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# Energy Concierge Services: Analysis of a Public-Private Partnership Model for Commercial Energy Efficiency

Lucia N. Miller

*University of Massachusetts - Amherst*

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Energy Concierge Services:  
Analysis of a Public-Private Partnership Model  
for  
Commercial Energy Efficiency

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**Lucia N. Miller**  
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## EXECUTIVE SUMMARY

Energy Concierge Services, a unique model to boost participation in energy efficiency programs, is being piloted in the commercial sector of the City of Northampton, Massachusetts. Energy Concierge Services seeks to overcome barriers to energy efficiency by concentrating benefits and increasing efficiencies for small- and mid-sized commercial property owners. Built on the energy providers' Mass Save framework, part of the *Massachusetts Clean Energy and Climate Plan for 2020*, the Energy Concierge Services model is a public-private partnership to capture higher market penetration in the Mass Save program by generating an upsurge in interest, leveraging utility investment in small- to mid-sized conservation programs, and helping businesses engage in energy efficiency improvements. This report provides an analysis of the ability of the Energy Concierge Services model to overcome structural, behavioral, and availability barriers to energy efficiency. It also makes recommendations for modifications to the model to meet City and statewide energy efficiency goals as part of the larger clean energy revolution.

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## INTRODUCTION

If energy conservation measures are readily accessible and cost effective, why haven't they been more widely implemented? Energy efficiency is gaining national political support as the primary mean of meeting energy needs and spurring economic development. Northampton Leading the Way pilots an innovative model for overcoming barriers to energy efficiency. Will the Energy Concierge Services model piloted in Northampton's Commercial & Industrial sector effectively overcome barriers and achieve broad implementation of energy conservation measures?

Energy Concierge Services (ECS), a unique model serving small- to mid-sized businesses, is being piloted by the City of Northampton, Massachusetts to boost participation in energy efficiency programs offered through energy providers National Grid and Columbia Gas. In accordance with the Massachusetts *Global Warming Solutions Act* of 2008, the City of Northampton intends to reduce its commercial, residential, and municipal energy use 20% by 2020 and has already achieved its goal for municipal buildings at no cost to the taxpayers. The City is now implementing its Commercial Outreach Program targeting the Commercial & Industrial (C&I) sector in collaboration with the energy providers through its partnership with the Greater Northampton Chamber of Commerce (GNCC), Business Improvement District (BID), and Center for EcoTechnology (CET), the nonprofit contracted to provide technical assistance. The Energy Concierge Services, paid for by the utility companies, help business and property owners engage in utility energy efficiency programs. The intended outcome of this public-private partnership is to create an upsurge of interest in energy efficiency improvements, leverage utility investment in small C&I energy conservation programs, and achieve higher-than-normal market penetration in Northampton business districts (Northampton 2011).

As demonstrated historically, widespread energy efficiency is not well suited to the free market. Market failures have resulted in low participation that justifies intervention by the

public-private partnership between the utilities and City partners to rectify an information deficiency, concentrate benefits for all potential participants, and increase energy efficiencies. Both consumer behavior and the diffuse approach to conservation measures have made capturing the spectrum of efficiencies and quantifying their savings challenging. These attributes include the uniquely individual nature of decisions to invest in energy efficiencies that may have a potential low rate of return; widely dispersed energy efficiency opportunities that make each opportunity a relatively low priority; low awareness and lack of strategic focus among producers and users; and the difficulty of measuring reduced energy consumption given the number of variables (McKinsey 2009).

This policy analysis examines the Energy Concierge Services as a public-private partnership model to comprehensively address and overcome interlocking structural, behavioral, and availability barriers to the implementation of energy efficiency measures. Built on the energy providers' efficiency program framework, it looks at the ECS model from two levels: the City's program partners (stakeholders including City of Northampton, GNCC, BID, CET, and the program designer Serrafix) and the program participants (both actual and potential). Findings from interviews are presented, an analysis of the ECS model as a means for overcoming barriers conducted, and both short- and long-term recommendations made.

## **BACKGROUND**

**Legislative Authority:** In 2008, Massachusetts Governor Deval Patrick signed the *Global Warming Solutions Act (GWSA)*, a comprehensive regulatory program to address climate change, requiring statewide greenhouse gas (GHG) emission reduction goals of 10-25% below 1990 levels by 2020 and 80% below 1990 levels by 2050. The *Green Communities Act (S.B. 2768)* was enacted to reform the energy marketplace. The Act expands

“energy efficiency, supports the development of renewable energy resources, creates a new greener state building code, removes barriers to renewable energy installations, stimulates technology innovation, and helps consumers reduce electric bills. It also created the Green Communities Program, providing Massachusetts cities and towns with energy efficiency and renewable energy opportunities.”

To achieve GHG emission reduction goals, the Executive Office of Energy and Environmental Affairs developed the *Massachusetts Clean Energy and Climate Plan for 2020*, a plan containing measures to meet an aggressive 25% reduction. Also established were advisory committees, including the Energy Efficiency Advisory Council, to oversee implementation of the new architecture.

**Utility Participation:** As part of the GWSA regulatory reform, the utilities adopted their *Statewide Three-Year Energy Efficiency Plan (2010–2012)*, and the Energy Efficiency Advisory Council, comprised of industry and state stakeholders, was convened to guide implementation and provide oversight. The utilities were mandated to both meet efficiency goals and generate a percentage of power through renewable resources. Earnings were no longer tied strictly to the amount of power generated and sold, but also to the amount of energy saved. Funding for programs flows from several sources including the Systems Benefit Charge, Energy Efficiency Reconciliation Factor, and Regional Greenhouse Gas Initiative auction proceeds.

Mass Save was developed as a vehicle to meet new efficiency goals, targeting the commercial, municipal and residential sectors with incentives designed to boost energy efficiency and conservation. The program includes energy assessments, recommendations for efficiency upgrades and rebates, and referrals for financing, expanded beyond previously offered lighting and large building offerings.

**Aiming Higher:** In 2010, Serrafix, a Boston strategic consulting group formed “to improve America's energy and development profile by addressing waste and inefficiencies in its

infrastructure”, launched its E2020 initiative to help Massachusetts cities create financially self-sustaining energy efficiency programs (Serrafix 2011). Funded through the Barr Foundation’s commitment to finding solutions to climate change, the intent was to take state policy to the local level and empower both elected and business leaders. Northampton was invited to participate because of knowledge of the progressive leadership of Mayor Clare Higgins (Burrington).

Designated a Green Community as part of the 2008 Act, the City of Northampton, working in collaboration with Serrafix, recognized that the existing utility program framework and Mass Save provided a platform for even greater energy conservation and developed its own three-pronged program (municipal, commercial, residential) to boost participation and meet GWSA goals. Northampton was demonstrably “leading the way” by achieving its municipal sector goal of a 20% reduction by the end of 2011 (Northampton 2011).

