



FORMATIVE EVALUATION REPORT

ON THE METROPOLITAN AREA PLANNING COUNCIL'S ENERGY INITIATIVE

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June 2012

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I. Executive Summary

This Interim Report provides the results of process evaluation activity undertaken to review the MAPC's Clean Energy Division's first year of operation (July 2011-June 2012). Naomi Mermin Consulting conducted the process evaluation from October 2011 through June 2012. Included in this evaluation was development of an Evaluation Plan in May 2012 shared with the MAPC team (Appendix A). The MAPC Clean Energy Division key staff includes Helen Aki, Erin Brandt and Rebecca Davis.

MAPC proposed to support cities and towns within the MAPC region to focus on clean energy and energy efficiency. Their theory of change involves recognizing that cities and towns are interested in developing their own clean energy solutions but lack the internal technical and logistical capacity to identify, develop and implement best practices and programs. MAPC proposed to fill this gap with a range of technical assistance, collective procurement, regionalization and policy projects. Their proposal focused on three core tasks:

1. The Regional Energy Manager Pilot Project,
2. Regional ESCO Procurement and Performance Contracting, and
3. Design and launch of Energy Efficiency Financing Programs.

This evaluation found strong success across all measures of implementation, specifically:

- **All anticipated outputs for the first year have been met or exceeded.**
- **MAPC staff demonstrated excellence across all measures of service and operations.**
- **The MAPC intervention has identified significant potential energy savings and greenhouse gas reductions, and strategies to realize these savings.**

All anticipated outputs for the first year have been met or exceeded.

The Regional Energy Manager pilot, renamed the Local Energy Action Program (LEAP), was planned to directly support six to ten pilot communities over a two year period to build and implement community-wide energy action plans. The solicitation process was completed and resulted in eight communities working to develop community wide plans through January 2013 (target was three to five engaged in the first year).

A municipal light plant (Reading Municipal Light Department RMLD) was successfully included as a partner on the LEAP program. The partnership with RMLD and engagement of communities serviced by a municipal light plant will allow for exploration of opportunities for alternative programming and testing new interventions beyond the standard utility programs.

The Regional ESCO Procurement and Performance contracting effort was successful in developing and delivering an efficient mechanism to share the expense and process of engaging an ESCO. The process resulted in eight competitive ESCO bids and a consensus community choice of one ESCO contractor. Thirteen of fourteen communities that participated in the solicitation process are currently moving toward ESCO project contracts.

The Regional ESCO Procurement and Performance effort was renamed The Regional Energy Project and expanded to include joint procurement of LED street lights, support for communities around evaluation and development of municipal sites for Solar, and a shared energy manager initiative creating “circuit rider” municipal energy staff available to communities. This expansion has allowed MAPC to respond to community identified needs and serve communities beyond the 13 ESCO and eight LEAP communities. Thus far, 33 communities are interested in pursuing LED street lighting, 13 communities are interested in exploring regional solar procurement (6 communities already engaged in a solar site assessment project), and 12 communities are interested in exploring shared energy staffing.

MAPC staff demonstrated excellence across all measures of service and operations.

The MAPC team confirmed their ability to work effectively with municipal governments, demonstrated significant energy expertise and successfully built their own and client communities’ capacity to approach energy efficiency and clean energy work. The MAPC self reports and supporting documentation matched partner’s and client communities’ reports. The MAPC team kept a detailed and complete record of their activities, was professional and helpful to communities, and active and engaged in support of evaluative activities. Overall the client communities and partners had strong praise for the MAPC team and were able to note specific benefits derived from work with the MAPC team. The continued identification of opportunities (note expansion of the ESCO to multiple procurement opportunities) and willingness to keep working through logistical challenges common to municipalities is a hallmark of this team. They are both identifying and in some cases creating opportunities and then shepherding the ideas through to tangible action. The team is able to deliver significant value through this combination of opportunity identification, creativity and perseverance.

The MAPC intervention has identified significant potential energy savings and greenhouse gas reductions and strategies to realize these savings.

The focus of the ESCO and LEAP programs is to first ensure that municipalities are effectively harvesting energy efficiency and clean energy opportunities from buildings and energy facilities directly under their control. This early focus has supported the development of strong municipal baselines in each community and identified connected strategies and support for achieving these savings. The LEAP planning process has also developed community -wide baselines and engaged community wide discussions of energy savings. While these broader community planning process are still in

process and specific plans and strategies are not yet defined, there are substantial identified savings opportunities and a rational process for continued development of municipally centered action within the portfolio.

