Using Local Improvement Charges to Finance Energy Efficiency Improvements: Applicability Across Canada

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About the Pembina Institute

The Pembina Institute creates sustainable energy solutions through research, education and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy and environmental governance. More information about the Pembina Institute is available at www.pembina.org or by contacting info@pembina.org.

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Introduction

Local Improvement Charges (LICs) have long been used by municipalities to help cover the costs of infrastructure improvements, such as roads and sidewalks, that are deemed to benefit a specific neighbourhood. Landowners who benefit from the improvements are assessed the LIC that is added to their property taxes each year until their share of the improvements have been paid for.

A study[1] prepared by the Pembina Institute in 2004 for BC Hydro and Climate Change Central found that the mechanism of LICs – a financial instrument already very familiar to local government – can be adapted to finance improvements in residential and/or commercial building energy efficiency.

The use of LICs to finance energy efficiency and renewable energy (EE/RE) improvements should enable significant municipal action on these improvements at no additional net cost to local government. Using the LIC approach, municipalities are also able to take direct leadership in the way energy is used within their jurisdiction at little or no net cost to the taxpayer. Finally, they are able to take a leading role among their Canadian and international counterparts in bringing about real environmental improvements.

The Office of Energy Efficiency of Natural Resources Canada has funded the Pembina Institute to study the applicability of the EE/RE LIC concept across Canada. The objectives are to review the various legal barriers to the use of LICs for energy efficiency that may exist in each province, obtain more input from provincial energy efficiency staff and identify municipalities that might be interested in piloting the concept.

Municipalities that would be most suitable to pilot the EE/RE LIC concept would be those that have the following:

- an internal program and staff resources already dedicated to energy management.
- strong council support for greenhouse gas (GHG) reduction and other environmental initiatives, and/or experienced developers certified in energy efficient building design and retrofit.
- low debt levels that will allow them to provide or procure the necessary financing.
- previous experience using LICs to finance municipal works.

[1] *Using Local Improvement Charges to Finance Building Energy Efficiency Improvements: A Concept Report*, www.pembina.org/publications_item.asp?id=170.

The LIC Concept in Brief

This chapter provides a brief overview of the EE/RE LIC concept. Appendix 1 provides more details on the benefits of an EE/RE LIC program to municipalities and building owners, and a "model" program for municipalities to design and operate the concept.

The main advantage of using LICs over alternative methods of financing energy efficiency improvements is that it associates the repayment of the cost of efficiency improvements with the building property rather than with the current building owner. This potentially removes some of the barriers facing energy efficiency improvements in buildings including:

- Hesitancy to accept long paybacks.
- Preference for low first cost improvements.
- Lack of access to capital to improve existing buildings.
- Lack of access to capital to build efficient new buildings.
- Resistance from construction industry and developers.

If LIC financing were used, permanent comprehensive improvements with long paybacks (e.g. high-efficiency windows; wall upgrades; heating, ventilation and air-conditioning [HVAC] systems; and control systems) would be more attractive to home and building owners because both their costs and benefits are passed on to new owners if the property is sold before the investments are paid off. In the case of new buildings, LIC financing would allow the additional cost of building to the highest levels of energy efficiency (e.g. LEED Gold certification or net zero energy) to be shared by all owners of the building over time, thereby allowing properties to be sold at competitive prices.

Current property owners benefit because the annual savings are greater than the LIC payment. Future owners benefit because they take ownership of the benefit of lower energy costs but only pay an equitable share of the cost.

In addition, the widespread use of LICs for energy efficiency and renewable energy would make it easier for governments to increase building and equipment codes and standards for two reasons. First, the additional cost would be shared by owners over time and not borne only by the original buyer; and second, increasing use of EE/RE LICs would help increase the market share of efficient technologies to the point where new regulations are possible.

The use of the LIC concept would be most attractive to those municipalities that already have an internal program and staff resources dedicated to energy management, strong council support and success in GHG-reduction and other environmental initiatives, contractors with experience in high-efficiency buildings, and a low debt level that will allow them to provide or procure the necessary financing.

Legal Framework

Regulations defining the way in which LICs can be used for financing municipal improvements are contained in the legislation governing municipal powers in each province. Although the wording varies among different provincial acts and regulations, three basic approaches are used:

- **Flexible definition of LIC**: The municipal legislation defines a local improvement with considerable flexibility (e.g. "any project that the municipal council considers will benefit one area of the municipality more than the whole municipality"[2]). Municipalities are then free to decide what types of project are within this definition, sometimes subject to approval by the Province. British Columbia, Alberta, Quebec and Newfoundland and Labrador fall in this category. In addition, Yukon has this type of definition.
- **Limited definition of LIC with some flexibility**: The municipal legislation defines what types of improvement can normally be financed using an LIC, but has a means for additional types of improvements to be considered – Saskatchewan, Manitoba, and Prince Edward Island are in this category.
- **Explicit definition of LIC**: The municipal legislation explicitly defines what types of improvement can be financed using an LIC and does not provide a mechanism for changing that definition. Ontario, New Brunswick and Nova Scotia are in this category.

In all provinces, municipal bylaws are required for each LIC plan; and in several provinces, these bylaws must be approved by Provincial Municipal Boards. Our interpretation of how easily current legislation would allow an extension of LICs to include energy efficiency improvements is given in Table 1.

A key issue in using LICs as vehicles for financing energy efficiency is whether they can be used to finance improvements on private property. In Yukon, local improvements are defined as "any capital project or service that the municipality deems to benefit one area of the municipality more than the whole municipality."[3] Starting in 1984, the Yukon Government initiated a new LIC-based program to assist residents living in rural areas to receive services by extending the electrical grid and landline telephone service to their properties. These programs are authorized for recovery as LICs under the *Assessment and Taxation Act* of Yukon that defines a local improvement and outlines ways it might be recovered when carried out by the Yukon Government.

