MINNESOTA DEPARTMENT OF COMMERCE
DIVISION OF ENERGY RESOURCES

Class 5 Plan for Cities

Creating and piloting a city-wide, behavior-based energy efficiency program

Conservation Applied Research & Development (CARD)
Final Report

Prepared for: Minnesota Department of Commerce, Division of Energy Resources

Prepared by: Class 5 Energy

CLASS 5 energy™
Engage People • Inspire Change • Save Energy

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DISCLAIMER

Abstract

In 2011, Class 5 Energy received grant funding from the Minnesota Department of Commerce, Division of Energy Resources, through the Conservation Applied Research and Development (CARD) program, to develop and implement a city-wide, behavior-based energy efficiency program that led to broad participation and significant and sustainable energy savings. For the pilot, Class 5 created an "energy program in a box" that included a 10-step program guide and all the materials needed for implementation. Start-up training was provided but the intention was to explore the feasibility of a highly directive Do-It-Yourself approach as part of an effort to decrease program costs and thereby make the program most cost-effective for cities of any size and budget.

The three-year pilot had three distinct phases:

Phase I: Class 5 selected the City of White Bear Lake (WBL) as a pilot partner based on their previous sustainability efforts and their enthusiasm for adding a behavioral component. Beginning in March 2012 and running approximately 27 months, a Class 5 program consultant worked closely with WBL's assistant city manager and energy efficiency coordinator to design, implement and evaluate the program in eight city-owned facilities.

Phase II: Class 5 worked with city leaders and the WBL Area Chamber of Commerce to identify seven area businesses that were interested in participating. These businesses included: the local newspaper, two hotels, a manufacturing plant, two private schools, a community college and a clinic. This phase lasted from January 2013 to August 2014.

Phase III: In the third phase, Class 5 incorporated learnings from earlier phases to test a new coaching-based approach to program delivery. Class 5 sent out invitations to participate in the pilot through the Minnesota GreenStep Cities program and eventually selected the cities of Duluth, Elk River, Northfield and Minnetonka. These four cities piloted the program from September 2014 to September 2015.

In each phase of the project, pilot participants saw reductions in energy use and costs that could be directly attributed to behavioral changes made by building occupants. Beyond the energy use and cost savings, the majority of participants in all three phases acknowledged that Class 5's program made them aware that individuals can have an impact on organizational energy costs and made them more likely to engage in energy saving behavior.

This report details the key strategies used in each phase, results in terms of energy and dollars saved and changes in employee attitudes, lessons learned and recommendations for implementing the program in other cities.

Table of Contents

List of Figures

List of Tables

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Executive Summary

In the drive for a more sustainable environment, cities are leading the way. Cities have both the political will and the human capital to cut energy waste, improve the buildings that citizens live and work in, and lay the groundwork for a healthy and prosperous future. Many have decided that they cannot wait for state or federal government leadership to address energy waste – they need to focus on resiliency and sustainability now.

In most American cities, buildings account for the majority of energy use and carbon pollution – even more than the transportation or industrial sectors[1]. Usually, just a handful of large buildings account for a considerable portion of a city's total energy use. Improving the energy performance of these buildings will yield significant, rapid results.

While potential savings vary for each city, statistics show that 40% of all energy consumed goes into commercial buildings[2]. According to Energy Star, up to 30% of that energy is wasted and can be recovered by behavioral and operational strategies. By pursuing well-crafted policies and behavioral strategies that are adopted by the majority of city employees, cities may reduce their building-based energy consumption by 5% to 10% or even more, saving their residents and businesses tens or even hundreds of millions of dollars each year.

These dynamics are what led Class 5 Energy to seek out grant funding to develop methodology and measurement matrices for successfully implementing a city-wide energy efficiency improvement effort. At the time of the application, Class 5 was in the second year of a CARD grant designed to create and pilot a comprehensive, multi-year behavioral and operational efficiency workplace program for the healthcare market[3]. By testing and evaluating components of the healthcare program in conjunction with Class 5's successful Schools for Energy Efficiency (SEE)[4] program, the goal was to further refine the program for immediate and successful deployment in any city, with any utility, resulting in significant and sustainable energy savings.

The majority of grant funds were dedicated to creating and testing various program and support components during three distinct phases:

- Phase I focused on creating and implementing the program in city-owned buildings in White Bear Lake, Minnesota;
- Phase II included implementing the program in commercial buildings operating in and around White Bear Lake; and
- Phase III involved implementing the program in four Minnesota cities: Elk River, Northfield, Minnetonka and Duluth.

The city of White Bear Lake was selected as the location for Phase I in early spring 2012 based on their previous sustainability efforts and their enthusiasm for adding a behavior component. The city chose eight buildings to include in the pilot: the Armory, City Hall, South Fire Station, Public Safety, Public Works, the Sports Center, Pioneer Manor Senior Apartments and the Water Treatment Plant.

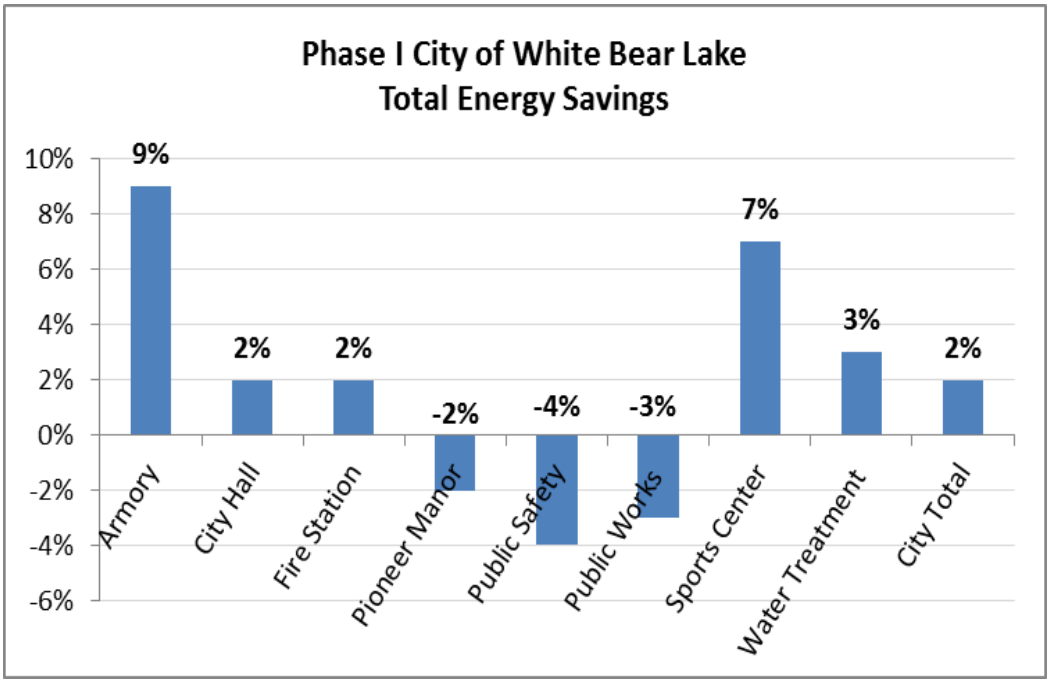
Beginning that spring and running approximately 27 months, a Class 5 program consultant worked with the City's Assistant Manager and a designated Energy Efficiency Coordinator (EEC) to implement and evaluate the program, called the Class 5 Plan for Cities. With an

emphasis on no- and low-cost energy saving strategies, the Class 5 Plan for Cities focused on gaining leadership support and buy-in, tracking ongoing energy use, implementing operational strategies and utilizing materials and tools for employee awareness and engagement.

Based in part on Class 5's experience piloting a behavior program in a healthcare setting, as well as feedback on the SEE program, Class 5 created an "energy program in a box," which included a 10-step program guide intended to walk an EEC through the steps of the program with only light support provided by Class 5. The intention with this approach was to explore an approach that would ultimately lower the cost of the program while still providing all the details and materials needed for successful implementation. During start-up training, a Class 5 program consultant walked the EEC through the "energy program in a box" to ensure a thorough understanding of what resources were available. The Class 5 program consultant checked in with the EEC at least monthly and was available for questions as needed.

With 27 months of data, the pilot showed that a city-wide energy efficiency program can be successfully implemented. The City of White Bear Lake saved more than $36,300 and reduced overall energy use by 2%. During this period, there were no asset projects implemented and the only other investment on the City's part was the time given by the Assistant City Manager and EEC to oversee and implement the project. Figure 1 below shows savings ranging from -4% to 9% for the various city-owned buildings that participated in the pilot.

Figure 1: Phase I City of White Bear Lake Total Energy Savings

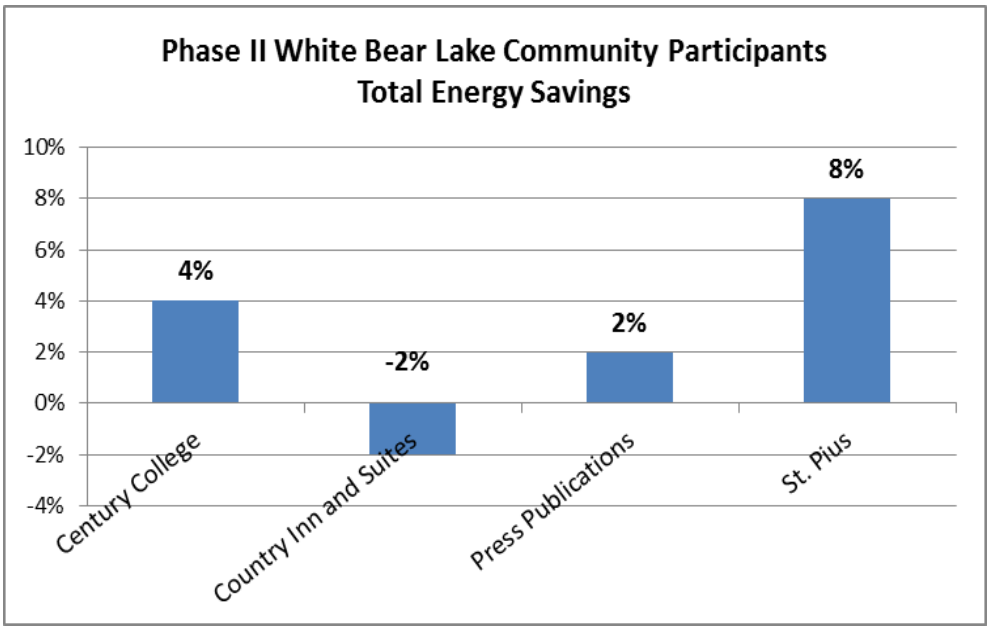


In the second phase of the pilot, Class 5 Energy teamed with the White Bear Lake Area Chamber of Commerce to solicit participants. The following Chamber members expressed interest and were selected to participate: St. Pius Catholic School; White Bear Country Inn & Suites; Holiday Inn Express & Suites; Press Publications; White Bear Montessori; Century College; Heights Plaza Office Complex; Taymark; and HealthEast Vadnais Heights Clinic. As

with Phase I, each participating organization received an "energy program in a box," as well as start up training and light support from Class 5 Energy.