Within the 13 ESCO communities, realistic achievable savings estimates are between 7,472 MWh to 15,880 MWh with overall potential CO2 impacts (using Mass Energy Insight conversion factors for all fuel) at 6,112 Tons to 13,044 Tons. If first round LEAP communities achieve only municipal controlled savings, it would add an additional 10,956 MWh to 13,696 MWh of savings. Success in community wide energy savings at the targeted 20-25% range would offer potential energy savings between 374,298 MWh to 468,873 MWh.¹

Beyond targets

The evaluation activity confirmed that Municipalities are eager to participate in energy efficiency activity and have substantial efficiency opportunities, however, they are unable to realize these savings without significant technical and staff support services. MAPC's success in year one has set a standard of service and increased the actual services delivered to client communities. The MAPC team is under resourced to deliver the same level of service for the second round of LEAP communities and additional Regional Energy Project communities. The team's attention to their municipal clients, excellent service and creativity in identifying and developing new services to meet communities' needs (including LED procurement, solar procurement, energy manager services) are valuable, but create a significant draw on a limited number of staff.

It is clear from both ESCO and LEAP communities that in the near term (1-3 years) municipalities will not be able to directly fund positions or identify funds to cover for MAPC staff. To fully realize the opportunities in procurement/regionalization activity and roll out of community wide programming in LEAP communities, it will require even greater staff attention. For example, the team is beginning to explore the concept of enterprise fund development for municipal energy efficiency work. Enterprise funds are a well-known municipal tool, but the application to energy efficiency is novel. Working through implementation of an energy efficiency enterprise fund will require significant effort to be successful in one or two communities. Ensuring that the activity is pursued as a model for other communities and with an ability to scale, potentially statewide, requires further attention from staff, good research and documentation and broader partnerships. It is MAPC's ability to marry the ideas to careful research, excellent communication and attention to action (implementation) that is the recipe for success. While the intensive work beyond the initial idea development is rarely glamorous, it is

¹ Electric savings numbers are offered here for ease, baseline and savings predictions across all fuels are provided in the Appendix F charts.

the effort that finally connects the ideas to demonstrable energy savings. It is important to sufficiently support the team to ensure this deeper effort across each of the program areas.

Given the strength of the existing team, the depth of demonstrated demand, and the synergy and momentum that can come from expansion of programs, it would be advisable to support increased staffing at MAPC to continue to build the municipal support portfolio. It is important not to overly expand the specific outputs (i.e., number of ESCO or LEAP communities) but allow for a fairly uniform increased investment/staffing across what appears to be a well-diversified portfolio of opportunities for energy savings and a team very skilled in remaining creative yet focused on achieving measurable energy and greenhouse gas savings.

II. Background and Evaluation Methods

The goal for this Formative Evaluation Report was to provide an overall assessment of MAPC's first year of Clean Energy Division (formerly Initiatives) program development and initial implementation.

The Evaluator undertook the following activities in preparation of this report:

The Evaluator and the MAPC team (Helen Aki, Erin Brandt and Rebecca Davis) met in early October 2011. There were two in person meetings and a series of follow-up coordinated teleconferences and email exchanges from October through early January. In addition, the Evaluator:

- Coordinated with the MAPC team to build a logic model,
- Reviewed and revised outcomes and benchmarks (a series of three memos were prepared and shared with Barr on outcome 3 definition, Baseline methodology and clarification of the Municipal "clearinghouse" concept),
- Reviewed the initial ESCO program process which had resulted in 8 competitive bids and an award to Ameresco,
- Reviewed the LEAP application process, including the LEAP application, the selection, review process and award criteria, providing direct feedback to the MAPC team at each stage. MAPC received 25 applications and announced LEAP awards to eight communities on February 2, 2012.

The evaluator provided a short memo to Barr on January 10, 2012 on the initial design of the LEAP program along with a summary of the applicants provided by the MAPC team.

In March the MAPC team and evaluator met with the Barr Foundation evaluation team, Boston and EE-2020 program teams for a discussion of baseline municipal data collection. The core

inputs used by both EE-2020 and Boston are not consistently available to the MAPC team. After the meeting, the MAPC team reviewed their baseline methodology, made modest refinements and applied the methodology to LEAP communities.

In April a full evaluation plan, expanded from the initial contracted one year formative evaluation, was built for the full three year program period and shared with both the MAPC team and Barr evaluation team.

In May the MAPC Clean Energy Team met in person with the evaluator to review progress in LEAP communities, the ESCO procurement project, and the evolution of the overall Energy Division programs. The MAPC team provided substantial feedback on the evaluation plan draft. The most substantive comments included revision of the original set of intervention activities (which had been drafted based upon the original Barr application) to the more comprehensive suite of programs now included within the MAPC Clean Energy Division. As follow up to this meeting the MAPC team provided a Dropbox folder with a comprehensive list of materials on each of the programs and projects, including progress summaries of the LEAP communities, baselines for LEAP communities, all agendas for LEAP community meetings, community workplans, summary of progress of Regional Energy programs (including the ESCO program), a list of Energy Division project contacts for interviews and a list of potential interview questions. (See Appendix B for list of contents of Dropbox).

