THE EPCOR ENERGY CHALLENGE

GETTING THE CONSUMER ENGAGED IN CLIMATE CHANGE

Cheryl Ciona
December 1999

Prepared in partial fulfilment of the requirements of the Master of Environmental Design Degree in the Faculty of Environmental Design, The University of Calgary

Supervisor:
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Climate Change is a key issue at the beginning of the twenty-first century. Governments worldwide took action to address climate change in signing the Kyoto Protocol in 1997. Canada's commitments under the Protocol call for a six percent reduction of greenhouse gas emissions below 1990 levels by the compliance period of 2008-2012. Reaching these targets will require substantial effort. Engaging all sectors of the economy, including the Canadian public, will be key. There are many ways to do this. This project proposes one way to engage the residents of Edmonton in the climate change issue for EPCOR, the utility for the City of Edmonton. The program was designed using a community-based social marketing approach. Barriers were identified, an ideal energy conservation program developed, and consultation with the public and EPCOR carried out to create the final design of the EPCOR Energy Challenge. This is a voluntary challenge program that invites residential customers to register their commitment to reduce energy consumption. They are provided with program information and given flexibility in the means they choose to fulfill their commitment. This commitment is made public through a household display sign. Participants are provided with monthly feedback on their utility bill, and through periodic newsletters. This program acts as an umbrella program for all residential energy services promoting sustainable development, clean energy, and energy efficiency.

KEYWORDS
Energy Conservation, Climate Change, Residential Energy Service, Community-Based Social Marketing, Public Outreach, Electric Utility, Energy Efficiency, Voluntary Efforts

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EXECUTIVE SUMMARY

The Public Education and Outreach Table of the National Climate Change Process, in their foundation paper, call for actions that actively engage the Canadian public, in addition to those designed to educate them on the causes and options for mitigating climate change. The EPCOR Energy Challenge achieves these goals.

The EPCOR Energy Challenge is a residential energy conservation program. It directly challenges EPCOR's residential customers to commit to addressing climate change through reduced energy consumption. Participants register their commitment, receive a detailed information package that includes a means to display their commitment, and reduce their energy consumption through any methods they choose. This program allows maximum flexibility and is supported through research on the ideal energy conservation program.

This program was designed in partial fulfilment of the degree requirements for the Master of Environmental Design at the University of Calgary. EPCOR Utilities Inc., the local water and power utility in the City of Edmonton funded the project. Working full-time at the utility for the course of the project allowed the author to have continual consultation with EPCOR officials and insight into EPCOR's actions on climate change and residential energy service programs.

PROGRAM CREATION

This energy conservation program is built from research on different programs and evaluations of them. From the research an ideal energy conservation program was created. This ideal constituted of four pillars set on a solid foundation - the information campaign. This foundation includes program material and marketing, as well as detailed energy conservation and program information provided to participants. The four pillars of the ideal program, developed through an extensive literature review, all strengthen the program and increase its effectiveness in realising success, with success meaning a reduction in energy consumption. The four pillars are:

