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# Effective Community Implementation of a National Program (REEP)\*

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## **REEP – Residential Energy Efficiency Project**

**Waterloo Region Ontario CANADA**

### **Effective Community Implementation of a National Program**

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#### Introduction

The Residential Energy Efficiency Project (REEP) is the delivery agent in Waterloo Region (Ontario, Canada) for the national program *EnerGuide for Houses* (EGH)<sup>i</sup>. EGH was designed and developed by the federal government and is administered by the Office of Energy Efficiency (OEE) in the federal department of Natural Resources Canada (NRCan). REEP began conducting EGH home energy evaluations in May 1999.

REEP is a partnership between the Faculty of Environmental Studies at the University of Waterloo (UW), and the Elora Centre for Environmental Excellence (ECEE), a member of the Green Communities Association (GCA)<sup>ii</sup>. The GCA members are the principal delivery agency for EGH in the province of Ontario. Nationally certified home energy evaluators, employed by the ECEE, conduct EGH home energy evaluations with the assistance of UW student “energy interns”. Evaluations typically last 2 hours. Households are given a printed 7-page report at the end of an evaluation, which outlines where their home is currently “losing energy”, and what energy gains could be achieved with specific actions (e.g. increase wall insulation).

The REEP office was based at UW<sup>iii</sup> and serviced a jurisdiction with 442,200 people<sup>iv</sup> and 117,000 eligible homes<sup>v</sup>. REEP’s marketing goal was to encourage households across Waterloo Region to have a home energy evaluation, to identify ways reduce community greenhouse gas emissions and to help improve air quality. REEP’s marketing strategy focussed on accessing local media and community groups, direct marketing to the most appropriate neighbourhoods as determined through a geographic information system (GIS) analysis, and approaching captive groups such as employees of project partners. Very little money was spent on marketing apart from wages for one student (working full-time as a marketing co-ordinator) and printing and delivery of promotional pieces like pamphlets, newsletters and a poster. No media advertising was purchased by the project. In the first year of the project, 56 community presentations reached thousands of residents. Broad support from the network of community actors quickly established REEP as a recognized and respected feature of Waterloo Region and resulted in

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over 900 home energy evaluations taking place in the first year of the project. By December, 2002, nearly 4000 evaluations had been conducted.

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## Residential Energy Efficiency

REEP provides advice on how a household could make changes to the house to reduce energy consumption. In many cases these reductions could help make the house more comfortable as well as reduce energy use. Reduced energy use results in fewer emissions from the burning of fossil fuels to heat or power the home. Lowered emissions reduce the home's impact on global climate change and regional air quality. REEP thus provides a means for citizens to be more environmentally responsible.

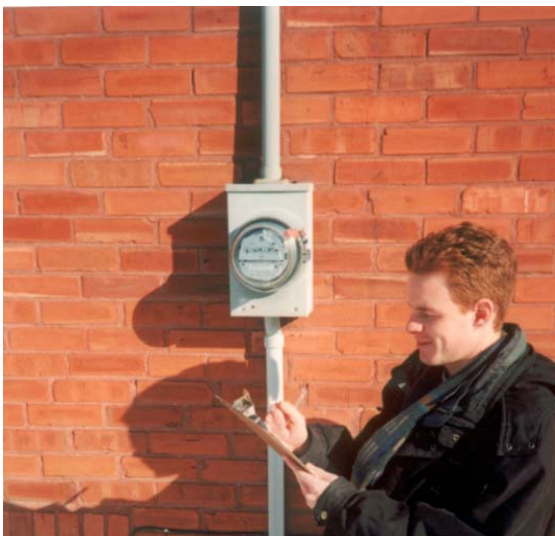
REEP reviewed previous energy and environmental initiatives and determined that the primary barriers to having a home energy evaluation included: the **cost** of the evaluation, the **time** associated with having the evaluation, the sentiment that such an evaluation would **not be useful** or helpful, and the agency or individuals conducting the home energy evaluation lacked credibility or **trust**<sup>vi</sup>.

REEP attempted to address each of these barriers through project design. REEP partnered with local authorities including the Region of Waterloo, and each of the cities of Cambridge, Kitchener and Waterloo. Each authority provided funding to the project to help subsidize the cost of the evaluation<sup>vii</sup>. This made it possible to provide the service for \$25 CND<sup>viii</sup> (other GCA delivery agents in Ontario charge \$50-\$175 for the same service).

