

# property assessed payments for energy retrofits

RECOMMENDATIONS FOR REGULATORY CHANGE  
AND OPTIMAL PROGRAM FEATURES



David  
Suzuki  
Foundation

SOLUTIONS ARE IN OUR NATURE



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**Property-Assessed Payments for Energy Retrofits:  
Recommendations for Regulatory Change and Optimal Program Features**

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# Executive Summary

**A** Local Improvement Charge (LIC) can be an effective way to facilitate energy improvements in Ontario. We examined the issues involved in using this existing municipal infrastructure funding mechanism, but our work gradually expanded to also consider other financing options to address the needs of stakeholders who became interested in the study.

The Environmental Commissioner of Ontario has noted<sup>1</sup> that the province needs a comprehensive energy conservation strategy in light of our GHG emission challenges: *“in 2007, the building sector was responsible for 33.4 Mt or 17 per cent of Ontario’s emissions. Between 1990 and 2007, the building sector in Ontario was responsible for 7 Mt of the 22 Mt increase in GHG emissions over this period.”*

Given the significant contribution of buildings to the province’s greenhouse gas emissions, a more energy-efficient building stock would greatly assist in achieving GHG reduction goals. It would also increase energy security, create negawatts<sup>2</sup> and protect constituents from risks of rising and volatile energy prices. The degree of human-induced climate change would be mitigated by reducing fossil fuel energy use and greenhouse gases.

Strategies to reduce energy use and GHG emissions need to be available to everyone. In a world where fossil fuel supplies are diminishing and the negative impacts of fossil fuel use are growing, it is vital to offer people at all income levels access to methods of reducing their energy costs. Doing so will enhance their cash flow and property value and help to address climate change.<sup>3</sup> And all government levels and sectors would benefit from the economic stimulus of the green jobs created by the program and the lowered health-care costs arising from pollution reduction.

Research indicates that people often need upfront financing<sup>4</sup> to conduct energy improvements. As well, many homeowners resist making energy-saving retrofits if they plan to move before they have recouped their costs through energy cost savings or before they have repaid retrofit financing.

A viable solution appears to be a modified version of Local Improvement Charges, called Property-Assessed Payments for Energy Retrofits, or PAPER, in this report.<sup>5</sup>

## **Properties of Local Improvement Charges**

LICs have been discussed previously in two reports published by the Pembina Institute.<sup>6,7</sup> LICs are financing payment obligations included on a property owner's tax bill as a surcharge until they are completely paid off. On sale, an outstanding LIC obligation remains with the property.

If an LIC payment is in arrears, it triggers a tax lien (on the defaulted payments only) and as per municipal protocols, if default continues, the municipality can proceed with a tax sale or foreclosure. Given the priority lien, an outstanding payment would take priority over any outstanding mortgage on sale and the new owner would resume the LIC payments.

## **PAPER Program Features and Benefits**

A Property-Assessed Payment for Energy Retrofits program would provide municipalities with the authority to assess energy improvement costs to properties where the owner voluntarily participates in the program.

Experience with similar programs suggests that there are some keys to success of this modified LIC. Like an LIC, PAPER financing would not become part of the owner's total debt because the financing would be assessed on the property. As well, energy cost savings would be planned to exceed payments, saving homeowners money in the first year.<sup>8</sup> And higher-cost energy improvements with longer paybacks can be made since homeowners don't pay costs upfront.

On sale, the new owner would assume the (transferable) obligation. In this way the current owner of a property both benefits from and pays for the energy improvements.

PAPER could provide property owners with two levels of financing. One could be at the \$5,000 to \$12,000 level over a term between five and 10 years, which might appeal to lower-, middle- and fixed-income earners. Another level with a \$20,000 to \$25,000 maximum might serve those wanting to do more extensive retrofits. Levels will be discussed further in a paper on strategic implementation.

## **History of an Energy Retrofits Local-Improvement Charges-Type Mechanism**

A new financial mechanism described here as a modified LIC could be used for building energy retrofits and could result in enormous reductions of greenhouse gas emissions and non-renewables' use. This mechanism was first used in Yukon<sup>9</sup> and has been authorized widely by legislation in the U.S. It is supported by a broad range of stakeholders, including all levels of government, although currently it is subject to a program freeze pending resolution of issues.<sup>10 11</sup>

In July 2010, a controversial statement by the U.S. Federal Housing Finance Agency (FHFA) resulted in a freeze in PACE residential projects (but not commercial or institutional initiatives). This decision is the subject of several legal challenges, including one by the State of California. PACE issues in relation to the Canadian milieu and strategies to address the FHFA concerns are discussed in a following financing paper.

In the United Kingdom, a similar mechanism will also be legislated under the Green Deal,<sup>12</sup> and is discussed in the body and Appendix under the Pay as You Save program. This legislation will enable property-attached financing for retrofits, which will transfer to a new owner on sale.

Provinces and communities across Canada are examining the potential of using LICs for this purpose. Nova Scotia facilitated legislative change to enable a solar thermal LIC pilot project by Halifax Regional Municipality.<sup>13</sup> Alberta<sup>14</sup> and British Columbia<sup>15</sup> are considering this, as is the City of Vancouver. The City of Ottawa<sup>16</sup> and the City of Toronto<sup>17</sup> have conducted market demand research, and a report by Ecology Ottawa describes the possibilities for that city.<sup>18</sup>

## **Common Barriers to Home Energy Retrofits**

In addition to the major barriers mentioned above (need for upfront financing and uncertainty around moving without recouping investments), several challenges have delayed the market proliferation of home-energy improvements. These include low energy prices and uncertainty about payback and a resulting value<sup>19</sup> increment; high upfront retrofit costs; lack of knowledge about energy savings leading to an industry focus on cosmetic improvements over cost-effective measures that contribute to significant energy savings; challenges with obtaining affordable financing options; awareness gaps about energy savings; uncertainty about workforce capability; and the complexity of the retrofit process. Also, energy prices have been relatively low and have not included sources' related health and environmental costs, which has limited the business case.

## **Local Governments Are Optimal Facilitators of Energy Retrofit Programs**

There are several reasons why municipalities are optimal facilitating hubs for energy retrofits:

1. Using the LIC mechanism, municipalities can provide upfront energy retrofit financing to homeowners at no cost to the municipalities. If carbon credits are assigned to the municipalities and carbon markets develop, this could result in significant income potential. Municipalities already engage in many initiatives to reduce energy use and GHG emissions. Supports they provide include financing for institutional, commercial and industrial initiatives, but few municipalities have similar programs for the residential sector. Currently, financing institutions do not offer the key features of an optimal retrofit financing program, as discussed below.
2. Retaining energy improvement costs with the properties using a form of Local Improvement Charge means that an owner's debt load is not affected, as eligibility

- is based on other criteria. It also means that when an owner moves, payments would be continued by the new owner. This solves the problem for existing owners reluctant to take on energy retrofits which they would continue to repay while a new owner benefits from them.
3. LIC payments that are in default are subject to a priority lien, so defaulted payments are paid first in case the property is then sold. This provides a high level of security for municipalities and their investors.
  4. Municipalities already have established administrative processes to collect property taxes and Local Improvement Charges. Twenty five per cent of Ontario municipalities already use this mechanism.
  5. Municipalities can provide access to a turnkey program, which addresses the enormous complexity involved when owners conduct energy retrofits on their own.
  6. By selectively funding cost-effective energy retrofits the municipality and its partners would have greater indirect control over program impacts. As well, local governments can require participants to attend educational sessions aimed at behaviour change.
  7. The municipality can obtain lower interest financing than would be available to homeowners through the private sector.
  8. Because taking a credit rating is not possible in determining eligibility for LIC financing,<sup>20</sup> the municipality's default risks would be mitigated by additional security, which could be facilitated through a type of loan guarantee program, an insurance product like CMHC Mortgage Loan Insurance, a guarantee of energy savings scalable to the residential sector, or a combination of an extra payment and a loan loss reserve fund in case of delinquent payments, and which would pay down the obligations early near the end of term.
  9. Municipalities have the capacity to encourage neighbourhood-scale initiatives, thereby making installations more cost effective and efficient. As well, community-wide programs would result in more proximate energy efficient comparables, which could enhance the properties' appraised value.

## **Rationales for Provincial and Federal Support of a Municipal PAPER Program**

Lowered energy infrastructure costs, maintenance<sup>21</sup> and expansion expenses, as well as reduced environmental costs, heat island and health impacts<sup>22 23</sup> would be realized by the provincial and federal governments from conservation and demand management activities. These economic and health benefits would accrue to provincial budgets, and to the general economy and population.<sup>24 25 26</sup> Increased employment in green jobs could also have an enormous positive impact on provincial and federal revenues. These benefits should be shared with municipal governments<sup>27</sup> in support of collaborative program development as the provincial and federal governments could also assist with financing, loan loss reserves and other initiatives to help make PAPER programs revenue neutral.

## Creating an Effective LIC Regulation for Local Government

The current LIC mechanism needs some amendments to make this proposal work (# 1–4 below), and to extend existing LIC provisions to the new PAPER mechanism (# 5–7).

1. **Defining reduced energy use and GHG emissions as a public benefit.** One of the points maintained by the body challenging PACE financing (and hotly disputed by PACE supporters) was that energy improvements did not represent a public benefit. Articulating this would safeguard from such challenges. Programs would contribute to municipalities' achieving targets for lowered energy use, GHG emissions reductions, avoidance of climate change impacts, and a green jobs economic stimulus.
2. **Explicitly noting that municipalities are permitted to use LICs for energy improvements on private property.** Since these uses are not articulated in current legislation, municipalities are reticent about interpreting the legislation in this way.
3. **Amending the allocation criteria for the retrofit costs.** For example, allocations for sidewalks have been based on frontage as per the legislation, instead of total costs.
4. **The mechanism needs to be voluntary, and the process simple.** Currently, if two-thirds of homeowners in a region vote for an LIC measure, all homeowners in that region would be mandated to participate (after due process). This feature has resulted in a complex process requiring approvals and appeals, which can be time-consuming and costly.
5. **Like an LIC, PAPER financing would stay with the property.** The financing also would not impact owners' debt totals.
6. **Continuing the priority lien status of defaulted payments for PAPER financing** would provide security for municipalities and their investors.
7. **Maintaining O. Reg 403/02** as part of any regulatory change is necessary to enable a PAPER-type mechanism. This regulation allows a municipality's general obligation bonds that are issued to finance LICs, to be adjusted from the municipality's debt totals.<sup>28</sup>

## Beyond the Enabling Regulation

Next steps after the enabling regulation will require some key program features. These are:

1. **Stakeholder collaboration and federal/provincial government supports.** Once an amended, optimal regulatory mechanism is in place, implementation will require a collaborative approach to meeting stakeholders' needs and addressing their challenges.
2. **Cost-efficient programs.** Programs need to be low cost and efficient in delivery for both the municipalities and the homeowners.
3. **Ability to access low-interest financing from municipal investors.** Low effective interest rates for program participants would help enable cost savings to be greater than payments.
4. **List of energy improvements with realistic, high cost-benefit value.**

Municipalities, owners and lenders need confidence in reliable energy evaluations that result in a credible list of energy improvements to optimize energy savings for every dollar spent.

