

Harbord Village Residents' Association
Live Green Toronto Project – Home Energy Retrofit Opportunity
Backgrounder
April 9, 2009

The Live Green Toronto Community Investment Program

The Live Green Toronto Community Investment Program (CIP) is intended to help build capacity within the community to identify, develop and initiate collective actions that reduce greenhouse gas and smog-causing emissions or help adapt to the changes that will occur as a result of climate change. A priority of the program is to support community based organizations and groups seeking funds to get established so they can investigate and develop ideas for collective action in reducing emissions. The goal of the CIP is to help communities identify climate change and clean air issues of concern to them, take collective action and empower them with the ability to take action on these issues.

The HVRA Home Energy Retrofit Opportunity Project

The HVRA HERO project comprises five stages, discussed more fully below:

1. Measuring the neighbourhood consumption of energy and estimating the total GHG produced in the neighbourhood; this is of value in its own right and also useful as a guide to the extent that the homes in the project are typical of the neighbourhood.
2. Identifying and recruiting households to participate in the project.
3. Arranging a group purchase of home energy audits and encouraging targeted homeowners to have the audits done.
4. Helping these households reduce their energy consumption based on the results of the audits.
5. Measuring the energy consumption and GHG production of participating households to gauge the results of the interventions.

The key feature of the project is to make it easy for residents of the Harbord Village neighbourhood to have energy audits done for their homes and then take collective action to decrease their energy consumption and GHG emissions. Other projects have emphasized building energy efficiency into new construction. Our aim is to do this for an existing neighbourhood.

Harbord Village is a mixed neighbourhood of 1,600 Victorian and later houses lying in the area bounded by Bloor, Spadina, College, and Bathurst, together with several hundred more modern apartments. The proposed project focuses on the neighbourhood's Victorian homes, which may pose the strongest challenges for energy conservation and GHG reduction. Our operating principal will be making energy conservation an easy process for homeowners.

Our challenge is motivating people to move collectively towards a low carbon existence. Our project will exploit existing programs, re-package them, and add the benefits of bulk-purchase.

Above all, we want to convey the importance our neighbourhood and the City are giving to energy efficiency. Our aim is to create buy-in, access, and awareness within the community. This awareness will spur short-term investment, and it will also bring about long-term behavioral change to secure lasting benefits in the form of reductions in energy consumption and GHG emissions.

Goals and Objectives of the HVRA HERO Project

The goal of the HERO Project is to reduce GHGs and local air pollution by encouraging and assisting the 1600 households in the Harbord Village community to have energy audits performed on their homes or businesses. Our target: 200 energy audits, followed by assistance to 50 of those community members with follow-up energy upgrades and upgrades for their homes during the project period to achieve a target reduction in energy consumption of 20%. Our experience is that most people just need to get the ball rolling – once you give them the opportunity, they are keen to proceed with the audit.

Doing so, we will (a) create a GHG profile for a downtown Toronto low-rise neighbourhood, (b) identify the most common areas of household energy waste, and (c) create awareness of waste by the excessive burning of fossil fuels. We will also generate a positive sense of taking action by publicizing the success of our energy reduction efforts, putting the emphasis on energy saving through individual household initiative.

Our intent is to progressively address each of the development features outlined in the Toronto Green Development Standard (see p. 20-21, Toronto GREEN Development Standard January 2007, http://www.toronto.ca/planning/pdf/gds_standardjan07_03.pdf), thus extending the Standard from new build to both existing and private built form. Prospective elements include insulation, air tightness/leakage/windows and doors; ducts; space heating and cooling; water heating; light fixtures and home appliances; and green energy, including Bullfrog Power. Because our buildings already exist we cannot change their orientation, but could consider window-shading alternatives to reduce insolation in summer and drafts on winter nights. Subsequent modules could be designed to reflect the Green Development standard for air quality, particularly the urban heat island reduction at grade, and use of green roofs or light-coloured roofing materials (Standard p. 18).

After the audit is done, we expect that most people will then make some changes to decrease their home energy consumption (and lower their utility bills). We anticipate that about 50 of the households who have audits will then join our bulk purchase project for home upgrades and collect the additional incentive money. The nature of those upgrades will be decided upon the completion of the energy audits.

All of this will help the homeowners reduce their energy consumption and thereby reduce the greenhouse gas and smog-causing emissions associated with that energy consumption, as well as reduce their utility bills.

Project Context

Homes account for roughly one-third of Canada's greenhouse gas emissions, chiefly from the burning of natural gas for space and water heating. Smog is an issue for downtown residents, so reducing local emissions by reducing natural gas consumption should improve the air quality in the neighbourhood. The HERO project is a community project, organized by the residents' association for the benefit of the people of the Harbord Village community. The objective is to help residents reduce greenhouse gases and smog by reducing the energy consumption of their homes.

Most of the houses in Harbord Village were built in the late 19th century and were poorly sealed and insulated. While many of these homes have been renovated, there are still plenty of opportunities for improvements using the most recent techniques and technologies. Many houses are about to undergo renovation—an ideal opportunity to undertake energy efficiency measures.

The HVRA HERO project is a prototype program—we are developing the model as we go. Assuming the project is successful, the model is transferrable – this same model could be adapted for use in other communities throughout Toronto.

This is a collective action – we will get the residents involved in decreasing the energy consumption and GHG production of their homes by identifying and attacking GHG emissions at source. We intend to use community-based social marketing techniques to encourage collective participation of many residents and their neighbours. Many people want to take action to reduce the energy consumption and emissions from their homes but are only vaguely aware of government assistance. This project will give these people tools to take action to gain an understanding of the opportunities and government support for energy efficiency and conservation and to undertake the home upgrades.