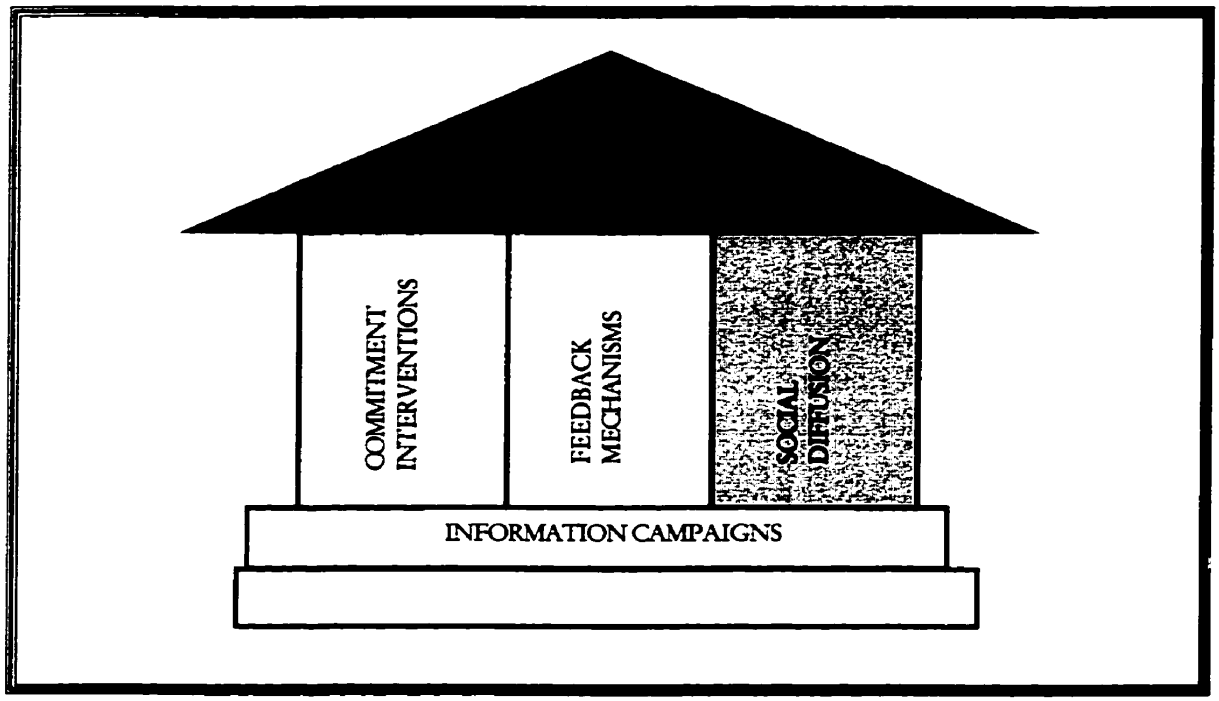
- Incentive programs
- Commitment interventions
- Feedback mechanisms
- Social Diffusion

The stronger each of these pillars is, and the more of them used, the more effective the resulting program will be. A program can be designed without all four pillars, but the ones engaged must be strong and designed effectively in order to support the energy conservation program.

To create an effective program for EPCOR it was necessary to consult with both EPCOR officials and their residential customers. This step encouraged the careful identification of barriers to energy conservation, a step crucial in the development of a program designed to bring about behaviour change. This is outlined through the process of creating a community-based social marketing program. Public consultation for the project consisted of

two focus groups - used to identify barriers and test a questionnaire - and a telephone survey of randomly selected Edmonton residents. Criterion Research Corp. conducted this research for EPCOR. Informal key informant interviews were also held with EPCOR officials in Sustainable Development and Energy Services Marketing to secure EPCOR responses to the program and help determine feasibility of certain program aspects.

Figure 1
RECOMMENDED PROGRAM DESIGN



The resulting program grew from an initial program concept and the creation of the ideal program, through the public consultation process, to the one presented in this Master's Degree Project. The EPCOR Energy Challenge is based on a three-pillar design. In addition to a solid, two-tiered information campaign it includes commitment interventions, feedback mechanisms, and incorporates social diffusion techniques.