[2] From Alberta's *Municipal Government Act*, www.qp.gov.ab.ca/documents/acts/M26.cfm.
[3] www.gov.yk.ca/legislation/acts/municipal.pdf

Table 1: Applicability of LIC Legislation to Energy Efficiency and Renewable Energy Improvements

Province/Territory	**Applicability to Energy Efficiency and Renewable Energy Improvements**
Yukon	Already being used for renewable energy improvements. No reason why it could not also be applied to energy efficiency.
British Columbia	No strictly legal impediment to adding EE/RE improvements as the municipality has the authority to define improvements and can also borrow to finance improvements if the full cost is recovered.
Alberta	No strictly legal impediment to adding EE/RE improvements as the municipality has the authority to define improvements. However, it is deemed to be against the spirit of LICs by Provincial Municipal Affairs.
Saskatchewan	No strictly legal impediment to adding EE/RE improvements, but it would have to be approved by Municipal Board.
Manitoba	EE/RE improvements could be included as "capital projects" under current legislation but it would need to be approved by Municipal Board. Winnipeg Charter allows designation of Local Improvement Districts that could cover EE/RE improvements.
Ontario	EE/RE improvements would not be permissible under the current list of allowed local improvements, but local improvements can be made on private property, and it appears that new uses can be approved by the Municipal Board.
Quebec	No strictly legal impediment to adding EE/RE improvements as the municipality has the authority to define improvement. However, it is deemed to be against the spirit of LICs by the *Ministère des Affaires municipales et des Régions.*[4]
New Brunswick	EE/RE improvements would not be permissible under the current list of allowed local improvements.
Nova Scotia	EE/RE improvements would not be permissible under the current list of allowed local improvements, but the Province felt that a pilot program could be tested without changing the legislation.
Prince Edward Island	Flexible rules governing services that municipalities can offer; therefore, EE/RE improvements could be allowed as a new service subject to Provincial approval.
Newfoundland and Labrador	EE/RE improvements could potentially be covered by service levies that can be used to finance improvements on private property. This will depend on Provincial interpretation of the definition of a public work.

[4] The *Ministère des Affaires municipales et des Régions* was until recently called the *Ministère des Affaires municipales, Sport et Loisir*.

There are two innovative aspects to this Yukon program that distinguish it from all other conventional LIC programs:

- These systems are entirely contained on the resident's private property and do not provide direct benefits to other residents.
- Once paid for, these systems are fully owned by the resident – they are not municipal property.

Although only two provinces, Ontario and Newfoundland and Labrador, explicitly allow a municipality to use an LIC to finance an improvement on private property, no provincial legislation appears to explicitly prevent this. Many improvements, such as sewer upgrades, that are normally financed by an LIC involve some work on private property. There are also examples of where an LIC has been used to finance an improvement that only benefits one property.[5]

The language used in all municipal legislation reflects the original intention of LICs or their equivalent, which was to provide a means to finance new or improved services requested by a group of property owners that would benefit only their properties.[6]

In many provinces, the use of LICs to finance improvements on single private buildings was often seen by the Ministry responsible for Municipal Affairs as not being in the spirit of LIC regulation, rather than not being legal. On the other hand, several of the municipalities interviewed in this study felt that using LICs for energy efficiency improvements was within their current legal authority, and many were interested in doing so.

To overcome the legal ambiguity of using LICs to finance energy efficiency or renewable energy building improvements, provinces will need to recognize that this is a non-conventional use of LICs and provide municipalities (through their Municipal Affairs departments or Municipal Boards) with the authority and guidance to do so. Some provinces may choose to actually amend the appropriate regulation governing use of LICs, while others may provide an interpretation that the new use of LICs for energy efficiency improvements is within the scope of LICs (perhaps using Municipal Boards to maintain some control over this use). Individual municipalities that want to pilot the energy efficiency LIC concept could take the initiative and inform the Province of their intention and recommend that the Province view the pilot as a test of this new use.

[5] For example, a Sikh Temple in Surrey, British Columbia.

[6] An LIC should be distinguished from a municipal levy assessed against properties for servicing a new site, maintenance of a drainage ditch, etc. In this case, it is the municipality that takes the initiative.

Financing Options

Another key issue is how an EE/RE LIC program would be financed by a municipality. Program costs will vary depending on the size of the municipality, the extent of the program, and the municipality's experience with LICs. An LIC program that supports energy efficiency improvements should be run on a cost-recovery basis, so that the following transaction costs can be recovered as part of the LIC payment:

- Interest on capital expenditures – the municipality will need to have funds available to pay for improvements as they are completed and approved.
- Staff transactions – municipal staff need to devote time to establishing the initial program parameters, dealing with contractors and property owners for LIC requests and approvals, and tracking LIC payments.
- Council transactions – in addition to approving the initial program launch, municipal councils are typically responsible for approving all LICs in the form of a bylaw.
- Advertising – to facilitate adoption of the program by building owners, the municipality will need to promote the program.
- Contractor certification – the municipality will need to have a list of certified contractors for property owners to approach when making improvements.

During the discussion of the EE/RE LIC concept with provincial governments, municipalities and the Federation of Canadian Municipalities (FCM), several options for financing an LIC program were identified. Municipalities would be able to use the most appropriate option(s). Having a diverse set of options was considered most important.

Municipal Financing

Some municipalities are debt free and have financial reserves that can be used with approval of Council for community purposes. If an EE/RE LIC program were operated on a full-cost-recovery basis, it is likely that some municipalities might consider using reserves for this purpose.

Municipalities in some provinces are also allowed to issue debentures to finance municipal works or projects. Again if an EE/RE LIC program were operated on a full-cost-recovery basis, investors could be paid a sufficient return.

Provincial Borrowing

Most provinces have a lending body that is used to provide loans to municipalities to finance local improvements or other municipal works or projects. Sometimes this is operated on a pool basis whereby some municipalities invest their reserves while others borrow. Provided the provincial government approved the use of these funds for financing EE/RE improvements and a municipality had not reached its debt limit, then this would be a useful source of funds. Some provincial municipal lending bodies will not treat a loan for municipal works as a debt if the costs are recovered from the beneficiaries. Since this would be the case

for an EE/RE LIC program, municipalities with significant debt might still be able to finance the concept in this way.

