

Low-income energy efficiency program



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Designing a low-income energy efficiency program: *Recommendations for Toronto Hydro and other Ontario electricity local distribution companies*



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With financial support from:

 **TORONTO** Atmospheric Fund

 **Ontario**

The Ministry of Energy was pleased to contribute to the funding of this Report. It should be noted, however, that the recommendations are those of the authors and do not necessarily reflect the policies of the Ministry.

This document was prepared for the Low-income Energy Network by IndEco Strategic Consulting Inc.

For additional information about this document, please contact:

IndEco Strategic Consulting Inc.
2 Pardee Avenue, Suite 302
Toronto, ON, Canada
M6K 3H5

Tel: 416 532-4333
Fax: 416 532-5485
E-mail: info@indecocom

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IndEco report A4254

3 December 2004

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Acknowledgements

LIEN and the interim steering committee of LIEN, in particular, wish to thank both the Toronto Atmospheric Fund and the Ministry of Energy for their generous support of this work. In addition, we wish to thank the experts that we consulted for their advice as well as the participants in our Planning Session and in our Working Session for their participation and very helpful suggestions.

Executive Summary

The Low-income Energy Network (LIEN) was formed in 2004 to raise awareness of implications for low-income households of increases in energy prices and to suggest solutions. LIEN aims to ensure universal access to adequate energy as a basic necessity, while minimizing the impacts on health and on the local and global environmental of meeting the essential energy and conservation needs to all Ontarians. LIEN promotes programs and policies which tackle the problems of energy poverty and homelessness, reduce Ontario's contribution to smog and climate change, and promote a healthy economy through renewable and energy efficient technologies.

The interim steering committee of LIEN is made up of representatives of:

- Advocacy Centre for Tenants Ontario (ACTO);
- Canadian Environmental Law Association (CELA);
- Income Security Advocacy Centre (ISAC);
- Share the Warmth (STW);
- Toronto Disaster Relief Committee (TDRC);
- Toronto Environmental Alliance (TEA).

LIEN received funding from the Toronto Atmospheric Fund and the Ministry of Energy for the development of recommendations for a low-income energy efficiency program design for electricity local distribution companies (LDCs). This project is one of several initiatives undertaken or being pursued by LIEN, as part of its multi-faceted, comprehensive approach to easing the energy burden of low-income households in Ontario.

The low-income energy efficiency program recommended in this report is limited to low-income homeowners and low-income tenants who directly pay for their electricity. This limitation was established to enable the development of a program design that could be piloted by LDCs, starting in 2005. With respect to low-income tenant participants in the pilot program, priority should be given to the energy savings measures

that are easily implemented and do not require the consent of landlords under current legislative and regulatory rules and provisions¹. Appliances and hot water/heating equipment will be replaced under the program only if tenants own the items.

LIEN recognizes that many tenants, including low-income tenants, pay for their utilities as part of their rent. Future programs should also address these tenants and should ensure that they receive a fair share of the energy savings in the form of rent reductions. This will be the focus of the next phase of LIEN's work on energy efficiency programs.

The goal of this initial proposed program is to lower the energy burden of low-income households through the implementation of energy saving measures and the provision of one-on-one education and facilitation services. The program includes a comprehensive suite of measures that together will provide 'deep' energy reductions.

LIEN's recommended initial pilot program consists of three main elements: a home energy assessment, installation of energy savings measures, and ongoing education of participants on energy conservation.

The results of the energy assessment would be used to determine which energy efficiency measures, from a preset list of options, are appropriate and cost effective for installation in each dwelling. This preset list of options includes 'basic' and 'extended' energy saving measures. The basic energy saving measures are:

- Weatherization/draft proofing;
- Replacement of the four most frequently used incandescent light bulbs with compact fluorescent light bulbs (CFLs);
- Programmable thermostat;
- Motion sensors for lighting;
- Water heater pipe wrap/heat trap;
- Low flow shower heads and faucet aerators;
- Clothes line/rack and clothes pins.