Hiring UW co-op students as energy interns helped reduce the time required to conduct the evaluation (two hours in an average home). Using laptop computers and portable printers enabled the evaluation report to be printed and delivered during the evaluation, instead of being mailed to the household later or arranging a second visit (which was traditionally done).

Using the national home energy evaluation tool, EGH addressed the concern that the evaluation was not useful or helpful. EnerGuide is a government "name-brand" familiar to Canadians as it is used to rate the energy efficiency of appliances and vehicles. EGH ensures that home energy evaluators are nationally certified and that there are mechanisms in place to ensure quality control. EGH is also a comprehensive modeling tool that quantifies clearly where a home is losing its energy, and is able to model what the energy savings would be if specific changes were made to the home.

Basing REEP at the University of Waterloo added significantly to the immediate trust and credibility of the project. Credibility is a function of expertise, trustworthiness and something best described as likability<sup>ix</sup>. University professors typically rank high in the expertise area. Also, since REEP was only providing recommendations and not selling particular installation services or products, it was hoped that REEP would be perceived as unbiased and more credible than an entity that would benefit directly from the recommended changes to a home.



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## Market Situation

In 1999, when REEP began, several political, economic and environmental factors created favourable conditions for a community-based project like REEP.

Citizens in Waterloo Region were anticipating energy market restructuring and volatile energy prices. The region was experiencing poor air quality and gained the dubious distinction of having some of the worst air quality in Canada<sup>x</sup>.

Canada became a signatory to the Kyoto Protocol in November 1997, and there was significant national discourse regarding global climate change, the Kyoto Protocol and needed action<sup>xi</sup>.

Eastern Canada had also recently suffered the Ice Storm of 1998, where an estimated 3 million Canadians suffered power losses due to a highly unusual extreme weather event. The local and national media made links between the ice storm and global climate change.

Waterloo Region has a long standing history of being a leader in environmental action. Waterloo Region had the first curbside recycling program in the world. There are also very active citizens groups around air issues such as the Citizens' Advisory Committee on Air Quality for Waterloo Region (CACAQ) which formed during the summer of 1998.

Waterloo Region – like much of Canada – experiences extreme annual weather variations – very cold winters and very hot, humid summers. This means that households use substantial amounts of energy in the winter for heating and increasing quantities for cooling in the summer<sup>xii</sup>. In a study by NRCAN comparing residential energy end-use shares between 1990 and 1998, space cooling experienced the largest increase in total energy use --more than 57%. This coincided with increased sales of air conditioners<sup>xiii</sup>. Improved residential energy efficiency would reduce both heating and cooling costs.

## The Players

REEP's structure was elemental to its marketing success. REEP was portrayed largely as a community initiative in Waterloo Region that was broadly supported by government (local and national), the research community (UW), local businesses including local utilities, and citizens' groups.

REEP was supervised by a volunteer "Management Team" consisting of two UW professors in the Faculty of Environmental Studies, a research scientist with Environment Canada's Adaptations and Impacts Research Group (AIRG) of the Meteorological Service of Canada, and the Director of the ECEE<sup>xiv</sup>. The Management Team made all financial decisions, hiring decisions and prioritized research initiatives.

Part of the research involved households completing a comprehensive survey about home energy issues, actions taken in the past, anticipated actions in the future, attitudes towards green power, climate change and related issues. This survey was approved by UW's Office of Research after an ethics approval process. Surveys were handed out during the evaluation and typically were later mailed to the REEP office<sup>xv</sup>.

The initial funding to establish REEP came from the Public Education and Outreach component of the Climate Change Action Fund (CCAF) created by the federal government of Canada<sup>xvi</sup>. This grant for \$220K provided the bulk of the funding

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necessary to hire the UW students who helped conduct the home energy evaluations, run the office and perform marketing initiatives for the first two years of the project<sup>xvii</sup>.

Marketing efforts during the first two years of the project were conducted primarily by a single graduate student marketing intern based at UW. Management Team members, students and community volunteers assisted with some of the marketing efforts.

The volunteer nature of the Management Team and the direct involvement of UW were beneficial in building partnerships within the community. The Management Team was able to approach local authorities for additional funding and partnership. This involved presentations to local councils and requests for budget contributions, and staff support. Each local authority provided funding and council further directed staff to assist the project where possible.

The Management Team also approached local utility companies and requested support for the project. All five local utilities (three electricity and two gas) supported the project. In return for their support, each partner was invited to have a representative on REEP's Advisory Board to provide input and direction for the project.

All marketing initiatives undertaken by REEP were reviewed by NRCan staff who provided ongoing marketing advice and support.