FCM Green Municipal Fund

If the federal government agrees that the EE/RE LICs is a valid use of the new funds provided to FCM in Budget 2005, then FCM is willing to provide financing to those municipalities that want to use the concept. FCM would only be able to provide financing for EE/RE LICs in provinces where the provincial government provides an interpretation of LIC regulations that would allow a municipality to use them for EE/RE improvements.

FCM is like any other borrower in terms of risk but might be able to offer lower rates. If all costs were recovered through the LIC, the loan would not add to the municipal debt load, particularly if it were possible for LIC payments to be assigned to FCM as part of the loan agreement with the municipality. An additional criterion for FCM and a FCM Green Municipal Fund loan is that a municipality must show how the measures provide environmental benefits, including reduction in GHG emissions.

Private Sector Loans

A municipality with a good investment and/or borrowing relationship with private sector banks could also borrow from this source to finance an EE/RE LIC program. The full-cost-recovery feature of the program would reduce the risk for the lending agency and therefore should be available at reasonable interest rates. If a municipality obtained some of the financing necessary for an EE/RE LIC program from one of the other sources described above, this should leverage private sector financing at lower rates.

Electric, Gas and Efficiency Utilities

Power and gas utilities in several provinces, including British Columbia, Manitoba and Quebec operate comprehensive Demand Side Management (DSM) programs that aim to reduce electricity and gas use in buildings through efficiency measures. New Brunswick is planning to establish an independent efficiency utility to operate these types of programs financed by a public benefit on all energy sales. In each case, utilities might be interested in financing longer payback measures through EE/RE LIC program operated on their behalf by municipalities. Municipalities would retain sufficient income from LIC payments to administer the program with the remainder being returned to the utility.

Utilities in some provinces also have increasing winter and summer peaks that could be managed by strategic investment in technologies, such as solar thermal and electricity and energy storage. Making these investments through a municipally run EE/RE LIC program would allow aggregation of these installations into a single program while simultaneously overcoming customer resistance to the initial cost barrier.

Carbon Financing

Major energy-efficient and on-site renewable energy retrofits might be eligible to be registered as a domestic GHG reduction offset project under the new *Moving Forward on Climate Change: A Plan for Honouring our Kyoto Commitment* (April 2005). An EE/RE LIC program could provide an effective method of aggregating efficiency projects for this purpose while providing "carbon financing" towards the cost of the retrofit projects. A municipality would sell GHG-reduction credits to a purchaser such as the Climate Fund or Canadian industrial large final emitters on an annual basis and reduce the LIC payment by the equivalent amount. In this way, the property owner would benefit from the GHG reduction without having to participate individually in the offset market.

Conclusions

Basic Concept

All provinces and municipalities interviewed agreed that the EE/RE LIC concept could play a major role in increasing the penetration of energy efficiency and renewable energy technologies that have current paybacks beyond property owner thresholds, which are up to four years. As such, it has a major role to play in helping municipalities manage both their community's energy costs and GHG emissions.

The concept would also provide a tool for electric and gas utilities to target strategic energy efficiency and renewable energy measures with longer paybacks but that have immediate system benefits to reduce peaks or other high value benefits.

In cases where landlords pay both taxes and energy costs, the concept offers a way to reduce the impact of the split incentive barrier by allowing landlords to make building improvements without increasing rents.

Because it addresses longer payback measures for which there are few existing incentives or programs, the concept is ideally suited to produce domestic GHG-reduction offsets.

The greatest barrier preventing the use of LICs to finance energy efficiency improvements in buildings is the uncertainty related with the legal interpretation of LICs at provincial government levels. In all provinces, the concept could only be used if the real or perceived legal barriers to the use of LICs for this purpose were removed. This would have to be in the form of an official interpretation of LIC regulations to municipalities by provincial governments, which in turn could only be done by the respective provincial departments responsible for Municipal Affairs. In many provinces, departments responsible for energy efficiency and municipalities are nevertheless very interested in developing implementation strategies and designing programs using the EE/RE LIC concept as soon as the legal issues are resolved.

The federal government can play a role in disseminating information about the EE/RE LIV concept and its benefits, and offer financial and other support for training and certification. The final decision to use the concept, however, rests with provincial governments.

Technologies and Measures to Include in an EE/RE LIC Program

The EE/RE LIC concept should focus on technologies and measures that are not targeted by other federal or provincial programs or incentives, unless there is remaining resistance by property owners because of high first cost. The concept should not be used for measures where the incremental costs over conventional technologies or approaches are dropping quickly as it might decelerate the cost-reduction process.

In new construction, the concept appears best suited to comprehensive efficiency and renewable energy packages that are one step beyond building specifications such as R-2000[7], ENERGY STAR®[8]and LEED Silver certification. These practices are currently being incorporated into mainstream building practice. Incremental costs for these buildings are becoming smaller and will soon be in the 0- to 4-year payback range. Targets for the EE/RE LIC concept should therefore focus on zero-net energy housing and LEED Gold or Platinum certification where paybacks would be more than four years. The concept would be particularly valuable where municipalities want to develop subdivisions and greenfield developments that feature these types of buildings (or community/district energy systems) and where a sufficient number of developers are willing to build to these standards.

In existing buildings, the most promising applications appear to be major retrofits/renovations in designated districts and neighbourhoods where a large number of property owners might take advantage of the EE/RE LIC program, and where the LIC term could be extended to cover other aspects of building improvements besides energy efficiency measures. The upgrades would be limited to non-portable improvements to the shell of the building (walls, windows, roofs) and, in the case of commercial buildings, major lighting and HVAC improvements. The key objective would be to bring existing buildings up to the equivalent of the best new buildings being constructed today.

