



**BEST PRACTICES FOR ENERGY RETROFIT PROGRAM DESIGN**

## **CASE STUDY: LONG ISLAND GREEN HOMES**

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This document is one of nine case studies conducted by the Best Practices Committee of the Home Performance Resource Center to examine government-run incentive programs that target residential energy efficiency retrofits and renewable power generation. These nine case studies were used to compile best practices recommendations for the design and implementation of successful home energy retrofit programs, specifically focusing on the areas of financing and incentives, marketing, workforce development and business models. Additional documents in the *Best Practices for Energy Retrofit Program Design* series are available online at [www.hprcenter.org](http://www.hprcenter.org).

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# CASE STUDY: LONG ISLAND GREEN HOMES

### SUMMARY

Long Island Green Homes (LIGH) provides Property Assessed Clean Energy (PACE) financing for residential energy efficiency retrofits in the Babylon, New York. The Town of Babylon launched the program by classifying CO2 as solid waste, which enabled it to tap into a \$2 million surplus in their municipal solid waste cleanup fund. LIGH provides up to \$12,000 of financing for energy efficiency upgrades, and homeowners repay the funds, plus 3% interest, via monthly assessments. Because the loans are fixed to the property, not the borrower, the loan obligation automatically transfers to subsequent owners if the home is sold before the loan is fully paid off.

Babylon was among the first cities in the nation to implement a PACE financing program, and many other programs and stakeholders have looked to LIGH as a potential model for energy improvement financing.

### FINANCING PROCESS

To begin the application process, property owners fill out a detailed home energy survey (available online as an electronic Web form or printable PDF) and submit the most recent two years of utility usage data by mail, including electric, natural gas and/or heating oil. Based on this initial survey, program staff determine if the applicant is likely to qualify for program financing. Homeowners who meet preliminary program requirements are contacted by phone to schedule an on-site home evaluation (including a blower door test). The homeowner may choose any LIGH-licensed and BPI-accredited contractor, or ask to have a contractor assigned round-robin-style from a pool of

### PROGRAM PROFILE

**Incentive Type:**

Property Assessed Clean Energy (PACE) financing for residential energy efficiency improvements

**Time Frame:**

Program launched Oct. 2008

**Homes in Jurisdiction:**

65,000

**Property Owners Participating:**

450 audits as of March 2010; of the first 200 audits, 145 completed retrofits; goal for 2010 is 1,000 retrofits

**Investment:**

\$2 million allocated from municipal waste management fund; plans call for an additional \$30-\$50 million in private investment

**Energy Savings:**

Data not available

**Carbon Abatement:**

Data not available

**Finance Mechanism:**

Loans up to \$12,000 per household at 0% interest plus a 3% administrative fee; loans are repaid over terms up to 10 years in monthly assessments that are less than projected energy cost savings

**Jobs Created:**

15 jobs from the first \$1.5 million in financing

**Web Site:**

[www.ligreenhomes.com](http://www.ligreenhomes.com)

participating contractors. The customer pays the contractor \$250 up front for the audit, which will be deducted from project costs if the homeowner goes through with the recommended retrofit measures.

The contractor inputs audit data into a software program to determine projected energy savings. If the savings-to-investment ratio (SIR) is 1 or higher, the proposed work is submitted to the program for review and approval. The program may choose to conduct a site visit during this stage. If the project is approved, the customer may borrow up to \$12,000 at 0% interest plus a 3% administrative fee amortized over the term of the financing, which can be up to 10 years. Payment structures are calculated so that monthly loan payments are less than the projected cost savings from the retrofit.

Paperwork is filed by the BPI-accredited contractor, who signs a contract directly with the Town of Babylon. A separate loan agreement is signed by the homeowner. Upon completion of the retrofit, the contractor receives payment directly from the program, and the homeowner begins paying the monthly assessments.

