

The Green Retrofit Initiative

ELIZABETH GLYNN
LOCAL INITIATIVES SUPPORT CORPORATION

Prior to 2008, when the Green Communities Act became law in Massachusetts, low-income multifamily properties (five-plus units) were not well served by the utility-ratepayer-funded energy-saving or weatherization programs. Multifamily properties simply didn't fit neatly into either the commercial or the residential program.

But in early 2009, NStar convened a meeting of owners of affordable multifamily housing and other stakeholders to get feedback about their needs. The working group that grew from the initial meeting made a proposal to the Energy Efficiency Advisory Council of the Massachusetts Department of Utilities for a program that would provide incentives for energy upgrades in low-income multifamily housing. As many as 78,000 previously unserved housing units were thought to meet the program's requirements.

In mid-2009, the Barr Foundation provided a grant to the Boston office of the Local Initiatives Support Corporation (LISC) to catalyze retrofits and energy conservation in affordable multifamily housing by harnessing the new opportunity for energy-retrofit funding. The goal of the grant was to develop an understanding of the unique challenges and opportunities for increasing efficiency in the sector and to gain knowledge about the types of retrofit measures that are the most effective and practical.

LISC created a program supporting the efforts of Boston community development corporations (CDCs) to make their affordable housing more "green" and energy efficient. LISC's CDC Green Retrofit Initiative assisted 11 CDCs in Boston, Cambridge, and Chelsea for two years, with significant savings results. Today, through a grant from the Energy Innovation Fund of the U.S. Department of Housing and Urban Development to Boston LISC's building-science partner, New Ecology Inc.—and with additional support from the Barr Foundation—the program is to be expanded statewide and cover low-income multifamily rental property owned by both for-profit and nonprofit owners.¹

Collaborations

The CDC Green Retrofit Initiative helped build the capacity of 11 CDCs to understand energy use and implement upgrades in their existing affordable housing stock. That was done either through a direct grant to the CDC to pay for staff time to focus on retrofits or through access to a shared "energy manager" housed at New Ecology. The initiative did not provide funding for retrofit construction costs. The CDC staff and the energy manager would collaborate to analyze the energy use of the buildings, identify opportunities for energy efficiency, and with the help of LISC, find the appropriate funding for their projects. Boston LISC also provided technical assistance on an ad hoc basis and fostered a community of practice among the profes-