At the end of 12 months, as a result of staff turnover within the participating organization, only four participants remained. The four participants achieved the results shown in Figure 2, which shows that Century College saved 4%, Country Inn and Suites saved -2%, Press Publications saved 2% and St. Pius saved 8%.

Figure 2: Phase II White Bear Lake Community Participants Total Energy Savings



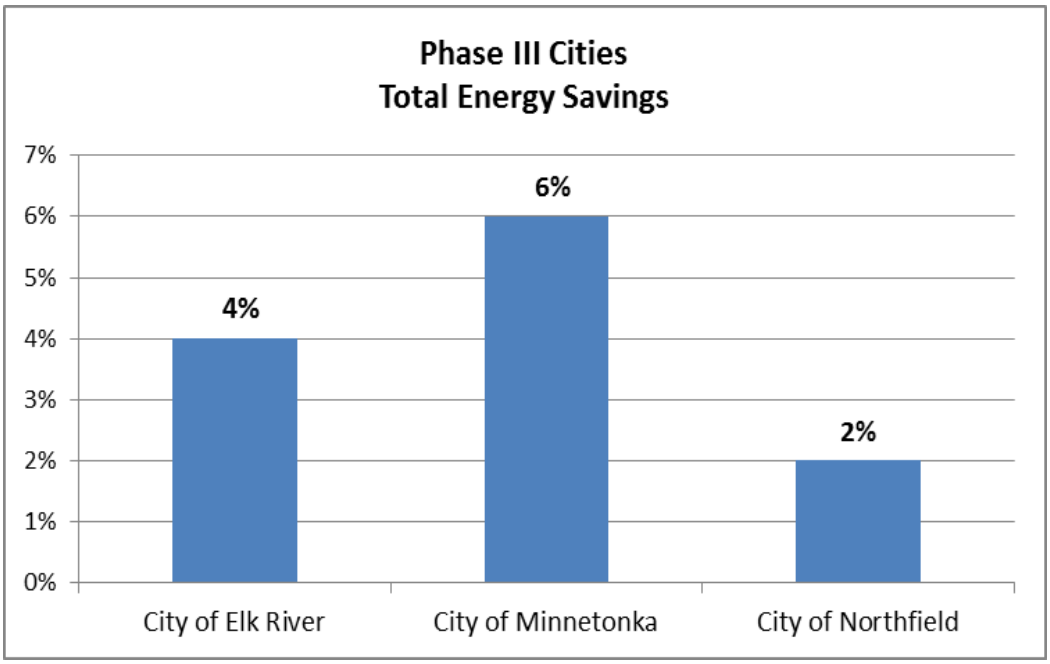
Although nearly all participants who stayed with the pilot for at least 12 months experienced reductions in energy use and costs, several key challenges became apparent during Phases I and II:

- Staffing is an issue for cities. After years of cutbacks, most cities are short-staffed. Even when a person has been assigned to work as the EEC, it is difficult for them to dedicate sufficient time to the energy program as they are often putting out other, higher priority "fires." Also, many cities do not have a dedicated facilities team, and certainly they don't have a building operator in each building, as is the case in K-12 schools. In White Bear Lake, one engineer was in charge of monitoring and maintaining all city-owned with the help of a few maintenance workers.
- Employee turnover was higher than we had experienced in the education or healthcare sector. Of the nine organizations that agreed to participate in Phase II of our pilot, three experienced leadership turnover that resulted in them dropping out of the pilot. In Phase III one of the four EECs left her job in the middle of the pilot.
- The Do-It-Yourself approach failed to provide adequate motivation and accountability for participating organizations. Quite simply, in the absence of ongoing reminders and "nudging," assigned task simply did not get accomplished.

Based on our experiences in the first two phases of the pilot, Class 5 Energy revamped the support aspect of the program to provide a greater level of ongoing implementation support using a coaching model. To start, we reorganized our program materials into smaller "modules" that we presented to the EEC during bi-weekly calls. During each call, we talked through any challenges the EEC was running up against and went over the tasks to be accomplished over the next two weeks. We documented the call with a follow up email to the EEC. That email was then used as the basis for the next call, and supplemented with the new program materials to be provided to the EEC. We believed that taking these steps would make it easier to train a new EEC if the need arose and also to support an EEC in consistently moving through the steps of a program.

For Phase III, we worked with the Minnesota GreenStep Cities program to invite cities to apply to participate in the grant. More than 15 cities applied and after interviewing eight, we narrowed the group to four: Duluth, Elk River, Minnetonka and Northfield. We ran the program pilot from September 2014 – September 2015. Unfortunately Duluth was forced to drop the pilot when their EEC abruptly resigned in January. Figure 3 shows savings for the three remaining cities, which ranges from 2% to 6%.

Figure 3: Phase III GreenStep Cities Participants Total Energy Savings



Based on the results of Phase III, we are optimistic that the new coaching model is a key component to successfully implementing a behavior-based energy program. While Class 5 has always allowed for customization of its energy programs, this new approach takes that customization a step further by allowing us to essentially build the program as we go. Presenting the information in several modules rather than in one large guide makes it easier for the EEC to digest the information as they need it. And the ongoing documentation makes it easier to see what tasks have been completed and which are still outstanding. This approach also adds a level of accountability and a deeper sense of ownership within the organization.

Background

The role of behavior in energy management has been a topic of interest since the energy crisis in the 1970s. The scarcity of oil triggered research on energy consumption behavior, bringing social science into the analysis of energy issues to augment traditional asset-based approaches.

According to a report from the American Council for an Energy Efficient Economy (ACEEE), due to the lack of a cost-benefit analytical approach and the absence of an evaluation framework suitable for application to existing energy behavior programs, such programs have been inadequately studied and thus are often omitted from current efforts to promote building energy efficiency[5]. However, research shows that operations and management best practices can reduce energy bills by 5% to 20% without investing significant capital[6]. Depending on building size and use, this can represent annual savings of hundreds of thousands of dollars.

Not all behavior-based energy programs are created equal. According to that same ACEEE report, effective, sustainable behavior-based energy efficiency programs share several common strategies:

1) setting the tone with the strong support of upper management;
2) building a team with a project committee and peer champions on board;
3) utilizing communication tools to reach target audiences; and
4) engaging building occupants.

These combined elements are necessary because changing behavior requires more than simply asking people to turn off their lights or lower the thermostat. Organizations have accepted ways of doing things, "rules of the road," so to speak, which do not always take energy efficiency into account. Without directly addressing and changing these rules, the same barriers to effective energy management come up time and time again. People will make changes for a while, but the impact erodes over time as they slip back into old habits that have not become part of the organizational culture.

The solution is to provide organizations with a roadmap that helps them create and embed new "rules of the road" into all aspects of their culture – to become an organization in which people make intentional choices to save energy, not because they are told to, but because they want to. And they are more likely to make those choices if they understand the benefits it provides to them as employees, to their organization and to the environment as a whole.

More Than a Decade of Success

Since 2002, Class 5 has specialized in creating and supporting behavior-based energy efficiency programs for K-12 schools. To date, its programs have been implemented in more than 750 buildings, helping school districts reduce energy use by as much as 40% and collectively avoid more than $37 million in energy costs.

Class 5's programs are designed around two converging and predominant approaches: an engineering approach to improving business processes and a psychological approach to managing the human side of change. From an engineering standpoint, a business is like a clock where each of the mechanical pieces can be changed or altered to produce a predictable and

desirable solution. From a psychological standpoint, it's important to help individuals make sense of what a change means to them.

Either approach, in isolation, often proves unsuccessful. An exclusively engineering approach results in changes that are only marginally implemented or supported by the people being asked to make the change. An exclusively psychological approach results in a willingness to change without a specific plan for what needs to be changed and how to do it.

Class 5's programs incorporate a dynamic, reiterative change management process that addresses both organizational systems as well as culture. The process includes the steps outlined in Figure 4 below.

Figure 4: Steps in Class 5 Behavior Program Process

- **EDUCATING** people about why saving energy is important, and how they can help.
- **IDENTIFYING** opportunities for quick wins and early results.
- **ENGAGING** people across the organization and asking them to do their part.
- **MEASURING** and tracking progress toward the energy-saving goal.
- **COMMUNICATING** and celebrating results often and with everyone.

To support program implementation, Class 5 Energy provides organizations with in-person training that walks a designated EEC through the steps and strategies needed to organize and direct the energy saving effort. Training is followed by ongoing program support provided by a Class 5 program consultant. An extensive library of customizable templates and materials that support each step is available through Class 5's Members-Only website. Organizations are given printed and electronic materials (posters, tip sheets, bookmarks, e-tips, e-cards, light switch stickers, etc.) to support employee education, engagement and recognition.

Every aspect of the program supports the change process. Sometimes the connection is readily apparent, sometimes it's more subtle. But as people are implementing the program, the process is at work in the organization, creating both immediate and sustainable changes.

Adapting the Program for Cities

Class 5's decision to adapt, implement and evaluate a behavior-based energy efficiency program in a municipal setting was an intentional choice that offered both opportunities and challenges. Class 5's goal was to develop methodology and measurement matrices for a successful city-wide energy efficiency improvement effort that could be deployed in any city, with any utility, resulting in broad participation and significant and sustainable energy savings. Key issues to be explored in the pilot included:

- Understanding the financial opportunities and constraints for implementing and maintaining an ongoing city-wide energy efficiency improvement program.
- Determining how energy efficiency can support a city's overall goals and objectives.
- Understanding what a city gains by serving as a leader for a community-wide energy efficiency improvement process.
- Understanding the buy-in process with city leaders and administrators.
- Understanding the structure and dynamics between a city and its constituents to help determine the organizational barriers to engaging the community in an energy efficiency improvement process.
- Understanding how schools integrate into a larger effort and what influence their involvement and leadership has for broader participation.
- Determining which Class 5 behavioral and operations strategies are appropriate for each business sector and how they should be implemented and measured.
- Determining how employees in a government, commercial or residential setting can be called into action on a long-term basis to save energy though their daily behavior.
- Understanding the impact of behavior on energy savings in various market sectors.
- Determining sector and participant metrics for measuring and reporting results.
- Determining if this approach could set the stage for increased collaboration among community members, other communities, other utilities, and other funding sources.