Some individual equipment would lend itself to the EE/RE LIC concept, particularly those that have a short- and long-term strategic value because of their electricity demand/peak management capability, such as solar water heaters and solar photovoltaic (PV) systems. Technologies such as ground-source heat pumps, which have very long paybacks when used to heat/cool individual energy-efficient homes, do not appear to be suitable for financing with an EE/RE LIC program, unless they are used to heat larger buildings or clusters of homes.

In general, an EE/RE LIC program targeted at commercial/institutional homes might be more easily implemented because of the smaller number of participants and the larger projects.

There are some opportunities to apply the EE/RE concept to applications in northern communities in several provinces and territories where it can be used to reduce the need for building new grid extensions or increasing their capacity. This was the original use of the concept in Yukon.

The EE/RE LIC Model Program

In general, the model program given in Appendix 1 was viewed as a good model upon which to build an EE/RE LIC program. Key aspects raised by provinces and municipalities included the following:

- LIC payment schedules must be set so that the annual payment (plus the increase in basic property tax because of increased property value) is less than the average savings achieved from the upgrade, thus providing a positive cash flow for the property owner.

[7] R-2000 is an official mark of Natural Resources Canada.
[8] ENERGY STAR is a registered trademark of the United States' Environmental Protection Agency.

- Contractor certification is very important. Only those contractors who can demonstrate knowledge of and experience in high-efficiency buildings practice should be eligible to undertake work financed under an EE/RE LIC program. Experienced contractors mentioned included the Better Buildings Partnership, the EAGA Partnership Ltd., Efficiency Vermont, Green Communities Association, Homeworks Services Inc. and Canadian energy service companies. Financial support for training and certification may be needed in some provinces.
- To keep transaction costs down, a minimum improvement cost should be set (e.g. $3,000).
- Promotion of the program must stress that it is voluntary, not a new tax, and that the net combination of taxes and energy costs will be lower.
- For equity and cost minimization, the same LIC payment scheme and terms should be used for gas and electricity customers.

Financing

The Federation of Canadian Municipalities is willing to finance municipal EE/RE LIC programs out of the new infrastructure funding to be provided in the 2005 Federal Budget (provided that the federal government request FCM to include this option in the agreement on the new funding, and that the real or perceived legal issues are resolved in each province). Because this legal clarification is not likely to occur in all provinces at the same time, FCM proposes to introduce the financing one province at time. This would also provide the opportunity to pilot the concept.

Although power and gas utilities were not contacted directly, BC Hydro co-funded the 2004 study on the EE/RE LIC concept, and several provincial and municipal contacts mentioned that utilities might be interested in the concept as a way of reaching customers with longer payback measures using their DSM financing. This might be particularly true where these long payback measures could play a strategic role either by increasing export opportunities (e.g. in British Columbia, Manitoba and Quebec) or by managing peak demand (e.g. in Ontario).

Some provinces have provincial financing authorities that provide financing to municipalities for municipal works or other projects and programs. In some cases, if there is full recovery of costs from the beneficiaries, these loans are not treated as a debt. In other cases, municipalities have a sufficiently low debt load to be able to finance an EE/RE LIC program from municipal reserves.

Because an EE/RE LIC program would target longer payback measures that are not regulated or receiving incentives from federal and provincial EE/RE programming, there is a real opportunity to partially finance these measures through carbon financing i.e. selling GHG reduction credits under Canada's proposed new offsets program. By aggregating projects under an EE/RE LIC program a municipality could reward property owners for their GHG-reduction investments without having to participate personally in the offset market.

Piloting the Concept

All of the municipalities approached were interested in piloting the EE/RE LIC concept provided that the following conditions were met:

- Financing were available if they needed it.
- Legal issues were resolved.
- Some assistance was provided by the provincial and federal governments toward the cost of staff training, contractor certification, etc., during the start-up phase.

All municipalities approached are members of the FCM Partners for Climate Protection (PCP) program, and see the EE/RE LIC concept as a valuable tool in implementing their community GHG-reduction plans. It is expected that most municipalities that are members of the PCP program would be interested in piloting or using the concept.

Departments responsible for energy efficiency in each province are willing to coordinate and or support piloting of the concept – again if the legal issues are resolved and the federal government can also provide some support for the pilot. Specifically, municipalities would like the Office of Energy Efficiency to provide:

- Encouragement of political action on legal issues at the Provincial level.
- Technical and financial support for piloting the concept (e.g. municipal staff training and transaction cost monitoring).
- Instructing FCM that they can use new infrastructure funding to finance EE/RE LIC programs.
- Training and certification support for implementing contractors.

In provinces (or municipalities) where utilities have significant DSM programs, utilities could play a role in financing or supporting a pilot.

A workshop on the EE/RE LIC concept for staff and Council in municipalities interested in piloting the concept, attended by those with experience with the concept in Yukon, was mentioned as a useful next step.

Provincial/Territorial Suitability

Table 2 lists each province and territory and rates the suitability of a pilot based on the legal review and responses to provincial/territorial and municipal interviews.

Table 2: Provincial/Territorial Suitability for LIC Pilot

Province / Territory	**Suitability for Pilot**	**Explanation**
Yukon	N/A	Already in use for renewable energy in Whitehorse, but not approached in this study.
Northwest Territories	N/A	Not approached in this study.
Nunavut	N/A	Not approached in this study.
British Columbia	High	Flexible legislation. Provincial support from ministries responsible for environment and energy, but not yet from ministry responsible for municipal affairs. Municipal interest is contingent on clear provincial support.
Alberta	Medium	Flexible legislation. However, concept's legality questioned by ministry responsible for municipal affairs. Support from Climate Change Central, but not reviewed yet by energy ministry. One municipality is ready to try a pilot.
Saskatchewan	High	Flexible legislation and some indication from municipalities that it would be applicable to EE/RE improvements. Provincial and municipal uptake is contingent on political support and funding sources, however.
Manitoba	High	Flexible legislation. High provincial and municipal interest in a number of key areas. Potential role for Manitoba Hydro.
Ontario	High	Restrictive legislation that may need to be amended to include EE/RE improvements. Provincial interest and new Conservation Action Team is ideal vehicle to resolve legal issues. Strong municipal interest in pilot. Potential role for utilities.
Quebec	Medium	Flexible legislation although not perceived to be applicable to EE/RE improvements by ministry responsible for municipal affairs. Provincial and municipal interest and potential role for Hydro-Québec.
New Brunswick	Medium	Restrictive legislation. Moderate provincial interest due to current focus directed toward the formation of new energy efficiency agency. Municipal interest in pilot.
Nova Scotia	High	Restrictive legislation, but provincial interest and willingness to allow a pilot to proceed without changing legislation. Municipal interest in a pilot program as long as it is a large-scale project.
Prince Edward Island	Low	Flexible legislation. Medium provincial interest, but no contact made with municipalities.
Newfoundland and Labrador	N/A	Not approached in this study.