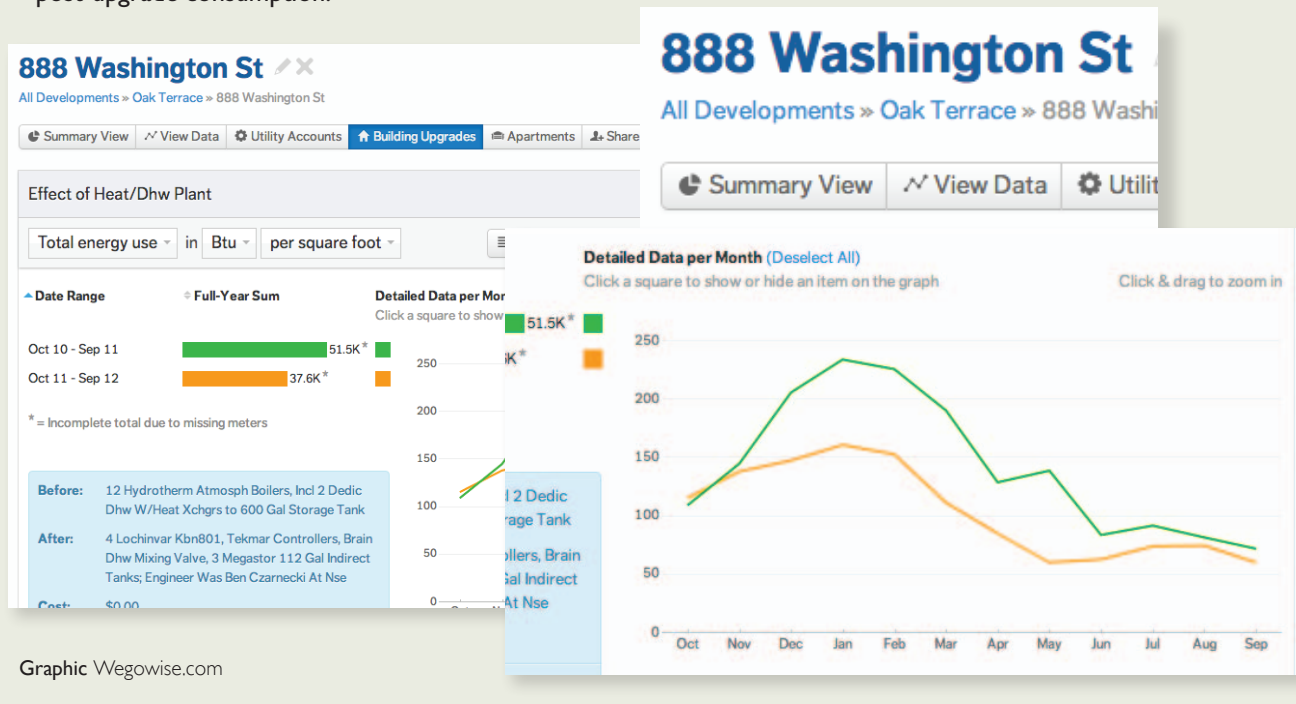
Photo Darlene DeVita Photography



The community room at Oak Terrace

What Is Wegowise?

Wegowise is an online energy- and water-benchmarking tool designed for multifamily buildings. Owners need to complete a one-time input of data, including utility account numbers and building information such as square feet and building type. Wegowise automatically downloads energy-use information from the utility providers and manipulates the data to provide the owner with trends, anomalies, and comparisons. Owners can track upgrades and monitor post-upgrade consumption.



sionals at participating CDCs.

The CDCs used Wegowise, an online tool designed for multifamily housing owners, to benchmark the energy and water use of the properties by inputting building information and utility accounts. (See “What Is Wegowise?”)

Next, each CDC submitted applications to the state’s utility-ratpayer-funded multifamily efficiency program for free energy assessments. Many of those assessments led to fully funded energy-efficiency upgrades. With LISC’s help, the CDCs continued searching for other funding to address retrofit needs and eventually leveraged more than \$4 million in construction money.

Altogether, the 11 CDCs own about 5,900 units of affordable housing, of which about 5,000 are fully benchmarked in Wegowise. In the first two years of the program (2010 and 2011), the CDCs implemented retrofits in 2,020 units of affordable housing.

Of 1,206 units (102 buildings) that have undergone retrofits and have weather-normalized postretrofit data available, the average targeted energy savings is 17 percent, ranging from a few projects with increased consumption (water and lighting retrofits) to 61 percent savings (new boilers). There was one retrofit that saved 43 percent on water use.

Statewide Expansion

The CDC Green Retrofit Initiative’s third-party evaluation by community development consultancy Sussman Associates showed that a primary barrier to widespread energy upgrades in affordable multifamily housing is cost-effective expertise in building science, energy efficiency, and knowledge of the range of options for energy-conservation funding and financing.

Armed with insights from the evaluation, Boston LISC worked with New Ecology to leverage the most successful components of the Boston-area program and offer enhanced services to affordable-housing owners in an expansion called the Massachusetts Green Retrofit Initiative.

In May 2012, New Ecology was awarded a large HUD grant for the statewide initiative, nearly a million dollars. Boston LISC is providing comparable matching funding, primarily from a new \$675,000 Barr Foundation grant.