**The Action Taken** After building initial networks and accessing funding, REEP began to actively market the project to households in Waterloo Region.

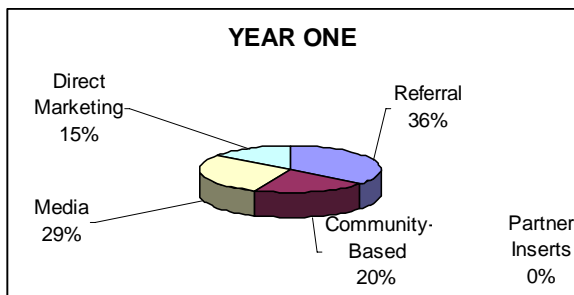
REEP's initial marketing plan included increasing public recognition of the project by speaking directly to as many people as possible, by participating in different community-based events, and to reach the broader community by accessing local media coverage. A direct-marketing campaign was also researched and implemented. While this was happening, it was REEP's intention to strengthen strategic partnerships with local authorities, utilities and other businesses for longer term marketing assistance – understanding that one way to attract partners was to build a successful project. Success would be measured largely by the number of homes evaluated through the project.

REEP has tracked the success of each marketing initiative throughout the history of the project. When each evaluation was booked, the household was asked where they had heard about the project. Some households listed several sources, but only the primary source was used for the analysis below. For the purposes of this report the sources of evaluations will include **community-based events** (REEP staff speaking to service groups, neighbourhood associations or participating in community events such as Earth Day celebrations), **direct marketing** (distribution of promotional pieces to people or their home), **media coverage** (local news stories on television, radio or in print), **referrals** (friends, relatives, co-workers or neighbours) and **partner inserts** (inserts in regular utility bills).

A passive marketing campaign was also staged for REEP which included posters, lawn signs used during home energy evaluations and later in the project, a REEP website. Less than 1% of evaluations were sourced as a passive marketing initiative. It is believed that these initiatives helped raise public awareness of the project even if they were not cited as the main source when someone called to book an

evaluation<sup>xviii</sup>. NRCan was also conducting a national marketing program for EGH – including television commercials, stock articles, and newspaper and consumer magazine advertisements in communities where an EGH delivery agent was active (including Waterloo Region). Less than 1% of evaluations were attributed to these national marketing initiatives although they too are believed to have helped raise public awareness of the EGH program.

Figure 1 illustrates the primary sources for 881 evaluations in the first year. Most evaluations originated from referrals (36%) followed by media pieces (29%) community-based efforts (20%) and direct marketing (15%).



**Figure 1: Sources of Home Energy Evaluations for REEP, Year One (May 1999 – April 2000), n = 881**

Note – more than 900 evaluations took place in the first year. Some of the evaluations not included in Figure 1, include evaluations from REEP’s passive marketing campaign, NRCan’s promotional campaign or others not recorded.

REEP relied heavily on referrals, particularly during the first 4 months of the project. Most of the households referred to REEP were from the UW community or from early partners including staff at the Regional Municipality of Waterloo. Although other sources have increased in importance as the project developed, referrals have remained an important source of evaluations.

Media stories were also a key source in the first year of the project resulting in 29% of the evaluations. In that first year, 24 print articles were written, 3 television appearances were made and 3 radio pieces were about REEP. Of the 24 print media articles, 15 were written specifically by or for REEP to encourage participation in the project, while the other nine mentioned REEP peripherally to the main story. Of 15 REEP specific pieces, 11 generated bookings, although 79% of the print media evaluations were from only 5 articles. REEP was also on local television 3 times in the first year, resulting in 110 evaluations, and on the radio 3 times, resulting in 8 evaluations. Television news appearances were by far the most cost/time effective means to encourage people to sign up for the project.

In the first year of the project, REEP visited or participated in 56 different community-based events (making direct contact with thousands of people). This wide variety of community-based efforts generated 20% of the evaluations. The single greatest source of evaluations from community-based initiatives was from presentations to boards of different housing co-operatives in Waterloo Region. Presentations to these boards resulted in some co-ops having each unit evaluated. The costs associated with community-based events included salaries for staff and transportation costs (approximately \$500 for the year). There were no fees or memberships required for these events.