THE ECPOR ENERGY CHALLENGE

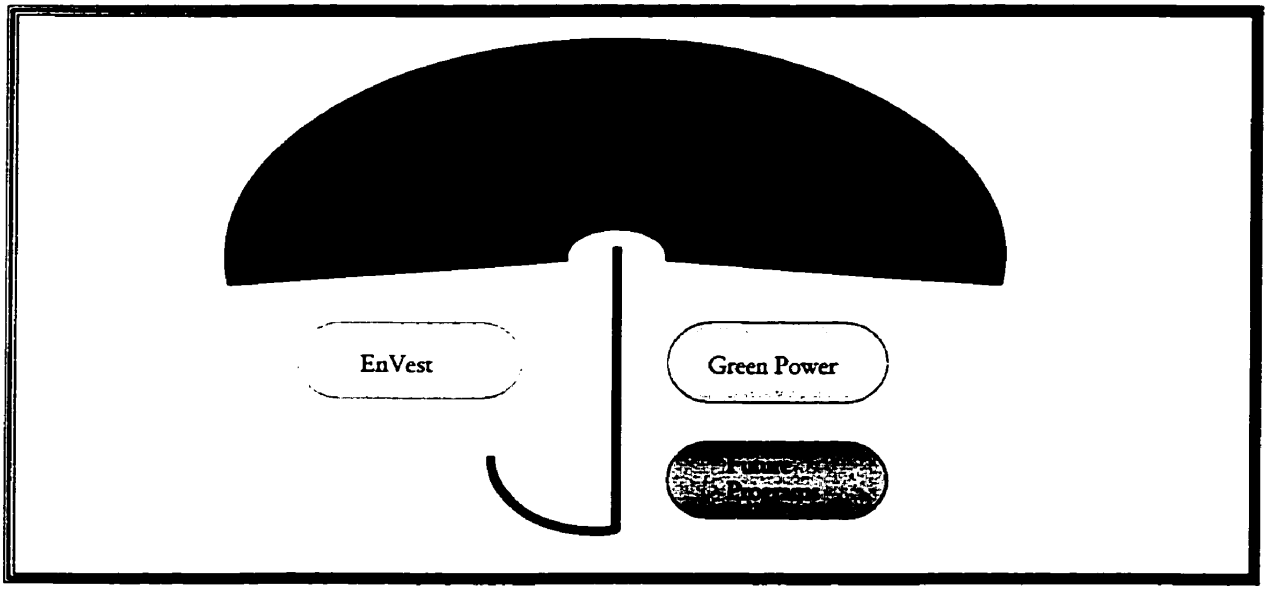
In the months leading up to the de-regulation of the electricity generation industry in Alberta and the introduction of retail choice for residential consumers, one factor stands out as central to utility success: customer service. Each utility must stand out from the others. Marketing and brand image is certainly a central part of this effort, but attracting and keeping customers requires more than that. Customer service will be essential to ensuring positive consumer response and loyalty.

The EPCOR Energy Challenge is part of this focus on customer service. The Challenge serves as an umbrella program for many EPCOR clean energy and energy efficiency residential services. Participation in other programs, such as Green Power, registers one in

the Challenge and registration in the Challenge presents the opportunity for participation in other programs. The Challenge is not an additional residential energy services program, it is the umbrella for all residential energy services focused on clean energy and energy efficiency.

When a customer registers in the EPCOR Energy Challenge the actions they take to answer the Challenge are not proscribed. Rather, participants are encouraged to take the actions they feel are most feasible and appropriate to their particular circumstances. Information provided to all participants will include energy conservation tips for permanent retrofits, transportable technology changes or items, and behaviour changes. The program does not penalise participants for not reducing energy, nor for undertaking such an action as buying a new car or an additional appliance. Freedom invites participation from many income levels and communities.

Figure 2
UMBRELLA CONCEPT



There are three pillars to the EPCOR Energy Challenge. Financial incentives, the fourth pillar of the ideal energy conservation program, were eliminated from the program design as a result of interviews with EPCOR staff. The remaining pillars - commitment interventions, feedback mechanisms, and social diffusion - are all strong, and they sit on a very solid information campaign.

The information campaign of the EPCOR Energy Challenge is two tiered. The first tier is general program information, consisting primarily of the marketing campaign. This includes promotional literature. Advertising will include inserts with the utility bill, newspaper and transit bus advertisements, and possibly a television or radio campaign. In addition to this, opportunities will be sought to promote the program in settings where actions and behaviours can be demonstrated.

The second tier of the campaign is the detailed information provided to program participants. All participants will receive an information kit upon registration. This kit will

include details on the program itself, promotional material, a display of commitment (lawn sign or window sticker), energy conservation tips, and information about related programs. Newsletters for program participants are also a part of this tier. The kits will be directed at the type of dwelling the participant inhabits, and will offer suggestions for permanent retrofits, temporary or take-away retrofits and items, and behaviour change suggestions. This approach provides opportunities and suggestions for both renters and owners, and for different income levels. This ensures maximum flexibility in the program.

INFORMATION KITS

- Program Details
- Promotional Material
- Display of Commitment
- Energy Conservation Tips
- Information About Related Programs
- Directed Towards Type of Dwelling

Background research identified commitment interventions as important to increasing a program's effectiveness. Commitment interventions work on the theory of cognitive dissonance. This theory suggests that an individual acts to make their actions correspond to their beliefs. That is, if registration in the program demonstrates a belief that addressing climate change, for instance, is important, the individual will modify their energy use patterns accordingly. The theory also suggests that small commitments will lead to larger ones. Registration in the program could push participants to make retrofits, buy new energy efficient appliances, or make lifestyle changes such as using public transit more often. Commitment is enhanced in the EPCOR Energy Challenge through the registration process itself, by making the commitment public with the display of a lawn sign or window sticker, and through group commitment and feedback. Group commitment will be encouraged through partnerships with various community associations.