5. **Effective marketing by and to stakeholders.** The economic benefits of this program to society should be marketed and promoted by all levels of government, as well as the appraisal, finance and real estate sectors. The program will also need to be marketed *to* all stakeholders to show how implementation of the concept would address each sector's needs, challenges and concerns. The inclusion of provincial government support for this work would also help defray municipalities' costs and facilitate a coordinated approach.
6. **Program is revenue neutral.** An effective program should be revenue neutral so municipalities' budgets are not negatively impacted and owners are not subject to property tax increases from resulting value increments to the home. (According to the Ontario Assessment Act, machinery and equipment for energy generation and energy conservation will be exempt from property taxes;<sup>29</sup> it would also be important to clarify the inclusion of, for example, insulation and passive solar measures in these tax exempt categories.) Federal and provincial collaboration on the program (since their budgets will benefit from it) would help defray costs. Municipalities should also have program carbon credits assigned to them so that future carbon markets would create significant ongoing income.
7. **Program does not threaten pre-existing mortgages.** Measures would be included to alleviate lender concerns. Program participants would be required to obtain permission from their existing mortgage lenders. Further, only defaulted payments would be applied as priority liens. Requiring a minimum level of homeowner equity would address mortgagees' default concerns. Another option might be to mitigate risk via a product attachable to PAPER that is similar to CMHC's Mortgage Loan Insurance. And, the value increment arising from the improvements would be a mitigating factor.
8. **Program financing measures provide a municipality with protection from defaults.** Several methods could serve this role. These include eligibility criteria such as loan-to-value ratio, allowing financing of energy improvements up to a maximum allowable percentage of property value, ensuring savings exceed costs, including extra payments into the overall financed amount to hedge against delinquencies, and providing access to guarantees as well as energy savings guarantees, if scalable to the residential sector.
9. **Program financing provides municipality with capability to sell LICs to a third party.** It is important for municipalities to have the authority to sell energy retrofit LICs to banks. Banks could benefit by having the municipality administer the LIC financing and issue a cheque to the bank twice annually for the aggregated payments. And, the municipality would benefit from the bank's enforcement services in case of default. Each party would benefit from its own infrastructure capability while reducing the other party's costs.

## Recommendations

### PROVINCE

1. Implement regulatory change for Local Improvement Charges to enable clear authority for municipalities to use LICs for energy improvement retrofits on private property.
2. Amend the cost allocation method to accommodate retrofit costs and make the mechanism set-up process simple.
3. Recognize the public benefit of the private energy improvements.
4. Enable municipalities to have the authority to sell the LIC financing to banks.

### FEDERAL, PROVINCIAL AND MUNICIPAL GOVERNMENT LEVELS

1. Support a collaboration to develop PAPER programs, including providing appropriate technical assistance, to enable optimal energy savings per dollar spent.
2. Provide support via low-interest financing, loan guarantees/loan loss reserves, and for addressing the scalability of energy savings guarantees for the residential sector.
3. Support the development of a blended product like CMHC's Mortgage Loan Insurance for PAPER to decrease default risk further.
4. Provide incentives like energy efficiency income tax credits.
5. Ratchet up building and appliance/equipment energy efficiency standards.
6. Time of Sale energy evaluations or building labels would help differentiate energy efficient homes and enable higher sale prices for homeowners.
7. Address other code, regulatory and systemic barriers to energy efficiency retrofits, such as providing protection for solar access while recognizing the benefits of vegetative shade.

### FINANCE, REAL ESTATE AND CONSTRUCTION SECTORS

1. Include energy efficiency features in Multiple Listings and include energy cost savings in appraisals.
2. Participate in financing partnerships with municipalities, including purchasing PAPER-based financing so that municipalities service the PAPER obligations and the banks provide enforcement as needed.
3. Ensure service providers' skill levels can enable delivering reliable energy savings.

### ALL SECTORS, INCLUDING NGOS AND UTILITIES, COLLABORATE TO:

1. Raise market awareness of energy efficiency benefits.
2. Determine optimal program implementation features.

## Overview of this David Suzuki Foundation project

The David Suzuki Foundation is supporting a project through funding from the Trillium Foundation. This work is to help implement a promising new approach to home energy efficiency retrofits in Ontario, using the long-established local government mechanism of Local Improvement Charges (LICs).

This mechanism is widely considered to overcome some of the biggest barriers that dissuade homeowners from investing in home efficiency retrofits. It has been widely championed in North America during the past few years but has yet to be implemented in Ontario. The first year of this project involved researching the challenges to adapting LICs to a Property-Assessed Payments for Energy Retrofits (PAPER)<sup>a</sup> mechanism. This mechanism with optimal program parameters would enable revenue neutral municipal financing of low-rise energy retrofits.

There are three papers arising from this work. In the first, the primary focus is articulating the optimal residential energy retrofits mechanism including regulatory amendments and features of an ideal program. The financing mechanisms discussed are LICs and a modified LIC used for a Property-Assessed Payments for Energy Retrofits (PAPER) program.

The research gradually expanded to consider financing alternatives to address the needs of stakeholders who became interested in the study. This is the subject of a second paper and includes analysis of utility on-bill financing, municipal Community Improvement Plan loans, the Ontario Affordable Housing program, and private sector financing. The latter encompasses mortgage refinancing, CMHC Mortgage Loan Insurance,<sup>b</sup> 2nd or 3rd mortgages, chattel mortgages, home equity loans, loan guarantees and energy savings guarantees.

A third report on strategic implementation recommendations is scheduled for publication in 2011.

A broad range of literature and stakeholders was sourced. The latter included staff in all levels of government; industry practitioners in the energy retrofit, green building, finance and real estate sectors; ENGOs; and the public.<sup>30</sup> The project's geographic coverage extended from Ontario to other regions that had considered, conducted, or were undergoing similar initiatives in Canada, the United States and the United Kingdom.

This study is one piece of the enormous puzzle to optimize approaches to residential energy efficiency to which many individuals and organizations have been contributing for decades.

a The name and acronym for this program will change.

b Canada Mortgage and Housing Corporation Mortgage Loan Insurance:  
[http://www.cmhc-schl.gc.ca/en/co/moloin/moloin\\_005.cfm](http://www.cmhc-schl.gc.ca/en/co/moloin/moloin_005.cfm)

## Scope of Report

In recognition of the tremendous opportunities that the implementation of a Property Assessed Payments for Energy Retrofits (PAPER) program could provide Ontario, this report outlines:

1. the reasons for implementing a PAPER program in the province, including rationales for local governments' role as program facilitators and for provincial and federal support of the municipal programs
2. the basis for an LIC-type mechanism to be used for PAPER, involving descriptions of what a PAPER program would entail as well as key financing alternatives
3. an effective LIC regulation for this use, including characteristics of an optimal LIC and suggestions for legislative change
4. topics to be addressed beyond the enabling regulation.

The focus of this report is single-family dwelling residential properties and their owner occupiers who do not rent out space in their homes. This includes detached and semi-detached homes, town homes and row houses. The complexity of residential owner/tenant fiscal and utility payment relationships have precluded rental housing from being examined in this paper.

The paper is intended for use by municipalities and energy retrofit stakeholders in Ontario, including owners, service providers, lenders and the real estate community. Please note that there are many differences in legislation and utility activity between Ontario and other provinces and territories in Canada, and that the options and recommendations in this paper may not be applicable to other areas of Canada. While this paper seeks to address the needs of all municipalities in Ontario, it should also be noted that there are significant differences in the powers exercised by a charter municipality (a local government with its own act), and non-charter municipalities, as well as between larger and smaller communities. These differences should be kept in mind when reviewing the report's options and recommendations.



# 1. Energy Retrofit Challenges and the Need for a Financing Mechanism

## Barriers to Home Energy Retrofits

At present, a variety of barriers dissuade most homeowners in Ontario from considering significant investments in energy efficiency retrofits.

**Low energy prices.** Even in a scenario of rising energy prices, the current low rates impact the business case for energy improvements, relative to other jurisdictions or other time periods.

Further, current energy prices do not include electricity and gas energy sourcing costs, expenses due to maintenance or replacement, or costs externalized to taxpayers arising from the health and environmental impacts of non-green alternatives like coal-fired,<sup>31</sup> gas-fired<sup>32</sup> and nuclear plants.<sup>34</sup> Not only have the comparatively low prices restrained interest in alternatives such as conservation and demand management<sup>35</sup> (negawatts) but they also have not been offset by a matching, significant interest in and government support for energy efficiency and non-fossil fuel, clean energy alternatives, which would have galvanized a focus on energy improvements at a much earlier date.<sup>36</sup>

**High upfront costs for retrofits.** Higher-cost measures like improved home insulation or installing heat recovery equipment are very cost-effective, but the initial capital cost dissuades many homeowners from investing.

Over half of Toronto homeowners who didn't engage in any energy improvements, or who didn't do all recommended improvements post-audit, noted that the high cost of energy improvements was a barrier to retrofitting their properties.<sup>37</sup> An Ipsos Reid Public Affairs Alberta study for Climate Change Central also found that large upfront costs were recognized as a barrier to green home improvements.<sup>38</sup>

**Uncertainty about recouping investment from long-payback energy-efficiency improvements.** If owners take out a bank loan or add to their mortgage or line of credit to finance energy efficiency improvements in their home but sell their property before the

loan is repaid, they would be paying for measures from which they do not get full benefit. If homeowners also believe they would not obtain a property value increment on sale that is at least equal to any remaining obligation, this is another disincentive to invest.

The quick turnover of many homes in Ontario<sup>39</sup> relative to the time period required for a return on investment for more capital-intensive home energy improvements appears to be a significant barrier to investment.