¹ The provincial government has committed to replace the *Tenant Protection Act, 1997* and held public consultations on Residential Tenancy Reform from April to June, 2004.

The 'extended' energy saving measures are:

- Heating equipment replacement with high efficiency equipment;
- Appliance replacement (e.g. refrigerators, washers);
- Replace or supplement electric hot water heaters with either gas, solar or instantaneous hot water heaters, as appropriate;
- Insulation.

The LDC will be accountable for the overall administration of the programs. However the LDC may choose to contract out some or all tasks including marketing and outreach, administering the application process and delivering the program.

Because the energy conservation and efficiency programs are comprehensive and include both natural gas and electricity use, LIEN strongly encourages electric and natural gas LDCs (e.g. Enbridge Gas Distribution and Toronto Hydro in Toronto) to work together in the administration of these programs. The cooperative efforts among the natural gas and electric LDCs should be built into the individual budgets of the Demand Side Management (DSM) plans of the natural gas and electric utilities for approval by the Ontario Energy Board (OEB). The Province should encourage this type of cooperation and foster expeditious approval of DSM plans of both the natural gas and electric utilities that contain these low-income programs.

1 Introduction

The Low-income Energy Network (LIEN) was formed in 2004 to raise awareness of implications for low-income households of increases in energy prices and to suggest solutions. LIEN aims to ensure universal access to adequate energy as a basic necessity, while minimizing the impacts on health and on the local and global environmental of meeting the essential energy and conservation needs to all Ontarians. LIEN promotes programs and policies which tackle the problems of energy poverty and homelessness, reduce Ontario's contribution to smog and climate change, and promote a healthy economy through renewable and energy efficient technologies.

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LIEN received funding from the Toronto Atmospheric Fund and the Ministry of Energy for the development of recommendations for a low-income energy efficiency program design for electricity local distribution companies (LDCs). This project is one of several initiatives undertaken or being pursued by LIEN, as part of its multi-faceted, comprehensive approach to easing the energy burden of low-income households in Ontario.

The purpose of this report is to present LIEN's recommendations to Toronto Hydro and other Ontario LDCs on the design and delivery of a low-income energy efficiency program that can be piloted by LDCs, starting in 2005. Section 2 provides an overview of how the program design was developed and the program's underlying principles. Section 3 describes the specific measures and components of the energy efficiency program. Recommendations on implementing the program, including marketing and outreach, eligibility and application process and program

delivery are presented in section 4. An estimate of the potential costs and benefits of the program are presented in sections 5 and 6. Section 7 highlights some of the key recommendations for the low-income energy efficiency program.

2 Development of the program design

The program design was developed through the process illustrated below. Background information on low-income energy issues and existing low-income energy programs was collected by the project consultant - IndEco Strategic Consulting Inc - through a literature review and secondary research. The project team² also consulted with several energy experts for their opinions on what the program design should include. Using this information, IndEco facilitated a two-day strategic planning session with the LIEN interim steering committee at the end of September, 2004. The product of that session was the draft program design, which was basis of a working session with LIEN members and other stakeholders on October 20th, 2004. Based on feedback received at the working session, the draft program was revised into the final program design recommendations presented in this report.

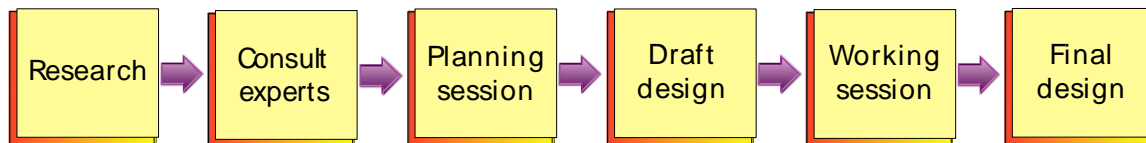


Figure 1: Program design process

2.1 Underlying principles

When designing an energy efficiency program to specifically meet the needs of low-income households, the members of the LIEN interim steering committee agreed that a number of principles must be adhered to. These are:

- Energy efficiency and conservation programs should be comprehensive, addressing appliances, building envelopes, weatherization/draft-proofing and heating systems;
- No capital outlay should be required for low-income participation in energy efficiency and conservation programs;
- There needs to be a clear, simple, and easily accessible screening process for identifying eligible program participants;

² The project team consists of the LIEN interim steering committee and IndEco Strategic Consulting Inc.

