

Can Cities Lead the Way in Innovative Energy Retrofits for Single-Family Homes?

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The American Recovery and Reinvestment Act of 2009 pointed to an era of expanded energy efficiency, one that, as the well-known McKinsey's carbon abatement curve posits, would in effect be self-financing.¹ The "Recovery through Retrofit Report" from the Vice President's office in late 2009 detailed a distinct financing mechanism, Property Assessed Clean Energy (PACE), which would "enable the costs for energy efficiency retrofits to be added to an owner's property tax bill... which takes the same priority as traditional property tax liens and assessments."² *The Harvard Business Review* would round out the year by identifying PACE as one of 10 "Breakthrough Ideas for 2010."³ The future looked exceedingly energy efficient. However, behind the promise lurked several issues.

Is It Possible to Use Large Building Retrofit Approaches to Meet the Needs of Scattered Single-Family Homes?

In 2008, an "energy service company" (ESCO) was upgrading the town of Babylon, New York's, buildings.⁴ The ESCO model secured financing and guaranteed that savings realized on energy use would cover the capital cost. Given that residential housing composed 38 percent of Babylon's carbon footprint, the town supervisor asked the company if the town could apply that model to its 65,000 homes. Because the business model for ESCOs was to retrofit a confined number of public sector buildings, the prospect of retrofitting so many scattered single-family homes was daunting. The company respectfully declined.

The challenge then was to devise a scaled-down version of the ESCO model with a delivery system tailored for homeowner demands. A promising source of funding was a waste district reserve that the town maintains for its energy-from-waste facility. The town expanded the definition of solid waste in July 2008 to include "the carbon component (or 'content

1 H.C. Granade et al., "Unlocking Energy Efficiency in the U.S. Economy" (McKinsey Global Energy and Materials, July 2009).

2 Joseph Biden, "Recovery through Retrofit Report." (Washington, DC: Middle Class Task Force, October 19, 2009), available at <http://www.whitehouse.gov/photos-and-video/video/vice-president-biden-releases-recovery-through-retrofit-report?page=14>.

3 "Breakthrough Ideas for 2010," *Harvard Business Review*, vol. 88 (Jan/Feb, 2010): 50-51.

4 An ESCO, or energy services company, installs energy savings measures that pay for themselves. ESCOs have primarily served the so-called MUSH (municipal, university, school, hospital) sector for more than 30 years.

of⁶) in energy waste⁵ (often cited in evaluations of a carbon tax).⁶ Because Babylon had this source of funds, it did not need to levy a new tax or sell bonds. Complete upfront financing would be offered to homeowners through a revolving fund into which participants would repay the principal plus 3 percent interest, which compared favorably to what the town was earning with the same money in an investment account.⁷ Babylon named this residential energy efficiency pilot Long Island Green Homes (LIGH), anticipating expansion to regional townships.

Given that the power authority declined to provide an on-bill financing mechanism (despite having signed on to the principle⁸), Babylon opted for a dedicated monthly charge via an existing solid-waste billing platform. This was linked to a benefit assessment, as is the case for waste collection and infrastructure enhancements such as sewer installation.⁹ A benefit assessment can be assigned when a municipality provides a specific improvement on a parcel of property for a public purpose, assessing the cost of the benefit against the property.¹⁰ Should the property owner fail to fulfill their obligation, it is assigned to the property tax. The property tax is first on the lien list, ahead of the mortgage and substantially senior to utility bills.

Soon after LIGH launched in late summer of 2008 as the first operational residential PACE program in the country, Boston-based investors focusing on the energy sector visited Babylon and were impressed with the municipal delivery model. Investor confidence was further enhanced by the affirmation of newly passed Babylon town law by New York State statute.¹¹ But it was the time-honored senior lien status of benefit assessments that appealed to them the most. When the program was ready to expand, they agreed to provide \$40-\$50 million in financing. Major financial institutions would later confirm this appetite for senior liens on tens of millions of residential retrofits nationwide at innumerable symposia. Key LIGH personnel were engaged in an advisory capacity, appeared on academic panels and on U.S. Department of Energy (DOE) webinars assessing PACE.¹²

5 Town of Babylon, NY Code, Solid Waste Management, Chapter 133.

6 Marilyn A. Brown et al., “Making Buildings Part of the Climate Solution by Pricing Carbon Efficiently,” (Atlanta: Georgia Tech, July 2012), p. 5. Available at www.spp.gatech.edu/faculty/workingpapers/wp69.pdf

7 Carolyn Nardiello, “In Babylon, An Incentive for Energy Efficiency,” *New York Times*, January 18, 2009, p. LI5.

8 Working Group VI, “On-Bill Financing, Case 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard” (Albany: State of New York Public Service Commission, 2008). An on-bill financing mechanism incorporates the obligation for the energy upgrade to the monthly utility bill.