To extend Northampton Leading the Way into the C&I sector, a partnership with the GNCC and BID was created and a proposal made to National Grid and Columbia Gas for funding the new Energy Concierge Services (ECS) model through CET. CET was selected for its local base and demonstrated success in providing solid waste management services. A similar model is being piloted in Pittsfield, also using CET.

The first phase of the Energy Concierge Services, June 2011- June 2012, serves two community initiatives, Northampton Leading the Way and Powering Pittsfield, and involves four utility companies, although this analysis focuses solely on Northampton. The goal for Northampton’s first phase is to provide efficiency improvements for 10% of downtown commercial and 25% of outlying industrial clusters, a total of 63 units. The second phase, not currently funded, implements two- to three-year energy efficiency improvement plans. The City,



its partners, and representatives from the utilities publicly launched the program on September 6, 2011. Northampton Leading the Way is on track for meeting its first phase goals.

## **INTELLECTUAL FRAMEWORK**

Underlying the ECS analysis is the notion of an information gap or deficiency that results in barriers to capturing energy efficiency. Criteria for the purposes of this analysis are defined, the energy conservation rhetoric explained, and topics in organizational theory pertaining to implementation, collaboration, capacity building, governance and Pareto efficiency tied to the ECS model.

**Economic Perspective and Criteria Identification:** In a perfectly competitive market, there would be an efficient allocation of goods such that all utility customers would have access to information and services to maximize energy conservation and savings. An information deficit, however, has created a multitude of missed opportunities with potential for increasing energy efficiency that justifies government intervention. The *Global Warming Solutions Act* and *Green Communities Act* seek to fill this void by providing a regulatory framework for the energy marketplace, but do not create the social and political regulation needed for implementation at the local level, either publicly or privately. Overcoming the information deficit and missed opportunities for energy efficiency through a public-private partnership creates a public good, as addressed in the ECS model.

In *The Economics of Energy Efficiency*, Sorrell et alia discuss barriers to energy efficiency (including risk, imperfect information, hidden costs, access to capital, split incentives, and bounded rationality) and analyze them from two economic perspectives, orthodox/agency perspectives and transaction cost/behavioral perspectives (Sorrell 2004, 84).

Comparable economic theory that incorporates barriers in a broader social context found in the McKinsey & Company report, *Unlocking Energy Efficiency in the U.S. Economy*, identifies attributes of energy efficiency and consumer behavior that make quantifying efficiency savings difficult. These attributes include the individual decision to make an initial investment with a potential low rate of return; fragmented energy efficiency opportunities that make each individual opportunity a relatively low priority; low awareness and lack of strategic focus among producers and users; and the difficulty of measuring reduced energy consumption given the number of variables (Choi 2009, 22). These attributes result in barriers that must be overcome to unlock energy efficiency:

- **Structural barriers** deter investment and include agency issues such as landlord-tenant, ownership transfer issues possible in future sales, transaction or hidden cost barriers such as time commitment, and pricing distortions minimizing savings. The ECS model focuses on overcoming transaction barriers.
- **Behavioral barriers** explain consumer motivations and include risk and uncertainty created by a lack of familiarity, a lack of awareness about use and possible benefits, custom and habit that create inertia, and elevated hurdle rates that reflect the consumer wish for accelerated payback. The ECS model works to lower the perception of risk, increase knowledge and information to motivate participation, and accelerate payback through Mass Save rebates and savings.
- And, finally, **availability barriers** that deter otherwise potentially willing consumers such as adverse bundling that couples desirable energy choices with more costly ones, access to capital both internally and through lending, availability of products or services desirable for specific purposes, and installation or use issues that negate savings (Choi

24-25). The ECS model drives participants to available products and services and provides expertise on use.

The ECS model is intended to create an interested winner by lowering investment thresholds and increasing payback; concentrating efficiency opportunities; raising awareness; and improving ability to measure efficiency gains. The capacity for overcoming each of these interrelated barriers is used as criteria for evaluating the ECS model and its alternatives.

**Conservation:** Key to understanding energy conservation and utility regulation is the concept of “negawatts” coined by Amory Lovins (Lovins 1977). “Negawatts represent power saved from one application that is made available to another application”, are mandated by the State through the GWSA, and are monitored so utilities make money on energy saved as well as energy demanded. Mass Save and Northampton Leading the Way intend to increase negawatts.

**Organizational Theory:** McKinsey & Company propose that barriers can be overcome with a comprehensive approach that includes education and information, financial incentives, regulatory mandates, and third party involvement. This integrated approach is echoed by the Urban Climate Change Research Network who, like Northampton Leading the Way, focus on overcoming challenges for governance at the local level where they advocate for more empowered leadership to overcome fragmentation and build consensus; increased citizen participation in planning efforts; greater transparency; and for giving municipalities access to more financial tools to address issues. Finally, they discuss the need for both vertical and horizontal jurisdictional coordination to overcome fragmentation (McCarney 2011, 250-251). This holistic approach to governance moves decision-making closest to the people effected and provides a framework for overcoming barriers to energy efficiency along with other challenges of climate change. The ECS model is also aligned with this thinking.

Further support for an integrative approach is found in the organizational theory literature. Schneider and Ingram discuss the need for statutes framed with a clear policy logic that joins “objectives, agents, targets, rules, and assumptions” (Schneider, Ingram 1990, 72). Statutes must provide sufficient tools to motivate implementation and a design that allows decision-making at a level consistent with the target population. This integrative, grassroots strategy yields their “value added” implementation where agents are able to enhance policy logic, increase knowledge, and build support (Ibid 85). The Energy Concierge Services model is value added implementation. Eugene Bardach discusses building interagency collaborative capacity to augment trust, intellectual capital, leadership, implementation and communication networks, advocacy, and design capacity, all factors in ECS development (Bardach 2001).

Joseph Stiglitz discusses information asymmetry inherent in a democratic political system as underlying the failure to implement Pareto improvements. This pessimistic view is mitigated by the possibility for consensus-based decision-making to build shared vision. He, too, advocates for more open processes and collaboration to overcome these barriers, factors found in the ECS model (Stiglitz 1998).

**Criteria:** For purposes of analysis of the Energy Concierge Services model, this report uses the structural, behavioral, and availability barriers criteria outlined by McKinsey & Company as they encompass the challenges presented by the attributes of energy efficiency decision-making. The barriers identified are similar to but more comprehensive than those outlined in the *MA Three-Year Electric Efficiency Plan*. Alignment with this plan is also a criteria since it is the currently established framework. Other criteria are political feasibility and cost of implementation (see Appendix 1).

## **METHODS**

**Data sources:** In conducting my research I used two sources of primary data: monthly reports created by the City of Northampton and personal interviews with project stakeholders. The City monthly reports are created for the C& I Committee by the Office of the Mayor and provide a comprehensive partnership progress report including a program narrative report from CET, detailed and summary data regarding participation and stage, discussion of outreach activities and opportunities, accounting of in-kind services and timely supplemental materials (see Appendix 2 for summary report).