The evaluator solicited interviews from all 34 contacts provided by MAPC and successfully completed 19 full interviews, including contacts in six of eight LEAP communities (except Wilmington and Lynnfield), the RMLD utility, six participating ESCO communities and Peregrine Energy (key partner in ESCO program) (see Appendix C for completed interviews (highlighted) on full contact list). For several communities (LEAP and ESCO) we were able to interview multiple stakeholders from a given community. For example, in Medway we interviewed the town administrator, the town planner, and a citizen member of the energy committee. All interviewees were advised that their interviews would remain confidential with quotes only used when the sentiment was broadly shared or particularly well represented a finding. With his agreement, Steve Weisman's interview is not confidential and he has reviewed and approved the notes.

The evaluator was also able to facilitate and observe meetings between the MAPC team and Bay State Gas and NSTAR. These meetings were highly successful and continued meeting and potential joint activity are under discussion but too preliminary to be included in this report. The activity is likely to be captured in LEAP plans.

The MAPC team reports (in person and summaries in Dropbox) were analyzed against the reports gathered from interviews to identify areas of alignment or lack of alignment in community experience versus MAPC's reports. The interviews were also analyzed in relation to

the logic model developed in the fall and the adjustments noted in the revised Evaluation plan in May.

For comparability with a parallel municipal investment, the Barr Foundation asked that the following questions be explicitly explored in the process evaluation. This report provides preliminary responses based on first year results to the list of Barr questions below.

1. Is the technical assistance provided increasing municipalities' understanding and ability to increase energy efficiency in the building stock of their communities?
 - a. Is the technical assistance process responsive to cities' and towns' unique dynamics and replicable?
 - b. Are there conditions under which the MAPC model of engagement and technical assistance approaches work best?
 - c. What are the unique capacities of cities and how does the technical assistance build on or supplement these capacities to sustain implementation of energy efficiency retrofit projects?
2. Are the municipal programs being designed to be sustainable beyond the MAPC intervention?
3. Will the MAPC intervention likely deliver substantial energy savings and attendant greenhouse gas reductions?
 - a. Is there sufficient potential energy savings identified and connected strategies to realize these savings through the city programs?
 - b. Is the effort likely to be additive, i.e. above what is anticipated without the technical assistance?

For future comparison purposes, a baseline chart has been constructed for LEAP communities and is included in appendices of the evaluation plan (included in this report). A comparison against baseline will be provided in the November 2012 report and future reports. LEAP communities were awarded in February 2012 and expect one full year for plan development, therefore, it is too early to measure change against the baseline.

III. Assessment of MAPC Implementation

MAPC proposed to support cities and towns within the MAPC region to focus on clean energy and energy efficiency. MAPC's theory of change involved recognizing that cities and towns were interested in developing their own clean energy solutions but lacked the internal technical and logistical capacity to identify, develop and implement best practices and programs. They proposed to fill this gap with a range of technical assistance, collective procurement, regionalization and policy projects. Their proposal focused on three core tasks:

1. The Regional Energy Manager Pilot Project,
2. Regional ESCO Procurement and Performance Contracting and
3. Design and launch of Energy Efficiency Financing Programs.

Their core assumptions were:

1. Municipalities have a strong incentive to curtail energy use in order to save money and improve service quality.
2. This interest can be leveraged to lead the way for community wide participation in a consensus driven, equity based energy strategy.
3. The energy strategy can involve not only ways to reduce energy use of municipal government, but also ways for residents and business throughout the community to reduce energy use and increase use of renewable energy.
4. MAPC has the trust of municipal officials, technical knowledge about energy planning and efficiency projects, and experience with public engagement that can help guide communities through strategy development and implementation.
5. By doing so, MAPC can become a clearing house of information on how to develop and implement municipal energy strategies and a stronger partner to public and nonprofit allies in the energy field.
6. This is a particularly good time to fund capacity building efforts in this field, given the economic and political climate (end of stimulus funding, beginning of economic recovery, state of PACE financing at the federal level etc.)²

The initial logic model developed with the MAPC team provides a simplified model of the three key efforts shown; the LEAP (formerly Regional Energy Manager Pilot) program, the ESCO program, and a general initiative exploring opportunities for municipal programs and financing schemes with an emphasis on municipalities with municipal light plants (see logic model appendix in the Evaluation Plan Appendix A).

The team successfully engaged in the planned activities in each of these three core strategy areas and the evaluation was able to capture the anticipated short term outputs expected within the logic model. The evaluation was also able to observe and record achievements beyond the initial commitments. There are indications that the team is likely to achieve continued success and generate outputs which will result in the achievement of the promised three year grant outcomes.

² This language is taken almost verbatim from the MAPC proposal learning questions provided to BARR.

The model has been significantly expanded from the original simplified version with greater overlap and synergy across the project areas. Specifically through the implementation of the Regional ESCO procurement program (now Regional Energy Projects) and the LEAP (formerly the Regional Energy Manager Pilots) the MAPC team continued to refine, improve and expand service offerings and systematically match communities with offerings.