- The energy savings attained as a result of the energy efficiency program must be realized on the participants' utility bills.
- The financial value of energy efficiency measures received should not be considered as income and should not be deducted from monies received from other sources³.

The potential impact of low-income energy efficiency programs on the overall quality of life for program participants, such as changes to the safety and/or comfort of the dwelling, should also be recognized to ensure that changes are mutually beneficial and do not cancel each other out⁴.

2.2 Program goals and scope

The scope of recommended program design is limited to low-income homeowners and low-income tenants who directly pay for their electricity. This limitation was established to enable the development of a program design that could be piloted by LDCs, starting in 2005. With respect to low-income tenant participants in the pilot program, priority should be given to the energy savings measures that are easily implemented and do not require the consent of landlords under current legislative and regulatory rules and provisions⁵. Appliances and hot water/heating equipment will be replaced under the program only if tenants own the items.

LIEN recognizes that many tenants, including low-income tenants, pay for their utilities as part of their rent. Future programs should also address these tenants and should ensure that they receive a fair share of the energy savings in the form of rent reductions. This will be the focus of the next phase of LIEN's work on energy efficiency programs.

The goal of this initial proposed program is to lower the disproportionate energy burden of low-income households through the implementation of energy saving measures and the provision of one-on-one education and facilitation services. The program includes a comprehensive suite of

³ LIEN will be recommending the implementation of this 'no claw-back' principle to the Minister of Community and Social Services.

⁴ For example, improving the insulation or draft proofing in an apartment building, where tenants do not have individual temperature controls, can be counterproductive if it increases the internal temperature to the point where tenants leave windows and doors open during the winter.

⁵ The provincial government has committed to replace the *Tenant Protection Act, 1997* and held public consultations on Residential Tenancy Reform from April to June, 2004.

measures that together will provide 'deep' energy reductions⁶. An alternative approach to program design would have been to try to maximize the total number of participant households and provide a smaller, less comprehensive suite of energy saving measures that would result in less significant energy reductions. The downside with this alternative approach is that actual benefits for the participant may be either very small or negligible.

⁶ Results from a low-income energy efficiency program being implemented by Toronto Community Housing Corporation suggest that reductions of 40-45% of household energy use are achievable.

3 Program description

The purpose of the proposed overall program is to lower the disproportionate energy burden of low-income households through the implementation of energy saving measures and the provision of one-on-one education and facilitation services. The program would consist of three main elements:

- Home energy assessment;
- Installation of energy saving measures;
- Education.

The program would be delivered to homeowners and tenants through up to three home visits by an energy services professional. The initial home visit would include the home energy assessment, installation of basic energy saving measures and one-on-one education regarding energy efficiency. The second home visit would include the installation of additional, larger energy savings measures (e.g. appliance or heating system replacement), along with additional education, where these measures are determined to be applicable and cost-effective⁷ for the particular dwelling during the initial assessment. Finally, there will be a follow up visit with household members within a year from the installation of the energy efficiency measures to ensure that the measures are still in place and to answer any additional questions the participant may have.

3.1 Initial visit

Home energy assessment

The initial home visit would begin with a comprehensive home energy assessment by an experienced professional. The purpose of the assessment is to identify the current level of household energy consumption (natural gas and electricity) and the breakdown of that consumption by end use (e.g. appliances, heating, cooling, and lighting). The assessment would also include a blower-door test to identify any air leakages in the building envelope.

⁷ As a starting point for the purposes of this program, LIEN recommends that measures with a payback of 10 years or less be considered cost-effective.