Interviews with a cross-section of stakeholders were conducted and included City partners and program participants, actual and potential (see Appendix 3). Partner interviews were conducted with the program designer, City Energy Coordinator, Executive Director of the BID, Executive Director of the GNCC, and the Energy Concierge. Interviews were expected to reveal both challenges and successes in program implementation, barriers found, and hurdles to overcoming barriers. Participant interviews included commercial property owners in single use buildings, multi-unit, mixed and industrial use. Non-participants were also interviewed, both property owner and renter. Participant interviews, both actual and potential, were expected to reveal motivations for participation, reasons for not participating, and process challenges to overcoming barriers. Interview informants were contacted by phone and email with personal appointments set in most cases. With permission, recordings were made to facilitate accuracy of interview notes. Interview questions were modified to reflect the role of the interviewee and the degree of participation (see Appendix 4).

Partners were asked questions regarding their role in implementation and experience; Energy Concierge questions focused on the unique role of program facilitator and primary implementer; and property owners addressed process-oriented aspects of the model with

opportunity for discussing structural, behavioral, and availability barriers encountered as well as make suggestions for process refinement (see Appendix 5).

Interview notes and transcriptions were open coded for themes. Themes pertaining to barriers were then grouped according to identified barriers and given descriptive names to identify the theme. A tally reflects the relative weight of references and significance on each level (see below: Summary of Barriers Identified by Type of Respondent). Data was used to elicit findings and make recommendations.

**Sample description:** My purposive sample includes the primary stakeholders from the City of Northampton and their designated partners, including those responsible for implementing and overseeing the project, a cross-section of commercial participants and non-participants, and the program designer. Data in the CET reports details progress with commercial participants.

## **FINDINGS AND STAKEHOLDER OBSERVATIONS**

**Common denominator:** Interview data revealed a shared belief in energy efficiency as desirable from social, political, and economic vantage points. Motivations to save energy not only included saving money but also a broader wish for energy independence, supporting a successful business environment, and taking a lead in a community initiative. With the program in its fledgling stages, all felt that it was too soon to definitively identify benefits of the program, but participants were attracted to the idea of the Energy Concierge providing independent, one stop, coordinated services without a vested financial interest. Partner responses also mentioned the enhanced image of the utility companies in the community and the desire to supplement, repair, and fill gaps in their program framework.

**Challenges:** Participant responses varied based on how far into the process they were as well as the complexity of their business. For example, a freestanding, single-use building owner

had less difficulty than a multi-use building owner with tenants. Time was cited as an investment with the process requiring repeated time and attention. Response time and time between steps were also cited relative to the vendors. As outside vendors contracted by the utilities, they are unfamiliar with the properties and require additional time and attention in order to complete their work. And, for renters, time was weighed against the personal investment in a tenant situation.

Participants and non-participants cited lack of information: not knowing about the program, how to initiate participation, what is involved in the process, and how complex it is (see Appendix 6). They also lack information about potential savings or return on investment, expertise to make informed decisions, and to create a business plan to incorporate energy efficiency.

Vendors contracted by the utilities not only lack familiarity, but also take business from the property owner's usual contractors, shifting business outside the community. Choices of products offered by vendors are limited and may not be suited to specific needs, such as lighting options in the retail environment.

For the multi-use property owner, the Mass Save Direct Install offerings do not meet the myriad needs. Because of the complexity of business uses, tenants with individual electrical accounts, and the limits of the Direct Install program, a custom response is required yet not readily available. In this case, the property owner's understanding of the program, its limitations, and complexity is much greater and he understands that the infrastructure is not in place to support the "whole building approach". This program gap is being addressed.

Partners have a greater comprehension of the challenges involved, identifying most challenges also identified by participants. Participants, however, found unanticipated issues such as a limited choice of products and unfamiliar vendors. The partners underestimate the degree to

which lack of information at the participant level is impeding participation. Partners, however, also want additional information to mobilize their own participation and support their leadership role. They site needing data on an installation that demonstrates return on investment.

Additionally, partners lack information needed to focus their efforts on the largest consumers and potential greatest beneficiaries.

Following the need for more information, the most frequently cited challenge at the partner level is leadership. This is articulated both directly and indirectly, such as the impact of the recent change of mayor and economic development officer, the need for a salesperson, name recognition, and personal touch. Partners also recognize the need for leadership among participants, i.e. a cohort or “poster child” of program success that would provide an example around which promotional efforts could focus. This related to the need for a sense of urgency or accountability to motivate participation.

The Energy Concierge’s (EC) unique position between partners and participants is particularly revealing. Although most challenges are being addressed as implementation progresses, the EC cites 1) establishing an effective system of communication and cooperative working environment with the vendors; 2) implementing a statewide program at the local level where “nothing is turnkey”; 3) the complexity of working with multiple vendors and applications in each business, including time lag between steps; and, 4) the utility cost effectiveness system that determines the level of incentive the vendor is able to offer the participant. The largest challenge is working to create the “whole building approach”, a custom approach for mixed-use buildings not currently part of the utility program framework.

The program designer concurs with the Energy Concierge that one of the most significant challenges is getting a “whole building” comprehensive assessment established. Furthermore, the



process of auditing and contracting services is more complicated than originally thought with businesses left on their own to navigate. Smooth service delivery requires successfully building relationships and effective communication channels among the partners and vendors. “Building capacity is fundamentally important to making things work in Massachusetts”. And, the designer cites the need for the utilities to understand their role as central to the statewide efficiency initiative.

**Limitations of research methods:** The primary limitation was sample size of participants, both actual and potential. Although effort was made to have a representative cross-section of participants, non-participants, owners, renters, commercial, and industrial, research purposes would have been better served had there been several in each category in order to ensure accuracy of data interpretation.

## **ANALYSIS OF FINDINGS USING BARRIER CRITERIA**

Analysis of partner and participant interviews reveal recurring themes. Themes were summarized and placed in a barrier category corresponding most closely to the type of barrier referenced. Barriers cited fell in all three categories: structural, behavioral, and availability. A count of the number of respondents citing the barrier indicates how widespread it is understood to be; e.g. five partners of five cited program process. A count of the total mentions indicates the intensity of the perceived barrier; e.g. each partner mentioned program process at least once and possibly up to four times.