By May 2012:

- the Regional ESCO procurement plan was successfully serving 13 communities,
- the LEAP program had enrolled eight communities,
- an additional 33 communities were engaged with MAPC in regional procurement of LED street lighting,
- MAPC was supporting 13 communities in exploring regional solar procurement (for municipal sites like landfills),
- six communities were engaged in shared solar site assessment,
- 12 communities were exploring shared energy staffing through the “circuit rider” program
- six communities were receiving support in energy planning (including preparing for and applying for green communities and support of energy strategy development) (see MAPC Clean Energy Division Projects by Community in Dropbox).

LEAP Program implementation

MAPC did a very thorough job in preparing the LEAP application (Appendix E). The application itself was substantial including eight pages of questions and required sign off by the CEO of the town or city. On initial review, the evaluator felt the application was onerous and would limit responses. The 25 responses received suggest it did not discourage communities seeking to participate in the MAPC LEAP program. The MAPC team included a list (pages 9-10) of the application packet of possible energy opportunities that communities might consider). This list was the result of significant research and review by the MAPC team of potential opportunities for municipally centered energy work.

The comprehensiveness of the application, the clarity of the purpose, and the rigorous review process all helped to ensure that the chosen communities were well prepared for participation. The MAPC team also visited many communities in the fall to “prepare” them for the application and explained the program goals. A solicitation for letters of interest was also used to help prime communities and to help MAPC plan for the application process. MAPC’s on-going working relationships in communities made contact and solicitation with communities’ fluid.

Diversity of LEAP Communities creates diversity of opportunity and challenges

In their review process, MAPC intentionally sought a diversity of pilot sites, including communities with a variety of demographic and municipal characteristics. This diversity helped identify the municipal characteristics and capacities which are critical to success and allow for testing of multiple strategies; increasing the chance of identifying replicable models.

However, it also means that several of the communities are not ideal candidates for deep and rapid energy savings (i.e., some communities are smaller and/or have less energy related policy infrastructure). Based on community wide estimations using the baseline methodology and actual municipal energy use data (except data for Lynnfield and North Reading which is still being collected), the potential energy savings within the eight engaged LEAP communities assuming targets and connected strategies to achieve 20% – 25% savings are shown below. These potential savings are significant. As a point of reference, the recent success of the MIT/NSTAR three year agreement targeted a 15% reduction in three years and an absolute annual reduction for the first year of 10,000 MWh. MIT achieved a 13,000 MWh reduction, exceeding the goal.

As seen in the chart below, if MAPC only achieved municipal reductions they would likely match or surpass MIT’s achievement. If they can successfully increase community wide savings to close to these targets, the savings would be an order of magnitude higher (LEAP community core data Appendix F).

Potential savings for LEAP Communities	MWh	Therms	Municipal MWh
25% savings	467,873	12,714,320	13,695
20% savings	374,298	10,171,456	10,956

Medford is an example of a community ideally situated for success. Medford has a long history of activity on energy and environmental issues, a very supportive mayor, one and a half FTE dedicated to energy and the environment, clarity about the desire to move from municipal to broader city wide goals (looking to update their climate action plan in precisely this way), a very invested community, and substantial business and residential savings opportunities. The planning process has moved quickly in this community. The broad, engaged stakeholder group has introduced new directions, specifically calling for inclusion of transportation related energy strategies in the climate action plan. To be true to the LEAP consensus based planning process, this will need to be reflected in the plan and strategies, but will not directly tie to building energy efficiency strategies or gains as originally envisioned in the LEAP theory of change/Barr outcome commitments.

Medway shares the very supportive town administrator, has allocated significant time from their town planner, and is strongly committed to developing and implementing a comprehensive approach to energy across the city. They are, however, thinly resourced and very new to energy work having just sought and received Green Communities status. Medway is leveraging the MAPC process to help more effectively apply the Green Communities funding award. Overall Medway is a small (population approximately 12,000) predominantly residential community which limits the local energy savings potential. Because of its homogeneity and size, it may prove to be easier to quickly roll out programs, piloting community based residential programs and getting traction for municipal and private commercial savings from a smaller more tightly networked community.

The award to the four Reading Municipal Light Communities (RMLD) provides a model of utility- community partnership. There is potential to apply experimental designs and draw on the significant customer level data of the utility. The individual communities are at varying levels of sophistication, however, the aggregation of the communities allows the more advanced communities to lead the core planning and implementation and share that effort and RMLD resources across the broader service area.

Stoughton is another interesting case where the community energy group (which is sanctioned by the board of selectmen) is the more active entity while the town administrative structure is less invested. It will be interesting to see how effective a “pull” strategy from the energy committee is compared to the originally theorized “push” strategy where the mayor/administrator/city is the lead convener.

Marlborough as an applicant appeared similar to Medford, a community with strong support and a good history of activity. Their Mayor changed after the award and the energy committee has become inactive. The community has renegotiated with MAPC and appears to be not fully investing in the comprehensive LEAP approach, but seeking to focus more on municipal energy savings. It is impressive that MAPC has maintained the relationship and negotiated a positive working arrangement in spite of what appears to be a withdrawal by the community from the original proposal and associated commitments.