Feedback mechanisms work by connecting behaviour to action. Without feedback, participants will not know whether their actions are resulting in a reduction of energy consumption. Feedback will be provided on monthly utility bills. No changes to existing bills are required because they already illustrate the consumer's twenty-four month history of electricity and water use. Group feedback will also be provided through advertisements and newsletters. This will illustrate the total number of participants and the net energy saved by program participants.

Social diffusion is enhanced in the EPCOR Energy Challenge many ways. The ability of a community to influence its members or the ability of a neighbour to influence another creates a social norm that participation in the program is not only desired, but also recommended to all community members. Public displays of commitment encourage communication in the community and a demonstration of the norm. Social diffusion is also encouraged within the program through partnerships with community associations. These associations provide an opportunity for direct leadership from respected members of the community. They also provide examples of successful participation.

DEVELOPMENT RECOMMENDATIONS

The basic design of the EPCOR Energy Challenge is set out in this Master's Degree Project, but numerous aspects need to be developed prior to a launch. This includes not only executive approval, but also numerous design details. Executive approval will be required, however, before further development can take place. For this reason this project only recommends the development plan, but it remains flexible to account for executive concerns.

The first step of the plan is to design the promotional material. Central to this is confirmation of the program name and the design of a logo. The visible face of the program, through the logo, should generate interest in and recognition with the program. Promotional material should include utility bill inserts, brochures and pamphlets, newspaper advertisements, a video demonstrating energy conservation tips, and a display of commitment (lawn sign, window sticker, etc.). Also recommended are various promotional items such as travel mugs, magnets, stickers, posters, or television advertisements. The extent of these latter items will depend on the resources allocated to the program. Also included in this aspect of the plan is the development of the program web site. It will be directly linked with the EPCOR web site, provide information on the program and registration guidelines, and act as an on-line source of the newsletter.

DEVELOPMENT PLAN

1. Executive Approval
2. Promotional Material
3. Registration System
4. Recognition Program
5. Newsletter
6. Information Kits

Second, a clear, simple process is required to track commitment from consumers. The registration system must be simple for participants to understand, and easy to work with at ECPOR. It must be accessible by EPCOR staff for newsletter and information kit distribution. The form itself should be basic. Information gathered should only include the participant's name, address, and utility account number. This provides enough information to track participants without being intrusive or complex. Information can be gathered over the phone with a customer service representative, on-line, or mailed. Included will be an invitation to participate in other programs under the voluntary challenge program umbrella.

While financial incentives are not a part of the Challenge, recognition of successful participants is possible. With a customer loyalty program in place, EPCOR can provide recognition for energy conservation. Even without a customer loyalty program, successful participants can be recognised through program information or with community sponsored items such prizes or discounts at local businesses. Recognition of successful participants, in some form, is a motivator – as the public consultation process revealed– and should be included in the EPCOR Energy Challenge.

The fourth step in the development plan is to create a newsletter to be used for providing updated program information to participants. Additional energy conservation tips, stories of successful participants, and program developments can all be provided in this newsletter. Pending executive approval, it should be provided to all participants on a monthly or bi-

monthly basis, distributed twice a year to all EPCOR residential customers, and published on the program web site.

And finally, the information kits distributed to all Challenge participants must be compiled. Included in each kit will be basic program information, energy conservation tips, the commitment display and other promotional material, information on related programs, and a video presenting tips and information. The video can be produced through a partnership with the University of Alberta Human Ecology Theme House when it undergoes extensive retrofits in 2000. Each kit will be designed for the type of dwelling the participant occupies – apartment, condominium, single detached, etc. With the completion of this last step the ECPOR Energy Challenge should be ready for launch. Program design is complete with this step and all facets are clarified and prepared for active participation.