Recommendations

A flow chart showing how the EE/RE LIC concept might be advanced to the point of municipal pilots is shown in Figure 1. The recommended actions are as follows:

1. This paper should be circulated to all provincial and territorial departments responsible for energy efficiency and municipal affairs, and to major gas and power utilities with significant DSM programming.

2. The Office of Energy Efficiency (OEE) and interested provincial departments responsible for energy efficiency should move quickly to resolve the legal issues surrounding the use of LICs for the financing of energy efficiency and renewable energy improvements. This could be done by first discussing the EE/RE LIC concept at the federal/provincial/territorial DSM Working Group, then encouraging discussions about the use of the concept in each province between departments responsible for municipal affairs and energy efficiency. The objective would be for the department responsible for municipal affairs to provide an interpretation of regulations governing municipal local improvements that would allow municipalities to use LICs for EE/RE improvements in buildings.

3. If necessary, energy ministers should be encouraged to take this issue up with their municipal counterparts. In provinces like Ontario, bodies such as the Conservation Action Team, which includes representation from both Ministries, should be encouraged to consider the concept as soon as possible. Natural Resources Canada (NRCan) could also facilitate additional discussion by placing the EE/RE concept on the agenda for the Council of Energy Ministers (CEM) meeting in September 2005.

4. To further accelerate the resolution of legal issues, municipalities such as the City of Ottawa and others surveyed in this study that are interested in moving quickly on a pilot should be asked to participate in the negotiations.

5. NRCan should include the EE/RE LIC financing option in its agreement with FCM on the spending of new infrastructure funding. As legal issues are resolved in each province, FCM should indicate to municipalities in those provinces that it can offer loans for financing EE/RE improvements using LICs.

6. As the legal issues in each province are resolved and as municipalities receive confirmation that LICs can be used for EE/RE improvements, information on how to use the EE/RE LIC concept should be sent to municipalities in that province that are members of PCP program, inviting them to propose a pilot program that would test the concept in a chosen area and with selected EE/RE measures. OEE and the provincial departments responsible for energy efficiency should indicate to municipalities what role they would play in each pilot program. Municipalities would select the type of financing they would prefer to use and identify the staff training and

other needs that would benefit from higher levels of government support during the pilot project.

7. DSM program managers in provincial utilities should be approached to determine whether they would like to participate in and co-finance the pilot programs.

8. NRCan's OEE should initiate work on support tools, materials and training workshops that would be needed by any municipality interested in using the EE/RE LIC concept, which may include the following:

    - Familiarization seminars for municipal staff and Council members on the benefits and details of an EE/RE LIC program.
    - Training workshops for municipal staff administering an EE/RE LIC program.
    - Training and certification standards for contractors in energy efficiency and renewable energy building practices.
    - Offset protocols for building energy efficiency and renewable energy that could be used by municipalities to register EE/RE improvement projects financed by LICs and generate offset credits for sale through the new Canadian offsets market.
    - Brochures and other materials that could be used by provinces and municipalities to promote and explain the EE/RE LIC concept.
    - Monitoring services for each pilot program to determine the uptake, financial viability, transaction costs and other information needed to evaluate the concept.

9. Municipalities should fine tune the model EE/RE LIC program shown in Appendix 1 to meet their specific needs, ensuring that certain key features are retained:

    - Target the EE/RE LIC program at building improvements where the incremental cost is significant, there are identified co-benefit opportunities, no regulations are contemplated and there are no other major incentives available.
    - Set LIC payment schedules so that the annual payment (plus the increase in basic property tax) is less than the average savings achieved from the upgrade.
    - Certify only those contractors that can demonstrate knowledge of and experience in high-efficiency buildings practice to undertake work financed under an EE/RE LIC program.
    - Set a minimum improvement cost (e.g. $3,000) to keep transaction costs down.
    - In promotion of the program, stress that it is voluntary, is not a new tax, and that the net combination of taxes and energy costs will be lower.
    - For equity and cost minimization, use the same LIC payment scheme and terms for gas and electricity customers.