<b>SUMMARY OF BARRIERS IDENTIFIED BY TYPE OF RESPONDENT</b>					
<b>BARRIER CATEGORY</b>	<b>BARRIER TYPE</b>	<b>PROGRAM PARTNER</b> n=5		<b>PARTICIPANT (Actual/Potential)</b> n=6	
		<b>*Number identified</b>	<b>**Total mentions</b>	<b>*Number identified</b>	<b>**Total mentions</b>
<b>STRUCTURAL</b>	Program process	5	9	3	8
	Infrastructure/capacity	3	4	1	2
	Complexity	3	5	1	1
<b>BEHAVIORAL</b>	Leadership/personal touch	5	12	4	8
	Education issues	5	16	5	22
	Expertise	2	5	2	4
<b>AVAILABILITY</b>	Utility program offerings	5	6	2	6
	Financial issues	1	3	2	2
	Customer use	0	0	3	8

*\* Number of respondents who identified the barrier at least once in the interview*

*\*\*Number of times barrier mentioned in interviews*

Analysis reveals a difference in perception of the barriers and their relative importance between partners and participants. Partners are likely to recognize structural barriers; all five cite program process, and three of five cite infrastructure/capacity and complexity. Partners have a widespread understanding of behavioral barriers (5 of 5), except for expertise (2 of 5), with extensive mention of leadership (12) and education (16) issues. They have access to the greatest amount of program information, a realistic understanding of what the perceived barriers might be at the participant level, and therefore regularly discussed these behavioral barriers that pertain to leadership and education, and to a lesser extent expertise. Given the immature nature of the pilot, partners had the least widespread understanding of availability barriers, except for utility

program offerings (5), and made the fewest mentions. Financial issues were cited by only one partner, three times. Customer use issues were not mentioned at all.

In contrast, barrier identification by participants pertains primarily to behavioral issues. The most significant factor at this early stage is the need for more program education and information (5 of 6 respondents identified this 22 times), with participants most receptive when personal contact is made and strong community leadership demonstrated (4 of 6 respondents with 8 mentions). Most structural barrier comments were limited to the program process (3 of 6 making 8 mentions). Although a small number of respondents cited availability barriers since so few had progressed through the process, there were multiple mentions about customer use and limited product choices (8).

**Assessing structural barriers:** The significance of these findings is that the partners are correctly identifying structural implementation issues; however, issues must be addressed within the existing utility framework. All five partners and half the participants (3) reference program process as problematic. Infrastructure/capacity is better understood as a barrier at the partner level (3 of 5) than it is among participants (1). Complexity is mentioned more widely and frequently among partners (3 mentioned a total of 5 times), but is apt to become a significant participant issue once more have progressed through to installations. Some complexity issues may be addressed through a streamlining and simplification of the process to better coordinate delivery of service, while others require modification of the utility framework, such as is being developed in the whole building assessment approach.

**Assessing behavioral barriers:** Both partners and participants agree on the need for more education and information. Partners need an expanded education campaign to effectively reach their respective constituencies, while participants need more information to raise

awareness about the program and understanding of the process. The type of information available to participants must motivate participation by answering questions. Participant mentions about education (22 by 5 of 6 participants) slightly exceed those of partners (16 mentions by all 5). Partners, however, were better able to articulate the need for more upfront information on program process, time commitment required, cost involved, and potential for savings using data to demonstrate current community examples. The Northampton Leading the Way “leave-behind piece” addresses an information gap for those already engaged in the process (see Appendix 7). Potential participants may lack the expertise to effectively evaluate the program, determine whether it is cost effective, and develop a plan to demonstrate return.

Although the need for strong leadership is not as widely or intensely understood among participants as among partners, overcoming this behavioral barrier is key to overcoming other behavioral, structural, and availability barriers. Strong leadership is essential for building consensus and overcoming horizontal and vertical jurisdictional fragmentation. Strong leadership and personal touch are deliberately considered together as leadership will precipitate increased personal involvement by those already committed to making this a successful venture. Departures of key City leaders, particularly Mayor Clare Higgins but also Economic Development officer Terry Anderson, have caused leadership setbacks and slowed momentum at a critical time. Renewed City leadership will empower partners and motivate participation, stimulate the development of needed information, create a ripple effect into the C&I sector, and raise the perception that energy efficiency is a high priority that is good for individual businesses and the local economy.

**Assessing availability barriers:** Finally, there is limited data on availability issues because so few businesses have progressed through the full scope of the program. There is

widespread understanding among partners (5) of the limitations of utility program offerings, but participants more frequently mention financial and customer use issues. Availability barriers are integrally tied to structural barriers since the program is built on the utility framework. For instance, the efficiency products made available through the vendors to the customers are specified by the utilities and pass their cost effectiveness system. Choices in lighting are limited and not suitable to specific environments such as specialty retail. And, efficiencies gained through measures such as window replacement do not fall within the scope of the program.

Financial issues, however, are less closely tied to the utility framework and can be addressed by the partners and in the community. Interviews did not, however, yield significant data among partners or participants at this juncture.

## **ANALYSIS OF ALTERNATIVES**

The criteria by which alternatives are judged are based on the analysis of findings in Appendix 1. Alternatives are assessed on their ability to overcome structural, behavioral, and availability barriers, with particular attention paid to program process, leadership, and education, areas of high intensity and agreement among partners and participants. Additionally, alignment with the current *Statewide Three-Year Energy Efficiency Plan*, political feasibility, and cost of implementation are considered.

**Alternative #1: Mass Save** is the status quo alternative if present trends continue. The one-year Energy Concierge pilot will expire leaving the Mass Save program as the vehicle for commercial energy efficiency, even though ECS will demonstrate a higher participation rate than the statewide average, helping utilities meet their efficiency goals and presenting a positive public image. Established within the utility policy framework, Mass Save mirrors its overarching structure. The most significant barrier to participation is the time commitment required of the

participants. Behavioral barriers are moderately addressed through widespread dissemination of information; risk aversion and a corresponding higher return on investment threshold further deter participation, resulting in a low participation rate. Success in overcoming availability barriers is similarly low as product choices and financial mechanisms are limited.

The Mass Save alternative is politically feasible and likely to be continued since it is part of the current plan to meet the 2020 statewide goal. The cost of implementation has already been absorbed. The outcome of Mass Save is a continued low commercial rate of participation that is still likely to meet efficiency goals because of easily attainable Direct Install measures, particularly when targeted to large properties. The additional conservation benefits of a custom program that result in a higher level of efficiency and savings will not be realized.

**Alternative #2: Energy Concierge Services: Pilot Year 2** Continuing the Energy Concierge Services for a second year will allow for the development of the whole building assessment approach to overcome structural barriers. With partnership infrastructure in place, a second year will facilitate capacity building to refine systems within the partnership, with the utilities and vendors, and provide for improved and expanded delivery of services. Leadership will take root, program information will be more widely available and effectively communicated, and participants will have access to expertise required to make investment decisions. Partners and participants will work with vendors to improve product choices and raise overall Mass Save program desirability. Financial issues will be addressed in part through the second phase 2-3 year efficiency plan development as well as by engaging community financial institutions to support economic development through energy efficiency.

Although not part of the current utility energy efficiency plan, ECS does align with it and further expands the scope and depth of offerings. A second year would increase momentum and

participation. Although there is no obligation to continue, either political or financial, a second year is moderately feasible as the cost to the utilities is minimal. It would also behoove them on a political basis to continue and further refine this proactive and innovative model.