The target for year one was to enroll 3-5 communities. Even discounting for Marlborough’s more limited engagement, 3 independent communities (Medford, Medway, Stoughton) and an additional four RMLD communities (Reading, North Reading, Lynnfield and Wilmington) are engaged, exceeding the initial target.

Interviews with LEAP contacts confirmed:

- MAPC is viewed as a trusted partner,
- LEAP communities understand the scope of services being offered (type and duration),

- LEAP communities understand and are committed to providing required matching resources.

There was substantial praise of MAPC staff's professionalism and specific reference to their understanding and respect for the particular constraints and needs of municipalities.

[What is most valuable in LEAP program] "Having the outside perspective of other energy professionals looking at what is specifically best for our community."

"They are very responsive. The team we have been working with has been very responsive through email and phone, very personable, good team and they work well together."

"Erin is very organized, she is careful to make appointments, makes a date. I appreciate that very much an awareness and sensitivity of what day to day life in a local government office is and how much we are juggling."

"They are very professional, have good ideas and the way they are looking at information and presenting data. I find it very impressive."

"They seem very knowledgeable about programs to use for energy reduction, very excited, helpful and engaging. They have always been willing to provide a schedule, a list of tasks for follow through with deadlines. The workshops they held were great, made good recommendations on who should attend, they were right. It's just really great to work with them."

"The meetings are short as possible. They are actually long meetings but they keep it tight and on point."

"I'm very happy with staff at MAPC, with their willingness to help us out. They have been very thorough in their efforts to work with communities."

In response to whether communities felt the LEAP effort had moved their energy efficiency efforts forward, 6 out of 10 stated they had seen positive effect after only 4 months of activity. The other four said it was too early to say but expressed optimism that it would be successful.

"I'd say it [The LEAP process] has definitely caused us to talk about a holistic approach for energy efficiency as opposed to just focusing on municipal buildings. As a result of talking about this with other stakeholders [through MAPC facilitated meetings] we are talking about the private side, business and residential."

"I don't think we would be looking at some of these initiatives on our own. We don't have the wherewithal to evaluate these things and the structured approach they are providing. We couldn't do it, we are just juggling too many things."

"[MAPC LEAP program] Definitely has given us focus again and a unified purpose."

“We have gone into a more accelerated planning. There was a committee in place but with such scarce money we always reached for the low hanging fruit... They are helping us look a little deeper and organizationally they are more comprehensive.”

A consistent theme emerging in the LEAP interviews, and repeated in the ESCO interviews, is the severe lack of staffing capacity at the city level. A major value of the MAPC intervention is that it not only builds municipal knowledge and capacity within the existing staff, but provides the staffing capacity directly. The team is willing to provide direct service when necessary, as well as significant amounts of support work including constructing baselines, organizing meetings, note taking, and drafting plans. This staffing capacity is critical to communities continued engagement and broadening activity. One concern is that the intensity of this interaction will require a significant amount of continued MAPC staff time for the round one LEAP communities even as MAPC moves to engage a second round of LEAP communities. Additional staff capacity at MAPC should be considered to ensure continued deep support to both the first round communities and the second round.

“What’s happening is the towns are gearing up and doing stuff but it’s a new scope of work for Municipalities and it’s falling on folks like me who don’t come with a lot of energy experience or knowledge, or falling on building maintenance people. Everyone is already very thin.”

“We are inundated by potential programs and sorting through what makes the most sense for our community. We also have funding and staffing issues, with tight budgets. Need to fund public safety and teachers, finding money for staff to work on environmental programs is difficult.”

“The biggest hindrance of not moving forward is lack of personnel. It’s no secret in the past five years in Massachusetts thousands of municipal jobs have been eliminated. It’s fair to say if we didn’t have them [MAPC] we wouldn’t be going as great guns on a plan or even be able to do this at all.”

“They clearly indicated when we met with them we can consider them as our staff which is one of the short comings we have here, we are thinly resourced, having them help build the energy plan is critical.”

Regional ESCO procurement implementation

MAPC solicited member communities’ interest in pursuing joint ESCO procurement. They received positive response from 14 communities; Ashland, Arlington, Chelsea, Everett, Framingham, Gloucester, Melrose, Norwell, Rockport, Sharon, Sherborn, Sudbury, Topsfield and Wayland. All of these communities were kept on the list through the full process, however, after the initial interest expressed by Rockport, that community has not responded to any of the MAPC activity on this round of ESCO procurement. MAPC engaged Peregrine Energy to support development of the bid specifications and to the selection team (made up of a subset of the communities).

The ESCO procurement process was successfully executed. The MAPC designed the RFQ based in part on a similar one used in Merrimac Valley. The RFQ drew eight highly competitive bids. The communities successfully concluded a review process and awarded a contract to Ameresco in December. All thirteen communities have remained engaged and are at varying stages of implementation, from discussions with town council for approval of energy audit to negotiations of contracts.