Implementing Class 5 Workplace and SEE across a community would allow for identification of sector-specific operational realities that may affect baseline assumptions and savings outcomes. It would also result in measureable verification of program success and allow for quicker, more reliable applicability/replicability of the process within other communities.

The decision to create and test a more Do-It-Yourself approach was also intentional. For many years with the SEE program, we have struggled to find a program pricing model in which schools could justify the upfront expense of an energy program during times of budget challenges. Most cities find themselves under similarly tight budget constraints. We hoped that by creating a detailed 10-step guide and packaging all the materials as an "energy program in a box" we could minimize program costs while still providing all the tools and resources needed for successful implementation.

Methodology

According to the U.S. Department of Energy, commercial buildings represent just under one-fifth of U.S. energy consumption, with office space, retail space, and educational facilities representing about half of commercial sector energy consumption.[7] The top three end uses in the commercial sector are space heating, lighting, and space cooling, which represent close to half of commercial site energy consumption. Energy Star states that the average commercial building wastes nearly 30% of its energy and that it's often possible to reduce energy use by 10 percent through low or no cost operational or behavioral strategies.[8] Through this grant-funded project, CLASS 5, Inc. hoped to develop a methodology and measurement matrices for successfully implementing a city-wide energy efficiency improvement effort in order to capture some of that potential savings. Project partners would include city administrators and the business serving the community.

The CLASS 5 Workplace program was created to provide the foundation, offering a proven plan for connecting occupant behavior, building operations and facility energy asset improvements for all buildings within a city (city facilities, schools, commercial, industrial and city-owned residential properties) to reduce energy use and costs. By testing and evaluating components of our Workplace program and our successful Schools for Energy Efficiency (SEE) program across a community, our goal was to further refine the program for immediate and successful deployment in any city, resulting in significant and sustainable energy savings.

Our initial plan was the implement the Workplace program for the full three-year period with one city partner and their surrounding business. We planned a two-phase approach with Phase I focusing on the nine city-owned buildings in the City of White Bear Lake. Phase II involved rolling out the program to nine businesses in the surrounding community. During this second phase, we came to the conclusion that expanding the program beyond just one city would provide a great deal more valuable information and insights. We worked with the Division of Energy Resources to shift some of the funding toward a third phase, which included adding three more cities of varying sizes and locations. We took our learnings from Phases I and II and applied them in these new cities, allowing us to further refine the program to meet our initial project goals.

Throughout all phases of the pilot, organizations' electric and gas usage were tracked in Class 5's proprietary utility tracking software. Results were measured against each organization's unique energy baseline and quarterly reports were presented in person by Class 5's Director of measurement and verification (M&V) to each organization to monitor progress and cost savings. Energy saving results for each participant can be found throughout this report. In addition to simply tracking the numbers, a Class 5 program consultant had bi-weekly or monthly meetings or phone calls with each program participant. The intent of these meetings was to evaluate ongoing efforts and provide guidance for any challenges the participants were facing.

At the end of each phase, we conducted exit interviews with each participant. In conjunction with analyzing their energy savings percentages, we felt it was important to document any changes in people's attitudes and habits related to energy. In order to compare participants' answers from all three phases, we created a single exit interview that we used with all participants. Findings from these interviews can be found in the Results section of this report.

Engagement and Energy Savings Results

Phase I: White Bear Lake, March 2012 – August 2014

The pilot officially began in March of 2012 with an agreement signed by the City of White Bear Lake to partner with Class 5 Energy and implement the program in eight city-owned buildings:

- City Hall – 21,000 square feet
- Public Safety Building (includes police and fire station) -- 28,300 square feet
- Sports Center – 36,000 square feet
- The Armory – 17,640 square feet
- Pioneer Manor (senior housing) – 36,000 square feet
- South Fire Station – 16,000 square feet
- Water Treatment Plant – 14,000 square feet
- Public Works Building – 56,000 square feet

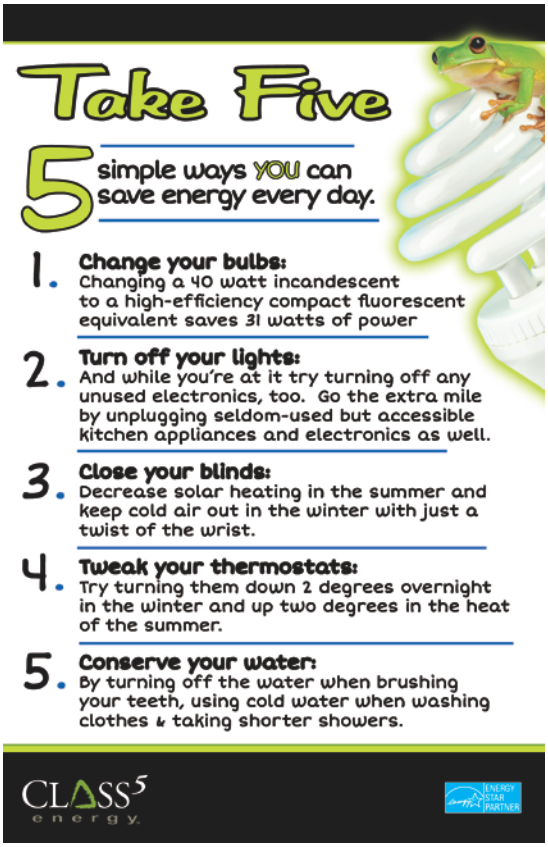
Two Class 5 program consultants conducted training with the assistant city manager and energy efficiency coordinator (EEC) to walk through the contents of the "energy program in a box" which included:

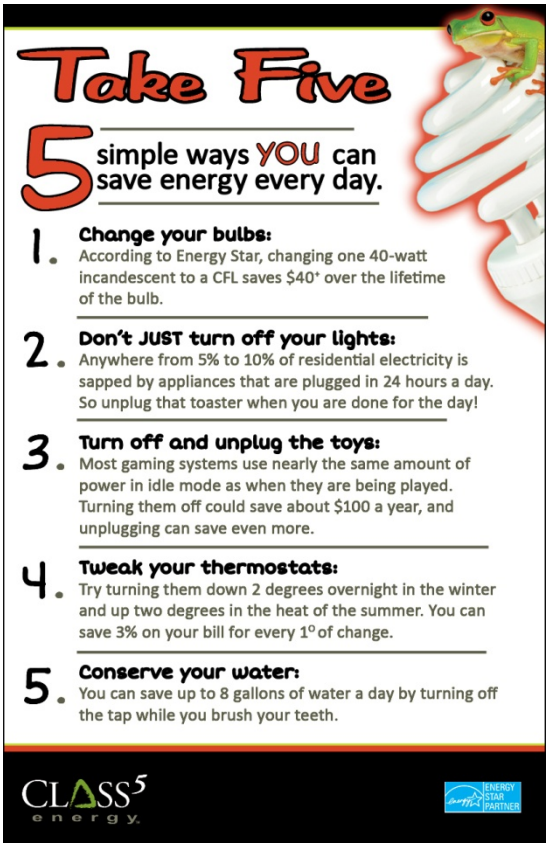
- A detailed 10-step guide describing all the tasks, strategies and resources needed to implement the Class 5 Plan for Cities.
- 10 full-color awareness posters with energy savings tips
- A tip sheet for each employee to hang at their workstation
- A framed statement of commitment as well as a window cling highlighting the organization's commitment to reducing energy use and costs
- Thank you notes to use as part of a recognition program
- Four laminated progress posters to fill in as energy savings increased
- Shut it off stickers to be used on monitors, light switches, printers, computers, etc.
- A DVD designed to inspire employees to participate in the plan and also outlined the 10 steps they would be asked to complete as an organization
- Login information to Class 5's Members Only website, which housed communications templates as well as electronic copies of all the education and awareness materials.

Step 1 in the program was all about connecting with key leaders and departments across the city. These leaders included administration, engineering, public safety, IT, and communications, etc. The week after the training, the assistant city manager presented an overview of the program at a City Council meeting, and also presented at a staff/department meeting for all 12 city department managers.

Step 2 focused on setting up the energy baseline and beginning staff engagement efforts. Each site received education and awareness materials which were hung or displayed throughout the building. Class 5 materials were designed to be used in commercial office settings so time was spent reviewing materials and strategies for buildings that were new to us, including the Fire Station and Pioneer Manor Senior Apartments. New "Take 5" tip sheets were developed with those audiences in mind (Figure 5) and the EEC planned an "Energy Day" for residents of Pioneer Manor to help engage them with the energy conservation effort.

Figure 5: Examples of Take 5 Tip Sheets





In terms of communications, the EEC worked with each participating building to hang the education and awareness posters provided by Class 5. She also added a web page – www.greenlivingwbl.org -- to their city site on which they posted tips and strategies, and eventually results. In addition she launched a monthly email newsletter (with paper copies distributed on bulletin boards and in bathroom stalls) with messages from the program's core communication emails. She also sent out a brief weekly "green update" focused primarily on energy facts, statistics and tips. The city did express some hesitation about hanging materials that included a private company's logo. They were concerned that it would appear that they were somehow endorsing one private company over another and they felt strongly that as a public entity their job was to remain neutral when it came to supporting businesses. In the end they decided to go ahead and hang the materials with the caveat that in a different situation the presence of a company's logo might be a deal breaker for them.

The EEC also took the first step toward setting up the city's energy baseline by gathering energy bills for the past 13 months. She then forwarded those bills to Class 5's Director of M&V, who reviewed them for any anomalies or errors.

Step 3 asked the EEC and city engineer to conduct building walkthroughs to help familiarize themselves with the building layout, energy use, staffing and operating hours. This building-level information was also needed to complete baseline set up for each of the buildings. This activity took place during summer 2011.

Step 4 in the plan asked the city to create an Energy Steering Committee, made up of people from key departments. The City of White Bear Lake decided that forming a new committee focused on energy would not be well received by busy department heads. So instead, the Assistant City Manager decided to add energy as a standing topic on the monthly department manager's meeting.

Step 5 was focused on creating an ongoing utility tracking process. In White Bear Lake, a city employee from accounts payable was trained to enter utility bill data into the Class 5 utility tracking software. Each month she would input the bills, and then Class 5's Director of M&V would review for accuracy and eventually use the data to compile quarterly reports by building highlighting energy use and costs.