**Homeowner and industry focus on cosmetic improvements over energy-saving improvements.** It is important that property owners not focus their attention on cosmetic improvements instead of cost-effective energy saving improvements. For instance, 49 per cent of those surveyed who had had energy retrofits in the City of Toronto study<sup>40</sup> replaced windows, a high-expense item with long payback. This challenge is in part due to lack of industry and public knowledge about the energy cost savings of an energy-efficient home.

**Lack of affordable options for financing energy efficiency improvements.** The highest interest rates tend to be offered to people on lower incomes, even those who are fiscally responsible. Those on fixed incomes with little to no mortgage may not have sufficient available cash to finance energy improvements and may not be inclined or able to take out a home equity loan. Yet it is these segments that are the most vulnerable and need the greatest protection from fossil fuel risks, including currently rising energy prices. Energy improvements to their homes would free up funds for other uses. Homeowners with middle incomes have many competing uses for their available cash or borrowed funds and may not want to add to their debt totals (which would be a feature of private financing).

**Ontario financial institutions lack low-interest, unsecured long-term energy retrofit loans.** The issue is complex. Some credit unions and banks have issued green loans; at least one bank has a green mortgage.<sup>41</sup> Owners with good credit ratings could use lines of credit.

However, credit has been tightened in this economy,<sup>42</sup> and recently lenders in Ontario noted that they require security for energy improvement loans,<sup>43</sup> although there is at least one unsecured loan product that requires energy evaluator signoff. And due diligence to ensure that the energy improvement measures are installed beyond an energy auditor sign-off (in one known example) is not typically conducted in Ontario given the current shaved interest rate spreads.<sup>44 45</sup>

One representative of a major bank stated that retrofit financing is accessible at the institution through mortgages and loans (with security depending on the owner's situation). He noted that the bank had previously marketed an "ecosave" mortgage and loan but got very low uptake as "people wanted granite countertops."<sup>46</sup> He acknowledged the need for greater promotion given the awareness level of energy improvement benefits.

However, private sector products require credit ratings, and requirements for credit ratings add to fuel poverty,<sup>47</sup> which leads to greater health risks<sup>48</sup> and therefore health costs. As noted previously, fiscally responsible people living on lower incomes may be much less likely than those on higher incomes to obtain additional credit for energy improvement purposes.

Given the problems with access to capital described above, as well as the economic situation, it is perhaps not unexpected that Toronto owners surveyed have tended to use cash

to finance the energy improvements. Eighty two per cent of Toronto homeowners who had conducted energy improvements in the previous five years had used cash or savings. Only 18 per cent had used debt, including three per cent who had used a personal loan, seven per cent who used a line of credit, six per cent who put the costs on their credit card and two per cent who used a home equity loan. About one-third of those surveyed had had energy assessments done. Of that group, 63 per cent didn't do any or all or the recommended improvements and 42 per cent found them too expensive.<sup>49</sup>

The consequences of the above challenges are a lack of accessibility to energy efficiency measures for people living on lower, middle and fixed incomes when upfront costs are not supported. This is particularly important when owners are uncertain about how long they will remain in their homes.

**Awareness gaps about the existence and degree of energy retrofits' impacts on energy savings.** Additional barriers include lack of knowledge on the part of various stakeholders. Residential real estate and lending industry stakeholders do not understand the impacts of energy improvements on operational savings. The UK Royal Institution of Chartered Surveyors reported that owners' and realtor sector barriers included an information gap about retrofit needs, measures and impacts. They also found that owners had insufficient reliable information about appropriate measures to achieve energy savings and procurement; even though Energy Performance Certificate home energy ratings were available, they were not well understood by sellers, buyers and realtors.<sup>50</sup> All sectors need links between measures, costs and energy savings to understand what measures will optimize energy savings per dollar spent.

**Uncertainty and complexity of retrofit process.** Homeowners surveyed by the City of Toronto reported that uncertainty about retrofit workforce capabilities was a factor in their decision to not move forward with post-audit improvements.<sup>51</sup>

Chris Corps of Asset Strategics notes eloquently how the retrofit process complexity presents challenges to scaled-up residential energy efficiency:<sup>52</sup>

*... "homeowner[s have] jobs, families, mortgages, parent teacher evenings, hockey practice, dance recitals and much more occupying their family schedule. They bought the home and are paying for the existing utility bills. They are probably struggling. Energy retrofit has to work within this context. If it doesn't work for the homeowner, it either has to be enforced through regulation; or encouraged ...*

*"The process for the average homeowner considering energy retrofit is daunting. Code compliance, planning and related municipal processes, permits, inspection, fees, charges and taxes present an unfamiliar and arguably overwhelming complexity, risk and cost to anyone thinking of energy retrofit. This also assumes the homeowner has the money and if they don't then the lending process is the final barrier (and focus of the current report).*

*"To help the homeowner pass through the eye of the bureaucratic needle requires an energy expert, whose evaluation is usually needed to satisfy lenders.*

*Finding an energy advisor implies the homeowner trying to identify someone qualified and competent — both of which have to be validated — and who they can trust (another hurdle). They may not know who is properly certified or what certification or qualification to seek. They may not know where the energy advisors are listed or how to go about asking.*

*“Lenders may vary in the qualification they require or which individual consultant is acceptable. Although a good advisor will know about grants, the process for these can be labyrinthine and increase risk: with the grant the project is viable but without it, the project doesn’t proceed, yet the homeowner may be on the line for the advisor’s costs anyway. Not all energy advisors view energy saving projects the same way, so it is not obvious what the project potential might be and thus, which is the right advisor, who might be qualified, how to qualify them, and so on.*

*“Assuming an energy professional can be found who is suited and qualified, competent, available, reasonably priced and they come up with recommendations that find savings, the next challenge is the process of applying for municipal, regional, provincial and federal compliance. Assuming these are also capable of being economically satisfied, can be dealt with, there remains the task of identifying a qualified supplier and getting bids, contracting, overseeing and paying for the work.*

*“All of this adds to the mountain of process risk to the average family, for which the benefit is not readily identifiable and the finances for which are questioned. With so many Canadian family finances highly leveraged, the process of finding an understanding lender willing to finance a highly leveraged borrower’s energy initiative adds appreciable challenge to aspects such as payback, repayment and loan security. Given the mountainous process challenges it is little wonder that even the knowledgeable and competent homeowner does not embark on the journey of retrofit.”*

## **Existing Home Retrofit Programs in Ontario**

The EnerGuide and ecoENERGY retrofit programs, laudable in intent, and the Ontario HESP program, are due to wind down in 2011 and there is no replacement program yet. Almost five per cent of Ontario homes have been retrofit under the ecoENERGY program thus far.<sup>53</sup>

The challenges of implementing Ontario energy retrofits to date and the market size indicate that there is a significant need for a financing program that would help to accelerate uptake.



## 2. The Potential of an LIC-Type Mechanism to Enable Scaled-Up Retrofits

**T**he first known use of a property-attached mechanism for energy improvements was in the Yukon, in 1998.<sup>54</sup> The first region to pilot thereafter was the City of Berkeley, followed by other regions in California and Colorado and the Town of Babylon in New York State. The White House Council for Environmental Quality has recommended this initiative, called Property-Assessed Clean Energy (PACE), and has provided policy support and millions of dollars in Recovery Act funding designed to leverage billions more from other sources. Twenty-four states passed enabling legislation and many other regions commenced pilots. Endorsers include mayors, senators, 68 Members of Congress, the Royal Bank of Canada (bond underwriters for the CaliforniaFIRST PACE program), the American Institute of Architects and ICLEI. This program has been part of a major U.S. economic and green jobs stimulus package.<sup>55</sup>

Similar financing mechanisms are being explored in the United Kingdom. In 2009 the U.K. Green Building Council produced a report that included input from key stakeholders concerning a similar concept, entitled Pay As You Save (PAYS). The U.K. government's Department of Energy and Climate Change (DECC) then provided funds for the ENGO Energy Saving Trust to develop pilot programs to test the PAYS approach.<sup>56</sup>

There are now five U.K. pilot projects underway, testing methods to finance energy improvements upfront. Some of them include attaching repayments to properties rather than property owners, although transferability to a new owner is not yet part of the pilots. The U.K. government has announced that it will introduce legislation for the Green Deal,<sup>57</sup> which will allow attachment of the energy improvement costs to property in order to address the reluctance of people to engage in such improvements if they plan to move before the financing would be repaid.<sup>58</sup>

An increasing number of governments across Canada are now actively analyzing the possibilities for implementation of property assessed payments for energy retrofit programs. Nova Scotia enacted legislative change to enable Halifax Regional Municipality's solar

thermal LIC project.<sup>59</sup> British Columbia,<sup>60</sup> Alberta,<sup>a</sup> and several municipalities are considering this mechanism, including the City of Vancouver.<sup>61</sup> The City of Ottawa<sup>62</sup> and the City of Toronto<sup>63</sup> have conducted market demand research and the results are discussed in this report. A report by Ecology Ottawa also describes the possibilities for that city.<sup>64</sup>

Modification of the existing LIC and application of the mechanism with specific program features would produce an optimal financing tool for home energy retrofits that mitigate risks for multiple stakeholders, including municipalities, homeowners, financing entities and existing mortgage lenders. The rationale for this new mechanism is made in the following sections of this report.

## Property Assessed Payments for Energy Retrofits (PAPER)

### INTRODUCTION

As of this writing, there is no new program in Canada that uses LICs for energy improvements. Within Ontario, existing provincial legislation does not allow Ontario homeowners to access upfront capital via LICs for energy improvements attached to property and transferable to the new owner on sale, with repayments as surcharges to the property tax bills. However, energy-saving programs are currently being considered, in part arising from the author's work on this project for the David Suzuki Foundation. Optimal energy improvement program implementation via LICs would require some regulatory changes, discussed in a following section.

The growing use and consideration of this mechanism around the world – and increasing interest in its adoption in Canada – suggest that a tipping point has been reached that offers the potential for enormous benefits to the economy, society and the environment.