**Alternative #3: Adopt an Alternative Model** Adopting an alternative model to overlay on Mass Save, such as The Jordan Institute (TJI) in Concord, NH, would simply substitute services provided by the Energy Concierge with those of a comparable organization without the benefits of the existing partnership. The Jordan Institute offers a comprehensive array of services beginning with an energy performance analysis; a building evaluation and recommendations for service providers, financing and support; project management followed by building performance monitoring. The menu, however, does little to overcome structural barriers inherent in the utility program framework. Rather, the focus would be on maximizing efficiency for the customer one building at a time. With a targeted and personalized approach, TJI is likely to be quite effective in overcoming behavioral barriers, although would struggle with lack of familiarity and personal relationships in the community. TJI would face availability constraints inherent in Mass Save.

Adopting an alternative model falls outside the current utility plan. It is highly unlikely that ECS would be replaced as there would be little gain and negative political ramifications. Furthermore, implementation costs would be high. Adopting an alternative model would result in a loss of program momentum, community confidence, and lower participation rate.

**Alternative #4: Adopt ECS as Part of 2013-2015 Statewide Utility Plan**

Adopting the ECS model to augment Mass Save in the 2013-2015 Statewide Energy Efficiency Plan, would address most of the barriers found in the current configuration. The Mass Save program would exist alongside this comprehensive approach to providing energy conservation

services within the utility framework. Through central placement in the utility infrastructure, small- to mid-sized commercial and industrial properties would be prioritized and structural issues pertaining to program process and capacity more readily addressed. Direct Install options would remain available to customers, but would be complemented by the custom Whole Building Assessment approach. Furthermore, behavioral barriers regarding leadership, education, and expertise could be remedied on a statewide level and create an upsurge of interest in energy efficiency and savings. Leadership could be tapped on a community or regional basis to augment credibility and offer participant support. Produced once, comprehensive education materials could be disseminated widely and overcome information and expertise barriers. With increased demand, the array of available products in the Direct Install program could be expanded as well as financial options and the number of participating vendors.

This alternative builds upon the current utility plan, expands the scope of program and services offered, and increases likelihood of meeting and exceeding energy efficiency goals. Its political feasibility is high, as the public recognition of corporate leadership would position the Commonwealth as a national model. The cost of implementation of this alternative is high, however, the outcome is likely to effectively overcome barriers to energy efficiency and provide a new model for an old problem.

## **PROJECTED TRADE-OFFS AMONG PROPOSED ALTERNATIVES**

The analysis of policy alternatives demonstrates that allowing present trends to continue (Mass Save) is the least desirable option. The ECS partnership would expire at the end of the one-year agreement. Mass Save has minimal implementation cost as it is an existing program, and a high degree of political feasibility within the current utility plan, but all barriers to energy



efficiency (structural, behavioral, and availability) would remain and result in a lower participation rate and less energy saved.

Continuing the ECS pilot model for a second year would facilitate a number of important things. First, Mass Save would continue but would likely see increased participation in Northampton. The cost of implementation would remain on par with the current level of utility investment but with greater payback. Political implications of continuing are positive, and not continuing negative. Furthermore, the barriers to efficiency around which the program was designed would be lowered given an additional year to address key issues: infrastructure, process, and capacity; leadership, information, and expertise; choice of products and services, and financial issues. The outcome is projected to be a simplified process for the user, higher participation rates, and more energy saved.

The third alternative, adopting another existing model such as The Jordan Institute, could also be done alongside Mass Save. It would offer an expanded and more fully evolved range of services, but the impact would be limited by a number of factors. First, a partnership with the utilities or the City would not be well received in the community. Second, without the partnership, it would have no significant advantage over any other nonprofit offering comparable services, losing the political, social and economic connections that make the partnership viable. A new model would lose momentum and therefore have a relatively high cost of implementation. Success in overcoming barriers to efficiency would be mixed with the greatest success likely in the behavioral category with personalized and comprehensive services. Structural and availability barriers remain.

Finally, adopting the ECS model as part of the 2013-2015 MA Energy Efficiency Plan would allow for the continuation of Mass Save and expand the scope of program offerings. By

placing Energy Concierge Services in the utility framework, barriers to efficiency would be addressed, most notably program process and complexity, and would facilitate cost effective capacity building. With utility leadership, behavioral issues pertaining to leadership and program education could be broadly and comprehensively addressed. And, with an expanded market for products and services, there would be greater availability. Significant economies of scale would be realized. These positive outcomes, however, require a willingness and ability of the utilities to take on this leadership role on a statewide basis. Commitment to making this a successful component of the overall strategy would be necessary as well as a corresponding effort to take the project to scale. Without this, the program would be marginalized and more successful remaining at the local community level where there is a commitment to making it work.

## **POLICY RECOMMENDATIONS**

After comparing how well each alternative overcomes barriers to energy efficiency, the recommendation of this report is to pursue a phased strategy to maximize goals articulated in the Energy Concierge Services model Sustainable Northampton Commercial Outreach Program Proposal and the *Massachusetts Clean Energy and Climate Plan for 2020*.

- First, Northampton Leading the Way should be extended an additional year with the purpose of redressing structural, behavioral, and availability barriers; and developing the second phase two- to three-year financial plans. Recommendations drawn from research are to:
  - Address leadership issues
    - Identify and empower leadership of the partnership to build consensus;
    - Identify and prioritize a strategic cohort to provide participant leadership.
  - Address information deficit

- Develop a packet detailing Energy Concierge Services, program processes, examples of materials, and expected time commitment;
    - Document commercial success stories to demonstrate effectiveness;
    - Create a financial model to estimate cost, project savings, and return;
    - Develop a financial expertise resource referral list.
  - Address structural barriers
    - Develop the custom Whole Building Approach to overcome fragmentation and facilitate participation of key business stakeholders, a piece essential to broader implementation and potential replication;
    - Increase the number and role of Energy Concierges to simplify the process for participants.
  - Build additional capacity as required to meet goals and for smooth functioning
    - Expand outreach to community organizations and targeted business sectors;
    - See partner and participant recommendations for improvements (Appendix 5).
- Second, the Energy Efficiency Advisory Council (EEAC) should be invited to participate in program evaluation, measurement, and verification, their systematic collection of information to document the efficiency program and improve impact. Analysis should build on the structural, behavioral, and availability barriers identified by McKinsey & Company to provide a more comprehensive perspective than barriers currently specified in the utility framework. EEAC involvement will increase familiarity and help determine the capacity building needed to replicate the model in phases, first in other Green Communities and then statewide.

- Furthermore, to ensure that the Commonwealth meets its 2020 *Global Warming Solutions Act* goal, the utilities should adopt the Energy Concierge Services model as part of their *2013-2015 Massachusetts Joint Statewide Three-Year Electric Efficiency Plan*. This will demonstrate commitment to energy efficiency, provide leadership and infrastructure to overcome barriers, and take the program to scale, first in Green Communities then statewide.