Installation of energy saving measures

The results of the energy assessment would be used to determine which energy efficiency measures, from a preset list of options, are appropriate and cost effective for installation in each home. This preset list of options includes 'basic' and 'extended' energy saving measures. The basic energy saving measures are:

- Weatherization/draft proofing;
- Replacement of the four most frequently used incandescent light bulbs with compact fluorescent light bulbs (CFLs);
- Programmable thermostat;
- Motion sensors for lighting;
- Water heater pipe wrap/heat trap;
- Low flow shower heads and faucet aerators;
- Clothes line/rack and clothes pins.

The 'extended' energy saving measures are:

- Heating equipment replacement with high efficiency equipment;
- Appliance replacement (e.g. refrigerators, washers);
- Electric hot water heaters replaced by, or supplemented with, either gas, solar or instantaneous hot water heaters, as appropriate;
- Insulation.

Preliminary estimates of the cost of installation and energy savings for each measure are described in sections 5 and 6.

The energy services professional delivering the program will come prepared to install all of the basic measures during the initial visit, in the event that they are appropriate and cost-effective. The energy services professional will explain and demonstrate how to operate and/or upkeep the new equipment in order to maximize energy efficiency and minimize

operating costs. These measures are purchased and installed at no cost to the participant.

Education

Customer education is a critical component of the proposed low-income energy efficiency program, which would run throughout all stages of program delivery. During the initial assessment, the energy professional will provide participants with a description of their current energy use profile and will perform a 'walk-through' of the dwelling to identify ways that participants can reduce their energy consumption through behavioral changes, based on their unique situation. During the installation of basic energy saving measures, the delivery agents will explain and demonstrate how to operate and/or upkeep the new equipment (e.g. setting a programmable thermostat).

3.2 *Second visit*

If the home energy assessment reveals that the implementation of one or more of the extended energy saving measures is appropriate and cost-effective for the particular dwelling, then a second home visit will be set up for the implementation of these additional measures. With respect to low-income tenant participants in the pilot program, priority should be given to the energy savings measures that are easily implemented and do not require the consent of landlords under current legislative and regulatory rules and provisions⁸. Appliances and hot water/heating equipment will be replaced under the program only if tenants own the items. As with the basic measures, the energy services professional will explain and demonstrate how to operate and/or upkeep the new equipment in order to maximize energy efficiency and minimize operating costs. These extended energy saving measures are also purchased and implemented at no cost to the participant.

3.3 *Determining energy savings*

There are two main approaches to determining the energy savings achieved as the result of an energy efficiency program. One approach is to conduct another home assessment after the installation of measures (and perhaps again after a year or two) to directly measure the energy reductions. The second approach is to estimate energy savings based on a number of assumptions and input variables, which have been developed based on experience in Ontario or other jurisdictions gained

⁸ The provincial government has committed to replace the *Tenant Protection Act, 1997* and held public consultations on Residential Tenancy Reform from April to June, 2004.

with the implementation of similar programs. The second approach may be cheaper and easier to implement for both the LDC and the regulator. LDCs should adopt a monitoring and evaluation approach which meets the regulatory requirements of the Ontario Energy Board.

4 Implementation plan

The electric local distribution company (LDC) will be accountable for the overall administration of the programs. However the LDC may choose to contract out some or all tasks including marketing and outreach, administering the application process and delivering the program.

Because the energy conservation and efficiency programs are comprehensive and include both natural gas and electricity use, LIEN strongly encourages electric and natural gas LDCs (e.g. Enbridge Gas Distribution and Toronto Hydro in Toronto) to work together in the administration of these programs. The cooperative efforts among the gas and electric LDCs should be built into the individual budgets of the DSM plans of the natural gas and electric utilities for approval by the OEB. The Province should encourage this type of cooperation and foster expeditious approval of DSM plans of both the natural gas and electric utilities that contain these low-income programs.