### PAPER Program Features and Benefits

A 2004 Pembina paper<sup>65</sup> identified key characteristics of a Property Assessed Payments for Energy Retrofit type of program, notably that:

- a) Municipal governments would provide upfront financing for capital energy improvements done voluntarily on private properties.
- b) The improvement costs would be associated with the property and repaid as a separate assessment on the property tax bill.
- c) The annual payments would be less than the annual energy savings arising from the improvements.
- d) On sale, the new owner assumes the payments and benefits from the savings. The measures financed were expected to require medium to large loans (\$5,000 to \$20,000), over a term greater than five years.<sup>66</sup>

a The Alberta government formed Climate Change Central in 1999 “as a public-private catalyst for action and ideas, working with municipalities, health regions and educational institutions, and consulting with Albertans across the province.” Source: Alberta’s 2008 Climate Change Strategy: Responsibility / Leadership / Action. <http://environment.alberta.ca/01757.html> downloaded October 2010. Climate Change Central was one of the supporters of the first 2004 Pembina Institute report and has conducted market demand research more recently.

Major benefits of this kind of financing mechanism would include:

1. The financing program is delivered at no cost to the municipality. (If carbon credits are assigned to the municipality, carbon markets could produce significant income.)
2. The capacity to provide financing for middle- to high-cost retrofits at low interest. These can significantly reduce energy bills and reliance on fossil fuels. Deep improvements are enhancements to energy efficiency that go beyond quick-payback measures like improved lighting or high-efficiency appliances.
3. The property owner can save money on energy bills beginning in the first year if the program is planned so that savings on energy bills exceed financing payments.
4. That the obligation remains with the property reduces barriers to installing energy improvements if an owner plans to move, as the new owner would assume the obligation.
5. The energy retrofit financing obligation does not add to the owner's debt.
6. Bond investment for LIC energy retrofit financing is adjusted from the municipality's debt totals.
7. Energy and cost savings from the installed improvements would be reliably predictable.

The private sector cannot address all of these benefits, but municipalities can.

It is helpful at this stage to understand the mortgage profiles of Canadians. The following facts are from a recent paper entitled *Canadian Mortgage Market Primer*, by Eric Lascelles, TD Securities' Chief Canada Macro Strategist:

- More than 50 per cent of Canadian homes are mortgage-free.
- Of homeowners who have mortgages, equity represents just over 50 per cent of the home's value.
- Only one per cent of homeowners with mortgages have negative home equity.
- Four per cent of homeowners have equity lower than five per cent of their home's value.
- Almost 50 per cent of Canadian mortgages are insured, versus 15 to 30 per cent of U.S. mortgages.

PAPER financing could involve two tranches. One might range from \$5,000 to about \$12,000 for lower-income, middle-income and fixed-income earners. The second might finance deeper retrofits of up to about \$25,000 (this aspect would be developed further as part of implementation).

An example of a pilot retrofit financing program where the financing is attached to the property is the Town of Babylon's *Long Island Green Homes*.<sup>67</sup> This is a BACE initiative (for Benefit-Assessed Clean Energy), differentiated from PACE programs (property-assessed). This is the only U.S. pilot program in which savings were specifically designed to exceed financing payments for property-attached energy improvements. Homeowners' credit ratings were not used in this program and the financed amount was not attached to owner debt totals.

Overall administration costs for the program were about 12 per cent in 2009 and 10 per cent in 2010, with the qualifier that these are rough approximations. Participants paid a financing rate of three per cent. The Town based this figure on an interest rate of zero per cent plus three per cent, which the Town's financing reserve fund would have earned had it invested the funds on the money market instead of the energy retrofits.<sup>68</sup>

Owners are invoiced monthly; this bill is not associated with the biannual property tax payment. Only an ongoing delinquency would trigger a "levy assessment" of the delinquent amount onto the property tax bill. As of August 2010, after 302 completed jobs totalling about \$2.56 million, the following (actual, not estimated) data were obtained<sup>69</sup>:

- average project costs \$9,015
- average annual savings \$1,069
- average payback is about 8.8 years
- average savings to investment ratio is 1.88.
  
- total CO<sub>2</sub> saved on an annualized basis is about 1,156,844 kilograms or 1,157 tonnes
- total annual electricity savings: 144,359 kWh (representing about 56,313 kilograms CO<sub>2</sub> saved)
- total annual oil savings: about 347,190 litres (about 931,228 kilograms CO<sub>2</sub> saved)
- total annual natural gas savings: about 29,111 CCF (about 155,351 kilograms CO<sub>2</sub> saved)
- total annual propane savings: 9,168 litres (about 13,952 kilograms CO<sub>2</sub> saved)
  
- average HVAC costs were 37 per cent of the total cost of all measures used in the average LIGH house
- average attic insulation and air sealing, 29 per cent
- average basement insulation, 12 per cent
- average DHW, 10 per cent
- average wall insulation, eight per cent
- average miscellaneous, three per cent
- average windows, one per cent
- average lighting, zero per cent
- average comfort and safety, 0 per cent

## Existing Policy and Finance Mechanisms in Ontario

Regarding how energy improvement costs might stay with properties on sale instead of being owners' personal loans (i.e., attached to the owner), there are two existing legislated mechanisms for Ontario municipalities: Local Improvement Charges (LICs) under the Municipal Act, and loans under Community Improvement Plans (CIPs), under Section 28 of the Planning Act. These measures differ in their features and financing, with LICs having some superior features that CIPs loans do not. LICs are discussed immediately below as they offer the better solution, as long as adjustments are made to facilitate the PAPER program. CIP loans are discussed in the second, financing report.

## Local Improvement Charges (LICs)

Local Improvement Charges are municipal financing mechanisms that allocate infrastructure costs for public benefit and community enhancement to properties whose owners benefit from the improvements. Typical uses include funding sidewalks, street lights, sewers, curbs and gutters, and building a local park, uses that abut or are in proximity to the benefiting (and paying) properties.

According to Ontario Ministry of Municipal Affairs and Housing staff,<sup>70</sup> “although the regulation does not currently list energy retrofits as a sample type of work, the list is not limiting and ... any capital work could be undertaken as a local improvement.” LICs are legislated under the Ontario Municipal Act, 2001, and the City of Toronto Act, 2006. LICs allow costs to be paid for by a municipality upfront, with the homeowner repaying these costs to the municipality via a long-term surcharge on the property tax bill.<sup>71</sup> Note these are not property tax increases.

There are specific features of LICs that would make this mechanism attractive for financing energy improvements. However, several other aspects are both restrictive and unappealing to municipalities. The following addresses the benefits first, then the limitations.

### BENEFITS

This mechanism provides low-interest financing for capital measures, which many homeowners need to be able to conduct deeper energy improvements and to take advantage of available energy retrofit incentives.

An existing municipal process is used for collecting and enforcing repayments, namely the property tax system, which apart from Local Improvement Charges, also collects educational taxes; water, sewage and solid waste fees; and Business Improvement Area payments.<sup>72</sup>

The security to the municipality in issuing the LIC is also an attractive feature for both investor and local government: if property taxes or LICs are unpaid, delinquent amounts are subject to a “tax lien”, which has priority over other debts on the property, including mortgages. This security is what lowers the interest rate and this rate can be passed on to the homeowner.

The triggering of a tax lien may also constitute a violation of a mortgage covenant, if one exists; covenants require the mortgage payments to not be superseded by a higher priority lien (such as an LIC), or the mortgage would then go into default. This is actually a major challenge as well and is discussed in the limitations section below along with a solution. As a consequence of this feature, however, LICs tend to have low default rates.<sup>73</sup>

Further security would arise from the reduction in energy bills, as well as the potential for an increase in property value arising from the energy improvements supported by the LIC. The former would increase the property owner’s ability to repay the LIC financing as well as the mortgage payments. The latter, in the case of property tax sale or foreclosure, would result in the increased value being used to cover the mortgage, including the small priority lien (relative to the mortgage) arising from one or more years’ outstanding LIC payment for the energy improvements.<sup>74</sup>

As well, any increase in property value from the energy improvements<sup>75 76 77</sup> would provide the mortgagee with greater security. And, mortgage on a conventional property becomes a mortgage on an energy efficient property (and likely a more valuable mortgage) without any effort by the mortgage lender.<sup>78</sup>

LICs in Ontario automatically stay with the new owner on property sale, without the necessity of securing permission from the municipality. This feature would remove the disincentive to conduct energy improvements experienced by property owners with a short or uncertain continued stay in the home. Owners do not want to invest in measures that they won't benefit from. In practice, LICs can be paid out or transferred.

Another LIC feature that is similar to U.S. PACE/BACE financing is noted by Dorian Dale, Energy Director and Sustainability Officer for the Town of Babylon. He states: "The fact that these obligations do not get lumped into a homeowner's indebtedness has been one of the key barrier breakers along with passing the balance should the homeowner move, plus the cash neutrality of this proposition."

Finally, the way an LIC regulation is set up, eligibility cannot be assessed based on income and this prevents taking a credit rating.<sup>79</sup> This is both a benefit and a challenge, depending on the stakeholder affected. (For instance, it is logical that for municipal financing of curbs and sidewalks a property owner's credit worthiness should have no bearing on the entitlement to these measures.)

Features that address access to credit are benefits in terms of social equity and in cases of energy poverty: people living on lower or fixed incomes are at greatest risk of rising and volatile energy prices.

Refraining from using a credit rating is seen as a benefit in the U.S. due to the possibility of using their (LIC-like) measure to finance energy improvements similar to a simple energy savings company (ESCO) contract. In this case the investment term is longer because of the longer useful life of the improvements (e.g., 10 to 25 years) so that the benefits (savings) exceed the costs (payments).<sup>80</sup>

This net cost savings requirement, along with prior written consent of the mortgage lender, an acceptable loan-to-value ratio and proportion of property value, the senior lien status and provisions in case of default described above, in addition to other criteria<sup>81</sup> together reduce the risk associated with not taking credit ratings.

In the event of default, the priority lien on the delinquent payments ensures the improvement costs are recovered before other debts. In fact, Brandon Belford of the U.S. Department of Energy Recovery Act Team states<sup>82</sup> that if a program is designed correctly, credit scores would not matter. As well, he noted if the U.S. PACE programs were to require a credit rating this would put the loan transaction under different laws for consumer protection.

See Chapter 4 for a discussion of effective LIC regulatory change.



## 3. Local Governments Are Optimal Program Facilitators

**A**n optimal home-energy retrofits program would have partners with responsibilities for:

- Enabling regulatory change.
- Ensuring that a skilled workforce conducts the energy evaluations; makes reliable recommendations of energy retrofit measures; and reliable estimations of expected energy and GHG reductions from installing those measures. This would optimize energy savings per dollar spent.
- Technical assistance to enable identifying which measures result in reliable, actual reductions in energy use, energy costs and GHG emissions.
- Establishing workforce protocols and accreditation processes to engender confidence in skill levels.
- Providing financing to the program.
- The overarching role as a facilitator, uniting the partnerships. This role does not require the facilitating partner to be burdened with the costs of delivering the program (this feature is discussed in Chapter 4).