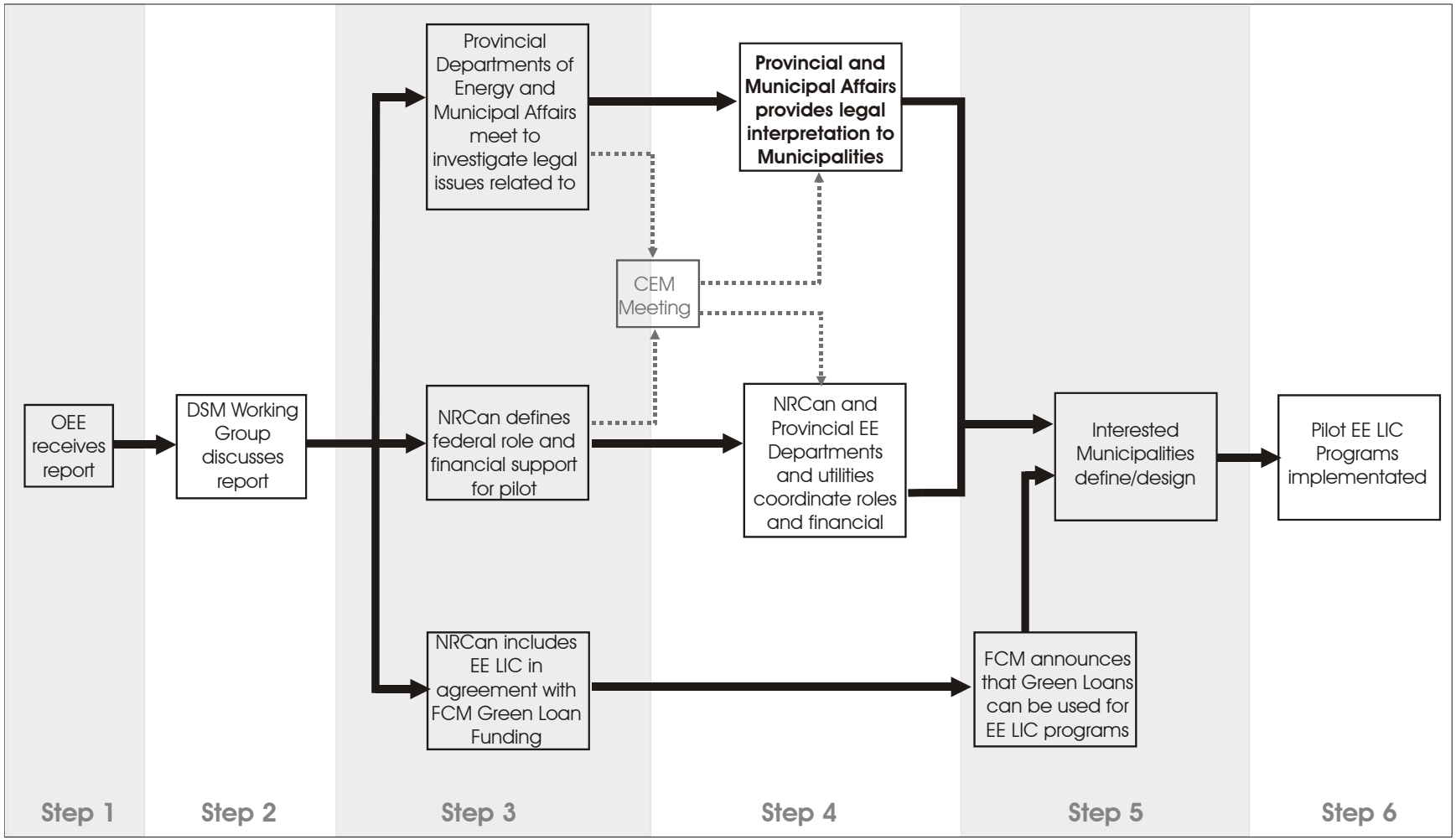

Figure 1: Next Steps in Implementing the EE/RE LIC Concept

Appendix 1: Model Program for Using LICs to Finance Energy Efficiency Improvements

The LIC mechanism is distinctive from other financial instruments in several respects:

- Like a loan, an LIC provides a mechanism for gradually paying off a large one-time improvement to a property.
- Unlike a loan, LICs are not assigned to individuals, but to properties.
- Like a tax, LICs are levied as a separate line item on property tax bills.
- Unlike a tax, LICs are generally voluntary in nature – they are requested by (a majority of) property owners.
- LICs can be easily structured to recover all funds invested by a municipality for improvements.
- LICs are already levied by most municipalities in Canada.

The main advantage of financing energy efficiency improvements using an LIC program over alternative methods is therefore that it associates the repayment of the cost of the improvements with the property rather than with the current property owner.

Designing an Energy Efficiency LIC Program

The following issues should be considered when designing an energy efficiency LIC program:

Financial and Staff Resource Capacity. The municipality must assess its ability to carry out a successful energy efficiency LIC program. The capital financing for the improvements will need to be secured. These funds could potentially come from the existing municipal budget, higher levels of government, municipal organizations such as the Federation of Canadian Municipalities (FCM) or by issuing bonds. Provincial agencies such as the Municipal Finance Authority of British Columbia exist to provide this type of financing, and many municipalities are familiar with the annual process of using this source. Indebtedness of individual municipalities will vary; but in most provinces, local governments should be able to borrow the additional capital required to offer an energy efficiency LIC program and recover all costs of borrowing through selection of the interest rate applied (see "Financing Structure" point). In British Columbia, a municipality is allowed to spend up to 25 percent of total revenues on principal and interest (not including one-time grants). However, it is not recommended that municipalities have a debt payment that is more than 15 percent of total revenues.

The staff needed to administer the program will need to be assigned from other tasks and/or hired depending on the anticipated size of the program and related workload. If municipalities already have staff resources engaged in energy management improvements in municipal facilities, they could be used to provide technical assistance to LIC staff. This may reduce set-up and LIC processing costs. The types of transaction costs associated with the implementation of an LIC program are reviewed in the next section of this paper. Sufficient staff resources must be allocated for administration of the LICs.

Administrative Unit. An energy efficiency LIC program would best be managed by the unit currently administering conventional LICs with the addition of extra staff trained in building energy efficiency and renewable energy. The same familiar LIC mechanism is used, but the application would be significantly different and require specialized staff. In some cities, where LICs are processed by multiple departments according to the specific nature of the improvement (drainage LICs, road LICs, etc.), energy efficiency LICs would not be a good fit into any existing program, and a separate unit would need to established for the purpose.

Council Support. Every LIC put in place by a municipality must first be specifically authorized by a municipal bylaw approved by Council (see "Operation of an Energy Efficiency LIC Program" section). However, it is advisable to have the general concept of using LICs to finance energy efficiency improvements approved in principle by the municipal council as a first step in designing and implementing a municipal program.