4.1 Marketing and outreach

Identifying and notifying potential participants about the program will be critical to the ultimate success of the program. LIEN recommends that the LDC contract with a local community agency or non-profit group to coordinate the marketing and outreach initiative. Potential outreach and marketing initiatives include:

- direct advertising to utility customers (e.g. on-bill messages, bill inserts);
- advertising through Ontario Works and Ontario Disability Support Program offices (e.g. program information printed directly onto social assistance cheques);
- advertising through community groups and organizations (e.g. churches, community recreation centres, food banks, tenant associations, legal clinics, local seniors' groups, MPP and MP constituency offices)
- advertising through complementary services (e.g. Share the Warmth);

- ‘community ambassadors’ i.e. trusted, high profile individuals from within each community who would raise awareness of the program.

Outreach and education materials should be multilingual and take into consideration cultural and disability barriers. These materials should stress the potential benefits to program participants (i.e. potential dollar savings). LIEN encourages LDCs to engage a wide range of individuals in the marketing and outreach of the program, including both children and seniors.

4.2 Eligibility

The target participants for these energy efficiency and conservation programs are low-income homeowners and tenants who directly pay their own utility bills. To qualify for the program initially, households must have an income which is at or below Statistics Canada’s pre-tax, post-transfer Low-income Cut-off (LICO)⁹. The pre-tax, post-transfer LICO vary according to household size and the size of community, as shown in **Table 1**.

Table 1: Statistic Canada’s Before-Tax Low-income Cut-offs (1992 Base) for 2003

Family Size	Cities of 500,000+	Community Size			Rural Areas
		100,000-499,999	30,000-99,999	Less than 30,000	
1	\$19,795	\$16,979	\$16,862	\$15,690	\$13,680
2	\$24,745	\$21,224	\$21,077	\$19,612	\$17,100
3	\$30,774	\$26,396	\$26,213	\$24,390	\$21,268
4	\$37,253	\$31,952	\$31,731	\$29,526	\$25,744
5	\$41,642	\$35,718	\$35,469	\$33,004	\$28,778
6	\$46,031	\$39,483	\$39,208	\$36,482	\$31,813
7+	\$50,421	\$43,249	\$42,947	\$39,960	\$34,847

Source: Statistics Canada Research Paper, Low-income cutoffs from 1994-2003 and low-income measures from 1992-2001. Catalogue no. 75F0002MIE – No. 002.

⁹ The Canadian Council on Social Development and the National Council of Welfare have both adopted the Statistics Canada’s pre-tax, post-transfer Low-income Cut Offs (LICOs) as poverty lines (ACTO, 2002).

4.3 Screening and application process

LIEN has identified two possible approaches for screening and application. One approach is to use a formal application system where participants are required to provide supporting documents as proof of eligibility. The other approach would be a 'self-identification' system where program participants sign a legal form confirming that they meet the program eligibility requirements, but are not required to provide supporting documents as evidence.

Formal application system

In this approach, the LDC would contract with a social service agency to carry out the participant screening program. The social service agency should have experience in administering and/or delivering energy related programs and services to low-income people. For example, Share the Warmth is a registered charity that provides emergency energy assistance to households in need. It has a comprehensive screening and application system for its existing energy assistance program wherein participants may apply to the program at agency partners located throughout the province¹⁰ and their application is screened and approved through a central computer system. This system could be modified in order to 'piggy back' the screening and application process for the proposed low-income energy efficiency program.

To be eligible for the program, participants must provide proof that:

- their total household income is at or below the pre-tax, post-transfer LICOs;
- they are a customer of the local electricity distribution company (and natural gas company, where applicable, if there is a cooperative initiative between the natural gas and electric LDCs);
- they own or rent the dwelling in question.