## CONCLUSION

My research explored the effectiveness of the Energy Concierge Services model in overcoming barriers to energy efficiency. Interviews with partners and participants revealed a need for strong leadership, an education campaign and materials, and expansion of the program to offer a Whole Building Approach and increased Energy Concierge Services. My recommendations include extending the ECS model an additional year, addressing leadership, the information deficit, and Whole Building Approach in preparation for an evaluation, measurement, and verification by the Energy Efficiency Advisory Council. Furthermore, I recommend that the revised ECS model be adopted as part of the *2013-2015 Massachusetts Joint Statewide Three-Year Electric Efficiency Plan* with phased implementation beginning with Green Communities.

Northampton Leading the Way will become Massachusetts Leading the Way.

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## **LIST OF APPENDICES**

1. Analysis of Each Proposed Alternative Model’s Ability to Meet Criteria for Success
2. Energy Concierge Services Program Trends September 2011-April 2012
3. Identification of Program Partners and Participants (Actual/Potential)
4. Interview Schedule
5. Summary of Recommendations for Program Improvements
6. Energy Concierge Services – The Process Explained
7. Northampton Leading the Way “Leave-Behind Piece”

## Appendix 1

ANALYSIS OF EACH PROPOSED ALTERNATIVE MODEL'S ABILITY TO MEET CRITERIA FOR SUCCESS					
CRITERIA FOR SUCCESS		<i>Alternative 1</i> MASS SAVE	<i>Alternative 2</i> ENERGY CONCIERGE SERVICES PILOT – YR 2	<i>Alternative 3</i> ADOPT NGO ALTERNATIVE MODEL	<i>Alternative 4</i> ADOPT IN 2013-2015 MA UTILITY PLAN
BARRIERS	<b>Structural</b>	Poor <ul style="list-style-type: none"> <li>Falls under utility framework;</li> <li>Existing infrastructure</li> </ul>	Good <ul style="list-style-type: none"> <li>Falls under utility framework;</li> <li>Existing infrastructure;</li> <li>Capacity building</li> <li></li> </ul>	Poor <ul style="list-style-type: none"> <li>Utility framework</li> <li>Lacking inside track</li> </ul>	Excellent <ul style="list-style-type: none"> <li>Utility framework</li> </ul>
	<b>Behavioral</b>	Fair <ul style="list-style-type: none"> <li>Low risk;</li> <li>Widely disseminated information;</li> <li>Low rate of participation</li> </ul>	Good <ul style="list-style-type: none"> <li>Develop leadership;</li> <li>Increase information;</li> <li>Provide expertise</li> </ul>	Good <ul style="list-style-type: none"> <li>Personalized and comprehensive</li> </ul>	Excellent <ul style="list-style-type: none"> <li>Leadership and credibility</li> </ul>
	<b>Availability</b>	Fair <ul style="list-style-type: none"> <li>Limited options through Direct Install;</li> <li>Financial mechanisms</li> </ul>	Good <ul style="list-style-type: none"> <li>Develop financial mechanisms;</li> <li>Improve choice of products</li> </ul>	Fair <ul style="list-style-type: none"> <li>Same range of choices</li> </ul>	Good <ul style="list-style-type: none"> <li>Improved options</li> </ul>
ALIGNMENT WITH CURRENT MA UTILITY PLAN		High <ul style="list-style-type: none"> <li>Part of current plan</li> </ul>	Moderate <ul style="list-style-type: none"> <li>Falls outside scope</li> <li>Pilot development</li> </ul>	Low <ul style="list-style-type: none"> <li>NGO providing comprehensive services</li> </ul>	High <ul style="list-style-type: none"> <li>Exceeds</li> </ul>
POLITICAL FEASIBILITY		High <ul style="list-style-type: none"> <li>Part of current plan</li> </ul>	High <ul style="list-style-type: none"> <li>Utilities and City must be willing to continue pilot</li> </ul>	Moderate <ul style="list-style-type: none"> <li>NGO acts independently within Mass Save framework</li> </ul>	Moderate <ul style="list-style-type: none"> <li>Must show success in ECS year 2 pilot</li> </ul>
COST OF IMPLEMENTATION		High <ul style="list-style-type: none"> <li>Existing</li> </ul>	Moderate <ul style="list-style-type: none"> <li>Continued partnership funding</li> </ul>	Low <ul style="list-style-type: none"> <li>Lacking municipal partnership</li> </ul>	High <ul style="list-style-type: none"> <li>Economies of scale</li> </ul>

Scale for Barrier criteria: poor, fair, good, excellent.

Scale for Alignment, Political Feasibility, and Cost criteria: low, moderate, high.