## **PROGRAM DEVELOPMENT**

In 2006, the Town of Babylon conducted a greenhouse gas emissions inventory and found that most of the town's emissions came from existing buildings. Municipal leaders also noticed that the Long Island Power Authority's Home Performance program was not reaching as many homes as anticipated, and costs were high. Steve Bellone, Supervisor for the Town of Babylon, then led the drive to create the LIGH program, and worked with Energy Director Dorian Dale to implement it. The program was approved by the Babylon Town Council in August 2008 and launched in October 2008.

By officially classifying carbon emissions as solid waste, the Babylon Town Council authorized use of a \$2 million surplus in the town's waste cleanup fund to provide financing for energy efficiency improvements. Later, in July 2009, the New York State Assembly passed legislation affirming the legality of using solid waste funds for carbon abatement. Use of this unusual funding source determined many aspects of program design. With CO<sub>2</sub> classified as solid waste, the town could use its existing authority to clean up solid waste on private property to implement efficiency retrofits and charge property owners a benefit assessment for waste removal services. If the property owner doesn't pay the assessment, the city can levy the assessment as property tax, which is first on the lien list for the property (before mortgages and utility bills).

In addition to using the original waste cleanup fund surplus, LIGH is now talking to banks about a public-private partnership to obtain additional funds for scaling the program, based on the theory that financing would be available at low interest rates because the benefit assessment approach carries little or no risk of default.

During the program design phase, Babylon officials consulted with an experienced contractor to get a "boots-on-the-ground" perspective and help them develop more effective guidelines and procedures. For nearly a year, they worked with Rich Manning of Energy Master to plan the program. They then brought other contractors into the process.

## Marketing

The town has used various marketing strategies to reach out to homeowners and promote LIGH financing. The program held numerous community seminars to educate the public, and used direct marketing tactics to raise awareness of the program. As the program launched, LIGH sent free compact fluorescent light bulbs to every household in Babylon along with a program flyer. A few months later, the program was featured on the cover of a community recycling calendar mailed to every home.

## Workforce Development

The town has explored various ways to support workforce development in the energy efficiency industry locally by working with local colleges and training programs. The program created 15 new jobs over the first 1.5 million dollars of financing, a figure that is in line with projections previously formulated by the Center on Wisconsin Strategy (a national policy center based at the University of Wisconsin-Madison). Town officials estimate that with additional funding, the program could create up to 6,600 jobs for contractors, auditors and related professions.

## Finance and Incentive Models

Classifying CO2 as solid waste allowed Babylon to create a revolving fund for residential energy efficiency improvement loans. Funds are disbursed in amounts up to \$12,000 per household and terms of up to 10 years, with a 3% administrative fee and 0% interest. Financed amounts are fixed to the property as a special tax assessment that transfers automatically to subsequent owners if the property is sold before the loan is paid off.

Project financing is contingent upon estimated energy cost savings exceeding the monthly loan payments, so borrowers can start saving on household expenses immediately, and save even more after they have repaid the financed amount.

Homeowners are charged a \$250 fee up front for required energy audits, but that amount is deducted from overall project costs if the homeowner proceeds with recommended retrofit measures.

In addition to the \$2 million already allocated to the program, Babylon expects to attract \$30 million to \$50 million in private funding to help the program expand. Officials believe that Babylon's "senior lien security, billing and collection mechanism, track record, trusted party with homeowners, contractors, labor and suppliers" will help it attract private investment.

## METRICS AND FEEDBACK

Research conducted for this study suggests that there is across-the-board satisfaction with the program. One challenge that has arisen as homeowner participation has grown is the problem of paperwork bottlenecks in the program office. Procedures that used to take about a week can now take up to three weeks, causing delays in moving projects along from one stage to the next. However, the total turnaround time from a

homeowner mailing in utility bills to the completion of work tends to be fast overall – typically around two months.

As of March 2010, LIGH had completed more than 450 audits. Of the first 200 audits done, 145 have now completed retrofit projects, indicating a high conversion rate of 72.5% (results are not yet available for the more recent audits completed). The impressive audit-to-retrofit conversion rate may be due in-part to the amount of homeowner education and screening that the city conducts before audits are scheduled. Also, the program looks to structure assessment plans so borrowers start saving from day one, which is appealing to homeowners.