¹⁰ Share the Warmth provides energy assistance services as either sole provider or provider of last resort in the following communities: Simcoe County, Muskoka, Lanark County, Perth County, Windsor/Essex County, Toronto, Thunder Bay, Peel Region, York Region, Ottawa, Niagara Region, Kitchener/Waterloo Region, Hamilton, Frontenac, Durham Region, Chatham-Kent, Bruce County, Grey County, Brant County, Parry Sound, Nippissing. Share the Warmth has established agency partnerships, but no longer provides full energy assistance services, due to lack of funding, in the following communities: Dufferin County, Haldimand-Norfolk, Hastings County, Leeds & Grenville, Prescott Russell, Timisakaming, Cochrane, Alogoma, Kenora, Fort Frances, Lennox & Addington, Oxford County, Peterborough County, Halton Region, Rainy River, Stormont, Dundas and Glengarry, Sudbury, Wellington, Lambton, North Bay, and Northumberland.

The types of documents that will support proof of eligibility are shown in **Table 2** below.

Table 2: Eligibility & screening requirements

Proof required	Supporting documentation
Household size & income	<ul style="list-style-type: none">▪ Ontario Works or Ontario Disability Support Program payment stubs▪ Income tax return for the previous year▪ Monthly pay stub▪ Updated bank book with at least three months income deposits
LDC customer	<ul style="list-style-type: none">▪ Electricity bill (natural gas bill where applicable)
Tenure status - homeowner or tenant	<ul style="list-style-type: none">▪ Mortgage payment receipt▪ Rental payment receipt▪ Lease agreement

Self-identification

In this approach, applicants would be required to sign a legal form confirming that:

- their total household income is at or below the pre-tax, post-transfer LICOs;
- they are a customer of the local electricity distribution company (and natural gas company, where applicable, if there is a cooperative initiative between the natural gas and electric LDCs);
- they own or rent the dwelling in question.

This 'self-identification' approach has been successfully used in the Legal Aid Ontario system for some time.

The advantage of the self-identification system is that it will have a much lower administrative cost than the formal application system, thereby allowing more money to be allotted to the actual implementation of measures.

Priority for delivery

The funding for these programs is limited. Eligible applicants could be placed on a chronological list for assistance, and the program administered on a first-come, first-served basis, or priority consideration could be given to certain participants, such as families with children and/or seniors. LIEN recommends that the initial visits be implemented on a first-come, first-served basis and that the implementation of the extended energy saving measures be prioritized based on cost-effectiveness and potential energy savings.

4.4 Program delivery

There are many potential delivery agents for this program, including non-profit groups and private energy services companies. While LIEN recognizes that there is a role for private companies in this program, such as in the installation of certain measures, LIEN recommends that LDCs contract with local community groups or non-profit organizations, where available, to act as the lead delivery agent of the program. These organizations should have experience in providing similar energy efficiency/conservation services to residential consumers, and in particular, where possible, low-income consumers. Potential groups include members of the Green Communities Association such as Green\$aver in Toronto, Envirocentre in Ottawa, Peterborough Green-Up, Hearthmakers in Kingston or EcoPerth in Perth.

5 Program budget

These low-income energy efficiency programs are designed for electric LDCs to implement as a pilot in the 2005 heating season, using some of their portion of the \$225 million that the provincial government has allocated to energy conservation activities by electric LDCs¹¹. Because the low-income energy efficiency programs are comprehensive and include both natural gas and electricity measures, they are designed to foster cooperative DSM among both natural gas and electric LDCs.

This section provides descriptions of the variable and fixed costs associated with administering and delivering the pilot programs. Where possible, preliminary estimates of these costs have been provided, however it is critical to note that the specific budget that is appropriate for each LDC will vary according to:

- (a) how much of the \$225M province-wide is their portion, and
- (b) how many low-income customers they serve.

5.1 Variable costs

Variable costs are those which vary with the number of program participants. The variable costs for the proposed programs are the energy assessment, the purchase and installation of energy saving measures and the follow up visits (**Table 3**). Based on the estimated costs of the energy savings measures, the total minimum cost per participant for the basic measures installed during the initial visit would be approximately \$1,000. The average cost will likely be about \$3,700. As a point of reference, the average low-income household participant in the US Weatherization Assistance Program, which has similar measures to the basic energy saving measures in this proposed program, receives \$2,672 USD in energy saving measures¹². The estimated costs shown in **Table 3** are based on retail costs, and these may vary by geographic location and time. The unit cost of some of the extended saving measures, such as refrigerator replacement costs, could likely be lowered if bulk purchased.