The ESCO procurement communities represent a significant pool of potential savings. Each municipality (with the exception of Sherborn) would be classified as large or very large customer under the utility frameworks.

Municipality	Baseline Year	Electric Use (MWh)	Natural Gas Use (therms)	Heating Oil use (gal)	Propane Use (gal)	Total Use (MMBTU)	Total Expenditures (\$)
Arlington	FY2010	7,160	631,878	55,849		95,437	\$872,928
Ashland	FY2010	3,456	237,016			35,522	\$1,108,442
Chelsea	FY2010	10,043	363,013	4,476		71,271	\$923,842
Framingham*	FY2010	8,077	767,051			104,328	\$995,665
Gloucester	FY2010	9,191	176,913	20,105		51,919	\$720,379
Melrose	FY2010	5,261	295,349	8,390	7,052	48,692	\$1,351,590
Norwell*	FY2010	2,461	173,438			25,760	\$669,090
Sharon	FY2010	3,293	313,712			42,635	\$404,781
Sherborn	FY2010	829	52,792	5,721		8,909	\$112,233
Sudbury	FY2009	7,300	368,308	2,136		62,093	\$2,021,291
Topsfield	FY2010	1,110	81,688	4,828		12,634	\$91,783
Wayland	FY2010	4,250	194,955	59,107		42,243	\$541,287
Totals		62,429	3,656,113	160,612	7,052	601,443	\$9,813,311
25% savings		15,607	914,028	40,153	1763	150,361	2,453,328
10% savings		6,242	365,611	16,061	705	60,144	981,331

A simple calculation of potential energy savings is calculated applying 25% and 10% savings against total energy, offering a range of 6,242 MWh to 15,607 MWh in electrical savings. Additional calculations, which include Melrose and Topsfield's preliminary audit results (which should offer good estimates for savings and predict 27 and 29% savings potential respectively), but maintain the 10% and 25% estimates for other communities, raise these potential estimations to 7,500 MWh to 15,900 MWh (detail in Appendix F). The spreadsheet in Appendix F also calculates potential CO2 impacts (using Mass Energy Insight conversion factors for each fuel) at 6,112 Tons to 13,044 Tons (for 10% reduction and 25% reduction respectively).

These values as both percentages and absolute savings represent substantial energy and carbon savings, even if only the lower, very conservative, estimate is achieved. There is every indication that the achievement will be closer to the 25% given many communities are targeting a 20% savings goal. Two communities with audits have already seen potentials greater than 25%. The issue that is likely to reduce the overall energy savings potential is that several communities have already participated in utility lighting retrofits. The “low hanging fruit” high return lighting is often what allows the ESCO projects to support deeper opportunities. The November report should be able to better quantify the potential energy available assuming a greater number of communities will have completed audits.

All interviews confirm a robust and successful process. All interviews had significant praise for MAPC staff and Peregrine’s role, the quality of technical support, and the efficiency and effectiveness of the process.

The interviews also confirmed the critical role of MAPC as the “staff” support function, even more strongly than in the LEAP interviews. In addition, the interviews point out that even with plans and Green communities status, communities are struggling to develop and finance energy savings projects to meet the 20% municipal savings goals of Green Communities. These communities need additional support to realize these commitments.

“The energy performance contract is something [TOWN] has been talking about for 5 years, one of the few ways the city could actually reduce its energy by 20% and be able to fund it. We looked at the RFQs, and were completely overwhelmed, couldn’t get anyone in city hall to focus on it. What MAPC made possible was that process. It couldn’t have happened without them, we didn’t have the where with all knowledge. MACP convened the communities, wrote the RFQ, sorted the responses, put data into spreadsheets. We couldn’t have done as thoroughly and competently, wouldn’t have attracted the same level of response or competitive pricing that we did. Our time was spent well, she [Helen] was prepared, we were prepared, everyone read the proposals and we jumped right in. I felt good about the outcome. Felt we were doing the right thing for municipalities involved. Her communications were excellent. The whole process was really well done.”

“[MAPC created] the opportunity to work with our ESCO, Ameresco. We are having an investment grade audit – that’s huge. From an idea to actually getting the work done. Sometimes you have an idea and it takes so long it never becomes reality. I think they [MAPC] have created this reality for the town.”

“The biggest help we need is expertise. When we get involved in any larger scale programs, changing street lights, advanced energy efficiency technologies, big audits. We don’t have enough internal capacity to ensure we are making the best decision.”

“Looking at an ESCO is financially intimidating, large business trying to make money. Any community wants to be cautious. MAPC gave us the ability to go in with other communities so didn’t feel

alone. They also offered Peregrine, who really understood this and helped you understand the questions you should be asking before going in.”

“We need help with the technical stuff, the bidding, understanding how different programs work. We don’t have that staff capacity.”

