

Park Slope Food Co-op Is an “Energy Star”

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The Park Slope Food Co-op (PSFC) is the first supermarket in Brooklyn to earn the federal Environmental Protection Agency (EPA)’s Energy Star rating, recognizing the store’s commitment to energy efficiency and environmental stewardship. The PSFC scored 93 out of 100 in the EPA’s online energy benchmarking tool; a rating of 75 merits the star. “It’s very neat, and we didn’t just make it by the skin of our teeth,” said the co-op’s General Coordinator Joe Holtz.

Member Robert Sauchelli, who has worked for the Energy Star program at the EPA for 15 years and is a member of the PSFC energy advisory team, presented the award in September 2008, saying: “The food co-op has always had an attitude of social and environmental responsibility, and I think this kind of accomplishment is a natural outgrowth of the kind of attention that’s been paid at the food co-op to reducing waste, benefits in saving energy and preventing emissions, and addressing other issues like global warming.”

Perhaps best known as a designation for energy-efficient appliances, the EPA Energy Star, a national symbol for energy efficiency and environmental protection, can be awarded to commercial buildings and industrial plants that rate in the upper quartile of similar facilities in the nation, based on their adjusted energy use per square foot. According to the EPA, commercial buildings that earn the award use an average of 40 percent less energy than typical buildings and also release 35 percent less carbon dioxide into the atmosphere.

The PSFC’s strong performance on energy efficiency can be traced to a number of factors, including:

Lighting. Much of the co-op is lit by high-efficiency linear fluorescent tubes with electronic ballasts. These are about 20 percent more efficient than older model, fatter fluorescent tubes with magnetic ballasts, and 70 percent more efficient than incandescent bulbs. Exit signs, which run 24/7, have been switched from the old incandescent bulb fixtures that use 40 watts each to light-emitting diode (LED) fixtures that



ILLUSTRATION BY RUBY THOMPSON

use 4 watts each. The LED fixtures have the added benefit of virtually never needing bulbs changed.

Gas-fired air conditioning. The store’s air conditioning systems run on natural gas instead of electricity. When the efficiencies of a power plant plus the losses from transmitting power from the power plant to a building are taken into account, the gas-fired cooling process may be a bit more efficient. But the real savings are in electric demand: in hot summer months the co-op does not require electricity to keep cool. The co-op’s natural gas “ammonia absorption air conditioning system” also uses no ozone-depleting chlorofluorocarbons (CFCs).

Central refrigeration system. The co-op’s 17 refrigerated coolers and cases are fed by a centrally cooled loop of glycol. This system allows for optimal loading and staging of compressors, in contrasted to a system where each refrigerated case has its own compressor.

Heat recovery. The co-op recovers heat from frozen food compressors to heat hot water, and it recovers cold air from some refrigeration cases

to reduce the air conditioning load.

Vestibule entry. The front entrance to the co-op has two sets of doors, separated by a vestibule. This helps keep the outside air out and the inside air in.

Density. Compared to an average supermarket, the PSFC moves a much greater volume of product and has many more people per square foot. Its compact size makes the co-op inherently efficient because there is less space that needs to be heated, cooled and/or lit.

These energy savings measures not only benefit the environment, they also save money both for the PSFC and for society at large. “A lot of people don’t realize it, but energy efficiency is the cheapest form of new energy. It’s better than any new power plant,” said Sauchelli. “It’s easier and it happens at the site, so you don’t have to worry about where to put the power plant. It reduces dependency on the grid. Saving a watt costs half of what it costs to generate a watt, so why not put the money into the thing that gives you twice the bang for the buck?”

It is important to point out that the Energy Star does not account for all of the co-op’s environmentally friendly activities. Composting and plastics recycling, for instance, do not directly save energy, and so are not reflected in the EPA’s “efficiency” rating. Also, the PSFC purchases wind-generated electric power credits to offset the carbon impacts of the electricity the co-op does use.

More can be done

There are a number of additional energy savings measures that have been considered by the PSFC and which have not yet been implemented for a variety of reasons. They include:

Motion sensors on lighting in the basement. Ordinarily, an energy engineer would expect that motion sensors on basement lighting would yield excellent savings. However, with the high level of activity in the PSFC basement at all open hours, there are likely only a few places where this measure would make sense, unless closing shift managers are not being diligent about shutting off lights when they go home at night.

Solar energy. Many members have suggested that the co-op should “go solar.” There are two main solar options: solar water heating and solar electricity (photovoltaics or PV). A solar feasibility survey found that due to taller surrounding buildings, the co-op has only a very small portion of roof that receives good sunlight (roughly 400 square feet). There is a very small hot water demand at the co-op, and much of the hot water is derived from heat recovered from the freezer compressor. It was estimated that the amount of electricity that could be generated by installing PV panels on the available roof area would generate less than 0.5 percent of the co-op’s electricity bill and would be costly to install.

Backup generation/demand response. Last year the co-op considered installing a backup generator that would keep the co-op running even if the power went out. Such a generator, running on natural gas or diesel (possibly biodiesel), could also be run upon request by the electric grid operator on days when the demand for power is high. However, there are a number of factors that would increase the cost for the co-op’s urban location: the three electric meters for the three adjoining buildings that comprise the co-op would need to be combined, and the generator would have to be mounted on the roof, requiring structural steel mounting and a crane

to lift the generator into place.

An energy manager’s work is never done, however, and there are a number of initiatives that the PSFC energy advisory team has underway. They include: documentation and equipment cataloging, operations and maintenance procedure definition, and detailed energy measurement and verification. As is common in buildings and institutions, the knowledge of how to operate the equipment in the PSFC is held by a very few of the older members. There is no central location containing all of the equipment specifications and proper settings, building plans and maintenance protocols for the co-op.

Embedded operations and maintenance best practices can be the key to truly stellar energy performance. It is vital that the current practices are preserved in writing, so that others at the PSFC are aware of the procedures and they can be improved upon over time. Furthermore, there are opportunities to monitor individual systems, such as the refrigeration and heat-recovery systems, which may result in recommendations to further improve their performance.

As a program manager for Energy Star, Sauchelli envisions a day when the rating will allow market forces to account for energy efficiency in commercial tenancy, like a “miles per gallon” rating influences automobile sales.

Continuing the per-gallon analogy, he said consumers “expect to see it on a car label. We’re used to that now and we have a sense of what that means—what’s good; what’s bad. But nobody had a sense of what the ‘miles per gallon’ was for buildings.”

As EPA Administrator Stephen L. Johnson said in his press release for the co-op’s award, “Whether you are running a grocery store, a school, or an office building, getting the most out of your energy dollars—while reducing your carbon footprint—just makes sense.” More than 5,000 buildings in the nation have earned the Energy Star; about 1,400 are grocery stores. EPA estimates that the Energy Star ratings system has guided Americans to saving “about \$16 billion on their energy bills while reducing the greenhouse gas emissions equivalent to those of 27 million vehicles.”

Park Slope Food Co-op, for its part, plans to re-benchmark using the Energy Star tool in the future, and expects to see its score improve over time. ■

This article is based in part upon a report originally appearing in the PSFC Linewaiter’s Gazette by Hayley Gorenberg.



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