This section describes why in Ontario, local governments are optimal facilitators for home energy-retrofit programs.

### **Municipalities' Optimal Facilitator Characteristics**

Municipal governments have financing features and specific program control capacities that are not available within the Ontario private sector or other levels of government.

### **MUNICIPALITIES CAN PROVIDE UPFRONT FINANCING**

Current federal and provincial incentive programs have not provided financing, which has been a barrier to many owners actually benefiting from those incentives. Further, these higher level government incentives are being retired. As noted, municipalities can provide upfront financing for improvements via Local Improvement Charges. Financing options offered by banks and credit unions lack many key features that LIC programs offer.

### **MUNICIPALITIES CAN ALLOW COSTS TO STAY WITH PROPERTIES**

Key barriers to energy retrofit investment are removed by using LICs because owners could invest (and benefit) no matter how long they planned to stay, knowing that any obligation balance would be repaid by the new owner. No other government level has this authority. And LICs do not affect owners' debt totals, unlike private financing.

### **MUNICIPALITIES CAN PROVIDE PRIORITY LIEN STATUS TO OVERDUE PAYMENTS TO MITIGATE DEFAULT RISK AND ENABLE LOW RATES**

As noted previously, payments for Local Improvement Charges<sup>83</sup> are a special assessment that is included on the owner's property tax bill and are subject to a priority lien on default. An entity that provides a municipality with financing for its LICs would have a higher level of security on that financing and therefore could offer lower interest rates.

Dorian Dale, Energy Director at the Town of Babylon, concurs, noting there is "no question that interest rates go up absent the senior lien status. In the case of municipalities providing finance it would be contrary to our fiduciary responsibility."<sup>84</sup>

### **MUNICIPALITIES ALREADY COLLECT PROPERTY TAXES**

Municipalities already have established administrative processes to collect property taxes and Local Improvement Charges. In 2008, 126 Ontario municipalities – a little over 25 per cent – added \$19.6 million in LICs to property tax bills.<sup>85</sup> Costs of expanding this infrastructure to accommodate use of LICs for other purposes such as energy improvements would be borne by retrofit program participants.

### **MUNICIPALITIES CAN PROVIDE A ONE-STOP-SHOP PROGRAM**

Dorian Dale of the Town of Babylon observes that "the one-stop retrofit delivery model is so key to the success of these programs."<sup>86</sup> This is also referred to as a "turnkey" approach. The value of this approach is that it takes care of an owner's challenges with the enormous complexity involved in conducting energy retrofits, described in the barriers section.

### **MUNICIPALITIES CAN IMPACT OPTIMAL ENERGY SAVINGS VIA A CREDIBLE LIST OF IMPROVEMENTS AND ADDRESSING BEHAVIOUR CHANGE**

Municipalities could ensure indirectly that the best possible improvements are being made. Since recommendations and installations of measures will optimize energy savings and GHG emission reductions per dollar, the municipality and its partners would have greater indirect control over these program impacts as well.

A municipal program that provides energy improvement financing via LICs may more readily require program participants to engage in educational sessions to address behaviour change.<sup>87</sup> These factors would make it easier for people at all income levels to access energy improvement financing and lower their energy bills, than through private sector loans.

### **ADMINISTRATIVE ACCESS TO RISK MITIGATING MEASURES**

Because taking a credit rating is not possible in determining eligibility for LIC financing,<sup>88</sup> the municipality's default risks would be mitigated by additional security, which could be facilitated through a type of loan guarantee program, an insurance product like CMHC Mortgage Loan Insurance, a guarantee of energy savings scalable to the residential sector, or a combination of an extra payment and a loan loss reserve fund in case of delinquent payments, and which would pay down the obligations early near the end of term.

### **MUNICIPALITIES HAVE CAPACITY TO ENCOURAGE NEIGHBOURHOOD INITIATIVES**

Another major factor in favour of municipalities' role as program facilitators is that they can encourage neighbourhood-scale initiatives. This type of approach would allow participation from homes that are both high energy users (which would produce highest savings<sup>89</sup>) as well as lower.<sup>90</sup> This is important because energy use is not necessarily a sign of the energy efficiency of a home. Lower income homeowners use a fraction of the energy that higher earners do.<sup>91</sup>

Community-wide programs are economically preferable for these reasons although they may have high overhead, and they also produce economies of scale. This is because retrofits that are conducted in close geographic proximity would result in cost savings via enabling bulk purchases and local storage by retrofitting proximate homes, a steeper learning curve and, possibly, staged implementation across multiple homes. As a result, installations would be more cost effective and efficient.<sup>92</sup>

As well, community-wide programs would result in more local energy efficient comparables, which could enhance the properties' appraised value.

## **Rationales for Provincial and Federal Government Support of a Municipal PAPER Program**

Both the provincial and federal governments have energy use and GHG reduction goals. Yet as previously discussed, although Canadians are such high per capita energy consumers, and climate change is such a substantial threat, we are not far along in achieving these targets. This gap between goals and strategies to achieve them, particularly in light of the sunset of the ecoENERGY and HESP programs, represents a significant challenge to residential sector energy efficiency.

### **LIC PROGRAMS REDUCE PROVINCIAL/FEDERAL COSTS AND INCREASE REVENUES**

Lowered energy infrastructure costs, maintenance<sup>93</sup> and expansion expenses, as well as reduced environmental costs, heat island and health impacts,<sup>94 95</sup> would benefit the provincial and federal governments from conservation and demand management activities. These economic and health benefits would accrue to provincial budgets, and to the Ontario economy and population.<sup>96 97 98</sup> Increased employment revenues from green jobs could also have an enormous positive impact on the federal budget. Chris Corps of Asset Strategics refers to these contributions from savings toward local programs that save energy as “transfer pricing”<sup>99</sup> and the inclusion of externalized costs into appraisals as “Public Interest Valuation.”<sup>100</sup> Because of these enormous benefits to higher level governments, they should support municipalities to help make PAPER programs revenue neutral.

### **ENABLE LOCAL GOVERNMENT TO TAKE ACTION**

Using an LIC mechanism would enable a revenue-neutral program (whereby program participants would pay for their pro-rated portion of the municipality’s costs). Provincial and federal support of municipal programs would constitute a major step toward achieving energy savings and GHG reduction targets.



## 4. Creating an Effective LIC Regulation for Local Government

Implementation of LIC programs for energy efficiency in Canada has been impeded by limitations on the powers granted to local governments by provinces and by the cautiousness of municipalities in acting on the broad authorities accorded them by the provinces. Laws governing local governments differ substantially between provinces. Even within a province there are different classes of local governments with different powers.

As a result, the first and most important question is whether local governments have existing powers to use the LIC-type mechanism for Property-Assessed Payments for Energy Retrofits – and if so, what kinds of local governments have this ability – or whether additional powers must be granted to them by the provincial government. In Ontario the LIC is under the Municipal Act, 2001 (and the City of Toronto Act, 2006).

Beyond this, there are also important questions regarding how:

- financing of the program would be facilitated,
- technical and implementation concerns would be managed,
- the program would be effectively marketed.

This chapter provides an in-depth description of key features of an optimal regulatory mechanism. The addition of several critical features to the current LIC-type mechanism would optimize its use for energy retrofits and avoid the necessity to revisit the regulation afterward.

### **Define Reduced Energy Use and GHG Emissions as a Public Benefit**

Regulation for an optimal PAPER mechanism would address public benefit at the provincial level, rather than each municipality having to go to the time and expense of articulating this.

Explicitly including public benefit in definitions protects programs that are developed in response to the regulation.

Currently specified uses of an LIC are deemed to have public benefit. Although energy improvements on private properties are not articulated as activities having public benefit, they mitigate externalities and therefore clearly provide a benefit to society.<sup>101</sup>

#### **RECOMMENDED APPROACH**

Regulations would include a definition of public benefit that articulates (at least) the reduction of energy use and GHG emissions, and the mitigation of climate change.

### **Local Government Can Finance Energy Improvements on Private Property**

Current legislation is not explicit about municipalities being able to use LICs for energy improvements on private property.

There is a dynamic tension between a municipality's need for the province to articulate specific uses or interpretations of a piece of legislation and the province recognizing broad municipal powers to give municipalities the capacity to use legislated authority to address the municipalities' needs. The municipalities do not want to interpret legislation in one way and develop a program only to find that the province rejects that interpretation. And the province doesn't want to intrude on what essentially are municipal powers.

#### **RECOMMENDED APPROACH**

Include energy improvements in the list of allowed LIC activities articulated in an amended regulation, and note specifically that activities can be conducted on private property.

### **LICs Are the Retrofit Costs and Are Not Based On Frontage**

Regulatory change needs to incorporate a new, appropriate method for allocating energy improvement costs via an LIC. The allocation of LIC costs is not open to interpretation; the only way that LICs can now be attached to properties is by a pro-rating of total costs, based on frontage as defined by the legislation.<sup>102</sup> This would not be an effective method for costing a property's on-site energy improvements via an LIC since every property will have a different amount for the capital and labour expenses of the energy improvements, plus pro-rated PAPER program municipal administrative expenses.<sup>103</sup>

#### **RECOMMENDED APPROACH**

Articulate in an amended regulation that LICs for energy improvements on private properties would be based on specific costs including capital and installation expenses and pro-rated administration costs.

### **Mechanism Is Simple to Set Up and Is Voluntary**

A key element of an optimal program would be to ensure municipalities will want to participate by keeping the program simple to administer. Additionally, it should be voluntary and not require mandatory participation for all homeowners.

Currently, LICs are complex and costly for municipalities to establish as they require setting up a by-law for each area, with multiple approvals and potential for appeals. All of this can take years to implement and would not be conducive either municipalities or to property owners who wanted to engage in improvements. In fact, a significant finding from this project's research was that municipalities that were interested in being able to apply LICs for energy improvements required a simpler process in order to commit. Staff in one municipality noted in confidence that for this reason the municipality does not employ LICs for its allowed uses.

Difficulties arise primarily due to the current mandatory aspect of LICs: if two-thirds of homeowners in a region vote for an LIC measure, all homeowners in that region would be mandated to participate after due process. A financing mechanism that enables energy improvements would need to be voluntary.