“People have a lot on their plate – there was no capacity in any existing position to spearhead this work.”

“[What MAPC delivered] First the help with financing, creating a financing strategy that works for us. Secondly bringing to the table experts and knowledgeable people to augment what we have on staff, that synergy is very valuable to us.”

“The various processes to engage energy companies was foreign to us, we needed assistance to navigate the field of energy.”

“[MAPC] helped us to understand the possibilities for getting involved in performance contracting, engaged us in the discussion of pitfalls one can find in talking to ESCOs, helped us to organize our thoughts around what we were looking for in an energy service project and worked with us on the procurement process and introduced us to other ESCO folks who can act as owners representatives so that as we negotiated through process would have an expert with us. They got us to a point where we were able to interact with the ESCO ourselves.”

“Without MAPC efforts we would not be doing a major energy audit at this time. MAPC made it easy for us to plug and play, did much of the ground work necessary for us to plug into the ESCO contract selected for the region.”

“Our initial efforts were based on Green communities, but it’s now time to implement and while we have that Green communities grant which is a huge help, the ESCO program gives us the next steps beyond what the grant would have funded. \$137,000 is significant but there is so much more we need to do then what we can do for that amount.”

“They[MAPC] are extremely responsive and professional in all our dealings.”

“They did all the work. We put it in their hands and they do the heavy work, I didn’t have time or expertise to do myself.”

“[MAPC is] Well organized, good communication, timely information, relevant, didn’t waste our time, meetings were all worthwhile, they collected a great group and fed us good food.”

“Helen is such a smart cookie, I can’t even offer constructive criticism because I can’t think of anything that wasn’t done well. She and Erin just figure it out and are incredibly helpful.”

“I believe throughout it was professional, collegial, to me very stimulating. I really enjoyed seeing the dynamic of it all come together and think the outcome was good, judiciously arrived at. Between those who participated on the committee, Peregrine and MAPC staff very rigorous and fair analysis done and done in a way that all the participants contributed. It’s remarkable that no one

involved in the process had any meltdowns or Diva moments, no one walked away from the table, all positions represented and a consensus recommendation was achieved. In my experience that deserves a lot of credit.”

The ESCO interviews suggest that this experience is building municipalities’ interest in exploring more energy efficiency and clean energy opportunities, and a significant need for facilitated joint procurement, which MAPC is uniquely positioned to provide. This confirms MAPC’s internal decision to broaden from the ESCO procurement pilot to more robust Regional Energy Projects.

“There are other opportunities they have made us aware of, street light LED project, they were able to help us have engineering folks walk our landfill and determine if it is viable for solar PV.”

“We have high hopes of a successful outcome. My participation and cities participation with MAPC is now continuing by looking at Solar in our city. The success and satisfaction of the initial work on ESCO is now causing us to continue our participation in a second study for solar potentialities.”

“We could use more time [of MAPC], it’s like we need an energy manager staff position, maybe someday. There is so much work. For example the Solarize MA, we weren’t going to do, but decided it’s just too good to pass up.”

“I believe we have only scratched the surface relative to our desire to be a responsible community. So based on my experience with MAPC on this portion I am looking forward to talking with them on renewable energy sources like wind and solar and other easy ways to reduce our carbon footprint.”

IV. Key Findings

All anticipated outputs for the first year have been met or exceeded.

- The LEAP solicitation process was completed and resulted in 7 communities working to develop community wide plans through January 2013 (target was 3-5).
- The ESCO Procurement process was successfully completed and all 13 communities are in process looking at continuing through to projects.
- A municipal light plant was successfully included as a partner on the LEAP program, engaging communities serviced by a municipal light plant and exploring opportunities for alternative programming and testing new interventions.

MAPC staff demonstrated excellence across all measures of service and operations.

The MAPC team confirmed their ability to work effectively with municipal governments, demonstrated significant energy expertise, and successfully built their own and client communities’ capacity to approach energy efficiency and clean energy work. The MAPC self reports and supporting documentation matched partner’s and client communities’ reports. The MAPC team kept detailed and complete documentation of their activities,

was professional and helpful to communities, and active and engaged in support of evaluative activities. Overall, the client communities and partners had strong praise for the MAPC team and were able to note specific benefits derived from working with the MAPC team.

The MAPC intervention has identified significant potential energy savings, potential greenhouse gas reductions, and connected to strategies to realize savings. The focus of both the ESCO and LEAP programs to ensure municipalities are effectively harvesting energy efficiency and clean energy opportunities has ensured there are strong municipal baselines in each community and connected strategies and support.

Additional staffing is needed to fully realize the potential of the MAPC intervention. Municipalities were found to be eager to participate but need significant technical and staff support services to move energy work forward. MAPC's success in year one has set a standard of service and increased the actual services delivered to client communities leaving the team under resourced to deliver at the same level. The team's attention to their municipal clients, excellent service and creativity in identifying and developing new services to meet communities demands (including LED procurement, solar procurement, energy manager services), are valuable but create a significant draw on a limited number of staff. It is clear from both ESCO and LEAP communities that in the near term (1-3 years) municipalities will not be able to directly fund positions.