¹¹ The Minister of Energy has announced that LDCs may earn their third tranche of their commercial rate of return, provided they spend the equivalent of one year's incremental returns on conservation. These funds will be available March 2005, however the OEB has approved a deferral account for each LDC so that it may begin conservation spending immediately.

¹² http://www.eere.energy.gov/weatherization/wx_network.html

Table 3: Summary of estimated variable costs

	<i>Estimated cost</i>
Energy assessment	\$200
Purchase & installation of basic measures	
Weatherization/draft proofing	\$600 - \$800 *
Replace incandescent light bulbs with CFLs	\$8 per bulb
Programmable thermostat	\$40 - \$140 *
Motion sensors for lighting	\$20 - \$40 ⁺
Water heater pipe wrap	\$4 [⊗]
Low flow shower head and faucet aerators	\$25 **
Clothes line/rack and clothes pins	\$5 - \$30 ⁺
Purchase and installation of extended measures	
Furnace (gas) replacement with high efficiency model	\$3000 - \$4000 *
Clothes washer replacement	\$530 - \$760 ⁺
Refrigerator replacement	\$850 - \$1000 ⁺
Conversion of electric hot water heater to natural gas	\$950 [⊗]
Follow up visit	\$100

* The costs and benefits of home energy reduction, 20/20 (data from Torrie Smith Associates 2001); http://www.toronto.ca/health/2020/pdf/2020_costsbenefits.pdf

+ Retail price based on a search of major on-line retailers and manufacturers including: Future Shop, The Brick, Canadian Tire, General Electric Appliances, Maytag, and Whirlpool.

⊗ Estimate provided by Enbridge Gas Distribution

** <http://www.climatesolutions.com>

5.2 Fixed costs

Fixed program costs are those that will not vary significantly based on the number of program participants. The fixed costs for the proposed programs will include: marketing & outreach; development of the screening & application process and software; and program evaluation & reporting. A funding survey of the US Weatherization Assistance Program (WAP) in 2002 indicates that approximately 20% of the total budget goes to fixed costs – i.e. administration, training and technical, etc¹³. Given that WAP has been in existence for over two decades, it seems reasonable to assume that the administrative fixed costs for a new program in Ontario will be up to 20% of the total program budget.

¹³ US Department of Energy Weather Assistance Program Funding Survey for Program Year 2002. Prepared by National Association for State Community Services Programs. <http://www.waptac.org/si.asp?id=337>

6 Program benefits

6.1 Energy savings

The primary benefit of the programs will be the creation of household energy savings which will lead to a reduction in energy burden for low-income households. The estimated potential household energy savings from the various measures are shown in **Table 4**, below. These estimates are likely quite conservative, as Green\$aver's low-income retrofit program is achieving 40-50% energy savings in the Toronto Community Housing-owned houses they assess as most in need of work¹⁴.

Table 4: Potential energy savings

	Potential household energy savings (% reduction)
Weatherization/draft proofing	6.3
Replace incandescent light bulbs with CFLs	0.59 (per bulb)
Programmable thermostat	2.6 – 6.4
Motion sensors for lighting	0.59
Water heater pipe wrap	0.69
Clothes line/rack and clothes pins	Up to 4.95
Furnace replacement with high efficiency model	20
Appliance replacement – refrigerator	3 – 3.5
Appliance replacement – clothes washer	0.79
Insulation	Up to 11.6

Source: 20/20 Home Energy Reduction Chart.
http://www.toronto.ca/health/2020/pdf/2020_hespg.pdf

6.2 Additional benefits

In addition to energy reductions for participants, there are broader utility and energy system benefits, economic and societal benefits as well as environmental benefits associated with the implementation of a low-income energy efficiency program. According to a 1999 study for the

¹⁴ Personal communication with Keir Brownstone, Green\$aver.