The average retrofit cost was about \$8,200, and the average annual savings was about \$1,050. The program has set a goal of financing 1,000 projects in 2010.

## RECOMMENDATIONS

**PACE Financing:** The initial success of the Long Island Green Homes program has demonstrated the effectiveness of PACE financing in stimulating homeowner adoption of energy efficiency and improvement measures. The program should be expanded through an injection of private capital, and replicated in other communities.

**Customized Payback Plans:** Homeowners who will start saving money immediately are more likely to borrow capital for home energy improvements. As with LIGH, financing programs should use information gleaned from diagnostic audits to structure monthly assessments that are less than projected cost savings if possible.

**Audits:** The high audit-to-retrofit conversion rate among LIGH participants indicates that the program’s audit structure is effective at translating audits into retrofits. Programs should charge an audit fee up front so homeowners will be more invested in the program, but deduct the fee from project costs if the homeowner proceeds with the recommended retrofit. Conversion rates also benefit from homeowner screening to target homes that will benefit most from retrofit measures, and educational activities to help homeowners understand what to expect.

### SUMMARY OF RECOMMENDATIONS

- Provide PACE loans or other innovative financing mechanisms to help homeowners pay for efficiency retrofits
- When possible, structure financing plans so loan payments are less than projected energy savings
- Include customer buy-in for audits, but deduct audit fees from the cost of completed retrofits

## SOURCES

This report is based in part on interviews and e-mail correspondence with Rich Manning, Owner, Energy Master; Dorian Dale, Energy Director, Town of Babylon; and Sammy Chu, Program Director, Long Island Green Homes.

Interviews and background research were conducted for the Home Performance Resource Center by Coby Rudolph, Marc Lubert and Brian Toll.

### Publications:

Conservation Services Group. *Deep Energy Savings with Immediate Positive Cash Flow: The Long Island Green Homes Program*  
[www.csgrp.com/business/casestudies/cons01.html](http://www.csgrp.com/business/casestudies/cons01.html)

Green for All. Case Studies From the Green Economy: The Long Island Green Homes Initiative (May 2009)  
[www.greenforall.org/what-we-do/building-a-movement/community-of-practice/case-studies/long-island-green-homes-case-study/download](http://www.greenforall.org/what-we-do/building-a-movement/community-of-practice/case-studies/long-island-green-homes-case-study/download)

ICLEI – Local Governments for Sustainability. *Municipal Clean Energy Toolkit: Long Island Green Homes Program in Babylon, New York*  
[www.icleiusa.org/action-center/tools/municipal-clean-energy-toolkit/CaseStudy\\_BabylonNYGreenHomes.pdf?searchterm=babylon](http://www.icleiusa.org/action-center/tools/municipal-clean-energy-toolkit/CaseStudy_BabylonNYGreenHomes.pdf?searchterm=babylon)

New York State Assembly. *Assembly Bill 8862* (July 16, 2009)  
[www.assembly.state.ny.us/leg/?default\\_fld=&bn=+A08862%09%09&Summary=Y&Actions=Y&Votes=Y&Text=Y](http://www.assembly.state.ny.us/leg/?default_fld=&bn=+A08862%09%09&Summary=Y&Actions=Y&Votes=Y&Text=Y)

### Program-Related Web Sites:

Long Island Green Homes Program: [www.ligreenhomes.com](http://www.ligreenhomes.com)

Town of Babylon: [www.townofbabylon.com/whatsnew.cfm?id=252](http://www.townofbabylon.com/whatsnew.cfm?id=252)

The Babylon Project: [www.thebabylonproject.org](http://www.thebabylonproject.org)



The Home Performance Resource Center is a national 501(c)(3) nonprofit organization formed to conduct public policy and market research in support of the Home Performance industry. The Resource Center develops research materials for policymakers, energy program managers and industry stakeholders to promote job creation, economic recovery, lower household energy bills and deep reductions in residential carbon emissions through improved home energy efficiency.

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