V. Barr Foundation questions at the one year mark

1. Is the technical assistance provided increasing municipalities' understanding and ability to increase energy efficiency in the building stock of their communities?

Yes, the ESCO project has already resulted in moving multiple communities to authorize substantial investments in municipal buildings. Similarly, the LEAP program communities continue to implement and expand municipal building energy efficiency gains and are beginning to explore methods of influencing broader community wide participation. While there is evidence of increased understanding and ability to increase energy efficiency in municipal buildings, it will require a longer observation period to determine if cities can influence energy efficiency beyond the municipal stock.

a. Is the technical assistance process responsive to cities' and towns' unique dynamics and replicable?

Yes, if it is subsidized and available to communities without a direct cash contribution. The proposed program offerings (ESCO and LEAP) were universally praised by interviewees as responsive to cities and towns' needs. Communities often also mentioned interest in adding additional MAPC Energy

Division programs (i.e., ESCO communities mentioned interest in doing LEAP or Solar with MAPC assistance next). MAPC staff was praised for being professional, knowledgeable, responsive and respectful of municipal needs and constraints. Several interviewees mentioned that they had come to rely on MAPC staff for broader technical assistance support, learning about energy, and direction on where to access additional resources.

b. Are there conditions under which the MAPC model of engagement and technical assistance approaches work best?

MAPC’s energy division activities have been consistently well received and their on-going relationship with cities and towns builds trust. It also provides a continuous ability to float ideas and possibilities in both directions and networking the communities (Communities to MAPC, MAPC to Communities, and Communities to Communities via MAPC) creating an ideal incubator for program and strategies testing.

MAPC’s use of a solicitation process for participation in the ESCO, and a formal application process for LEAP, ensured communities that participated were intentional (i.e., had opted in). It appears MAPC is clear in providing the participation requirements and potential benefits while providing sufficient support to allow active participation by communities.

MAPC’s flexibility to provide modified or alternative support for communities who were not perfect fits for the programs, or to allow them to be reconsidered in a future round, creates an interesting “natural experiment” to help identify whether there are specific conditions or prerequisites at the community level that create an ideal moment for a specific intervention opportunity. The intervention is robust and flexible enough to allow MAPC to meet many community’s needs depending on where the community is now and where it wants to be in the future.

The variety of cities/towns engaged in LEAP, their level of development, and potential for success will offer an interesting sample to observe conditions that allow success in broadening from a municipal energy savings focus to community wide savings. An interesting early suggestion is that active energy committees with citizen participation appear to be a key component to community movement on energy, potentially as important as a committed Mayor or town administrator.

c. What are the unique capacities of cities and how does the technical assistance build on or supplement these capacities to sustain implementation of energy efficiency retrofit projects?

Across all the MAPC projects, the ability of cities/towns to directly control and effect their direct energy use is being targeted. The ability to then leverage that to encourage community wide participation is still under development.

2. Are the municipal programs being designed to be sustainable beyond the MAPC intervention?

MAPC has been clear with communities about the level of support that is available from MAPC and the time frame (2 years in the case of LEAP). The ESCO program has a very clear disengagement point where the city/community is then on their own (although the value of “owner agent services” is a very compelling on-going service need). The LEAP program provides an intensive amount of staffing support, which in the current fiscal environmental, it is unlikely communities could directly take on or pay for these services in the near term (2-3 years). MAPC is actively engaged in building long term city capacity through the following activities:

- the development of internal city staff capacity,
- building long term tools (i.e., Mass Energy Insight upload of municipal portfolio which then only needs to be tracked/updated) to make municipal energy management more turnkey,
- supporting communities in exploring ways to pay for on-going support from energy savings (enterprise funds),
- building the broader local “working groups” that can provide political and community support for long term community investment
- making connections to partners (Peregrine, Next Step Living) that may be able to provide services over the long term.

3. Will the MAPC intervention likely deliver substantial energy savings and attendant greenhouse gas reductions?

a. Is there sufficient potential energy savings identified and connected strategies to realize these savings through the city programs?

The energy savings identified at the municipal level (i.e., municipally controlled energy) in both the ESCO and LEAP programs is substantial. There are clear and direct strategies to realize these savings. Within the LEAP communities there is a range of efficiency opportunities which could be substantial. We will need to await the energy plans for these communities before fully answering whether there are “connected strategies”.

b. Is the effort likely to be additive, i.e., above what is anticipated without the technical assistance?

It is clear from interviews that both the ESCO and LEAP communities consider the activity achieved a direct result of MAPC's intervention, and specifically state that it would not have happened without MAPC. It is fair to say that for the municipal savings gains currently anticipated these were additive. As LEAP communities roll out plans and begin to implement strategies we will need to wait and see whether they can increase energy efficiency participation across the community beyond what is naturally occurring.