National Consumer Law Center in the U.S. by Oppenheim and Howat¹⁵, these additional benefits include:

- Reduction of costs to utilities associated with late or non-payment of bills (e.g. collection, termination, reconnection)
- Reduction of costs to utilities associated with emergency calls
- Reduced need for public expenditures such as health, fire, building inspections, homeless shelters, and housing programs

Oppenheim and Howat concluded that based on the “benefits to society, individuals, utilities, and ratepayers from delivery of comprehensive low-income energy efficiency programs, **a benefit adder of between 17 percent and more than 300 percent** could reasonably be incorporated to represent the incremental value of a low-income focus beyond the general societal, economic, and environmental benefits of efficiency programs”.

¹⁵ Oppenheim, J. and Howat, J. April, 1999. Analysis of low-income benefits in determining cost-effectiveness of energy efficiency programs. http://www.consumerlaw.org/initiatives/energy_and_utility/non-energy_benefits.shtml [accessed Nov 3, 2003].

7 Conclusion

The low-income energy efficiency program recommended in this report is limited to low-income homeowners and low-income tenants who directly pay for their electricity. This limitation was established to enable the development of a program design that could be piloted by LDCs, starting in 2005. With respect to low-income tenant participants in the pilot program, priority should be given to the energy savings measures that are easily implemented and do not require the consent of landlords under current legislative and regulatory rules and provisions¹⁶. Appliances and hot water/heating equipment will be replaced under the program only if tenants own the items.

LIEN recognizes that many tenants, including low-income tenants, pay for their utilities as part of their rent. Future programs should also address these tenants and should ensure that they receive a fair share of the energy savings in the form of rent reductions. This will be the focus of the next phase of LIEN's work on energy efficiency programs.

The goal of this initial proposed program is to lower the disproportionate energy burden of low-income households through the implementation of energy saving measures and the provision of one-on-one education and facilitation services. The program includes a comprehensive suite of measures that together will provide 'deep' energy reductions.

LIEN's recommended initial pilot program consists of three main elements: a home energy assessment, installation of energy savings measures, and ongoing education of participants on energy conservation.

The results of the energy assessment would be used to determine which energy efficiency measures, from a preset list of options, are appropriate and cost effective for installation in each dwelling. This preset list of options includes 'basic' and 'extended' energy saving measures. The basic energy saving measures are:

- Weatherization/draft proofing;
- Replacement of the four most frequently used incandescent light bulbs with compact fluorescent light bulbs (CFLs);

¹⁶ The provincial government has committed to replace the *Tenant Protection Act, 1997* and held public consultations on Residential Tenancy Reform from April to June, 2004.

- Programmable thermostat;
- Motion sensors for lighting;
- Water heater pipe wrap/heat trap;
- Low flow shower heads and faucet aerators;
- Clothes line/rack and clothes pins.

The 'extended' energy saving measures are:

- Heating equipment replacement with high efficiency equipment;
- Appliance replacement (e.g. refrigerators, washers);
- Replace or supplement electric hot water heaters with either gas, solar or instantaneous hot water heaters, as appropriate;
- Insulation.

The LDC will be accountable for the overall administration of the programs. However the LDC may choose to contract out some or all tasks including marketing and outreach, administering the application process and delivering the program.

Because the energy conservation and efficiency programs are comprehensive and include both natural gas and electricity use, LIEN strongly encourages electric and natural gas LDCs (e.g. Enbridge Gas Distribution and Toronto Hydro in Toronto) to work together in the administration of these programs. The cooperative efforts among the natural gas and electric LDCs should be built into the individual budgets of the DSM plans of the natural gas and electric utilities for approval by the OEB. The Province should encourage this type of cooperation and foster expeditious approval of DSM plans of both the natural gas and electric utilities that contain these low-income programs.



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Indeco Strategic Consulting Inc

2 Pardee Avenue Suite 302 Toronto ON M6K 3H5

416 532 4333 fax: 416 532 5485 info@indecocom indecocom