Each step in the Class 5 Plan includes suggestions for maintaining staff engagement. The city's EEC developed a number of successful strategies and activities that took place during the 27-month pilot:

- Soup & Sustainability lunches, held at City Hall and attended by the majority of employees in the building
- "I'm Here but I'm Conserving Energy" signs which employees could hang on their doors when they wanted people to know they hadn't left for the day but were choosing to dim or turn out their overhead lights. This strategy came from a city employee through the staff suggestion box
- Trading out old, inefficient space heaters with ones that were safer and more energy efficient
- A staff suggestion box that garnered at least one suggestion from every city department
- Citywide computer sleep settings

Steps 6, 7 and 8 focused on operational strategies, including creating Energy Guidelines and reviewing Class 5's Operational Strategies Checklist. These steps proved to be extremely challenging for the EEC. From the start, a high-level city employee was skeptical about the program. His skepticism moved into more active resistance as the pilot went on. Although we have experienced this reaction from key leaders in the past, generally we are able to overcome any feelings of defensiveness or skepticism once they better understand the goals and activities in the program. However, that was not the case in White Bear Lake. As a result of this push back, we were unable to explore any technical strategies, including night temperature set backs, delamping, and even IT strategies. He also resisted all attempts to formalize a city-wide energy management policy.

Because the EEC had no authority over this individual, she was ultimately not able to move forward with any of these technical strategies. The Assistant City Manager was not willing to intervene so a number of key strategies remained untested and unimplemented.

Step 9 was designed to introduce additional education, awareness and engagement strategies. In White Bear Lake, the initial enthusiasm for employee education and engagement seemed to wane over time. When we checked in with the EEC, we would be told that she had been too busy with other city business to send out the monthly communication or change out the posters. Class 5 continued to send ideas and suggestions for activities including a plug load audit, instructions for energy-related online games shows for employees, lunch 'n learn topics

and numerous themed communications. We would rarely receive a response and when we did, it was the message that the EEC was busy "putting out fires" that were a higher priority than the energy pilot. In the end, the EEC was most consistent about sending out email communications to staff with energy saving facts and tips.

Step 10 was focused on recognition and planning for next steps beyond the pilot. The EEC did organize a "Sweet 16" party to celebrate a 16% energy reduction in City Hall in the second quarter. Other than that, there was no formal recognition program created or any other activities to recognize either individual or building-level efforts to reduce energy use and costs.

Phase II: White Bear Lake Area Businesses, January 2013 – August 2014

The goal with Phase II was to extend the work we were doing in city-owned offices into organizations located in the White Bear Lake area. Originally we had thought the city might be interested in promoting the opportunity to participate in the pilot as a way to connect with their business community. However, as we discussed it further, there was no future scenario in which the city would invite its businesses to buy into a program like this. The city is very sensitive about "endorsing" a product or program because it may seem like they are playing favorites or that they have an agenda and the city wants to always be seen as a neutral ally.

White Bear's assistant city manager suggested that we create a partnership with the White Bear Lake Chamber of Commerce to identify local businesses that would be a good fit for the pilot. In April of 2013, we drafted a letter to be sent from the Chamber's executive director inviting members to participate. We received a terrific response and eventually culled the list to 25 chamber members to attend an informational meeting, hosted by us and the Chamber.

Based on the feedback from the city, we felt it was important to be clear on what we were asking the business to do:

- Identify one employee to coordinate the effort with us
- Agree to participate for one year
- Agree to provide feedback on the pilot implementation strategies
- Recognize that this is a pilot with no guaranteed outcome but a chance to learn how to be more energy efficient together!

Within a few weeks of the meeting, we had finalized our roster of participants, which is shown in Table 1.

Each participating organization received the same start-up training as in the WBL city buildings to walk through the "energy program in a box," including the 10-step guide, printed materials, and login information to the Class 5 Members Only website, which hosted all the education and communication templates.

From there, the similarities ended! Despite the fact that each organization was given the same 10 steps to follow, the differences in approach, staffing and commitment varied significantly. By the end of the pilot year, only four of the organizations – St. Pius, White Bear Country Inn, Press Publications and Century College -- were still implementing the pilot. What follows is a brief synopsis of how each organization chose to follow Class 5's 10-step plan.

Table 1: Phase II Participant Businesses

Site	Space Usage	Total Ft²	Completed Pilot
St. Pius X Catholic School	Classrooms, offices	28,000	Yes
White Bear Country Inn & Suites	Motel rooms, lobby, offices, pool, laundry	85,000	Yes
Holiday Inn Express & Suites	Motel rooms, lobby, offices, laundry	84,450	No
Press Publications	Office space, storage space, lunchroom	6,300	Yes
White Bear Montessori	Classrooms, offices	20,000	No
Century College	Classrooms, kitchens, offices	400,000	Yes
Heights Plaza Office Complex	Office condos	27,000	No
Taymark	Offices, distribution facility	238,000	No
HealthEast Vadnais Heights Clinic	Waiting room, patient rooms, break room, offices	10,120	No

St. Pius X Catholic School

At the start of the program, St. Pius reached out to a parent volunteer to take on the role of EEC. She agreed to spend 1-2 hours each week organizing the program. The principal kicked off the program during an all-staff meeting, then followed up with individual teachers. The EEC gathered all the utility bills to set up the energy baseline. She also began sending out communications to teachers, staff and parents about the program.

About four months into the program, the middle school leadership team traveled to each middle school classroom to put on a skit about saving energy at school/home. The students loved it! This idea came directly from one of the middle school teachers. This same group of teachers also organized a group of students to conduct light level readings through the buildings, which allowed the custodians to proceed with a delamping initiative.

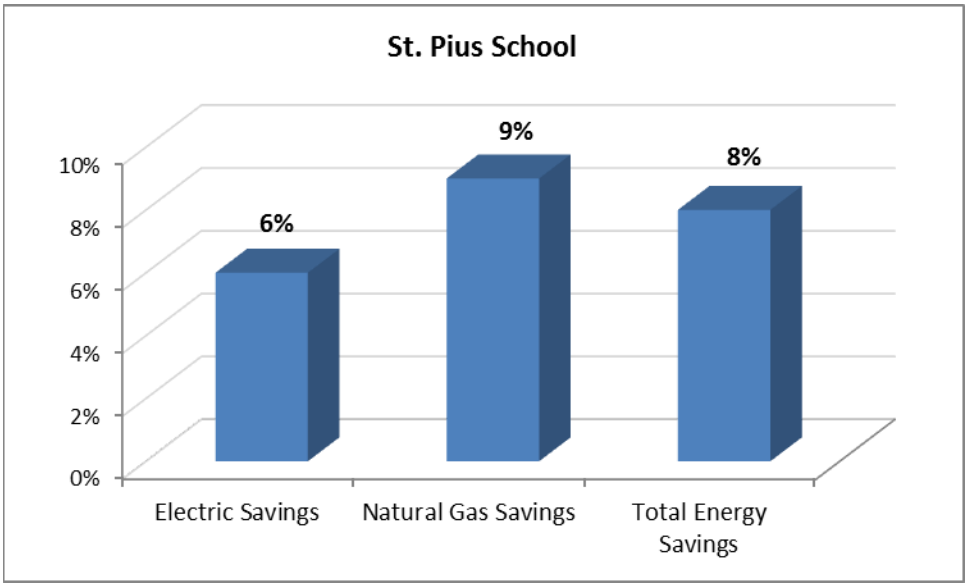
Staff and student engagement was also a priority. One student project was to create light-switch signs. The K-3 students each made a frame for the light switches which had "turn me off" messages on them; the frames were placed in every classroom. Six months into the program, St. Pius held an all-school assembly at which energy savings achieved, goals and next steps were announced and celebrated. For the time period of January 1, 2013 – May 31, 2013, St. Pius reduced overall energy use by 14%, correlating to a cost avoidance of $4,721.

During the summer months, St. Pius' lead building operator used Class 5's operational strategies checklist to perform a comprehensive review of systems and equipment. The school's boiler is very old and maintained by an outside vendor. However, the lead building operator

worked with the vendor to establish set points at 68 degrees and do a 10-degree night set back. Also, messages about the pilot progress and/or energy saving tips were included in the school's monthly newsletter to teachers, staff and parents.

In the fall it was announced that St. Pius would be closing and merging with another Catholic School in White Bear Lake. Not surprisingly, this announcement led to a great deal of unexpected work and stress for the majority of the school's teachers and staff. Although St. Pius continued to send out energy-related communications, other pilot-related activities slowed down considerably. At the end of the pilot, St. Pius was very pleased at the results they achieved but also aware that they could have done more if the merger had not been looming. Electric, natural gas and total energy savings for St. Pius for the entire pilot period are shown in Figure 6.

Figure 6: Savings Achieved at St. Pius School



White Bear Country Inn and Suites

At the start it was decided that two members of the hotel's senior staff would share the responsibility of being the EEC. Staff made it very clear that the comfort of the guests HAD to be the top priority; saving energy could not come at the expense of the guests. So the focus of the program would be "behind the scenes" in break rooms, offices and staff areas. Reducing demand would also be a priority for the hotel. The hotel already had an energy committee that met quarterly so that group would participate in reviewing results and determining which strategies would be acceptable to test.

After completing a light level study, the energy committee approved a comprehensive lighting retrofit and delamping project. The goal was to have 100% of bulbs be LED or CFL. There was initial concern that guests might steal the LEDs out of their rooms so they conducted a test in a block of rooms and no light bulbs were taken.

Unfortunately, four months into the pilot a main pipe burst, damaging roughly two-thirds of the hotel, rooms, banquet and public space so the hotel went into full-scale recovery and repair

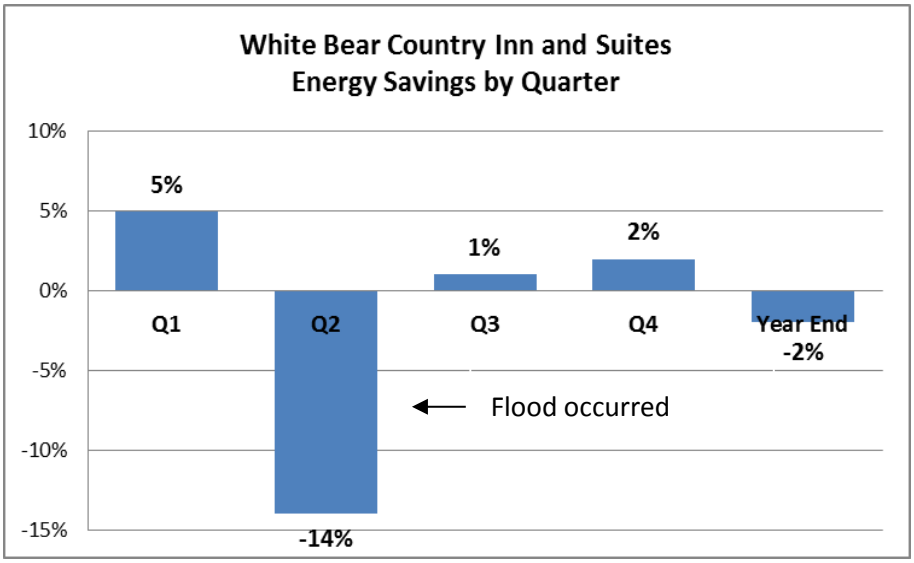
mode. Not only did that mean that energy conservation strategies were put on hold, but the equipment needed to dry and fix the hotel caused a significant increase in energy over the base year. Also the room regulation system was unplugged during construction, which meant the automatic setbacks and shut downs of heat/AC in individual rooms was not happening.