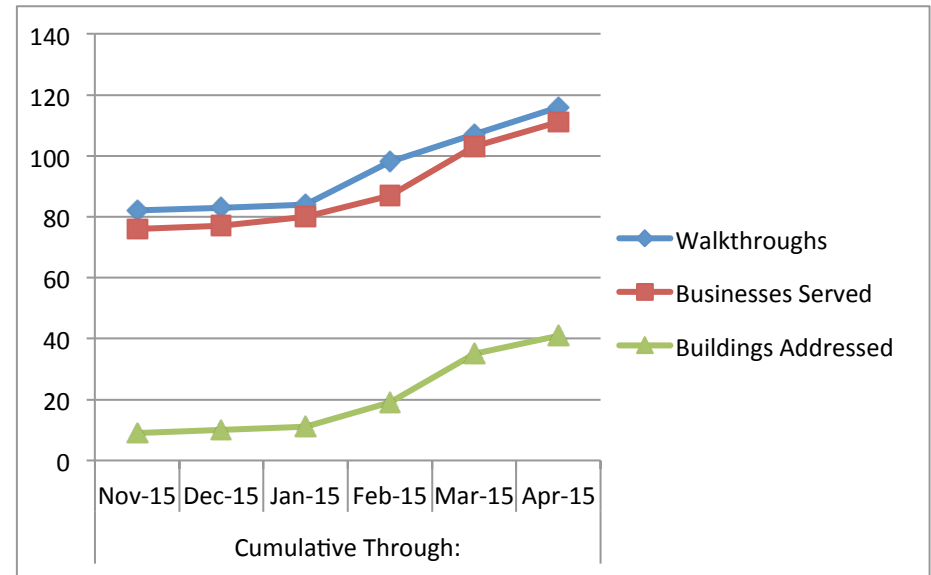


**Appendix 2**  
**ENERGY CONCIERGE SERVICES PROGRAM TRENDS**  
**SEPTEMBER 2011 - APRIL 2012**

Provided by Center for EcoTechnology

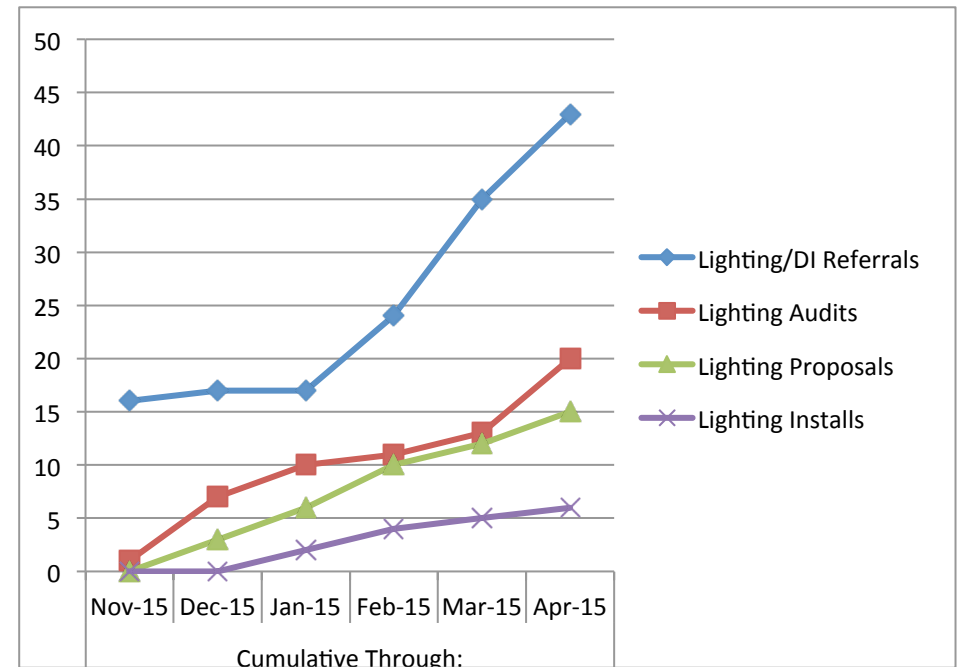
**SUMMARY DATA**

	Cumulative Through:					
	Nov-15	Dec-15	Jan-15	Feb-15	Mar-15	Apr-15
Walkthroughs	82	83	84	98	107	116
Businesses Served	76	77	80	87	103	111
Buildings Addressed	9	10	11	19	35	41



**LIGHTING**

	Cumulative Through:					
	Nov-15	Dec-15	Jan-15	Feb-15	Mar-15	Apr-15
Lighting/DI Referrals	16	17	17	24	35	43
Lighting Audits	1	7	10	11	13	20
Lighting Proposals	0	3	6	10	12	15
Lighting Installs	0	0	2	4	5	6

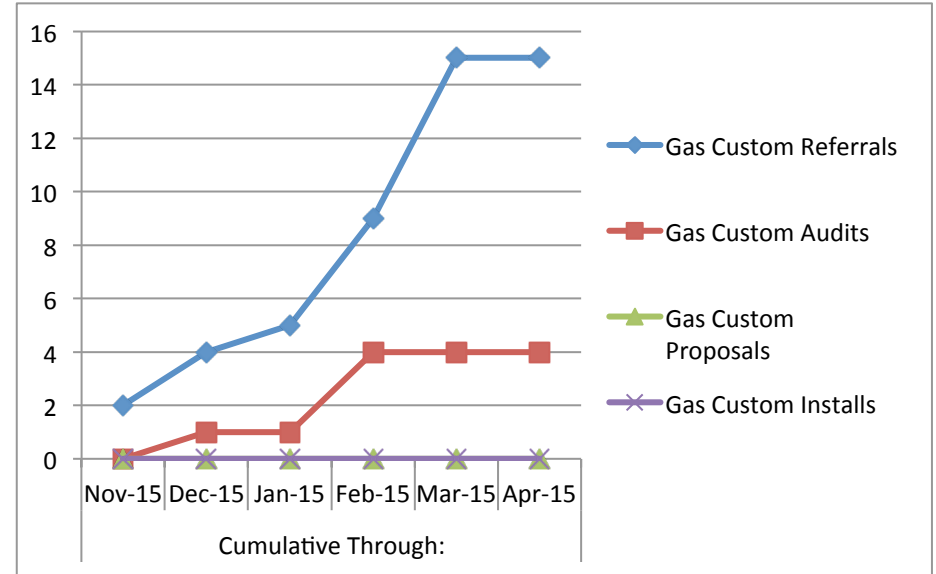


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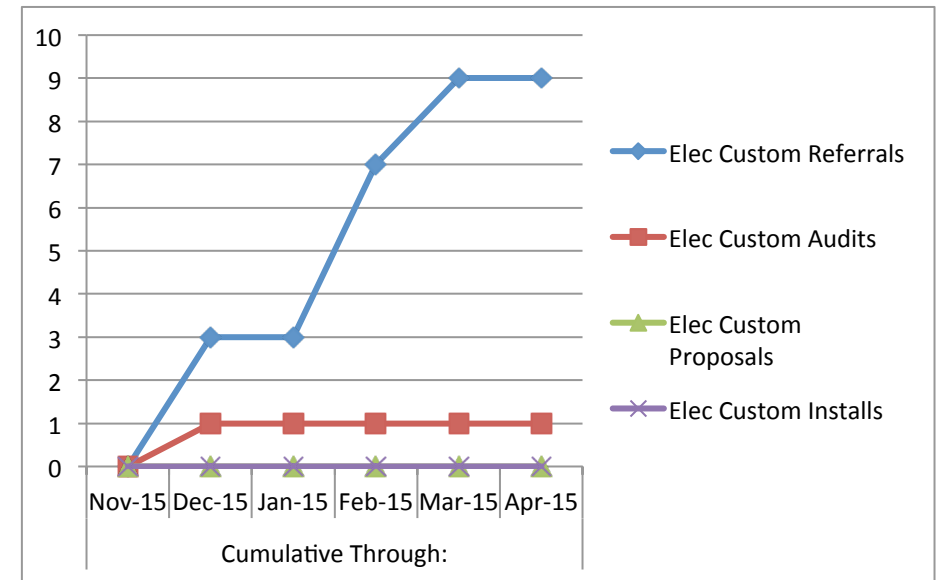
**GAS CUSTOM**

	Cumulative Through:					
	Nov-15	Dec-15	Jan-15	Feb-15	Mar-15	Apr-15
Gas Custom Referrals	2	4	5	9	15	15
Gas Custom Audits	0	1	1	4	4	4
Gas Custom Proposals	0	0	0	0	0	0
Gas Custom Installs	0	0	0	0	0	0



**ELECTRIC CUSTOM**

	Cumulative Through:					
	Nov-15	Dec-15	Jan-15	Feb-15	Mar-15	Apr-15
Elec Custom Referrals	0	3	3	7	9	9
Elec Custom Audits	0	1	1	1	1	1
Elec Custom Proposals	0	0	0	0	0	0
Elec Custom Installs	0	0	0	0	0	0