Project Stages - Detail

Stage 1: Estimating Harbord Village's GHG Emissions.

The HVRA will obtain energy consumption data for the neighbourhood from residential billing data obtained from Enbridge (natural gas) and Toronto Hydro (electricity) and use that information to calculate total community GHG emissions. It is assumed that these two energy sources provide the vast majority of energy consumed by the homes in Harbord Village. The data would be collected on a neighbourhood level (using postal codes or similar method) to eliminate any personal privacy issues, and then used to estimate our neighbourhood's total GHG emissions. This method could be extended to other parts of the city.

The neighbourhood GHG emission number would serve as a caution - as a tool to inform decisions to channel public investment. It would allow the setting of targets for emission reduction, and would serve as a hard baseline for measuring successes in reducing GHG. It will also give us an idea of the average energy consumption for each house in the community, which gives us a benchmark against which we can compare the energy audit results for any given house.

Stage 2: Securing Neighbourhood Participation: Identifying and Recruiting Project Participants

The HVRA will work to encourage community involvement and cooperation by recruiting many households to participate in the project. We believe that social change is most effective when there is engagement at the community level, with members of the community participating in environmentally friendly activities and encouraging their neighbours to do likewise.

With the support of the HVRA, the City Councillor, and Live Green Toronto, we intend to establish a project public profile through community meeting and information sessions and community events, such as the HVRA Annual Spring Meeting and HVRA Fall Fair. We will recruit volunteers to serve on the project committee and help throughout the project. While volunteers can be very effective, there are also limits to what can be done with an all-volunteer project, so we plan to hire a local resident and homeowner to serve as the Project Coordinator for the project, working with the Steering Committee, the volunteer committee, the vendors, and the residents to ensure the success of the project.

Stage 3: Group Purchase Of Home Energy Audits To Identify GHG Emission Sources

The HVRA will organize a group purchase of home energy audits for homes in our community. This group purchase project will be based on the process used for our highly successful Downtown West Solar Energy Project, which facilitated the purchase of over 40 solar hot water and photovoltaic systems generating over \$ 400,000 worth of commercial activity (see www.downtownwest.ourpower.ca)

Community bulk buying projects can be an effective tool for community action. Because vendors are able to concentrate their efforts in a small geographic region, they can pass cost savings along to the residents. When a committee of neighbours does the due diligence in selecting a vendor, homeowners get a recommendation they can trust and the homework already done. Community bulk buying projects in our neighbourhood have proven to stimulate participation among householders, as neighbours influence their neighbours to join in.

The community group purchase process is as follows:

1. Select the recommended home energy audit vendor (using the process described below)
2. Follow-up public meetings, with presentations by vendor and homeowner signups
3. Execution of contracts between individual homeowners and the selected energy audit firm
4. Energy audits undertaken and completed by the audit firm.
5. Reporting of audit results by audit firm (generalized as necessary for privacy)

The recommended audit vendor will be selected using a RFP and bid process, or a comparative evaluation of blind house reports on the same neighbourhood house by vendors, or by some combination of the above. Additional work will be required to fully define the scope of work for the energy audit vendors. We may elect to go beyond the regular EcoEnergy program scope to include other energy efficiency and GHG emission opportunities that are not part of the standard EcoEnergy home energy audit.

Group purchasing energy audits allow the HVRA and the energy auditor to offer more attractive pricing, better service by grouping the audits together in the same neighbourhood, and allow the energy audits to be customized to meet the goals of the project.

The function of the audit is not only direct, as it can result in immediate upgrades, but is also indirect, as it creates awareness of what can be done, which homeowners will take into account when they decide on future upgrades or replacement of elements in their home. It also can inform the City where the most cost effective policy interventions to reduce GHG in existing neighbourhoods might be.

Stage 4: Community Home Upgrades:

Based on what we learn from the home energy audits, HVRA will develop a program to encourage project participants to proceed with home upgrades to decrease energy consumption, GHG and smog emissions, while also lowering their utility bills. Should many homes require similar upgrades, we will organize a bulk purchase project of those upgrades in the manner noted above.

This portion of the project will be more fully defined as the project proceeds based on the results of the previous project steps. Some potential upgrades could include:

- Group purchase of wall insulation
- Group purchase of attic insulation
- Group purchase of high efficiency boilers and/or furnaces
- Group purchase of air sealing using spray foam insulation
- Group purchase of electricity from Bullfrog Power
- Group purchase of energy efficient appliances

Stage 5: GHG Reduction Monitoring

Homeowners who participate in the project will be asked to report on their energy consumption before and after their upgrades to evaluate the effectiveness of the home upgrade project.

At the end of the year, we will also obtain updated community energy consumption information for a parallel period based on new information from Toronto Hydro and Enbridge. As the project continues year over year, we will obtain energy consumption information each year and chart the community progress.

Future Programs

This proposal covers a one-year project based on decreasing GHG by promoting energy efficiency and conservation in homes in the neighbourhood. However, our plan is to continue the project in future years by developing further “modules” that will also help reduce the GHG and smog causing emissions produced in the neighbourhood. Potential future projects may include such modules as:

- A neighbourhood Green Roof project.
- A group purchase of GeoExchange heating systems.
- A series of heat island reduction modules, including:
 - Removing unnecessary paving
 - Painting roofs white.
 - A project for tree health and increasing canopy cover including soil amendment, re-directing storm water run-off and generally improving tree growth conditions.