LAUNCH RECOMMENDATIONS

Central to the program's success is a carefully planned launch. This project includes some specific recommendations for a successful program launch. They relate to the timing of the launch, how the announcement is made, and additional publicity to be utilised.

The ideal launch period is during Energy Awareness Week. EPCOR is already heavily involved in the planning and implementation of many Energy Awareness Week activities. Coordinating the launch of the EPCOR Energy Challenge with this week of activities focused on the wise use of energy is beneficial for EPCOR for two key reasons. One, it puts a spotlight on EPCOR's efforts to educate its consumers and demonstrate its own positive use of energy. And two, it introduces the program at a time when people are more likely to be paying attention to energy related issues.

The second recommendation for the launch is that the announcement of the program be exciting, clear, and entertaining. Program goals and registration procedures should be easy to understand. Using high profile community members to announce the program and become the first registrants enhances community participation and increases the publicity of the program.

Finally, the EPCOR Energy Challenge follows another successful residential energy service program for EPCOR, its Green Power program. The success of this program should be highlighted, as it would fall under the umbrella of the Challenge. The Challenge, however, should not be viewed as an expansion of the Green Power program. Rather, it should be publicized as an overall residential energy service, with Green Power becoming part of it.

The EPCOR Energy Challenge is an exciting program. It approaches residential customers in a unique way. Not only will they be educated on energy use and climate change, they will also be actively engaged in the issue. This personal involvement brings the issue into homes, schools, and communities. EPCOR will take an innovative step for all Canadian industries by implementing the program. It will involve a higher level of customer service, which is nothing short of beneficial in a period of de-regulation. EPCOR's position as a leader in efforts to address climate change and the environment will expand, as will their opportunities for enhanced residential energy services.

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INTRODUCTION

This Master's Degree Project (MDP) is for the development of a voluntary challenge program for households, designed for EPCOR, an Alberta utility, to encourage their residential customers to reduce energy consumption, and thus their personal greenhouse gas (GHG) emissions. The MDP involved a review of existing energy conservation programs, the development of an ideal energy conservation program, and consultation with the public and EPCOR in order to determine the energy conservation program recommended as the voluntary challenge program for households: the EPCOR Energy Challenge.

EPCOR is one of three major Alberta electric utilities, along with TransAlta Corporation and ATCO Electric. They are an ideal utility to sponsor a voluntary challenge program for households for three key reasons:

- Their customer base is currently geographically localised
- They have a public commitment to address climate change
- There are existing programs in place at EPCOR with which this program can work

The regional customer base comprises chiefly of the city of Edmonton. Located centrally in the province, Edmonton is the capital city of Alberta. Edmonton was once a base for fur traders and Klondike miners. Today it has a thriving manufacturing, corporate, and industrial economy. EPCOR is owned by the City of Edmonton and governed by an independent Board of Directors. EPCOR, through its forerunners, Edmonton Power and Edmonton Electric Lighting and Power Company, has supplied electricity to Edmonton for over one hundred years[1]. This localised customer base provides a solid marketing focus for the program.

The voluntary challenge program was originally conceived as a modification of the Voluntary Challenge and Registry (VCR) Inc. The VCR encourages private sector firms to register their commitment to reduce GHG emissions. They must submit annual reports of their efforts and success. The program is purely voluntary, but a number of industries encourage participation in the VCR, such as the Canadian Electrical Association, which signed a memorandum of understanding with its member utilities that they would participate in the VCR program[2]. EPCOR is one of those signing utilities.

A number of programs and partnerships in place at EPCOR can lend support for the voluntary challenge program. Residential services already in place promoting the wise use of energy include EPCOR's Green Power program, offering renewable energy packages to customers; a sponsorship with Alberta R-2000, a new home energy efficiency product; and customer energy awareness programs, including participation in Energy Awareness Week. Several programs in the planning stages also lend support to a voluntary challenge program. These include a move by EnVest Alberta™ to residential services, providing financing for home energy efficiency retrofits, as well as an expansion of a the EPCOR Solar Program with more demonstration and residential projects. EPCOR's affiliation with Destination Conservation, a child energy education program, also supports a voluntary challenge program.

Developing the voluntary challenge program for a specific utility enhanced the MDP. It provided focus and helped determine what aspects of the program would be most feasible and had the greatest potential for success. What may work for EPCOR may not work with another utility, but the development of the program follows a universally applicable methodology.