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Direct marketing of the project included a comprehensive GIS analysis of Waterloo Region to identify neighbourhoods with physical and socio-demographic characteristics determined to be most suitable for home energy improvements, and with a clientele most likely to participate in the project. Neighbourhoods were identified with:

- A minimum of 80% of houses built prior to 1970 (pre-energy crisis)
- A minimum of 10% of the houses require major repairs.
- At least 85% of the houses are owner-occupied
- At least 50% of the households have moved in the last 5 years
- The average household income exceeds \$60K
- At least 40% of the households have a member with a university degree

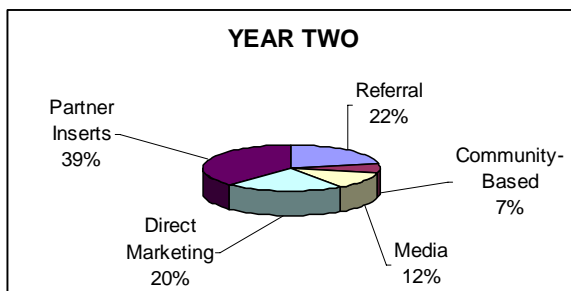
Based on this analysis, neighbourhoods were classified as being highly suitable, very suitable, suitable, somewhat suitable or not suitable for the project. Neighbourhoods with similar classifications had promotional pamphlets and flyers delivered to them on different occasions in the first year as part of a series of experiments. REEP pamphlets, with information about the project, energy efficiency and contact information (and logos from UW, local governments and utilities), were delivered to hundreds of homes in the City of Cambridge. On the same days, NRCan pamphlets, with similar content, were delivered to similar neighbourhoods. NRCan also provided delivery agents like REEP with printed inserts with local delivery agent contact information. REEP printed inserts modeled after the NRCan promotional piece. These were both distributed by a flyer distribution company to neighbourhoods in Kitchener. REEP also produced a newsletter style promotional piece that included research results, updates on the project's partnerships and information about energy efficiency. This newsletter was distributed to neighbourhoods in Waterloo while REEP pamphlets were delivered to similar neighbourhoods the same day. Another experiment was also conducted to determine if the GIS analysis was a useful tool to predict neighbourhoods most likely to participate in the project.

The pamphlet experiment in Cambridge involved approximately 2000 homes. The REEP pamphlets resulted in 6 evaluations per thousand, and the NRCan pamphlets resulted in 0 evaluations. The flyer inserts involved 20,000 households – 10,000 receiving NRCan inserts, and 10,000 receiving REEP inserts. The NRCan inserts resulted in 0.7 evaluations per thousand, and the REEP inserts resulted in 3.3 evaluations per thousand. The experiment comparing the REEP pamphlet to the newsletter resulted in 33% more households signing up for an evaluation after receiving a newsletter vs. the pamphlet (26.1 per thousand vs. 19.5 per thousand). During the same period of time, REEP newsletters were distributed to a neighbourhood classified as “not suitable”, resulting in one fifth the number of evaluations as a neighbourhood classified as “highly suitable” (4.8 per thousand).

By year two of the project, more formal partnerships had been established with different utility companies. Kitchener Utilities agreed to include bill inserts about the project with the regular bill to its customers. This form of partner-based marketing was very effective at generating evaluations and helped expand the project to more teams and more homes being evaluated in a year (approximately 1580 home evaluations in year two). Partner inserts became the greatest source of evaluations in year two at 39%. Direct marketing efforts continued although mostly through the

distribution of “Dear Neighbour letters” to the homes near a home that had had a home energy evaluation. Direct marketing accounted for 20% of the evaluations in year two.

A high level of community out reach was maintained in year two – participation in 41 events – resulting in 7% of the evaluations. Media occurrences and resultant evaluations were slightly reduced in the second year, as the novelty of the project was reduced somewhat and media attention shifted to being more about results from the project’s research. However media was still an important source of evaluations (12%). Referrals were the second most important source of evaluations in year two, with 22% of the total (see Figure 2).



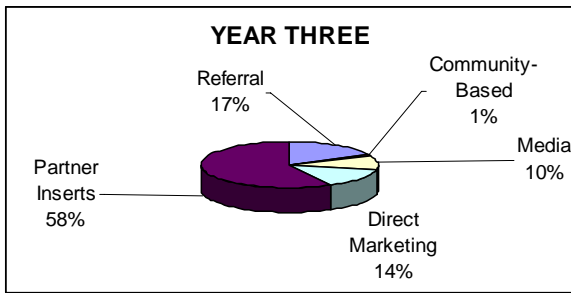
**Figure 2: Sources of Home Energy Evaluations for REEP, Year Two (May 2000 – April 2001), n = 1362**