## Appendix 3

### IDENTIFICATION OF PROGRAM PARTNERS AND PARTICIPANTS (ACTUAL/POTENTIAL)

CITY OF NORTHAMPTON PROGRAM PARTNERS		
Name	Partner	Position
Steve Burrington	Serrafix	Principal, Program Designer
Chris Mason	City of Northampton	City Energy Coordinator
Dan Yacuzzo	Business Improvement District	Executive Director
Suzanne Beck	Chamber of Commerce	Executive Director
Lorenzo Macaluso	Center for EcoTechnology	Energy Concierge

PARTICIPANTS (ACTUAL/POTENTIAL)							
Name	Role	Property owner	Property manager	Retail	Industrial	Multi-use	Renter
Rich Madowitz	Participant	X		X		X	
Jon McGee	Participant		X			X	
Peter Whalen	Potential Participant	X	X	X		X	
Bruce Volz	Participant	X			X		
Rich Cooper	Participant	X		X			
Pam Bartlett	Potential Participant						X

## Appendix 4

### INTERVIEW SCHEDULE

Name and Title of Informant:

Date of Interview:

1. What has your involvement been with Sustainable Northampton Commercial Outreach Program?
2. What motivated you to participate? Or, why did you choose not to participate?
3. What, in your opinion, have been the benefits of the program?
4. What do you feel are the challenges involved with participating? How can these be rectified?
5. Where in the process did expectations fall short? Do you have suggestions for how this can be improved?
6. Do you have any more general recommendations for improving the Energy Concierge services?
7. Who/ what institutions are critical to the operation of this energy efficiency program, and what was their role (City/Chamber/BID/CET concierge/vendors/ utilities/ property owner/tenant)?

## Appendix 5

### SUMMARY OF RECOMMENDATIONS FOR PROGRAM IMPROVEMENTS

<b>RECOMMENDATIONS FROM PARTNERS</b>
1. Designate and empower leadership;
2. Complete projects that can be used to model success, including GNCC;
3. Identify property owners with highest use who will save the most and prioritize;
4. Create a cohort of participants who can develop a sense of urgency, accountability, and mentor one another;
5. Develop a message that treats energy inefficiency like an economic health issue, then direct owners to a solution;
6. Create education program to raise level of awareness and create hunger;
7. Look at perspective of building owners;
8. Get testimonials;
9. Develop collaborative BID-GNCC approach with request for meeting to deliver program information;
10. Open doors using personal connections;
11. Use sales techniques;
12. Sell the investment with a business plan; demonstrate return on investment;
13. Address barriers quickly; be specific, focus on solution;
14. Improve coordination of vendors and delivery of service;
15. Establish custom Whole Building Approach to maximize customer satisfaction, savings for both customers and utilities;
16. Build capacity to go to scale.

<b>RECOMMENDATIONS FROM PARTICIPANTS, ACTUAL AND POTENTIAL</b>
1. Increase outreach to improve knowledge and participation; publicize how to get more information about potential participation;
2. Provide ECS program information packet with samples of all pieces found in the process; i.e. program process information, audit reports, vendor contracts;
3. Respond to business concerns: how much does it save, how much time and effort involved, what is cost?
4. Ramp up BID leadership;
5. Designate recognized community leader involved in supporting CET;
6. Shift process drive from property owner to ECS; offer more coordination of vendors for participants;
7. Improve response time;
8. Provide more information on managing energy use efficiently; commercial consumer information on demand rate as approach to operations;
9. Allow regular contractors to participate to maintain local business relationship;
10. Allow for decision-making in the field outside of bureaucracy; add flexibility;
11. Look at program gaps such as roofs and windows with big efficiency impacts;
12. Provide more choices of times for walk-through in multi-tenant building.

## Appendix 6

### Energy Concierge Services – The Process Explained

(derived from interview with Lorenzo Macaluso, March 15, 2012)

1. CET gets request for walk-through, either directly from customer or as referral from partner; e.g. BID.
2. CET sets appointment for walk-through.
3. CET conducts walk-through and gives property owner an instruction sheet regarding next steps.
4. CET makes referrals to all appropriate contractors: Prism Energy or Rise Energy for direct installation program, or specialists for custom installation program.
5. An on-site assessment and report identifying energy saving potential and financial benefits may be made available.
6. Installation estimates may be obtained from each vendor, or CET may help businesses obtain them.
7. Customer either contacts or is contacted by all possible vendors (Prism or Rise for direct install; lighting, refrigeration, gas, electric for custom measures).
8. Vendor runs estimates through utility cost effectiveness test to determine level of incentive availability. If proposed energy efficiency improvement does not pass utility threshold, then CET looks for alternative means or customer may choose not to make improvement.
9. Customer schedules installation appointments with each vendor.
10. Vendor makes energy efficiency improvements. CET may be informed of these.
11. Billing methods vary with no standard procedure set.



## IMPROVING BUILDINGS THROUGH ENERGY EFFICIENCY SAVINGS

**SMALL  
COMMERCIAL  
&  
INDUSTRIAL**

**Congratulations on taking the first step to becoming more energy efficient. CET has just finished their opportunity check and found that the following programs might be a good fit for your business.**

### **Turnkey Efficiency**

This is a collection of energy efficiency improvements that comes with a turnkey, easy to implement installation package. It's the most popular step to reducing energy bills and includes:

- On-site assessment
- A menu of no-obligation energy efficiency installations to choose from
- Equipment installation at your convenience
- Removal and environmentally-friendly disposal of used equipment
- Attractive financial incentives with various payment options that will save you money from day one

### **Follow-Up Actions**

Schedule your on-site assessment of turnkey installation improvements.

- You will receive a phone call from Prism Energy to schedule an assessment.
- You will schedule an assessment with Sarah Stewart from Prism Energy at (617) 328-9896 ext. 123.

### **Special Improvement Opportunities**

Does your business need to replace worn-out equipment? Do you have a special business goal in mind, such as increasing customer comfort or greening your business? If you're considering a significant upgrade – right now or in the future - this program may be for you. Your utility can help you identify projects that qualify for a substantial rebate. This includes:

- On-site assessment
- A no-obligation written report that identifies your energy savings potential and the projected financial benefits to your business

### **Follow-Up Actions**

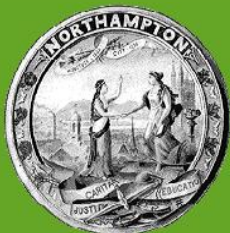
You will receive a phone call from \_\_\_\_\_ to schedule an assessment.

**Remember, your Northampton Leading the Way energy concierge will be there every step of the way to help you navigate the world of energy audits, available financing, and efficiency incentive programs. You can call Jenn Parsons at (413) 727-3142 if you ever need any assistance.**

**Thank you for joining the City and your neighbors in the Northampton Leading the Way Initiative.**

**For More Information:**  
Northamptonma.gov/NLW  
(413) 727-3142

**City Contact:**  
Energy and Sustainability  
Officer  
City of Northampton  
Memorial Hall  
240 Main St.  
Northampton, MA 01060



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