During the course of the MDP I worked directly under EPCOR's supervision. The project was funded through a grant to the University of Calgary, but I worked full-time at EPCOR for the course of the project. Working in the Sustainable Development department gave me immediate access to their library and to informal meetings and conversations. I believe this afforded me the opportunity to develop the program as essentially a member of EPCOR staff. I had access to meetings, information, and insight that may have not been accessible to an external researcher. This resulted in a detailed knowledge and clear understanding of the direction for the final design of the program.

A voluntary challenge program serves three purposes. One, it is an educational resource on the potential impacts of GHG emissions for all residential customers. Two, it is a registry and recognition program of participating households in the challenge to reduce personal GHG emissions. And three, it is an opportunity for EPCOR to enhance both their public profile of actions to mitigate climate change and customer relations.

The Kyoto Protocol, negotiated in 1997, brought climate change to the forefront of international environmental and political issues. Over 160 countries agreed to the call for binding reductions of greenhouse gas emissions. Canada's commitments call for the country to reduce emissions to six percent below 1990 levels during the first reporting period in 2008-2012. To date, Canada has signed the Protocol, but has yet to ratify it.

Climate change is not global warming. Greenhouse gases, primarily water vapour, carbon dioxide, methane, and nitrous oxide, occur naturally in the atmosphere, regulating the temperature of the planet by trapping the heat from the sun. However, increased concentrations of these greenhouse gases in the atmosphere may be causing changes in the world's climate. This involves not only a matter of temperature rising, but the entire climate changing. This threatens ecosystems as well as economic activities based on natural resources. For instance, climate change could increase the incidence and severity of forest fires and pest infestations in Alberta forests[3]. The definition used in the public consultation process centered around two impacts of climate change: that the world's temperature is rising and the world's weather patterns are changing.

There is some dissention from certain industries and scientists as to the whether climate change is occurring. For instance, the international coal community refers to the Kyoto Protocol and attempts at climate change mitigation as "panic-mongering"[4]. Based on the establishment of the United Nations Framework Conventions on Climate Change in 1992, the findings of the Intergovernmental Panel on Climate Change - which stated that there is evidence to believe that human factors are influencing the world's climate[5] - and the resulting international political activities, this MDP assumes the acceptance of climate change as an issue to be seriously addressed. Acting on the precautionary principle many businesses, industries, and governments are working to address climate change now – without definitive proof of its permanence.

The most public federal government response to climate change is primarily through the National Climate Change Process. Groups of experts are meeting and preparing papers on different issues related to climate change and different sectors affected by it in a series of Issues Tables. These tables are working to establish systems for climate change mitigation, such as emissions trading rules. The Government of Canada is also working on enhancing

voluntary commitments and public outreach, primarily through its web-site devoted to the issue[6].

Many government departments also have research and funding programs directed at climate change and responses to it. One program is RETScreen. Natural Resources Canada runs this software system designed to analyse renewable energy installation opportunities. Funding sources, primarily the Climate Change Action Fund, supply financing to projects that address climate change through technology or public outreach. The Climate Change Action Fund is a federal government fund, with money for specific projects delivered through various government departments.

Private sector companies are also promoting and supporting climate change mitigation efforts. This occurs internally[7] and externally. Examples of private sector activities include landfill gas capture and burn projects, companies working on the design of more efficient vehicles and cleaner fuels[8], oil and gas companies working to offset the emissions their activities produce[9], and industry efforts through the organisations such as GEMCo, the Greenhouse Management Consortium, a consortium of major greenhouse gas emitters in Canada. The program developed through this MDP is an example of private sector efforts to educate the Canadian public on climate change issues.

This MDP focuses on actions that can be taken to engage the general public, particularly EPCOR's residential customers. The government is involved in climate change mitigation, particularly through its development of the National Climate Change Process, funding for mitigation and outreach, and its role in international negotiations to address climate change issues. Business and industry are generally also involved through various industry wide and private initiatives, involvement in the National Climate Change Process, and memberships in the VCR. But what is the average Canadian citizen doing? According to the Public Education and Outreach Table of the National Climate Change Process, they are doing essentially nothing because they lack both information and an understanding of climate change[10].