A particularly strong rationale for council approval of a municipal energy efficiency LIC program would be the council's existing commitment to reducing energy costs or greenhouse gas emissions from the community as a whole. Municipalities that are members of the FCM PCP program have already committed to achieving community-wide reductions of greenhouse gases. An energy efficiency LIC program can be reasonably justified as an effective means by which the city can assist the community as a whole in achieving reductions. A similar rationale is available to those municipalities that have committed themselves to a community energy planning process.

Some municipalities might be averse to taking on extra debt to finance an energy efficiency LIC program, even though full-cost recovery is anticipated and the risk of default on LICs is very low. This might be particularly true for cities that already have large loans to finance conventional LICs.

Public Support. Because the application of the LIC tool for household energy efficiency improvements constitutes a significant and novel extension of traditional civic functions, it is also strongly recommended that the municipality clearly present its rationale for the use of this tool to the public. In particular, municipalities should ensure that the program is not perceived as a new tax on energy-efficient properties. To overcome this issue, municipalities can stress the voluntary nature of the program and the financial savings resulting from these improvements.

Public promotion should also highlight that energy-efficient LICs are designed to finance longer payback improvements not traditionally financed by conventional loans from financial institutions. The improvements being targeted by LICs are those not normally targeted by banks that focus on conventional loans for shorter-term investments.

Eligible Energy-Efficient Technologies. The municipality needs to decide which energy efficiency improvements and technologies are eligible under the LIC program. In principle, LICs could be applied to energy efficiency improvements for any new or

existing property. Depending on the types of properties/owners the municipality wants to target, council could limit the program to a particular type or vintage of building, or restrict the types of property eligible (e.g. those properties zoned for commercial or residential buildings).

Beyond these limitations on eligibility, it is recommended that energy efficiency LICs should be limited to only those improvements in building energy efficiency that a) cannot be easily removed from the house or building, and b) are easily recognized as energy efficiency measures. Examples of these energy efficiency measures include:

- Building shell upgrades (insulation, air sealing and new windows) including re-siding and other outside renovations that would allow significant energy efficiency improvements to be made at the same time.
- New high-efficiency HVAC systems and water heaters, including permanently installed solar water heaters.
- Permanently installed solar PV systems and associated inverters, grid connections and meters.
- Built-in water efficiency measures such as water-efficient toilets.
- Many of the components relevant to attainment of LEED Gold and or net zero energy housing certification (in commercial and residential buildings respectively).

Note that the improvements listed above have longer payback periods because of the higher levels of capital investment involved and as such are subject to the types of barriers that the LIC program addresses.

It is further recommended that the city restrict eligibility for the energy efficiency LIC program to a specific set of measures known to produce significant benefits for the buildings in question. Technologies that are ineffective for the climate zone of a particular municipality or measures that are not optimized for the size, function and load of the proposed building should not be made eligible.

Coordination with Financial Incentive Programs. Some energy efficiency improvements will be eligible for federal or provincial incentive grants. The LIC program could be structured so that these grants can be taken advantage of when the improvements are made. Alternatively, the municipal LIC program could be limited to those energy efficiency improvements not covered by these programs. In all cases, the objective would be to coordinate the LIC program with these grants, minimize duplication of effort and prevent any confusion in building owners' minds as to how these programs operate.

Some building owners will also be eligible for tax credits for non-energy-related investments. These would need to be preserved in the application of an energy efficiency LIC.

Eligible Installers. The municipality should design its energy efficiency LIC program to ensure, as far as possible, that installation is done in a professional and cost-effective manner. To achieve this, it is recommended that the municipality set out criteria

determining the eligibility of contractors to carry out the improvements and provide an estimate of the savings that would be realized from the improvements. Because these types of investments are unfamiliar to many property owners and contractors, it will be essential that contractors are familiar with their installation and performance, can undertake an energy audit of the building, and can accurately estimate the costs and savings from the upgrade recommended.

In many cases, professional organizations and accreditation programs that certify members' proficiency in installing various types of energy efficiency improvements already exist (e.g. R-2000, EnerGuide for Houses and LEED accreditation programs). Technology-oriented professional associations (e.g. Canadian Earth Energy Association and Canadian Solar Industries Association) also have codes of conduct for members, which could be adopted with a minimum of effort for use by municipalities.

Financing Structure. The municipality also needs to decide on the financing structure for the LICs. It is recommended that the LIC program operate on a cost-recovery basis, because the improvement is beneficial to both the property owner (financial benefits) and the community as a whole (environmental benefits).

To overcome the aversion to long-payback investments and to provide modest reductions in energy costs from year one, it is strongly recommended that the LIC payments be structured so that, in an average year, the LIC repayment is less than the energy cost savings achieved. As such, the optimal LIC repayment term should be somewhat longer than the time estimated to achieve a simple payback through energy savings. This said, it is also prudent to offer property owners the flexibility of a shorter payback term, as well as the option of full early payback without financial penalty, as with traditional LICs. The longest available term for repayment would likely vary across municipalities because of different energy needs, technologies and prices, but it could be in the range of 15 to 20 years. This is comparable to the longest available terms in traditional LIC programs.

In cases where the basic property tax assessment is raised because of the improvement, the LIC payment schedule must be set so that energy savings are greater than the LIC payment plus the increase in basic tax.

It is recommended that the interest rate for the LIC be set to cover all the additional transaction and processing costs incurred by the municipality to run an LIC energy efficiency program. The exact amount will depend on the staffing and borrowing costs of each municipality and the nature of the program it chooses to pursue.

In terms of cash flow, local variations in LIC rules that allow deferral of property taxes need to be taken into account. For example, in Vancouver, residents over 65 years of age can defer taxes until the property is sold.

Minimum and maximum cost limits for improvements need to be set by the municipality. It is recommended that the minimum limit be relatively substantial (e.g. $3,000–$5,000) to avoid the high relative transaction costs that would apply to management of smaller

sums and to avoid interference with existing programs that already adequately finance lower-cost and shorter-term energy efficiency improvements. As noted above, the energy efficiency LIC mechanism is particularly well suited to more expensive improvements that have longer-term paybacks.