Pilot activity resumed in the spring with a focus on kitchen equipment in the restaurant, a pool and hot tub temperature review, and a switch to ozone laundry, which is all natural. Ozone saves energy on water hearting because it works in cool-warm water rather than hot water. They also translated some of the energy communications into Spanish and posted them in the break room, since a high number of their employees speak Spanish as their first language.

Also about this time, one of the two senior staff members took a job elsewhere. This left the remaining staff member will more on his plate and less time to focus on the pilot. A replacement was not hired for nearly two months and once she started, she indicated that she was not ready to take on the pilot responsibilities right away.

Overall, the hotel staff was pleased with the savings achieved during difficult circumstances. Figure 7 summarizes the results by quarter for White Bear Country Inn and Suite. Savings ranged from -14% to 5%. The -14% occurred during the second quarter when repairs to hotel resulting from the burst pipe were being completed.

Figure 7: Savings Achieved at White Bear Country Inn and Suites



Holiday Inn Express & Suites

Success at the Holiday Inn proved challenging from the start. The hotel is part of the larger Holiday Inn franchise so although the local manager was very eager to participate in the pilot, she ran into roadblocks almost immediately when she learned she had to get permission from corporate. As part of that process, she was asked to put together a list of potential activities that might be included in the pilot. Her list was terrific:

- Meeting with the manager of each of the hotel's departments to introduce them to the pilot and solicit their support and input on possible strategies.

- Incorporating energy saving into their current employee recognition plan. Employees can earn rewards when they are caught doing something "good" – saving energy will be a new reward category.
- Working with the housekeeping staff to make sure lights are all off when a room is done being cleaned and turning off heat/air when the windows are open.
- Asking front desk staff to do "walk arounds" to shut off lights, televisions, etc. in the break area, breakfast area, pool area, and bathrooms.
- Increasing coordination between housekeeping staff and maintenance staff around things like leaky faucets or faulty thermostats. Housekeeping will let maintenance know right away and maintenance will prioritize energy efficiency related requests when possible.
- Creating a guest awareness table tent with recycling information on one side and lighting/energy saving tips on the other. The tent would be placed in every room and in the common areas, including on the breakfast tables in the lobby.

Unfortunately, approval from corporate to participate took several months. And shortly after that, the local manager left her job. The new general manager was not interested in participating in the pilot.

Press Publications

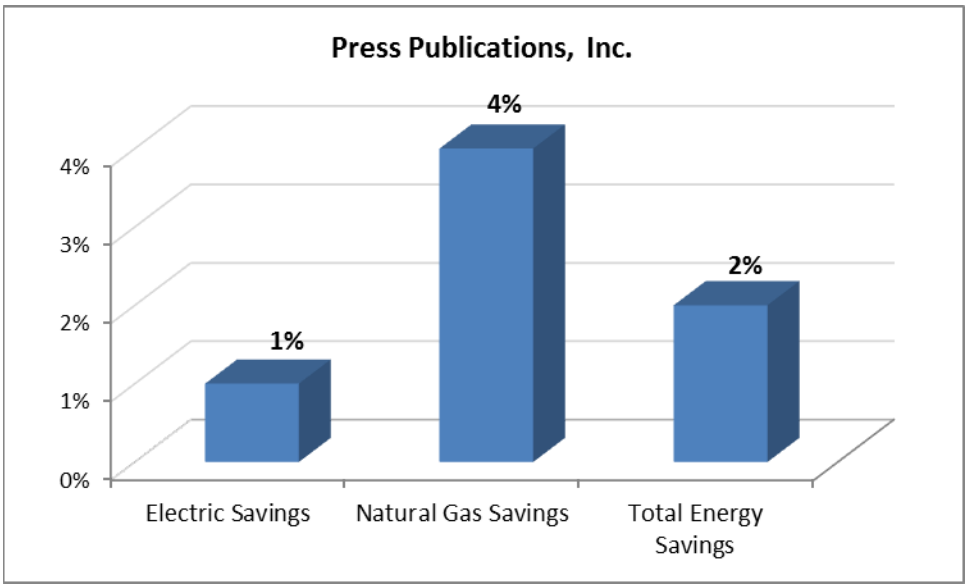
The owner of Press Publications was our primary contact and also the person designated to lead the charge at the organization. He himself had set a goal a few years prior to reduce energy by 20% and at that time had asked employees to turn off their computers at night, had added a timer to the coffee pots and had turned down the water heater. But he hadn't been tracking his utility bills so he had no idea how much of a decrease he achieved or where things stood today. He also made two things clear: 1) that his organization spends so little on energy ($8,600 per year) that saving 10% isn't a motivator for him; and 2) that participating in the pilot can't hinder sales or productivity. Both of these comments raised flags with us but he assured us that he wanted to be part of the community effort.

From the start we identified a few areas of focus: lighting, the delivery garage, and plug load. The first order of business was to conduct a light level study to see if there were opportunities for delamping. The second was to learn more about the heating and cooling schedule of the large delivery garage – the owner said some days the temperature there was set as high as 80 degrees because the employees got cold when the door was open. Finally, we agreed to create an awareness campaign for employees to educate them on the small changes they could make to save energy without great inconvenience.

The light level study indicated several areas for possible delamping. However, no action was taken for the first six months, despite repeated offers of assistance from us. When they finally did start the delamping, they decided to do one section of the building at a time, and then evaluate employee response. Also, despite sending over monthly communications for employees focused on plug load and "at your desk" kinds of energy tips, no communications were ever sent to employees. They did, however, print their own signs which were hung near the thermostats asking people not to change the settings (including the thermostat in the garage area).

Overall, each time we talked to the owner he expressed enthusiasm and appreciation for the pilot; however, only a very few strategies were ever implemented. The results (Figure 8) indicate the lack of effort.

Figure 8: Savings Achieved at Press Publications



White Bear Montessori

We were very excited when White Bear Montessori agreed to participate in the pilot. For many years we have been asked to expand the education and awareness resources for our SEE program and we felt this was a great opportunity to learn more. Our program consultant started by holding a meeting with the Board of Directors, Facilities Director and Head of School to kick off the pilot. She also completed a building walkthrough and set up a communications schedule for the school year. The school utilizes a volunteer "building operator" (also a parent) who was very excited to get his hands on some tangible resources to help increase the building's energy efficiency. His first goal was to take a lighting inventory and outline a delamping approach.

In terms of staff engagement, we started by asking staff to evaluate the education and awareness campaign from our SEE program to determine their effectiveness for younger kids. Their initial feedback was that the posters were not effective or in some cases appropriate for younger students. We worked with our designer to test some different visuals and messages.

We also held two "talk sessions" with parents, teachers and staff to talk about our program and ask them for ideas for increasing energy efficiency at the school. The group expressed much appreciation for being asked and suggested a number of ideas that were discussed and reviewed by the school's board to see what was feasible.

While all these activities were extremely positive, we did run into a few unexpected roadblocks. Because there are strict standards as to what types of materials can be included in a licensed and accredited Montessori school, WB Montessori was not willing to put up any of the posters, stickers and awareness materials provided by Class 5. They said they were willing to put up

new materials that reflected the "Montessori Way;" however, it was too cost prohibitive to create a new set of materials for one participating organization.

Another challenge included operational strategies. Although the building operator was eager to make some changes, the building and equipment were extremely old and difficult to adjust, especially without additional technical input or assistance. Because Montessori schools don't utilize technology in the classrooms, there are not many opportunities for reducing plug loads.

Overall the situation was frustrating for all – as an organization, White Bear Montessori is incredibly supportive of the concept of energy conservation. Practically speaking, however, the actual opportunities felt limited, which made it difficult to maintain momentum. As a result, no notable energy savings were achieved.

Century College

Century College identified the purchasing & auxiliary services supervisor – who also chairs the college's sustainability committee – as the EEC. One of the first requests was to create electronic posters and awareness materials for Century to post on their e-boards (monitors installed across the campus for student communications). Those display monitors were the only outreach to students; the majority of the pilot efforts focused on staff communications and education.

The communications campaign started with a message from the college president and was followed by monthly communications from the chair of the sustainability committee. The initial focus was computer power management. There were over 500 staff computers not currently on any power management system. The communications focused on the benefits of power management and a timeline for moving all computers onto a new system.

From an operational standpoint, the EEC met with the lead building operator and went through the comprehensive operational strategies checklist. They also filled out Class 5's Asset Planning Form with all the upcoming projects. The lead building operator had a lot of ideas for ways to increase energy efficiency – he was glad to have some administrative support to move forward on some of the low-cost projects he had identified previously.

By mid-Spring, a number of efforts were up and rolling:

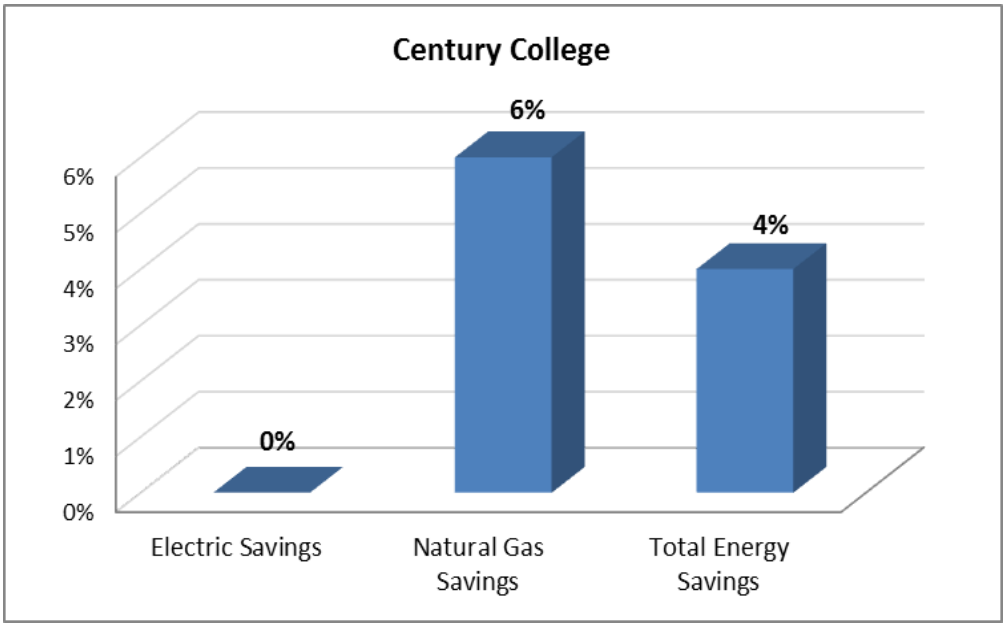
- The mall area of campus was retrofitted with lights that can be set to be turned on and off so that on sunny days the lights can be turned off.
- Shades at the bottom of windows in offices and classrooms were added. This was a great tool to avoid undue heat gains for rooms with floor to ceiling windows.
- Staff and management computers were set to be automatically turned off starting in May; student/classroom/lab computers were shut down starting March.
- The student sustainability group held a Recycle-Mania event that attracted a lot of students; the EEC had Class 5 bookmarks available for students to take.