#### **RECOMMENDED APPROACH**

Simplify the process while fulfilling the intents as needed and enable voluntary participation, or “opting-in.”

### **Mechanism Provides Support for Local Government Goals**

Local governments would need to have confidence that the mechanism they use for financing an energy retrofit program would help them in achieving their targets for energy use and GHG emission reductions and create green jobs and a local economic stimulus.

#### **RECOMMENDED APPROACH**

Provide a mechanism that allows approved home-energy retrofit measures to be implemented via a program delivered by highly skilled energy evaluators, contractors and installers.

### **Long-Term Financing that Stays with the Property and Does Not Add to Owners' Debt**

As was noted previously in this paper and in the Pembina Institute reports,<sup>104 105</sup> it takes more than a small investment and a short payback to enable energy improvements that result in significant reductions in energy use and GHG emissions. Allowing financing for deeper energy improvements with longer paybacks means the financing terms are longer so that energy cost savings exceed the payments and the owner has a net saving beginning in the first year.

There are additional challenges when an owner expects to move soon. The barrier is the risk the owner faces of moving before the financing is repaid or payback through energy cost savings is achieved. Also, owners at all income levels may not want to add to their debt totals.

#### **RECOMMENDED APPROACH**

Using an LIC for energy improvements would provide financing over a long enough term that deeper energy improvements could be installed, resulting in energy savings that

balance the loan payments. Having financing that does not add to owners' debt, stays with the property and does not move with an owner addresses the above barriers; PAPER program eligibility criteria would screen for fiscally responsible owners.

## **Priority Lien Status to Overdue Payments**

New financing for energy improvements needs to have the security provision (like an LIC) so that delinquent payments would be subject to a priority lien and repaid before mortgages in case of foreclosure.

Chris Corps of Asset Strategics has expressed a concern about the program costs related to municipal financing and to mortgages, which include default risks and foreclosure expenses.<sup>106</sup> Given these potential costs it would be important to minimize LIC default risks.

This feature would reduce the risk of default, and would enable a lower interest rate to be charged by both the financing entity to the municipality (if the municipality issues a debenture) as well as by the municipality itself in its financing of the LIC for the owner.

Private sector lenders tend to want borrowers to use high-interest products like credit cards or lines of credit for unsecured financing due to the costs of servicing relatively smaller loans.

### **RECOMMENDED APPROACH**

Continue the priority lien status of an LIC-type mechanism for PAPER financing.

## **No Threat to Municipality's Debt Capacity**

It is important to ensure that the financing mechanism does not negatively impact a municipality's debt capacity. It is likely that LICs for energy retrofits would be funded via bonds since existing programs already compete for tight municipal budgets.

There are two types of bonds that a municipality could potentially issue: a general obligation bond and a revenue bond. When a municipality issues a general obligation bond, pledged with "full faith and credit", this usually reduces its debt capacity. Issuing a revenue bond, however, does not similarly affect this debt capacity, but few cities can issue revenue bonds.

As noted previously, Ontario Regulation 403/02 allows general obligation bonds that are issued to finance LICs to not impact the municipality's debt capacity since the municipality is entitled to make annual adjustments for LIC payments.<sup>107</sup>

### **RECOMMENDED APPROACH**

Maintain O. Reg 403/02 as part of any regulatory change that enables a PAPER-type mechanism.



## 5. Beyond the Enabling Regulation

**T**his section presents highlights of key issues that will be detailed within the project's third, Implementation report. These topics are optimal implementation of an effective property-assessed climate/energy efficiency program, as well as potential roles for municipal, provincial and federal governments and agencies.

### **Next Steps: Program Requirements**

#### **STAKEHOLDER COLLABORATION AND FEDERAL/PROVINCIAL GOVERNMENT SUPPORTS**

Once an amended, optimal regulatory mechanism is in place, implementation will require a collaborative approach to meeting multiple stakeholders' needs and addressing their challenges. These stakeholders include the municipal, provincial and federal governments; homeowners, energy evaluators, contractors and installers; municipal financing entities, staff who handle the financing, administration and building services; appraisers, lenders, the real estate sector and ENGOs. All sectors could have enhanced income from this initiative.

The economic benefits to society should be marketed, as well as the health and energy security issues. Budgetary benefits can be expected to include reductions in energy infrastructure, health care and environmental costs; increases in income tax revenue; and decreases in employment insurance outlays.

Collaborative efforts would assist municipalities in aspects of optimal program development to provide economies of scale: goals; eligibility criteria; indicators; identifying appropriate cost-effective measures; program process, delivery and costing; applications, communications and marketing; developing educational workshops; and training and certification systems for evaluators, retrofit practitioners and products. Counties could assist smaller municipalities.

Appraisers, lenders and the real estate sector will need to recognize the value increments to homes based on (for example) operational savings on energy bills, and the increased income available to owners of energy efficient homes, as well as include energy efficient homes' features in listings. They will also need to build awareness in markets about the benefits to property value and cost savings of energy efficient homes over conventional ones.

Code and regulatory officials will need to consider what additional changes would be required.<sup>108</sup>

### **COST-EFFICIENT PROGRAMS**

Programs need to be low cost yet efficient in delivery. Municipalities may decide to pass on all of the program costs to program participants in a revenue neutral approach favoured by staff in many municipalities as discussed within the project. In the CaliforniaFIRST program, costs represented an interest rate increment of one per cent;<sup>109</sup> overall program costs in the Long Island Green Homes initiative ranged from rough estimates of about 12 per cent in 2009 to 10 per cent in 2010.<sup>110</sup> The effective interest rate for program participants should be low to make the investment affordable.

### **ABILITY TO ACCESS LOW-INTEREST FINANCING**

Municipalities must be able to obtain financing, and at low rates. It may be appropriate to establish a revolving fund similar to one that is in the planning stages for the City of Vancouver's energy retrofit program. The City is seeking to establish a "green fund" out of monies it raises, as approved by council (e.g., by selling city parking lots, or funds from an angel investor). Energy improvement financing would be issued and secured against title (the program is not LIC-based).

### **LIST OF ENERGY IMPROVEMENTS WITH REALISTIC, HIGH COST-BENEFIT VALUE**

As noted previously, municipalities, homeowners and major capital lenders to the municipalities need confidence in reliable energy evaluations that would result in a credible list of energy improvements to optimize energy savings for every dollar spent. An optimal energy retrofit program results in energy and cost savings as estimated. It is especially important for financing guarantees, for municipalities and larger financing entities, and for population segments living on lower or fixed incomes that programs enable energy savings to meet or exceed payments. This implies that measures would be selected based on their potential to optimize reductions of energy use and energy costs, instead of a cosmetic focus.

### **EFFECTIVE MARKETING TO STAKEHOLDERS**

The program will need to be marketed appropriately to all stakeholders to show how implementation of the concept addresses each sector's needs, challenges and concerns. These key stakeholders include the municipalities, property owners, lenders, service providers, appraisers, realtors and others in the green construction industry, the real estate sector, and provincial and federal governments. Municipal staff in discussions throughout this project have emphasized the importance of a provincial government role in this work, to help defray municipalities' costs and deliver a coordinated approach.

### **PROGRAM IS REVENUE-NEUTRAL**

An effective program should be revenue neutral so municipalities' budgets are not negatively impacted. Municipalities should also have program carbon credits assigned to them so that future carbon markets would create significant ongoing income. Revenue neutrality has been a key recommendation from staff in several municipalities, and collaboration among municipalities to develop programs has been suggested as a cost-mitigating approach. Also, as previously noted, provincial and federal budgets benefit most from energy efficiency via savings on energy infrastructure, environmental costs and health care, and through the immense job creation opportunities with associated potential for increased income tax revenue and unemployment insurance savings.

As part of delivering a revenue-neutral program, owners would ideally not be subject to property tax increases from resulting value increments to the home. According to the Ontario Assessment Act, machinery and equipment for energy conservation would be exempt from property taxes as prescribed by the Minister;<sup>111</sup> it would be important to clarify that, for example, insulation and passive solar measures are also tax-exempt.

Federal and provincial collaboration on the program (since their budgets will benefit from it) would also help defray costs.

### **PROGRAM DOES NOT THREATEN PRE-EXISTING MORTGAGES**

The experience of U.S. programs will be helpful in developing means to minimize the impact on any pre-existing mortgages. Measures would be included to alleviate mortgage lender concerns.

### **PROGRAM FINANCING MEASURES PROVIDE MUNICIPALITY WITH PROTECTION FROM DEFAULTS**

The use of eligibility criteria such as loan-to-value ratio; allowing financing of energy improvements only up to a maximum allowable percentage of property value; ensuring savings exceed costs via effective training, certification and quality assurance of service providers and installations would be some key factors to mitigate defaults. This would also require technical assistance supports in the form of links between costs of measures and their performance to optimize energy savings per dollar spent.

Boulder County included an additional payment by homeowners that was aggregated into a fund in the event of defaults; with few defaults the obligations would be paid out early near the term's end. As well, having a loan loss reserve or guarantee (based on default rate, not financed amount), and a guarantee of energy savings that funds any default costs would additionally address municipalities' needs in this regard. This energy savings guarantee would need to be scalable from the commercial to the residential sector. As well, there would need to be a confidence that owner behaviour (such as higher energy use) would not offset energy savings from the installed measures.

## **PROGRAM FINANCING PROVIDES MUNICIPALITY WITH CAPABILITY TO SELL LICs TO A THIRD PARTY**

Having the capacity to sell relatively small LIC financing amounts to banks would enable an exchange of services between the municipalities (in an LIC collection role) and the banks (in an enforcement role if a property went into default).

This has potential to be a huge win-win, a profitable situation for banks that would also be optimally revenue-neutral for Ontario municipalities. The banks would obtain value from a municipality that would service smaller LIC-financed amounts and remit the aggregated payments to the bank twice annually. And the municipality would benefit from the bank's enforcement services in case of property tax sale. If this capacity is not already available to all municipalities, it is important that this authority be provided.

## **Additional Roles for Provincial and Federal Governments**

### **FUNDING FOR MUNICIPAL LOANS**

There will be a significant need for funding for loans from provincial and federal levels. Municipalities likely would not be able to take on the levels of debt required for scaling up retrofits, even if municipalities can make adjustments for LIC financing. A PAPER program may also require provincial authority to municipalities for revenue bonds. This provincial/federal financing would need to be low-interest and would be justifiable given the benefits to both the provincial and federal governments in terms of helping to meet energy use and GHG emission reduction targets, as well as infrastructure, health, other budgetary and economic benefits.