Maximum funding limits are prudent to ensure that available funds can be applied to a large number of applicants and to prevent possible abuse of these funds. Maximum funding limits could be capped at a modest percentage (e.g. 25 percent[9]) of the total assessed value of the property. Within this overall cap, more stringent maximum funding limits could be set for each technology, based on discussions with qualified contractors experienced with these technologies. There is no need to check an applicant's personal financial background because of the property-based nature of an LIC, thus saving what can be a significant part of total transaction costs in a conventional loan program.

Program Advertisement. The municipality must announce and advertise the program. Depending on the number and proximity of participating municipalities, and the extent of the municipality's cooperation with professional organizations in structuring the program, this step could be accomplished by the local government alone, or through a collaborative campaign with local contractors or other participating municipalities. Regardless of the model selected, making people aware of the program will be critical.

Operation of an Energy Efficiency LIC Program

The following describes steps in the application for and implementation of a typical energy efficiency LIC:

1. A property owner decides they would like to investigate having energy efficiency improvements installed in their building. This could occur as a result of an energy audit of an existing building or an interest in constructing a high-efficiency building.

2. The property owner contacts City Hall, which has a list of eligible contractors and technologies that can be financed with an LIC. Alternatively, the property owner contacts these contractors directly.

3. One or more contractors undertake an energy assessment of the building and discuss possible energy efficiency options with the property owner, keeping in mind the eligible technologies listed by the municipality. It may be possible to streamline the audit process by having standard energy reductions for each eligible measure or technology (at least for a particular municipality). It would be prudent for the property owner or one of the contractors to initially confirm the eligibility of the intended improvement with City Hall at this time.

4. The contractor develops a quote for materials and labour that is agreed to by the property owner, along with an estimate of the savings that would be achieved. In cases where the eligible work is just a component of the overall renovation, the LIC

[9] The limit of 25 percent was used in the Yukon LIC program.

would be applied only to the eligible improvements within the larger project. A proper determination of the costs for these components would be less onerous if the eligible measures or equipment were clearly defined, and applications were assessed in cooperation with relevant professional organizations experienced in installing these technologies.

5. The property owner submits the quote to the municipality for approval.

6. Assuming the request for an LIC and the quote are eligible, the municipality then advises the property owner on what their annual LIC payment and term will be, along with an estimate of the annual energy savings. Ideally, the annual payments would be set so that they are less than or equal to the estimated average annual energy savings so that cost savings could be realized immediately. This process requires setting the payback term uniquely for each proposal; but as programs evolve, municipalities might find it more effective to provide fixed terms for different types of improvements. This is how traditional LICs operate.

7. If the property owner agrees to the terms of repayment through the LIC, the municipality then initiates a bylaw for the LIC and gains approval from Council.[10] In practice, it would be prudent to combine several LICs into a single bylaw and take these bylaws before the municipal council on a regular basis. In many municipalities, LIC applications are grouped together and approved only two or three times a year. For groups of new homes, a single bylaw could be used to cover all homes in a subdivision, with the developer being the proponent (as owner of the property). Improvements to large facilities such as shopping centres (or a new building) could be covered by their own LIC bylaws.

8. The contractor is authorized to initiate work. Because property owners would likely want to proceed quickly with renovations, a streamlined cost estimate and approval process is recommended to minimize the time between application and authorization to proceed. Conventional LICs often involve several property owners and the contracting process can take several months. The processing and approval of an energy efficiency LIC should take less time than for a conventional LIC.

9. Upon completion of the upgrades, the contractor submits an invoice to the municipality.

10. The municipality or designated authority inspects the work to ensure it has been done satisfactorily and within the cost estimate, and that the work will produce the savings estimated. If the work does not meet the requirements agreed upon with the contractor, the property owner will still be liable for full repayment of the funds advanced by the municipality. In anticipation of this outcome, all contracts will need to clearly communicate the expectations of the property owner and responsibilities of the contractor so that the city can ensure that improvements are acceptable. Having a list of qualified and properly trained contractors will also help mitigate this risk. The

[10] Provincial legislation normally requires that each new LIC be approved by the municipal council.

need for contractors to be qualified in installation will be strongest with newer technologies, such as solar water heaters, that property owners and contractors are less familiar with.

11. The municipality then issues payment for the improvement to the contractor and applies the LIC to the property tax records. The LIC payment is made annually along with regular property taxes.

    If, because of actions on the part of the property owner, the improvements made do not continue to provide the expected savings for at least the length of the payback period (or are removed through an additional investment for example), the owner would still be responsible for full repayment of the funds advanced by the municipality. Careful selection of reliable technologies, and cooperation with professional contractors and building technology associations, should minimize this problem. Building owners should also be advised to carry sufficient insurance to cover the cost of replacing the efficiency improvements in the case of fire or other loss.

    If LIC payments are defaulted, the municipality has the same extensive rights as it does in the case of failure to pay property taxes. With conventional LIC programs, this problem usually only arises with property owners who voted against a local improvement that was favoured by a majority of their neighbours. In the case of the energy efficiency LIC program described above, LICs would only apply to individual properties and only at the request of property owners, thus substantially avoiding this issue.[11]

12. When a property is sold, the LIC is passed on to the new owner who must be apprised of its existence (and benefits) during the sale. Other features of the LIC and improvements, such as carrying sufficient insurance, should also be passed on to the new owner at this time. Legal appeals of energy efficiency LICs would be expected to be extremely rare because the charge would have been voluntarily agreed to by the property owners.

Carbon Financing

With the advent of a national GHG offset market under Canada's Kyoto plan, it will be possible for projects that reduce GHG emissions to sell carbon credits as the reductions are achieved. Municipalities offering an EE/RE LIC program could reduce the annual LIC payments made by property owners by selling the GHG reductions on their behalf. More details of how such as process would work should be available later in 2005.

[11] Opposition to an LIC placed on a single property might still occur in the case of a condominium property, where a minority of the strata council opposed the LIC.