One innovative idea from the building operator was a space heater/AC check out program. Beyond the cost of space heaters, many of the space heaters people bring in are old and not very safe. The building operator proposed to purchase several safe, energy efficient space heaters that staff could check out. By doing that, building operators know where all the space heaters

are and they know that they are both energy efficient and safe. Unfortunately, this initiative did not get administrative support.

By the end of the first year, the College reduced energy use by 4% overall and avoided more than $32,000 in energy costs (Figure 9).

Figure 9: Savings Achieved at Century College



Heights Plaza Office Complex

From the start, Heights Plaza Office Complex expressed that their primary interest in participating in the pilot was to establish a recycling program. Class 5 visited with each tenant individually to determine their interest in the recycling program and get their buy-in. The response was very positive! All expressed an interest and a willingness to participate – many were curious why recycling had never been a priority before. Class 5 started by getting bids from four different companies, including the one that currently provides waste removal for the office complex. We then crafted a letter and presented it to owners/board members highlighting the cost options and answered questions. Owners were given a week to review the information, then were asked to vote. The vote was unanimous and the switch from all garbage to garbage plus recycling began in December. Within six months, the amount of trash was reduced by half and the bill was also reduced by half!

There were a few issues with people throwing trash into the recycling so Class 5 sent a letter to all tenants reminding them to be conscientious. There were some sentiments that maybe people outside the office complex were throwing trash into the recycling.

These efforts were highlights on the Ramsey/Washington County recycling website (http://lesstrash.com/success-stories/heights-plaza).

Taymark

From the start we faced challenges with Taymark, a multi-brand direct marketing company. Despite expressing interest in participating, they stated that the fall was very busy for them and they couldn't really get started until November. In November we held the in-person training and met the Energy Team, which included the president, CFO, COO and their assistant. We went through the list of start-up tasks and all agreed they were excited to get started!

After trying to get a meeting with them repeatedly in December and January, we finally set a meeting for February to go through their energy baseline. We saw that awareness posters had been hung and energy saving tip sheets had been distributed to all staff. The Energy Team seemed very excited about the momentum.

Another six weeks went by before we could get another meeting with the Energy Team. We continued to send core communications as well as IT and staff engagement strategies to the Energy Team but rarely got a response. In April we were told that spring was a very busy time due to prom season. Then in May we learned that our primary contact had left the company and was not being replaced. After a few emails between us and the company CEO, we were told that Taymark would no longer be participating in the pilot.

HealthEast Vadnais Height Clinic

Early on the clinic manager was very excited to be participating in the pilot. The clinic had recently undergone some staff layoffs and cut backs and he felt that the energy conservation message was a positive way to make staff feel like they had a role in controlling future clinic costs. Also Healtheast was getting involved in the LEAN Management philosophy so he saw the pilot as a good tie-in with that.

We completed start-up training in November. Given that the holidays were coming up, we decided that we would do an all-staff kick off in January. The kick off included a "Lunch 'n Learn" focused on how to read a utility bill, energy "games," prizes for staff who knew answers to energy questions, etc. Staff seemed very excited about participating in the pilot.

Communications went out in February and March. In April when we tried to set up a baseline meeting, Class 5 got no response to our emails and calls. When we finally connected with them in May, we learned that both the clinic manager and the office manager had been laid off earlier in the month and the pilot had been cancelled.

Phase III: Elk River, Minnetonka, Northfield, Duluth, September 2014 – September 2015

The goal of Phase III was to incorporate what we had learned in the previous two phases to increase participation levels and success rates with pilot participants. Throughout both of the earlier phases of the pilot, we were challenged to maintain an ongoing, positive, forward-moving relationship with an organization's EEC. Our initial idea of providing start-up training along with detailed "kit" resulted in tasks remaining uncompleted and both Class 5 and the organizations feeling frustrated. What we found in both Phase I and Phase II was that in the

absence of a support system, tasks simply did not get accomplished and energy efficiency was not a priority.

In this third phase, we wanted to test a new coaching model in which the majority of Class 5's efforts are put toward providing proactive coaching and support for an organization's EEC. Corporate coaching is a proven and somewhat familiar method for behavior change in commercial organizations and we saw a great deal of similarities for our program.

To test our new model, we worked with the program director from Minnesota GreenStep Cities to send an invitation to participate in the pilot to individuals who had been designated as GreenStep Program Coordinators. After a rigorous application and interview process during summer 2014, Class 5 selected the cities of Duluth, Elk River, Northfield and Minnetonka as pilot partners. These four cities were chosen because they displayed the most commitment, excitement and willingness to test the new coaching model. We also feel that these four cities represent a varied sample including both large and small cities, as well as metropolitan and suburban/rural. At the start, each city took the necessary steps to obtain high-level approval (city council and/or city administrator) to participate in the pilot.

First Quarter

The first step was to conduct start-up training with the EECs from all four cities. This took place in September 2014, during which we walked through a 12-month plan of activities and deadlines. Also during the training we established a bi-weekly coaching call schedule with each of the EECs.

The approach with all four cities was the same: every other week, a Class 5 program consultant would spend time preparing materials and a to-do list that would be shared with the city's EEC. During the call the program consultant and the EEC would go through the lists of proposed activities as well as walk through the resources Class 5 could provide to assist with those activities. After the call, the program consultant would write an email to the EEC, reiterating the list of agreed upon activities and attaching any resources. If the EEC had questions during the two-week period between calls, they were always welcome to reach out to the program consultant. Each call would start by reviewing the to-do list and talking through any challenges that had arisen. Then it would move on to the tasks that needed to be accomplished during the next two-week period.

Key tasks during the first quarter of the pilot included having each EEC

- complete building walkthroughs,
- conduct interviews with key department managers,
- form an Energy Steering Committee,
- review/create Energy Guidelines,
- create a year-long communications plan, and
- hold one employee engagement event.

In the past, we've gotten feedback that starting up our program felt overwhelming given all the steps that needed to be taken. But because we had calls set up every two weeks, we were able to parse out the tasks into manageable, two-week chunks. The EECs had a clear sense of what to do first, second, third, etc. And we had a great system for keeping them on track and

documenting when activities were getting done (or not). All four cities maintained their bi-weekly calling schedule and all four cities accomplished all the tasks designated for the first quarter.

Second Quarter

At the start of the second quarter, we held out first Peer Exchange with all four EECs. The purpose of the event was to share updates on all the activities, successes and challenges to date, discuss winter engagement strategies and walk through eight new employee engagement modules we had created. Class 5 has successfully utilized Peer Exchanges in its SEE program and this model carried over well for cities.

The first half of the meeting revolved around conversation AMONG the EECs – sharing newsletters they had created or emails they had sent; talking about kick off events they had held and strategies for engaging with building operators. The second half of the meeting involved Class 5 presenting new ideas and resources available to the EECs. All four EECs ended the day by exchanging contact information with each other and resolving to continue the conversation/support group via email over the next several months.

During the second quarter, we began to see differences in the EECs' abilities to move the energy conservation effort forward. In Duluth, by far the largest and most political city, it was difficult to even get the Energy Steering Committee together. In Elk River, the EEC seemed to have no trouble pulling the group together. Again, the coaching model worked well in this situation. Because we were talking every two weeks, we could customize the task list based on the progress each city had made during the previous two weeks. It was also extremely helpful to be able to talk about what was happening in the different cities, so if one EEC was getting stuck, we could pull suggestions from one of the other cities.

The flexibility was also important because each community had unique buildings participating in the pilot. Sure, each community had a fire station (although some were staffed with volunteers and some with full-time paid employees). But one community had a fitness center, and another had two city-owned liquor stores. The coaching model allowed us to work with each city independently to identify their needs, and then spend our "follow-up" time tracking down education, information and strategies specific to that city.

March brought an unexpected turn when the EEC from Duluth abruptly quit her job. We followed up with her supervisor but were told they would not be able to continue the pilot.

The other three cities continued to move along at different paces. The EECs for Minnetonka and Elk River had more dedicated time to spend on the pilot and their activities and results showed that. Both Minnetonka and Elk River created energy related newsletters that they published monthly throughout the pilot. Copies of both cities' newsletters are shown in Figure 10 below.

Figure 10: Copies of Two City Newsletters Highlighting Energy Related Activities

Elk River developed a series of YouTube videos focusing on energy saving tips that were sent to all city employees.

- Spring Clean Up Day (https://www.youtube.com/watch?v=set5k6KN50s)
- Vampire Energy (https://www.youtube.com/watch?v=wyrrsgZiKxA)
- Operation Energy Tree (https://www.youtube.com/watch?v=gIa2HTHUKrU)

Minnetonka held a competition to have all employees participate in an online energy quiz provided by Class 5. Anyone who took the quiz was eligible to be part of a drawing for candy (because everyone loves candy!).

As part of the coaching model, Class 5 attended Energy Steering Committee meetings in all three remaining cities to go over energy baselines and first quarter results. The meetings were all well attended by key department heads and everyone was very interested in analyzing the energy use and costs associated with the different buildings within each city.

Third Quarter

During the third quarter, EECs were asked to create a year-long communications and activities plan. Class 5 provided them with templates. As part of the coaching calls, each EEC started to think about areas in which they really wanted to focus their energy efficiency efforts, including which buildings and activities to target. Our coaching model allows us to work with each city independently to identify the areas of highest potential, and then spend our "follow-up" time tracking down education, information and strategies specific to that city. And, once we have

created those resources, we can add them to our Program Consultant Library to have available for future city clients.

