Businesses Save Big through Buffalo’s Commercial Energy Efficiency Pilot Project

Written by Julia Eagles • August 2012

Buffalo Public Utilities Director Joe Steffel was looking for a way to engage small businesses in his community by helping them to take advantage of energy-saving opportunities. “I knew that there was no substitute for knowledge,” said Steffel, “and using that knowledge to get people to act.”

With this mindset, he developed the Buffalo Commercial Building Energy Conservation and Benchmarking Pilot Program, a project designed to help commercial customers increase their knowledge about energy conservation and cut energy use by 20%.

Steffel set a goal of having 25 local businesses commit to evaluating their energy consumption and agree to an energy audit of their properties, which would provide recommendations for ways to save. As a result, he hoped to develop expertise in commercial energy efficiency among local business owners, who would then serve as leaders to promote further energy savings in the community.

To pay for the energy audits, the City of Buffalo used funding from a $50,000 Energy Efficiency and Conservation Block Grant (EECBG) from the Minnesota Department of Commerce through the American Recovery and Reinvestment Act of 2009 (ARRA). Buffalo Municipal Utilities also helped by connecting business owners with existing rebates and incentives that could fund improvements recommended in the audits.

Steffel launched the program in the summer of 2010 by organizing an energy conservation roundtable at a local golf course. Panelists included representatives from the MN Department of Commerce Division of Energy Resources, the MN Municipal Utilities Association, the MN Chamber of Commerce Energy Smart program, and the Clean Energy Resource Teams.

As a result of the event, 20 businesses signed up to participate, and word continued to spread. “All of the sudden, I started getting calls,” said Steffel. In the end, a total of 26 participants enlisted, including a promising variety of restaurants, non-profits, churches, and light industrial facilities.

The program began with phone calls to schedule energy audits with participants. Initially, some businesses were concerned that the energy audits would result in fixtures and appliances being red-tagged for code enforcement; Steffel had to clarify that this was not a part of the program. Participants were also asked to release their utility data so that it could be entered into B3 Benchmarking, a State-funded software program for monitoring energy use in public buildings.

Using B3 was challenging because it did not include a category for commercial customers. It did, however, allow participants to track and compare energy use, and The Weidt Group—the software design firm that created B3 Benchmarking—made an essential contribution by showing businesses how to use the system effectively. Auditors collected data going back to 2009 to provide a baseline for measuring progress. While some participants were initially skeptical of the usefulness of this step, the data was tremendously valuable later in the project, when business owners wanted to check assumptions and quantify their savings.
To complete the energy audits, Steffel enlisted the expertise of Bruce Stahlberg at Affordable Energy Solutions. Stahlberg performed a walk-through assessment and produced a report outlining specific energy savings opportunities for each business. Among those opportunities, replacing inefficient lighting stood out as one of the most common recommendations for small businesses. Many participants still had inefficient T12 lighting, so replacing those lamps and ballasts with more efficient T8 systems was an important step to saving energy.

“We also saw a lot of halogen track lighting,” explained Steffel. “They are big energy users and a perfect application for LEDs.” To address this need, Steffel sought additional funding through the Minnesota Municipal Utilities Association. The City of Buffalo also provided $20,000 from its municipal utility’s Conservation Improvement Program for rebates related to recommendations from the energy audits, which could cover up to 25% of the project cost, not to exceed $2,000, for each participant.

For the light industrial participants, Steffel contacted the MN Technical Assistance Program at the University of Minnesota. MN TAP’s mission is to help Minnesota businesses develop and implement industry-tailored solutions that prevent pollution at the source, maximize efficient use of resources, and reduce energy use and costs to improve public health and the environment. MN TAP provided audits and reports to the light industrial participants, including a car wash, an etching shop, and a printing company.

Steffel was surprised that nearly all of the participating businesses had at least some opportunities to save. “I initially assumed that participants in the program would have been those early adopters, the businesses that were already taking action to save energy, but that was not the case,” he said. “Out of the 26 participants in the program, only about 3 had no opportunities for improvements.”

**Pilot participants:**

One participant, a 100-year old church, was able to complete a number of critical upgrades through its participation in the program. The only controls on the church’s heating system were “on” and “off”, so its boiler ran throughout the heating season, costing hundreds of dollars in unnecessary expenses every year. The boiler itself was inefficient, oversized, and had been red-tagged for replacement during a previous inspection. As a participant in the pilot program, the church was able to connect with MN TAP and the Center for Energy Environment (CEE), who provided technical assistance in choosing a replacement boiler.