The activities of the two-year Massachusetts Green Retrofit Initiative currently under way are as follows:

- benchmark utility use for at least 10,000 units
- identify energy hogs
- conduct energy assessments
- propose recommended conservation strategies
- work with owners to match funding to the recommendations

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- manage installation of retrofits to at least 3,000 units
- monitor postcompletion building performance
- host periodic retrofit peer-group network meetings

A Case in Point

Tim Doherty started working at Asian CDC in 2007 as a project manager to help identify opportunities to develop and preserve affordable housing for Greater Boston's Asian American community. Now director of real estate, he has a portfolio that has grown significantly, most recently with the development of a new green affordable rental development in Quincy Center.

In late 2009, Asian CDC was actively searching for a new executive director. The staff was stretched thin with a new development under way and ongoing programs in housing counseling, youth engagement, and community organizing. The organization needed to forge another of the innovative partnerships for which it is known—this time with the Green Retrofit Initiative.

Asian CDC tapped Marty Davey of New Ecology, the shared energy manager provided through the Initiative, to input the group's building data in Wegowise and identify opportunities for savings. She zeroed in on Oak Terrace, an 88-unit development with family-sized, three- and four-bedroom apartments housing more than 300 residents in four adjoining buildings. One of the first developments in the country to utilize the Low-Income Housing Tax Credit (LIHTC), Oak Terrace was completed in 1995, but it was not performing efficiently in the 2000s.

"It wasn't exactly an energy hog, but it wasn't great," Davey says. According to Wegowise, the property performed slightly worse than similar buildings, but much worse than efficient buildings. "We could see there was an opportunity to increase efficiency."

Davey helped Asian CDC submit an application for the state's utility-ratepayer-funded multifamily efficiency program. It turned out to qualify for free electrical upgrades. Then Asian CDC was awarded a \$10,000 green-planning grant from LISC's Green Development Center and The Home Depot Foundation to perform technical engineering studies on the domestic hot water system and cooling tower. In addition, the potential for a solar thermal installation was assessed, but given plans for a neighboring tower that would shade the roof, solar power was deemed impractical. Davey worked with Asian CDC to refocus the engineering study on the heating and hot water system and a plan for lowering utility costs.

Meanwhile, the City of Boston's Department of Neighborhood Development (DND) announced a limited amount of funding for energy-efficiency measures at affordable multifamily properties through the American Recovery and Reinvestment Act's Energy Efficiency and Conservation Block Grant program. The city would

fund only those projects that had nowhere else to turn for retrofit funding. After a thorough analysis of the Oak Terrace reserves, Davey and Doherty developed a proposal to use a portion of the reserves in combination with the DND's energy-efficiency fund to replace 12 aging atmospheric boilers with four high-efficiency, condensing models, and a single, 600-gallon hot water storage tank with three 100-gallon indirect water tanks.

So far, the boiler replacement has resulted in a 27 percent reduction in natural gas usage and a projected annual cost savings of \$22,000. Oak Terrace is now performing about 40 percent better than similar buildings and about 20 percent better than other efficient buildings in the Wegowise dataset. Not only have operating costs gone down thanks to decreased demand for energy, but the



Tim Doherty, director of real estate, and Janelle Chan, executive director of Asian Community Development Corporation, with the new boilers and hot water tanks at Oak Terrace.

Photo Darlene DeVita Photography

management company has to maintain and service only four boilers rather than 12, so maintenance costs will be lower for the long term.

"We could never have accomplished this retrofit without the help of the Green Retrofit Initiative," says a grateful Doherty.

Elizabeth Glynn is program officer at Local Initiatives Support Corporation in Boston. Contact her at eglynn@lisc.org.

Endnote

¹ For an explanation of how New Ecology works, see Edward F. Connelly and Jessica Miller, "Making Affordable Housing Greener," *Communities & Banking* 20, no. 2 (spring 2009), http://www.bos.frb.org/commdev/c&b/2009/spring/Connelly_Miller_New_Ecology.pdf.