In May we held our second Peer Exchange, during which we asked for feedback on the coaching model and the pilot to date and also talked through strategies for how to keep the Energy Steering Committee engaged.

The feedback on the coaching model was very positive! A few highlights included:

- They liked receiving tip/articles by email each week and having a short conversation every other week to keep them on task. They liked the fact that they have a "partner" in the effort who is available to them every two weeks so they don't feel so isolated.
- No one felt like Class 5 was bugging them when we called. They were adamant that if they didn't have the call scheduled they would not be making as much progress.

Bi-weekly calls continued with Elk River and Minnetonka, although we missed a few with Northfield. The Northfield EEC shared that he was doing what he could but was also being pulled in a lot of other directions due to his other job duties. All three EECs recognized Earth Day with a special communication to staff, reminding them about the pilot and encouraging them to do what they could to save energy.

Fourth Quarter

By the fourth quarter, it began to feel like the program had been incorporated into the rhythm of each city. Each EEC was following their communications/activity plan and had fewer "new" things to do. Communications were going out regularly; both Elk River and Minnetonka had streamlined the amount of time it took to produce the monthly communication. Elk River and Minnetonka also found ways to connect the program with other previously existing programs in their respective cities – in Minnetonka it was connected to the city's Human Resources department and in Elk River it was connected to the city's Health and Wellness committee.

While the calls felt less urgent from our end, the EECs continued to say they appreciated the bi-monthly connection because it helps them keep energy conservation on their list of to-dos. Daily life gets busy and energy conservation remains a nice to do rather than a must do so this seems like a good way to help it from getting lost.

Class 5 attended a final Energy Steering Committee meeting in each city to go over the utility tracking results. And we held a third and final Peer Exchange in late September to evaluate the pilot experience and discuss possible next steps. Overall, all three EECs were extremely positive about participating in the pilot. One even said it "exceeded her expectations!" All three EECs expressed concern about the amount of time it took to maintain a high level of engagement (on average the EECs were spending 10 hours each month). They recommended looking into the GreenCorps program to see if cities could hire an intern for a year to coordinate the effort. All three said they would recommend the program to other cities, with the caveat that they would be very clear up front about the time commitment.

Figure 11: Savings Achieved in City of Elk River

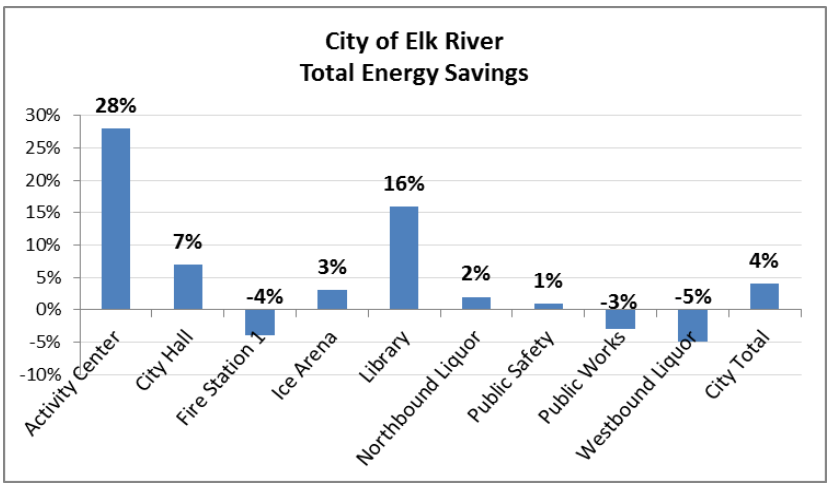


Figure 12: Savings Achieved in City of Minnetonka

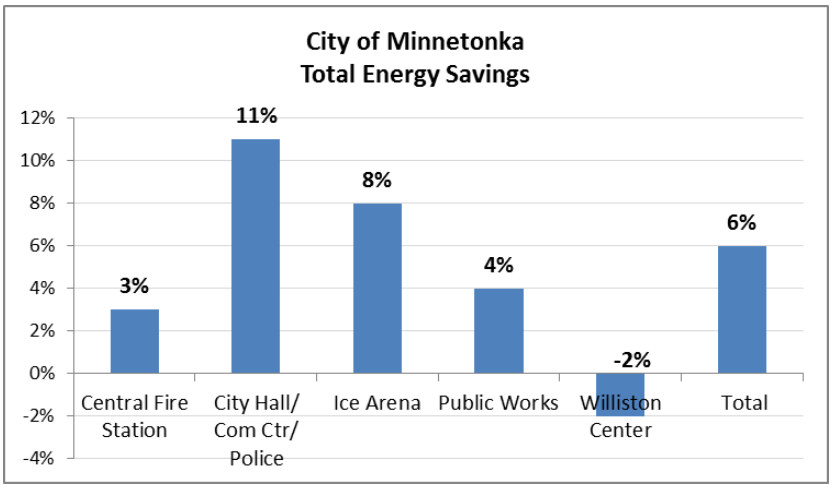
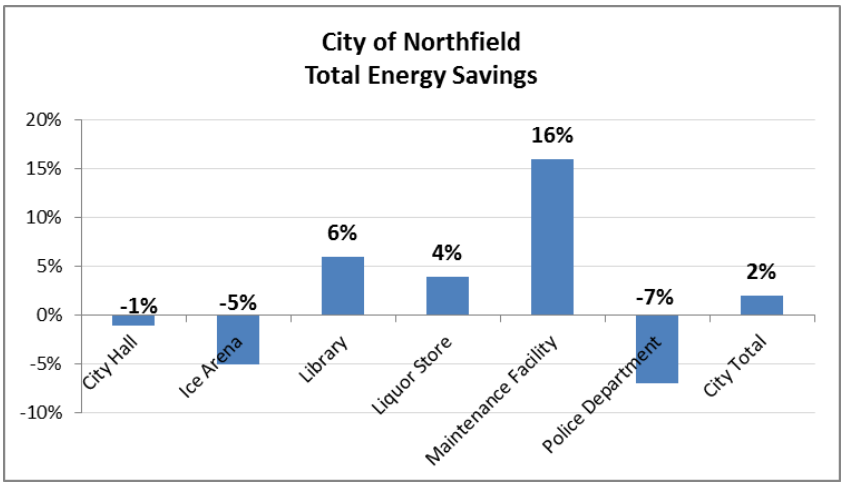


Figure 13: Savings Achieved in City of Northfield



Energy savings results for the three cities which remained active in Phase II, including each building in the project, are highlighted in Figure 11, Figure 12, and Figure 13.

Overall, the Class 5 Plan for Cities showed varying levels of success in terms of energy and cost savings. For the most part, higher savings correlated with higher levels of effort. In general, these results meetings generated great conversations among the group members and helped the EEC be able to identify and target energy saving actions where they were most needed.

Exit Interview Results

Because behavior-based energy programs are designed to change how people think and act when it comes to energy, we felt it was also important to document changes to people's attitudes and habits as a result of the pilot.

In order to compare participants' answers from all three phases, we created a single exit interview that we used with each participant at the end of their respective pilot period. What follows is a compilation of their answers:

Why did you choose to participate in the pilot?

- I saw an opportunity to participate in a project that allows us to work together and be partners with the parents and students and do something that would make a difference.
- We believe we can reduce our costs to our business and make a positive environmental impact, with minimal disruption.
- We wanted to lead by example and liked the opportunity to do something related to being more sustainable. The opportunity to save money was also a factor but was secondary to the bigger picture.
- I was curious about new methodologies and trends, specifically in behavior [around energy efficiency].
- We are always looking for way to be more energy efficient and to save money.

As a result of the pilot, are your employees more likely to engage in energy saving behavior?

- Yes! With the practices that we've taken on, even for me, I notice that if I'm going to be out of my room for 5 minutes I automatically hit the light switch, and the teachers have taken that on too. So little knee jerk reactions have kind of become part of how we operate around here.
- Yes, we have seen some practices change, such as turning out lights in offices and meeting rooms when not occupied.
- Yes! We are seeing light being turned off; the culture shift has been noticeable. In meetings, energy and conservation is being brought up and included as part of the conversation.
- Yes, I've seen behavior change.
- Yes – we tried to make employees aware of strategies that they could do at work that would also spill over to their private/home lives as well.

Has the pilot experience been positive? Does the program make sense for an organization like yours?

- I think it makes a lot of sense for schools like ours because having a smaller school and a smaller culture it's easier to make a shift in that culture. It was great to have the peer leadership team take on getting people excited about the program. And it gave us something to celebrate, which we did. And I can say it feels really good to be able to tell my boss we helped save $3,000!
- Our experience was positive. We did have a minor cultural change in attitudes toward taking small steps to save energy.
- In hindsight, we should have started only working with City Hall. Having all the other buildings was too hard and too overwhelming because they are all so different. City Hall has all the visibility to the community, so we could have done a lot more PR and outreach. It is also easier to change behavior [at City Hall] because it's mainly offices.
- I do think this program makes sense for small businesses like mine, but on a different scale. Energy is just not that big of an issue for us, so maybe focus on doing something as a team or just even doing the right thing for the environment. It really can't be about the cost savings for a business as small as mine.
- Culture change at a college is not so easy – people seemed to be supportive and on board until it started affecting THEM, which was frustrating. There is also a big difference between staff and faculty. Navigating those politics was sometimes hard. I do think a program like this makes sense for a college, though, since there are so many people on campus that care about sustainability.

As a result of the pilot, do you feel that your employees have a more positive attitude toward saving energy?

- Yes, in a small way.
- Yes.
- Yes. People are asking questions in managers' meetings and making suggestions about saving energy, such as putting automatic sensors in the bathrooms.
- Yes!
- There was not necessarily culture change – attitudes around sustainability have already been embraced around here.
- I hope so! I don't feel like there has been any pushback.

Describe any barriers to success that came up during the pilot.

- With shifting priorities and normal business cycles, it became difficult to maintain focus on this initiative.
- Not every department head was equally as excited about the program. The sustainability of the efforts isn't easy – it's a NICE thing to do, but you don't HAVE to do it so coordinating things was hard.
- The "energy program in a box" was intimidating. I wasn't sure about the time commitment and had some negative preconceived notions about what you would be expecting from us.
- People don't want to feel inconvenienced. At the end of the day, we often ran into people saying they didn't want to change the way they've always done something.
- Because we have mostly part-time employees it makes it really hard to reach everyone.
- Having adequate staff time to dedicate to a single initiative is always a challenge.
- Establishing a connection with facilities was a bit challenging in the beginning. We haven't had a lot of opportunities to work together before.

Is there anything else you would like to share?