9 This organic resolution came about absent knowledge of Berkeley First, which was developing simultaneously.

10 The Constitution of the State of New York, Article VIII, §1, “Local Finances,” 2010.

11 State statute: Laws of New York, 2009, § 409: “the prevention or reduction of waste matter consisting of carbon components of energy waste from residential properties.” Augmented authorization via Laws of New York, §198, to §209-i, Town Law: “an improvement (or contractual assessment) district for addressing energy waste by means of a sustainable energy revolving loan program to enable property owners to surmount financial barriers in order to do deep energy efficiency retrofits and install site-generated renewable energy.”

12 Yale University/REIL, “Best Practices: Sharing Local and State Successes in Energy Efficiency and Renewable Energy” (April 23, 2010), available at www.youtube.com/watch?v=stzyLo9UmI. U.S. Department of Energy, “Getting Started: Legal Authority & Administering PACE Financing Programs” (Washington, DC: DOE, Dec. 19, 2009), available at http://www1.eere.energy.gov/wip/solutioncenter/eeebg_webex_121109.html

During its five years of operations, LIGH has upgraded nearly 1,250 houses, reducing their carbon emissions by 29.7 percent. Recent analysis of post-retrofit energy bills shows that the “average savings realization rate” for LIGH was 77 percent, or approximately 20 percent more fuel efficient, on average, than projections.¹³

Convenience Is Key

Long Island Green Homes delivers cost, comfort, and convenience with a one-stop retrofit that underscores the efficacy of its municipal delivery model. Trusted vendor status is key to overcoming reservations homeowners have historically harbored about having work done that is hard to verify given that the work is often invisible. LIGH requires participating contractors to be certified by the Building Performance Institute (BPI). Controlling the workflow, LIGH brings considerably more leverage should a job not be completed to satisfaction. BPI-certified LIGH staff has the ability to retest homes and advocate on behalf of homeowners to get the job done right. If the homeowner moves before the term of the obligation, the balance is assumed by the new owner. Convenience is the hallmark of the municipal delivery model, unmatched by any other type of program.

From the outset, LIGH’s program discipline called for a loading order of the most cost-effective energy efficiency measures. (Solar installs would, necessarily, follow the sealing of the building envelope which, in turn, would decrease sizing of any PV array to be installed.) Financing was not to exceed \$15,000 nor extend beyond 10 years. Projects would have to achieve a savings-to-investment ratio (SIR) of 1.3. Credit-worthiness was based on a record of timely property tax payments.

The average Green Home retrofit is a good investment. The average obligation is \$10,765 paid over 10 years, providing nearly an 11 percent annualized return on investment. The total cost of any given job has almost never exceeded 5 percent of the so-called LTV (loan-to-value) or appraised value of the property, and delinquencies have been few. Green homeowners have lowered their operating cost by more than \$1,340 per year and enhanced the value of their property. Overall, through mid-August 2013, Babylon has provided \$13.5 million to retrofit 1,243 homes for an audit-to-completion rate of 65 percent, the number of homeowners who went ahead with an energy efficiency retrofit after having their house evaluated. LIGH, which was retrofitting at a pace of 1 percent of Babylon home annually, has now, owing to federal ruling, been obliged to constrict its output by four-fifths to remain within the limits of a revolving loan fund.

Setbacks for Single Family Energy Retrofits

In June 2009, despite less than a handful of nascent PACE programs, the Federal Housing Finance Agency (FHFA), conservator for mortgage giants Fannie Mae and Freddie Mac,

¹³ This is based upon a 25 percent response, despite the offer eliminating a one-month payment for those participating.

issued a stern warning: “An emerging trend in state and local financing for residential energy efficiency home improvements” would have “the effect to impair value of the first mortgages to creditors and any subsequent holder of first mortgages and, at the same time, to create risks for homeowners.”¹⁴ A year later, despite concerted efforts by the U.S. Department of Energy and members of Congress to address concerns, four other regulators were enlisted to join FHFA in stating that PACE programs “present significant safety and soundness concerns.”¹⁵ Punitive repercussion could be forthcoming, it was stated.¹⁶ The town of Babylon, State of California, Sonoma County, the National Resources Defense Council and others filed complaints against FHFA’s position.¹⁷ The federal district court ruling that instructed FHFA to follow their rule-making process as a regulator was overturned in appellate court,¹⁸ which accepted the FHFA contention that, in their capacity as conservator, they were not subject to such procedure.

