Chamber of Commerce and the utilities to delegate roles and responsibilities.
  - e. Meet with the Chamber of Commerce Board, and utilities to identify prizes for the award recipients. Examples of prizes include: certificates, window decal, technical assistance, and marketing opportunities through municipal websites, social media, and local broadcasts.
  - f. Establish a program application and award recipient announcement deadline.
  - g. Draft program descriptions, award applications, and other advertising material.

- h. Finalize all program materials with the Chamber of Commerce Board and the utilities.

## 5. Launch Green Business Program.

- a. Hold forums and events to distribute program documents to local businesses.
- b. Review applications and select award recipients based on the established criteria.
- c. Announce award recipients at award ceremony or during community events and local media broadcasts.
- d. Follow-up with award recipients annually to inform them of additional clean energy opportunities and to track energy savings and cost savings.
- e. Advertise success stories.

## PROGRAM MONITORING

1. Establish energy efficiency program participation goals and energy reduction goals for the Green Business Program.
2. Hold annual meetings with the Chamber of Commerce, utilities, and local businesses to learn about the opportunities and challenges in promoting clean energy efforts in the commercial sector through the Green Business Program.
3. Hold annual meetings with the utilities to assess program participation, determine aggregated savings, and identify new program opportunities and incentives.

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## Resources

ICLEI's [Green Business Challenge website](#) provides valuable information to guide local governments through the process of building successful Green Business Programs. Local governments can develop a tailored program using ICLEI's [Green Business Challenge web application](#), as well as get planning process tips and examples of successful Green Business Programs through various guides and toolkits. For more information, see: [http://www.icleiusa.org/climate\\_and\\_energy/green-business-challenge/](http://www.icleiusa.org/climate_and_energy/green-business-challenge/)

A Better City's [Sustainability Toolkit](#) is a living document designed to provide guidance for businesses, institutions, and buildings owners in the Greater Boston area to implement sustainable business practices. This toolkit is a great starting point for local governments and businesses with the interest in planning for green business development to identify and prioritize implementable and effective green business strategies. The document is categorized into eight areas ("Cleaning and Toxics," "Energy Efficiency," "People and Culture," "Purchasing," "Renewable Energy," "Transportation," "Waste Reduction," and "Water Efficiency"). Local governments and businesses can access informative guidance on sustainable business measures including new technology, policies, financing options, and rebates and incentives, as well as their

benefits and local case studies. For more information, see:

<http://www.abettercity.org/toolkit/index.html>

[UnCommon Sense](#) is a Green Business leadership program organized by the Yellowstone Business Partnership that helps local businesses in the Yellowstone-Teton region adopt sustainable and responsible practices. The program is a 2-year program and costs \$1,200 to enter. Participating business owners and business managers attend workshops and teleconferences to learn about sustainable business opportunities and gain peer support. The program website provides additional information about the program structure and materials needed to build a similar program. For information, see: <http://www.yellowstonebusiness.org/UncommonSense/>

Boston Green Business Award. “Green Business Award.” Available online at:

<http://www.cityofboston.gov/environmentalandenergy/greenawards/businesses.asp>

Chicago Green Office Challenge. “Chicago Green Office Challenge.” Available online at:

<http://www.chicagogreenofficechallenge.org/>

San Francisco Green Business Program. “SF Green Business.” Available online at:

<http://www.sfgreenbusiness.org/>

# Annual Review of Energy Action Plan

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

**Target Sector:** Municipal Sector

**Goals Met:** Reduce fossil fuel energy use in Stoughton; Distribute information to Town departments, residents, and businesses about sustainability, climate change, and energy and resource conservation.

**Implementation Time Frame:** Annually

**Key Implementer:** Energy & Sustainability Committee; Town Manager

The Stoughton 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 Town 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 Town and the ESC can establish an annual review process to review and update the Energy Action Plan, evaluate strategy 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.	ESC	5 hours
Plan for next steps.	Hold annual meetings with local clean energy stakeholders to update goals and identify implementation projects for the project year.	ESC; Town Manager	10 hours

## PROGRAM IMPLEMENTATION STEPS

The following section describes a three-step process for implementing an annual review of the Energy Action Plan:

### 1. Create an Annual Energy Action Update.

Every year the Town and the ESC 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 Stoughton Energy Action Update 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 could be included in the annual update, when possible and relevant:

- **Energy baselines and benchmarking** - An energy baseline should identify the aggregated annual energy consumptions and expenditures for the municipal, residential, and commercial sectors. Data and reports from the MassEnergyInsight account can be used to benchmark municipal energy reductions. If a semi-annual process for obtaining updated utility data in the residential and commercial sectors is established, comparisons to this baseline can and should also be made. If possible, this section should also include information on other quantifiable metrics, such as customer participation rates in MassSave utility programs.
- **Progress** – The Energy Action Update 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 ESC 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 ESC should try to identify the challenges that have so far stood in the way of progress, 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 strategy. 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 ESC 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 strategy, as well as the resources contributed to the implementation process. Below is a list of attributes that should be considered for each strategy.
  - Overview of the strategy
  - Goals fulfilled by the strategy
  - 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 ESC should benchmark each strategy 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 ESC should discuss the factors that contribute to the success or difficulties with adopting the strategy and provide recommendations for future implementations.