- I'm glad we took this on! It's been a small program but it's been a gem here. It's one of those things that people find out we're doing and say, "that's really cool!" and that's important to schools – to show people we care about more than just teaching math and science. We are teaching kids to be stewards of the world that God gave us.
- It would have been nice to see leveled strategies (e.g., easy, medium, hard) and an analysis of what we will gain from each strategy.
- Having a dedicated person is key!
- Utility tracking was awesome. The reports were invaluable.
- The quarterly results meetings have been invaluable. We also loved the help in getting our B3 account up to date!
- Thank you! We always like to be part of community programs and really appreciate all you have done to make this a good experience for us.
- I was surprised by how many people embraced the program. I learned there are a lot of people who work here who really value energy conservation

Lessons Learned & Conclusions

One of the benefits of this pilot was the opportunity to test our program in such a wide variety of buildings and organizations. We learned that just as no two people are exactly alike, the same holds true for buildings and organizations. Their size, structure, employees, culture and mission are all unique, and contribute to "how things work" on a daily basis.

Also, the reasons organizations and businesses make a commitment to saving energy are unique: some are looking to reduce energy costs, other to decrease their carbon footprint. Still others are looking to showcase their commitment to sustainability or "go green." And then there are some that think they should be doing it just because others are. They don't want to be seen as wasteful.

These differences led us to an important conclusion: **that it is critical for an organization considering an energy program to have broad-based internal support for the program, including from senior leaders.** Management buy-in helps mobilize human and financial resources to support the effort, expedites coordination of working relationships and schedules across departments, and helps remove any institutional barriers to success. Departmental "feuds" or "rivalries" often exist within organizations. This was the case in White Bear Lake, where there was an underlying perception that funds had not been allocated evenly among the departments. These prior beliefs made it more difficult to unite the departments around a common goal (in this case to be more energy efficient).

A second learning: The reason(s) why an organization chooses to implement a behavior-based energy program often influence the resources dedicated to the effort, as well as the priority placed on achieving certain results. In our work with K-12 schools in the SEE program, reducing energy costs was one of the few ways a district could positively impact its overall budget; energy is the second largest expense after salaries[9]. In the organizations and buildings in this pilot, energy was a much smaller percentage of the overall budget, so reducing energy costs across city-owned buildings did not have the same impact as reducing energy costs across a school district. The overall energy spend was much lower, so it was more challenging to use the energy and dollar savings as a motivating factor for employees.

Also, city and commercial employees seem less personally committed to the overall well being of the organization for which they work as compared to school district employees. The feedback we got from the EECs was that the majority of people in an organization feel their only obligation is to do the job they were hired to do. Many are ambivalent about reducing energy use and costs for the organization as they don't necessarily see a correlating personal benefit. This is certainly not the case with every person or every organization but it is a prevailing attitude that deserves note.

The issue of employee turnover – and employees being overcommitted – is also an important lesson for us. We experienced more turnover in EECs during the three years of this pilot than we have in the 12 years we have been working with K-12 schools using the SEE program. Training an EEC and helping him or her feel confident about what needs to be done and what resources are available to do it takes time. If an organization has only committed to a year or even two of an energy program, it can be challenging to get a new EEC up to speed while still maintaining program momentum.

Our most significant learning with this pilot was that in the absence of an ongoing external support system, program tasks did not get accomplished and energy efficiency was not a priority. Our hope with creating a "Do-It-Yourself" approach was to minimize costs and make the program more accessible for organizations of all sizes and budgets. We believe that the coaching model we developed through this pilot provides a solution to both issues.

A coaching model allows us to offer the program at a lower cost than we have in the past (when we provided onsite/in-person support). And, if a situation arises where an EEC leaves before the end of the program, we have the program information packaged in "modules" that are easier for us to present quickly and easier for the EEC to digest.

In addition, we saw – and heard from the EECs – that having a regularly scheduled coaching call every two weeks resulted in more consistent, complete and proactive implementation of the program. We also were able to maintain more consistent documentation of what activities were taking place, allowing us to overlay the narrative with the energy use and cost results, which strengthened our ability to "share the story" with employees across the organization. This feedback loop – "these actions were taken, leading to these results" – is a key factor in helping people see themselves as integral to the energy saving effort.

On a final positive note, all pilot participants expressed appreciation for learning how much energy their buildings were using and to use the data to identify areas of opportunity for energy savings. The city participants in particular appreciated our assistance in updating their Minnesota B3 Benchmarking data (a state requirement that many were ignoring prior to the pilot) and in teaching them how to use the data to make decisions that affected the city. We have always stressed that measurement is a critical component to a successful behavior-based energy program and the feedback we received in this pilot proved that point once again.

Recommendations

This pilot – combined with CLASS 5's experience over the past 13 years in K-12 education, commercial offices and a healthcare setting -- has demonstrated that organizations interested in saving energy and money without significant capital investment can do so. The steps, strategies and activities in Class 5's behavior-based energy programs do, in fact, generate energy savings by engaging people and inspiring changes in attitudes, behaviors and decision-making.

However, our ongoing experience and the results of this pilot have led us to conclude that there are several factors that will positively contribute to the success of a behavior-based energy program in a city. Those include:

- **Starting with city-owned buildings that have predictable patterns of use and a core group of employees**. One of the reasons Class 5 has had so much success in the K-12 market is that generally speaking, all school buildings are very similar in terms of design, occupancy and activities. They all have classroom, offices, lunchrooms, media rooms and gyms. The same types of activities takes place in those rooms day in and day out. The consistency of activities and occupancy makes it easy to implement behavior changes that can be repeated by large groups of people over time. These changes are what lead to notable reductions in energy use and costs.

  In every city there are buildings in which groups of employees gather each day to conduct the city's business: city hall, public safety, a library, public works, a community center, etc. These are the buildings in which to start a behavior-based energy program. Engage the core group of employees, introduce some new energy-saving habits, show some results, and then use that momentum to broaden the scope of your efforts.

  Can you save energy in a fire station? Of course you can. But the truth is that a fire station's energy use depends far more on the number of calls it receives than the number of times the light switch is turned off. If your city has a limited number of resources to dedicate to implementing an energy program, focus on those buildings where you will have the greatest impact, then expand from there.

  Also, as a general rule of thumb, the larger a building is and the more employees it houses, the greater opportunity it offers for reducing energy use and costs. Based on our experiences in this pilot and over the past 12 years, Class 5 has seen the most consistent success in buildings that are *at least* 25,000 square feet or larger or that spend approximately $50,000 in gas and electric combined each year.

- **Gathering the key leaders around the table early and often to maintain support and involvement.** Social norms are the implicit social rules that govern people's behavior within an organization. Norms are not established by formal decree; instead, they develop over time as people go about their daily behaviors, sense people's reactions to those behaviors, and observe what other people are doing. Most people look for "social proof" in two key areas – they look "up" to see what organizational leaders are doing and they look "across" to see what their peers are doing. Achieving energy savings through people requires more than just asking people to turn off the lights. It requires establishing new social norms around energy. This starts at the top, with managers and senior leaders vocally supporting the energy saving effort. Securing broad-based

internal support also helps to avoid a situation in which one manager or city leader can slow down the efforts of the whole group, which occurred in White Bear Lake.

There is no expectation that 100 percent of city leaders will be on board 100 percent of the time; however, by meeting with the leadership group early and often, you can answer questions and address concerns while also setting up a process by which to address future questions and concerns.

- **Giving the EEC adequate time and support to focus on the program**. There is no such thing as an effort that implements itself. The program's success will be only as good as the amount of time dedicated to shepherding it. We know the steps and strategies work – but they do require a consistent, persistent champion who has time each week to dedicate to the effort. Our experience before and during this pilot indicate that an EEC should spend at least one hour per building per week implementing the program. Some weeks will require more time, some will require less. But consistently setting aside that time is the only way to keep energy efficiency a priority and to keep the program moving forward.
- **Connecting the energy efficiency program with current city-wide initiatives or goals.** Historically, and during the first two phases of this pilot, Class 5's behavior-based energy programs have been implemented as stand-alone initiatives. Reducing energy use and costs were the singular focus and goal. One of the challenges with this approach is that as other initiatives get introduced, people get pulled in new and different directions, making it difficult to maintain consistent momentum around energy.

  In Phase III of this pilot, we tried a different approach. We began by reaching out to cities through their involvement in the Minnesota GreenStep Cities program. By doing so, we reached potential EECs who had already been charged with helping their city achieve greater energy efficiency. From the start, the dedication of these EECs to our program was markedly different than we had seen earlier in the pilot. Because the cities had already made a public commitment to improving energy efficiency by joining the GreenStep Cities program -- and because the EECs already had their manager's "permission" to spend time on energy efficiency – the amount of time dedicated to our program greatly exceeded what we experienced in Phases I and II.

  As the pilot went on, two cities -- Elk River and Minnetonka – took this one step further, connecting the energy efficiency program to other longstanding city-wide initiatives In Elk River, the EEC connected with the city's Health and Wellness Committee to share activities, articles and ideas (and connecting the dots for employees between their own health and wellness and the health of the buildings and the environment). In Minnetonka the EEC worked closely with the Human Resources department to include energy conservation in with the employee rewards program. By doing this, the EECs helped to ensure the long-term viability of the effort while also maximizing their individual time commitment.

Cities have to make hard decisions on investments, so it's important for them to understand where the opportunities are, what measures offer the greatest potential for energy efficiency improvement, which buildings to prioritize and what the implementation challenges are. CLASS 5 is aware that the difficulties of measuring and quantifying the (sometimes intangible) costs and benefits of energy behavior programs are one of the main reasons such programs have

been slow to catch on in the marketplace. How do you calculate labor costs, such as time spent by key members of the Energy Steering Committee, upper management involvement in organization-wide events, and employees' time allocated to program activities? On the same token, how do you calculate the value of creating a "greener image" with your customers and stakeholders, improving employee pride and morale, and creating a culture of energy conservation that could last for decades? A behavior-based energy efficiency program can offer a practical solution to budget-constrained cities to achieve their energy goals without sacrificing their development priorities.

This successful pilot, funded by the state of Minnesota and monitored by state energy professionals, offers evidence that behavior-based energy savings are both legitimate and quantifiable. As municipalities and commercial organizations continue to seek ways to manage their operating costs, the payoff for including people in the energy efficiency equation is too great to ignore. However, we recognize that in order for behavioral energy efficiency program to succeed long-term, organizations have to stick with it. That persistence can be a challenge in the face of ongoing business issues including management and employee turnover and market conditions.

Research on behavior management indicates that incentives help foster desired behaviors, if used correctly. Utility involvement could increase persistence and provide validation of the effort through recognition opportunities and/or financial incentives that increase the likelihood of ongoing participation.

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