Although the impact of these rulings has effectively curtailed the large-scale single-family retrofits that the US Department of Energy had actively promoted, a certain number of PACE outposts remain operational.¹⁹ A \$185 million initiative approved by municipalities in Riverside County, California, has attracted more than 6,000 subscribers in less than two years, an economic stimulus that has generated 2,500 local jobs.²⁰ The Sonoma County Energy Independence Program, launched six months after LIGH, reports a default rate of 0.085 percent compared with 2.19 percent countywide.²¹ Going with a PACE-light junior lien position combined with FHA Power Saving loans, Efficiency Maine completed only 400 retrofits through April 2013.²² Dispossessed of PACE, New York State Energy Research and Development Authority (NYSERDA) developed an on-bill recovery loan for its GreenJobs/GreenNewYork program.²³ Despite an attractive loan rate of 3.49 percent, the audit/completion rate, or number of houses being retrofitted after evaluation, on Long Island has been

14 James Lockhart III, “Energy Loan Tax Assessment Programs” (FHFA letter “brings to your attention...risks” to state bank regulators et al., June 18, 2009).

15 U.S. Department of Energy, “Guidelines for PACE Pilot Financing Programs” (Washington, DOE: May 7, 2010).

16 Federal Housing Finance Agency, “FHFA Statement on Certain Retrofit Loan Programs” (Washington, DC: FHFA, July 6, 2010).

17 For Babylon’s complaint, see Jonathan Hiskes, “Long Island Town Threatens to Sue Fannie and Freddie Over Clean-Energy Program,” *Grist*, July 13, 2010.

18 Original federal district court ruling: Chief District Judge Claudia Wilken, *State of California v Federal Housing Finance Agency*, U.S. District Court for the Northern District of California, August 26, 2011. This was the lengthiest in-depth judicial analysis produced in this process. For appellate court ruling, see U.S. Court of Appeals for the Ninth Circuit, *County of Sonoma, People of the State of California, et al v Federal Housing Finance Agency* (March 19, 2013).

19 For more on Florida PACE Funding Agency, see www.floridapace.gov/about (which is being funded by \$2 billion state bond).

20 Needles Desert Star, “HERO [Home Energy Renovation Opportunity] Financing Program Approved,” June 18, 2013.

21 Sonoma County comments in response to “Re: RIN 2590-AA53, Notice of Proposed Rulemaking on Enterprise Underwriting Standards Relating to Mortgage Assets Affected by PACE Programs”(Federal Register, Vol. 77, No. 17, September 12, 2012).

22 FHA wrote just 1,066 Energy Efficiency Mortgages (EEM) nationwide in 2007. Gerarden, Todd “Rebuilding Mortgages for Energy Efficiency” (Federation of American Scientists, 2008). Efficiency Maine, “Energy Efficient Heating Options: Pilot Projects and Relevant Studies” (April 8, 2013).

23 <http://www.nyserda.ny.gov/Energy-Efficiency-and-Renewable-Programs/Green-Jobs-Green-New-York.aspx>

22.6 percent, in no small measure because financing is more arduous and time-consuming than PACE, and the project sales cycle is much longer for NYSERDA (120-180 days) than it is for LIGH (25-40 days). The principle of PACE has just crossed the border to Canada where Toronto “will apply a surcharge, known as a local improvement charge (LIC), on the owner’s property tax bill, to cover the cost of the retrofit.”²⁴

Sealing 80 million leaky homes nationwide will create close to 9 million jobs and save homeowners more than \$100 billion per year. Long Island Green Homes stands as proof of concept to this potential. To pick all that low-hanging fruit, government agencies will conclude, at some point, that the nation must pick up the PACE.

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24 “Residential Energy Retrofit Program” (July 24, 2013) <http://www.toronto.ca/teo/residential-energy-retrofit.htm>.