### **FUNDING FOR LOAN LOSS RESERVES**

As discussed previously, financing guarantees (like loan guarantees/loan loss reserves) provided by provincial or federal governments and agencies would need to be based on default rates, not on the total financed.

### **FUNDING FOR ENERGY SAVINGS GUARANTEES**

Government or government-agency partnership in providing energy savings guarantees likely would need to be considered regarding their scalability to residential retrofits from the commercial sector. In this mechanism, the client obtains financing for the improvements (e.g., \$10,000 cost with \$1,000 annual savings), knowing that the energy savings, and energy cost savings, are guaranteed, and further, that the savings will exceed the payments. The guaranteeing agency obtains a guarantee fee, the bank obtains security, and so it can provide the financing at even better preferred rates.

### **FUNDING FOR A PRODUCT SIMILAR TO CMHC'S MORTGAGE LOAN INSURANCE, FOR PAPER**

It would be ideal to have a product that would support PAPER financing to owners that would be similar to CMHC's Mortgage Loan Insurance.

### **FUNDING FOR INCENTIVES**

The U.S. Database of State Incentives for Renewables & Efficiency (DSIRE) website has many postings of incentives that could be applied for Ontario residents. These include income tax credits for energy efficiency provided by provincial and federal government levels.

### **RATCHETING-UP OF BUILDING AND APPLIANCE/EQUIPMENT ENERGY-EFFICIENCY STANDARDS**

The timed ratcheting-up of building and appliance performance standards “so that the current best in class become minimum requirements in a few years”, as noted by Ashok Gupta of the Natural Resources Defense Council,<sup>112</sup> would encourage greater energy efficiency on an ongoing basis. Ontario’s Building Code incorporates both energy and water conservation measures. Code authorities also could consider regulating plug loads.

### **INCORPORATING ENERGY EVALUATIONS AT TIME OF SALE**

Owners who have retrofitted their homes should benefit at time of sale from their investments, which have lowered their operating costs. Like the initiatives in the U.K.,<sup>113</sup> in regions in the U.S.,<sup>114</sup> and recommended for Ontario,<sup>115</sup> Time of Sale energy evaluations (or building labels) would be a key component of an energy conservation program.

### **ADDRESSING OTHER REGULATORY BARRIERS TO ENERGY RETROFITS**

Address other code, regulatory and systemic barriers to energy efficiency retrofits,<sup>116</sup> such as providing protection for solar access while recognizing the benefits of vegetative shade.<sup>117</sup>

## **Additional Roles for Finance, Real Estate and Construction Sectors**

### **INCORPORATE ENERGY EFFICIENCY INTO MULTIPLE LISTINGS AND APPRAISALS**

Include energy efficiency features in Multiple Listings and include energy cost savings in appraisals.

### **PARTNER FOR PROFITABILITY**

Participate in financing partnerships with municipalities, including purchasing PAPER-based financing so that municipalities service the PAPER obligations and the banks provide enforcement as needed.

Ensure service providers’ skill levels can enable delivering reliable energy savings.

## Conclusion

The journey to research, write, preview and publish this paper has been accomplished through one means: collaboration. The enormous and valuable input of knowledge and expertise given by the sources cited in the acknowledgements is a sampling of the resources that can be marshalled to retrofit Ontario's existing homes. The need is enormous and time is getting short.

The PAPER financing mechanism is not a panacea for everyone who wants to retrofit their home. But it addresses many of the challenges that currently limit uptake of energy improvements and (with regulatory amendments) is one of several mechanisms that could effectively dovetail to suit the needs of owners.

PAPER would enable homeowners to overcome the challenges of high upfront costs for deeper energy retrofits and alleviate concerns about moving before cost recovery. It would enable municipalities to finance energy improvements on a revenue-neutral basis, so that savings exceed payments on an annual basis.

Banks could provide the necessary financing at low rates given PAPER's priority lien security provisions. And banks also could participate (with regulatory authority to do so) once the retrofits have been installed by purchasing the residential PAPER in order to repopulate a revolving fund. Protection for the interests of existing lenders as well as new investors would be designed into the program.

Municipalities and banks could benefit from this kind of exchange. Banks would receive large cheques while municipalities service smaller amounts, and municipalities would receive enforcement services in case of default.

Owners would obtain protection from rising and volatile energy prices. Owners would also benefit from savings on their operating costs and would have more of their net incomes available for saving, investment or consumption.

The budgets of all three levels of government would receive a major stimulus from the green jobs created and the energy efficiency industry expansion, as well as the savings on health care, infrastructure and environmental costs.

Ontario constituents would be able to contribute to mitigating the enormous challenges of climate change.

Achieving all this will require collaboration among all levels of government, and among many stakeholders.

First, it will require an amended LIC regulation to optimize the PAPER program.

## GLOSSARY

**CIP Community Improvement Plan:** Authority for municipalities to create CIPs in Ontario is under the Planning Act, Section 28. CIPs are a means by which municipalities can assist property owners with conducting improvements. The municipality undergoes a public process to set up a CIP, which can take one or two years. CIPs support grant and loan incentives for repair, rehabilitation and redevelopment initiatives such as brownfield remediation; heritage property, building code and accessibility upgrades; and energy improvements. A loan under a CIP is attached to the property on Title, and overdue payments are subject to a title lien. A CIP loan is compared to an LIC in this report. See the Ministry of Municipal Affairs and Housing's Community Improvement Planning Handbook: <http://www.ontla.on.ca/library/repository/mon/14000/262948.pdf>

**ESCO Energy Service Company** conducts an energy evaluation of a client's building to determine the energy savings potential and establish a baseline for energy consumption. There are different kinds of ESCO contracts. In one frequently used type, if the business case including energy savings and a performance contract fee makes sense, the ESCO engages in a performance contract with a client, such that the ESCO agrees to install specific energy improvement measures, *with a guarantee to the client that installing these measures will result in a specific amount of energy savings*. This security enables the ESCO to get preferred financing at a lower rate. The ESCO assesses the operations and maintenance of the systems, trains the client's staff to continue optimal systems functioning and monitoring, calculates the energy savings, and hands the project off to the client. A guaranteeing agency receives a guarantee fee for overseeing the initiative to ensure that the energy savings are as agreed.

**Loan guarantee:** This tool, also known as loan loss reserves, is a method of adding security to mitigate default risk. It ideally would involve committing funds that are a small percentage of the actual loan aggregate total, so that the guarantee is placed on the expectation of the amount that would go into default. Any costs arising from delinquent payments are covered by the guarantee funds. This is a means of using a small amount of funds that could leverage economic activity in energy retrofits, achieving energy and cost savings and GHG emission reductions.

**Guarantee of energy savings:** This guarantee would be delivered by an agency that has both the capacity to assess energy savings and the financing capability to backstop the financing. It would need to be scalable from the commercial sector. For example, the client would obtain financing for the improvements (e.g., \$10,000 cost with \$1,000 annual savings), knowing that the energy savings, and energy cost savings, are guaranteed, and further, that the savings will exceed the payments. The guaranteeing agency obtains a guarantee fee, the bank obtains security, and so it can provide the financing at even better preferred rates. This mechanism is discussed further in a financing paper that follows.

**Priority lien:** This is a lien that is paid first over other debts on foreclosure, regardless of when the other debts were registered. Tax liens are priority liens.

**Title lien:** This is a lien that is secured against title, and is paid on foreclosure based on the (date) order on which it appears on the title. A title lien is subordinate to a priority lien.

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## REFERENCES

### DSIRE

The (US) Database of State Incentives for Renewable Energy [www.dsireusa.org](http://www.dsireusa.org)

### **Eisenberg, David and Persram, Sonja, Code, Regulatory and Systemic Barriers Affecting Living Building Projects, Cascadia Region Green Building Council, 2009**

Describes regulatory challenges to green buildings; some next-step considerations. [www.sustainable-alternatives.ca/Cascadia Code Report Eisenberg Persram.pdf](http://www.sustainable-alternatives.ca/Cascadia_Code_Report_Eisenberg_Persram.pdf)

### **Long Island Green Homes**

The Babylon, Long Island PACE program was designed so that savings exceed payments [www.ligreenhomes.com](http://www.ligreenhomes.com). Improvements were financed up to \$12,000 in general with some provisions for up to \$15,000 in cases where enhanced space heating retrofits are needed. Homeowners pay three per cent total interest for up to 10 years. Work was done by contractors accredited with the Building Performance Institute. Achieving this meant that improvements that could produce savings within the terms. Energy efficiency measures included building insulation, lighting, high-efficiency furnaces and boilers, caulking/weather stripping and duct/air sealing.

### NYSERDA

The New York State Energy Research and Development Authority, [www.nyserda.org](http://www.nyserda.org)

### PACE

Property Assessed Clean Energy is the name given to U.S. energy retrofit programs that are supported by the Obama administration. Twenty-two states have legislated enabling authority for PACE financing to be used by municipalities, with two states already having had that provision. This financing mechanism attaches retrofit costs to the property. If the property is foreclosed through non-payment of mortgage obligations, only one year's defaulted PACE financing repayment would be due and subject to a priority lien. See also Appendix I.

### PACENOW

A large, multi-sector coalition of PACE stakeholders with representation from all levels of government and industry, which support the retrofitting of homes in the U.S. using PACE financing. The coalition has a persuasive economic, environmental and social business case. [www.pacenow.org](http://www.pacenow.org); See also Appendix I.

### PAPER

Property Assessed Payments for Energy Retrofits is the current name for the Ontario initiative proposed in this report.

**PAYS**

“Pay as You Save” refers to two programs, one in the U.S. and one in the U.K. The U.S. program,<sup>118</sup> developed by the Energy Efficiency Institute,<sup>119</sup> is a utility on-bill financing mechanism. In this case the utility pays upfront for energy retrofits and the property owner or renter responsible for the utility bills repays the financing as a surcharge. There is no credit check on the bill payer, nor is there any impact on their credit. The payments are designed to be less than the energy cost savings. Non-payment recourse to the utility is customer disconnection.