Part way through year two of the project, a local utility, Kitchener Wilmot Hydro, provided leadership in the shift to core funding coming from utility companies in Waterloo Region. By the third year of the project, four local utility companies (Kitchener Wilmot Hydro, Waterloo North Hydro, Kitchener Utilities and Cambridge and North Dumfries Hydro Inc.) had contributed over \$100K to REEP (over a two year period), Each of these utilities also helped with the marketing of the project by sending REEP bill inserts to their customers. The financial partnerships also meant that the price for households was still relatively low in the third year (\$35) compared to other communities. The project also directly assisted the utilities by offering a means to identify ways to reduce energy consumption at a time when energy bills were rising and to offer a response to high bill complaints.

Figure 3 shows the different sources of evaluations during year three. Year three saw a drop in the number of evaluations conducted (approximately 850). In year three, there was no staff directly assigned the task of marketing the project. This change in staffing also resulted in a significant drop in community outreach efforts (participation in only 18 events). This resulted in very few evaluations coming from these marketing efforts (1%).

The expansion of partner marketing of the project resulted in 58% of the evaluations coming from partner inserts. Direct marketing (largely with the “Dear Neighbour letter), generated 14% of the evaluations in year three of the project.

Referrals continued to be the second most important source of evaluations (17%). Media stories helped generate 10% of the evaluations.



**Figure 3: Sources of Home Energy Evaluations for REEP, Year Three (May 2001 – April 2002, n = 727)**

The cost for all marketing efforts the first year, the bulk of which were funding for a graduate intern and printing costs, was approximately \$41,000. This worked out to approximately \$45 per evaluation.

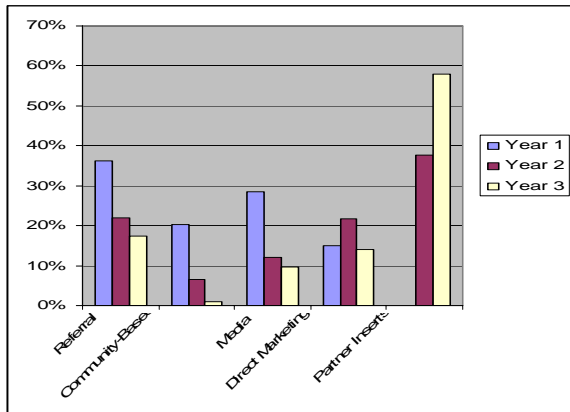
Year two had similar marketing (staff and printing) as year one, but the cost per evaluation declined to \$30 because of the higher number of evaluations conducted.

Year three had reduced marketing costs as there was no staff person directly involved with marketing efforts. Advanced partnership arrangements and a greater reliance on utility partner inserts partially filled this gap. However, participation rates also declined.

**Results** REEP is regarded as a marketing success. The community-based approach successfully delivered the EGH program to residents of Waterloo Region -- a region with 1.4% of Canada's population which generated 10% of Canada's EGH evaluations by the end of 2001. Approximately 3300 households participated in the first three years of the project and it is still going strong.

Local marketing initiatives were found to be much more effective than national advertising campaigns in getting people to book an EGH evaluation. One of the likely reasons for the effective delivery of the national program was the participation of many local partners, including local government authorities, university, NGO and utilities. Newsletter style promotional pieces were more effective than a general-purpose pamphlet for direct marketing. GIS analysis was very useful to identify neighbourhoods that were more likely to respond.

Figure 4 shows the evolution of sources of evaluations during the first three years of the project. Marketing priorities and practices changed significantly over three years. Direct bill inserts by partners clearly became the most important source of evaluations, with 58% of the evaluations coming from this source by the third year. This highlights the importance of having strategic marketing partners – in this case local utility companies. Local utilities benefited from the social marketing of supporting a community environmental initiative where they featured prominently, and also had an avenue to direct customers concerned about their energy bills. The unbiased third party aspect of REEP also helped the utilities address customers' concerns.



**Figure 4: Sources of Home Energy Evaluations for REEP, Years One, Two and Three**

REEP’s greatest success was its ability to engage multiple stakeholders. Motivated households received information on how to reduce energy consumption, local governments were able to demonstrate their public commitments to climate change or clean air, utilities could refer customers with high energy cost concerns to REEP and the university could create training and employment opportunity for students and collect valuable research information.

Through these efforts, REEP effectively addressed the identified barriers (financial, information, time and trust) that prevent homeowner actions to improve energy efficiency.