After evaluating the Church’s heating needs, the project team chose a high-efficiency boiler that was 1/3 the size of the original. The cost savings were significant: the downsized boiler cost $13,000, compared to $45,000 for an equal-sized replacement. This allowed the Church to invest in additional energy-efficiency upgrades.

One of those additional upgrades was lighting in the Church’s sanctuary. The energy audit found that the old lighting system was using 750 Watt incandescent bulbs that were set in metal garbage cans (instead of conventional fixtures), posing a potential hazard for the building. Additionally, the bulbs cost $40 each and would burn out every 60 days, requiring maintenance personnel to climb into the sanctuary’s high roof to replace them. The project team was able to find a 150 Watt dimmable LED replacement bulb that met the specific lighting needs of the space, and alleviated the maintenance burdens and safety risks of the old system.

Several other participants in the program found opportunities to reduce costs by removing lighting in over-lit spaces. One particular example was Pike Express, a local retail gas station. Rather than taking the energy audit’s recommendation to replace his cooler lighting with LED technology, the station’s owner decided to turn off the lights altogether, as the space was adequately lit by nearby fixtures. He also replaced a number of T-12 bulbs with T-8s, and installed a cold air return vent on his HVAC system, resulting in 27% annual energy savings.

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**Project Snapshot**

**Project:**
Buffalo Municipal Utilities worked with 26 businesses in town to identify energy savings opportunities and provide support for implementing energy retrofits

**Energy Saved:**
276,606 kWh/year and $34,800/year from 9 businesses who took action.

**Benefits:**
Reducing energy costs to small business owners, spreading knowledge and interest in energy efficiency

**Grant:**
American Recovery and Reinvestment Act Energy Efficiency Conservation Block Grant program ($50,000); $20,000 City Funds (rebates through Buffalo Municipal Utilities)
Lessons learned:

“This has all been a learning experience,” said Steffel of the program. There was a high level of interest from businesses, but it took a lot of staff time to field questions and inquiries about the project. “I had hoped they would start to talk and share ideas and best practices,” said Steffel, “but they continued to come back to me with questions.” It was also a challenge to maintain interest and motivation in the program over time, working through road blocks with the businesses and getting them to take action. However, program participants were willing to step up and try new things, such as the LED lighting for the church sanctuary.

Some businesses discovered unique challenges to participating in the program. Businesses with odd hours found it difficult to utilize prescriptive rebates, which had standard estimates for hours of operation. Some franchise businesses couldn’t participate because their corporate offices wouldn’t allow them to give up their energy usage data. Businesses that rented their buildings also had difficulty with joining the program. However, one of the larger program participants, a shopping plaza owner, decided to join the program in response to pressure from tenants who wanted to save on energy costs. That property ended up saving 33%, primarily with lighting retrofits.

Buffalo Municipal Utilities did not get involved in contractor relationships, wanting to remain neutral. However, some participants noted that navigating the retrofit process was a barrier to success. The utility did provide a list of available contractors, but it may have been helpful to hold educational training sessions for contractors participating in the program.

Despite these challenges, the Buffalo Commercial Building Energy Conservation and Benchmarking Pilot Program was an overall success. Local businesses especially appreciated help with making decisions regarding energy use and environmental responsibility. Some businesses had been offered “green” services and products, yet many of these weren’t certified by EnergyStar or other reputable programs, making it difficult to choose among several options. This program helped participants navigate these decisions by providing information and connecting them with knowledgeable resources.

In addition to environmental responsibility, participants saw social benefits, such as the church that reduced safety risks by installing LED lighting in its sanctuary. Some businesses also found that de-lamping over-lit areas reduced eyestrain and headaches for employees and customers.

Ultimately, the leading motivator for participants was financial. The program’s rebates, incentives, and technical expertise provided local businesses with substantial cost savings. Steffel would like to renew the program for businesses that continue to struggle with the upfront costs of following-up on energy audit recommendations, but he has yet to find further funding. Overall, he is pleased with the energy savings that resulted from the program, as well as the growing interest and enhanced knowledge of energy-saving opportunities in the Buffalo community.

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