In the U.K.,<sup>120</sup> five Pay as You Save pilots are testing the consumer reaction to the approach, (whereby customers’ energy cost savings exceed the payments),<sup>121</sup> with the program facilitated by different kinds of partners. These pilots and their facilitating partners are: Gentoo Group Ltd., a social housing landlord; British Gas, which will finance retrofits even if the homeowner is not a subscriber; Birmingham City Council; B&Q UK, a DIY supply store; and Stroud District Council. Originally, one of these programs had been planned to be delivered by a credit union. The attachment to property feature that allows transferability of the obligation on property sale is policy but not legislated yet; but the U.K. Government has announced that it will bring in such legislation.

## NOTES

- 1 Environmental Commissioner of Ontario, Rethinking Energy Conservation in Ontario: Annual Energy Conservation Progress Report – 2009 (Volume One), May 3, 2010
- 2 A term used by Amory Lovins in recommending that saved electricity (“saved watts”) be considered a commodity. See: Lovins, Amory B., *The Negawatt Revolution*, Across the Board: The Conference Board Magazine, Vol XXVII, No. 9, September 1990.
- 3 91% of all persons surveyed in a recent City of Toronto study by Ipsos Reid noted that helping to protect the environment was important (72%) or somewhat important (19%) to them. People at all income levels were surveyed.
- 4 In this report the term ‘financing’ is discussed in regards to two major uses. One is the provision of financing to private property owners for energy improvements, through a financing mechanism. The second is the provision of large amounts of funds to those financing entities. These are different financing roles, but both ideally provide low-interest financing, and each financing body wants to have the security that the monies financed will be repaid.
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- 9 Peters, Roger, et al., 2004, op. cit.
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- 11 The initiative has been recommended at the federal level with a policy framework ([http://www.whitehouse.gov/assets/documents/PACE\\_Principles.pdf](http://www.whitehouse.gov/assets/documents/PACE_Principles.pdf)) supported via the Middle Class Task Force of the Council for Environmental Quality’s Recovery Through Retrofit ([http://www.whitehouse.gov/assets/documents/Recovery\\_Through\\_Retrofit\\_Final\\_Report.pdf](http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf)) program launched October 2009. Millions of Recovery Act dollars were contributed, designed to leverage billions more from other sources as part of a major economic and green jobs stimulus package. Source: [http://www.whitehouse.gov/assets/documents/Recovery\\_Through\\_Retrofit\\_Final\\_Report.pdf](http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf) downloaded June 2010. Supporters include mayors, senators, 68 Members of Congress, the Royal Bank of Canada (bond underwriters for the CaliforniaFIRST PACE program), the American Institute of Architects and ICLEI. However, In July 2010, a controversial statement by the U.S. Federal Housing Finance Agency (FHFA), which governs Fannie Mae and Freddie Mac, resulted in a freeze in PACE residential projects (but not commercial or institutional initiatives). This decision is the subject of several legal challenges including one by the State of California. A following paper on financing covers these U.S. issues and different scenarios in the U.S. and Canada, as well as the kinds of features and applications that could mitigate risk.
- 12 UK Government, Cabinet Office News 2010, Deputy Prime Minister highlights green deal at launch of low carbon business support project, 19 August 2010: <http://www.dpm.cabinetoffice.gov.uk/news/deputy-pm-highlights-green-deal-launch-low-carbon-business-support-project> downloaded September 22, 2010
- 13 See: <http://www.halifax.ca/solarcity/>
- 14 The Alberta government formed Climate Change Central in 1999 “as a public-private catalyst for action and ideas, working with municipalities, health regions and educational institutions, and consulting with Albertans across the province.” Source: Alberta’s 2008 Climate Change Strategy: Responsibility / Leadership / Action. <http://environment.alberta.ca/01757.html> downloaded October 2010. Climate Change Central was one of the supporters of the first 2004 Pembina Institute report and has conducted market demand research more recently.
- 15 Machado, Emanuel, Manager of Sustainability Services and Special Projects, District of Sechelt, BC and Hartman, Mark Buildings Energy Programs Manager, Sustainability Group, City of Vancouver, personal communications with Sonja Persram, 2009-2010.
- 16 SES Research (Ottawa), *Municipal Enviro-Loans for Energy Efficiency and Alternative Energy Study*, for the City of Ottawa, June 2007.
- 17 City of Toronto Home Energy Financing Survey, Ipsos Reid, 2010. This consultant contributed to the development of the survey questionnaire and discussion of the findings.
- 18 Baser, Bob, Le Pan, Nick and Peters, Roger, *Pay As You Save Loans (PAYSL): A call for leadership and good policy*, 27 September 2010, Ecology Ottawa. The report describes LIC financing in terms of the stewardship responsibility that each homeowner has for the property.
- 19 Corps, Chris, Founder, Founder, Asset Strategics, and project leader of the Green Value report, personal communication with Sonja Persram, September 14, 2010. He observes that a value increment after a home retrofit will vary. He states that an energy improvement that saves \$1,000 a year in energy costs over a 10-year life cycle

- would only translate to an increased value of \$10,000. This, he argues, would be the largest discount for a non-green versus green building and so, “the savings from energy retrofit are rarely recouped when a property is sold.” He also notes: “. . . in the market, full value for energy savings is rarely obtained. This is caused by factors including: (a) A buyer might want to keep some of the benefit in value to themselves and thus be unwilling to pay all of it up front to the vendor; and/or, (b) a buyer may be sceptical that all the value will be achieved from energy savings and thus pay less . . . and/or (c) be using a ‘time value of money’ approach to looking at the benefit.”
- 20 Ontario Municipal Act, 2001, S.O. 2001, Chapter 25, Part XII, Fees and Charges, Section 394: (1) No fee or charge by-law shall impose a fee or charge that is based on, is in respect of or is computed by reference to, (a) the income of a person, however it is earned or received, except that a municipality or local board may exempt, in whole or in part, any class of persons from all or part of a fee or charge on the basis of inability to pay [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_01m25\\_e.htm#BK471](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_01m25_e.htm#BK471)
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  - 31 Physicians for Social Responsibility, Coal-Fired Power Plants: Understanding the Health Costs of a Dirty Energy Source, downloaded June 2010: [http://action.psr.org/site/DocServer/Coal\\_Power\\_Fact\\_Sheet.pdf?docID=2821](http://action.psr.org/site/DocServer/Coal_Power_Fact_Sheet.pdf?docID=2821)
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- 74 Even multiple years' outstanding energy improvement LIC obligations would not be significant in the Canadian scenario: \$20,000 financing at 5% over 20 years would require a payment of about \$1,585 annually. If the current mortgage default rate of 0.44% is used as a proxy for the LIC default rate, over a financing portfolio the risk to the mortgagee is about \$7/year. An expected LIC default rate of 2% results in annual risks of about \$32 i.e. \$64 per year.
- 75 As noted previously in this paper, Canadian appraiser Chris Corps of Asset Strategics, project leader of the Green Value report, has stated that a value increment after a home retrofit will vary: "an energy improvement with a saving of say \$1,000/yr and a ten year life cycle might at best show 10x\$1,000=\$10,000 better value. This would be the largest discount for a non-green versus green building. However this value is unlikely to be secured for a range of factors that will affect the degree to which these savings will be paid in the market, including: perceptions of discounting; profit share; cost; finance; and risk." He notes that consequently, "the savings from energy retrofit are rarely recouped when a property is sold."
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- 78 Persram, Sonja, personal communication to PACEnow distribution group, July 2010.
- 79 Ontario Municipal Act, 2001, op. cit.
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- 87 BioRegional is involved in a UK pilot in London which involves a 'green coach' to motivate behaviour change: <http://www.bioregional.com/news-views/news/retrofit-forthefuture/>
- 88 Ontario Municipal Act, 2001, S.O. 2001, Chapter 25, Part XII, Fees and Charges, Section 394: (1) No fee or charge by-law shall impose a fee or charge that is based on, is in respect of or is computed by reference to, (a) the income of a person, however it is earned or received, except that a municipality or local board may exempt, in whole or in part, any class of persons from all or part of a fee or charge on the basis of inability to pay [http://www.e-laws.gov.on.ca/html/statutes/english/elaws-statutes\\_01m25\\_e.htm#BK471](http://www.e-laws.gov.on.ca/html/statutes/english/elaws-statutes_01m25_e.htm#BK471)
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 (2) Provision for solar access would also be needed, as well as protection for the benefits of shade. Source: Persram, Sonja, Solar Access Issues, June 26, 2008, [iGreenBuild.com](http://www.iGreenBuild.com) [www.sustainable-alternatives.ca](http://www.sustainable-alternatives.ca)  
 (3) Chris Corps notes (Corps, Chris, personal communication with Sonja Persram, September 14, 2010) that deep retrofits like superinsulation should be welcomed with a smoother process: "If I superinsulate from the inside I will lose valuable room size, affecting value. If I superinsulate from the outside it increases cost and the municipality will require me to go through some massive process to ensure I get approvals... the cost and hassle of [addressing these regulatory and code challenges] far exceeds the actual cost of doing [the retrofit]." He recommends that governments "auto-permit" home renovations for super-insulation providing they do not worsen the look and comply with building codes."  
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- 111 Ontario Assessment Act, [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90a31\\_e.htm#BK2](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90a31_e.htm#BK2) downloaded December 16, 2010
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- 114 For example, Nevada: <http://www.resnet.us/hotnews/nevadatimeforsale.pdf>, Austin: [http://www.iscvt.org/resources/documents/austin\\_energy\\_disclosure.pdf](http://www.iscvt.org/resources/documents/austin_energy_disclosure.pdf) and Berkeley: [http://www.ci.berkeley.ca.us/uploadedFiles/Planning\\_and\\_Development/Level\\_3\\_-\\_Commissions/Commission\\_for\\_Energy/ESD2010-03-24\\_Item4-RECO\\_EnergyCommissionMarch2010.pdf](http://www.ci.berkeley.ca.us/uploadedFiles/Planning_and_Development/Level_3_-_Commissions/Commission_for_Energy/ESD2010-03-24_Item4-RECO_EnergyCommissionMarch2010.pdf) downloaded August 2010
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- 121 See Energy Saving Trust: <http://www.energysavingtrust.org.uk/Home-improvements-and-products/Pay-As-You-Save-Pilots>



Local Improvement Charges are fees for municipal financing of infrastructure improvements that benefit homeowners and are repaid on tax bills. This report discusses how a similar mechanism could be used in Ontario to finance retrofits to make homes more energy efficient, reduce overall energy use and greenhouse gas emissions, and save homeowners money on their energy bills.

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