**Final Analysis** REEP’s volunteer Management Team designed a project, secured adequate funding, made strategic marketing partnerships and hired enthusiastic staff. The innovative nature of this project, and the research discovered through the project, resulted in significant media attention, and proved useful for local marketing of the national EGH product. This project evolved from a two-year CCAF funded initiative, into an ongoing, community supported environmental initiative.

The REEP model has been studied by other EGH delivery agents across Canada. Although difficult to replicate entirely, certain aspects are easily adopted in other communities. The priority on broad multi-sectoral involvement, accessing local media and encouraging referrals can be applied to most communities.

REEP’s ongoing research also includes monitoring household actions on the recommended changes to quantify the changes households make to their home and the resultant benefits for residential energy efficiency. Follow-up surveys and return visits are made to assess changes and compare them to the identified steps in the initial report. These improvements are where actual gains in energy efficiency and emission reductions will be found.

## Endnotes and References

<sup>i</sup> The *EnerGuide for Houses* program was introduced to the Canadian public by the national government in September 1998. It was designed and developed by Natural Resources Canada (NRCan) in co-operation with the Canadian Mortgage and Housing Corporation and other partners. EGH was designed to help improve the energy efficiency of the Canadian housing stock and, in turn, to help the country reduce its greenhouse gas emissions.

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- ii The Green Communities are non-profit, community-based, multi-partner organizations that bring environmental solutions to homes, businesses, and institutions in their communities.
- iii In 2002 the REEP office moved to a mainstreet location in downtown Kitchener. While a research office is maintained at UW, most of the operations for the project are conducted out of the more visible downtown location.
- iv Region of Waterloo Population Statistics, [www.region.waterloo.on.ca](http://www.region.waterloo.on.ca) Accessed in Dec., 2002.
- v Region of Waterloo Planning Department estimate of number of semi-detached and detached homes in Waterloo Region in 1998. The EGH software does not assess multi-storey apartments.
- vi Kennedy, R., Parker, P., Scott, D., Rowlands, I. H. 2000. Social Marketing of the Residential Energy Efficiency Project: Effective Community Implementation of a National Program. *Environments*. 28(3) 57-72.
- vii In the first year, the Regional Municipality of Waterloo gave \$15K and the cities of Waterloo, Cambridge and Kitchener each gave \$5K to support the program.
- viii All dollar values are reported in CND dollars -- worth approximately 0.65 USD/EURO
- ix Kotler, P and Roberto, E.L. 1989. *Social Marketing Strategies for Changing Public Behaviour*. London: Collier Macmillan Publishers.
- x In the May/June 2000 issue of *Canadian Geographic*, Kitchener was listed as the smoggiest city in Canada for ground level ozone.
- xi Canada ratified the Kyoto Protocol in Dec.17, 2002
- xii The residential sector is the third largest consumer of energy and source of greenhouse gas emissions in Canada, according to the OEE, 2000
- xiii Office of Energy Efficiency 2000. *Energy Efficiency Trends in Canda 1990 to 1998, A Review of Secondary Energy Use, Energy Efficiency and Greenhouse Gas Emissions*. Ottawa: NRCan.
- xiv The Management Team for REEP consisted of: Dr. Paul Parker (UW FES), Dr. Ian H. Rowlands (UW FES), Dr. Daniel Scott (AIRG) & Mr. Don Eaton (ECEE)
- xv REEP experienced a very high participation rate for this survey – approximately 65% year one participants completed and returned the survey. See: Scott, D., Parker, P., Rowlands, I. H. 2000. Determinants of energy efficiency behaviours in the home: A case study of Waterloo Region. *Environments*. 28(3) 73-96.
- xvi “The Climate Change Action Fund (CCAF) was established in 1998 by the federal government to help Canada meet its commitments under the Kyoto Protocol to reduce greenhouse gas emissions. It is intended to support early actions to reduce greenhouse gas emissions and to increase understanding of the impact, the cost and the benefits of the Protocol's implementation and the various implementation options open to Canada. Source: [www.climatechange.gc.ca](http://www.climatechange.gc.ca) Accessed in Decenber, 2002.
- xvii Additional funding for students was obtained from the Canadian federal government department, Human Resources Development Canada (HRDC), the Canadian Council for Human Resources in the Environment Industry (CCHREI), and later Social Sciences and Humanities Research Council (SSHRC)
- xviii Staff at NRCan suspect that most households need to have several “exposures” before action is taken in the form of booking an appointment to have an EGH home energy evaluation. This pattern is widely supported in consumer behaviour literature.