## **2. Plan for Next Steps.**

One purpose of the annual review is to identify new clean energy opportunities and to plan for next steps. At the end of each fiscal year, the ESC should work with the Town Manager, the Department of Public Works, and other key local energy stakeholders to decide on new implementation actions for the upcoming project year. The ESC should consider the followings:

- 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 strategy.**
- d. Prepare for project implementation.** Identify the available resources and possible performance measures for each strategy 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.

# 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 Sectors:** Municipal sector

**Goals Met:** Reduce fossil fuel energy use in Stoughton; Produce cost savings for the Town departments, residents, and businesses through resource conservation and improved energy efficiency.

**Implementation Time Frame:** Ongoing

**Key Implementers:** Energy & Sustainability Committee; Town Manager; Building Department; Department of Public Works; Stoughton Public Schools

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
<b>Organize municipal energy consumption data.</b>	<ol style="list-style-type: none"> <li>Set up a <a href="#">MassEnergyInsight</a> (MEI) account.</li> <li>Review the MEI account data.</li> <li>Address any outliers or numbers that seem inaccurate: <ul style="list-style-type: none"> <li>Compare MEI data to hardcopy of bills.</li> <li>Review building and equipment history to account for irregularities.</li> <li>If necessary, conduct audits of buildings.</li> </ul> </li> <li>Make necessary changes to MEI.</li> <li>Establish energy consumption baseline for benchmarking purposes.</li> </ol>	<ul style="list-style-type: none"> <li>Which department(s) receives invoices for the utility bills?</li> <li>If recording vehicle fuel data: What is the process for refueling/payment (individual credit cards vs. municipal fueling station)?</li> <li>Are there building occupants or contractors that can help explain outliers in the data?</li> </ul>	10 – 40 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments; ESC
<b>Document municipal retrofit and audit work by building.</b>	<ol style="list-style-type: none"> <li>Compile a list of past and current retrofit and audit work by building. For each building include: <ul style="list-style-type: none"> <li>Location, square footage, and employees/tenants.</li> <li>Information related to last audit or past retrofit work, such as dates, costs, funding sources, estimated energy and cost savings, project leads, etc.</li> </ul> </li> </ol>		10 – 40 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
<b>Identify potential upcoming projects.</b>	<ol style="list-style-type: none"> <li>Identify repairs or replacements that will likely be needed in the next five years.</li> <li>Identify deferred maintenance projects, upcoming capital improvement projects, and any other municipal projects of interest.</li> </ol>	<ul style="list-style-type: none"> <li>Does your municipality anticipate any new construction, demolition, or major renovation projects in the next five years?</li> <li>Does your municipality anticipate buying/selling or leasing/renting any new property in the next five years?</li> </ul>	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
<b>Identify reasons for retrofit work.</b>	<ol style="list-style-type: none"> <li>Identify both established and underlying goals that drive municipal retrofit work.</li> <li>Identify additional factors that influence the municipal decision-making process for retrofits.</li> </ol>	<ul style="list-style-type: none"> <li>Do you have or do you plan to have a 20% reduction goal as part of the Green Communities Program?</li> <li>Do you want to create operational savings?</li> <li>Do you need to replace failing or broken equipment?</li> <li>Do you want to tackle deferred maintenance?</li> <li>Do you want to avoid upfront costs?</li> <li>Do you want to take advantage of funding opportunities?</li> <li>How do you think about costs and savings (e.g., simple payback, return on investment (ROI), long-term cash flow, net present value (NPV))?</li> </ul>	3 – 10 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
<b>Identify project priorities.</b>	<ol style="list-style-type: none"> <li>Assess how your goals and your decision-making processes align.</li> <li>Identify project priorities for the up-coming year.</li> </ol>	<ul style="list-style-type: none"> <li>What is your total budget for the year?</li> <li>What likely emergency work is coming up and can avoid last minute decision-making?</li> </ul>	3 – 10 hours	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.

## Design Implementation Process.

Actions	Steps	Questions to Consider	Timeframe	Implementer
<b>Establish an Energy Management Plan.</b>	<ol style="list-style-type: none"> <li>Identify a person and process for maintaining and monitoring MEI and documenting future retrofit/audit work</li> <li>Establish cross-departmental energy management team to meet quarterly to discuss projects and identify new project priorities</li> </ol>		3 – 10 hours	Municipal leadership (e.g., Mayor, Town Manager, Board of Selectman); Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
<b>Create plan for retrofit projects for upcoming year.</b>	<ol style="list-style-type: none"> <li>Identify what project components are missing.</li> <li>Meet with utilities and additional stakeholders to address barriers or challenges.</li> </ol>	<ul style="list-style-type: none"> <li>Is there someone with capacity and time to do project management?</li> <li>Is there someone to manage procurement?</li> <li>Do you have financing secured?</li> <li>Do you have contractors secure?</li> </ul>	5 – 15 hours	Municipal leadership; Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.
<b>Pursue retrofit work.</b>	<ol style="list-style-type: none"> <li>Procure or secure any additional project components.</li> <li>Implement projects.</li> <li>Benchmark and verify savings.</li> </ol>		Will vary depending on projects.	Municipal staff from the Energy, DPW, Planning, and/or Buildings Departments.