Engaging Canadians at all levels is also an important step in Canada's strategy to meet the suggested targets of the Kyoto Protocol. I believe that this will be achieved not merely

through education, but through the empowerment of all Canadians. Encouraging individuals to take personal action to reduce their GHG emissions has the power to reduce overall emissions.

There are numerous ways to engage the Canadian public. Education campaigns aim to increase the awareness and response to the climate change issue, in general, or to specific programs designed in response to climate change. Or programs may offer financial incentives in order to encourage the adoption of a new technology. Engaging the Canadian public is not a quick solution to climate change. To truly make an impact on an issue as far reaching as climate change a shift in the way Canadians view their environment, their climate, and their own lives may be necessary. This will require a change in behaviour towards the sustainable use of energy, not just a technology change[11], it is a change which will take time.

Public outreach activities should both build awareness and motivate voluntary action[12]. That is the purpose of the voluntary challenge program developed for this MDP. Ultimately, then, the goal is for the Edmonton public to develop a deeper understanding of their energy use and its potential environmental effects. Many utilities already have energy conservation programs in place, usually in the form of information campaigns incorporating web sites and brochures[13]. The voluntary challenge program developed here is quite different. It seeks the active participation of residential customers in energy conservation.

Numerous steps were taken in the creation of the final design of the program. The project itself developed from an initial program concept. Once the initial program concept was finalised, research began at EPCOR. This started with developing an understanding of their actions and policies towards climate change and sustainable development, as well as an understanding of corporate structure. A solid grounding in literature pertaining to climate change, energy conservation programs, community-based social marketing, sustainable development, and environmental education provided excellent background for the project. A public consultation process initiated through this project, funded by EPCOR, and carried out by an independent consultant identified barriers to energy conservation present in the Edmonton area and provided input about certain aspects of the voluntary challenge program. Additional input from EPCOR refined the final design of the program. The final

design thus grew from an initial program concept through an extensive literature review, public consultation, and internal (to EPCOR) interview process. The resulting design and development recommendations create an informative, challenging, and equitable voluntary challenge program for EPCOR to take to their residential energy customers.

Chapter Two discusses the methodology used in the development of the program design. The literature review on existing and previous energy conservation programs in Chapter Three was the base for creating the ideal energy conservation program outlined in Chapter Four. Chapter Five discusses the modifications made to this ideal program, the results of which were used in the public consultation process. The results of this process are also included in this chapter. A detailed description of the program design is in Chapter Six. It takes into account all input from the previous phases of development to create a flexible program designed to engage Edmontonians in the issue of climate change. Chapter Seven concludes the document with final thoughts on the project.

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[1] Edmonton Power 1999.
[2] EPCOR 1999b.
[3] Pembina Institute for Appropriate Development 1999: 1.
[4] International Coal Letter July 2, 1999: 1.
[5] Intergovernmental Panel on Climate Change 1995.
[6] Government of Canada 1999.
[7] Joel Nodelman, EPCOR, personal communication.
[8] Ford of Canada 1999.
[9] Suncor 1999.
[10] Public Education and Outreach Issue Table 1998: v.
[11] McKenzie-Mohr 1999.
[12] Public Education and Outreach Issue Table 1998: v.
[13] TransAlta Corporation 1999; Marilyn Noble, Edmonton Power, personal communication.

CHAPTER 2
METHODOLOGY

This chapter is a detailed explanation of the many steps involved the design of a voluntary challenge program for households. It begins with the statement of the project's objectives. The establishment of these objectives led to the development of the methodology. An outline of the methodology follows.

All research was completed while working in the EPCOR corporate office in Edmonton, Alberta. I was permitted full access to EPCOR staff and literature. Daily interaction with EPCOR staff created an informal research environment that provided valuable insight into the corporate response to many aspects of the program. While formal key informant interviews were carried out, informal meetings and conversations provided a significant amount of information used in the design of the program. References to input from EPCOR staff include the input from both formal and informal dialogue.

2.1 OBJECTIVES

The objectives of this project are:

1. Determine the ideal direction for a comprehensive energy conservation program
2. Design an informative, empowering, and equitable (across different social segments) program challenging all EPCOR residential customers to reduce their personal GHG emissions.

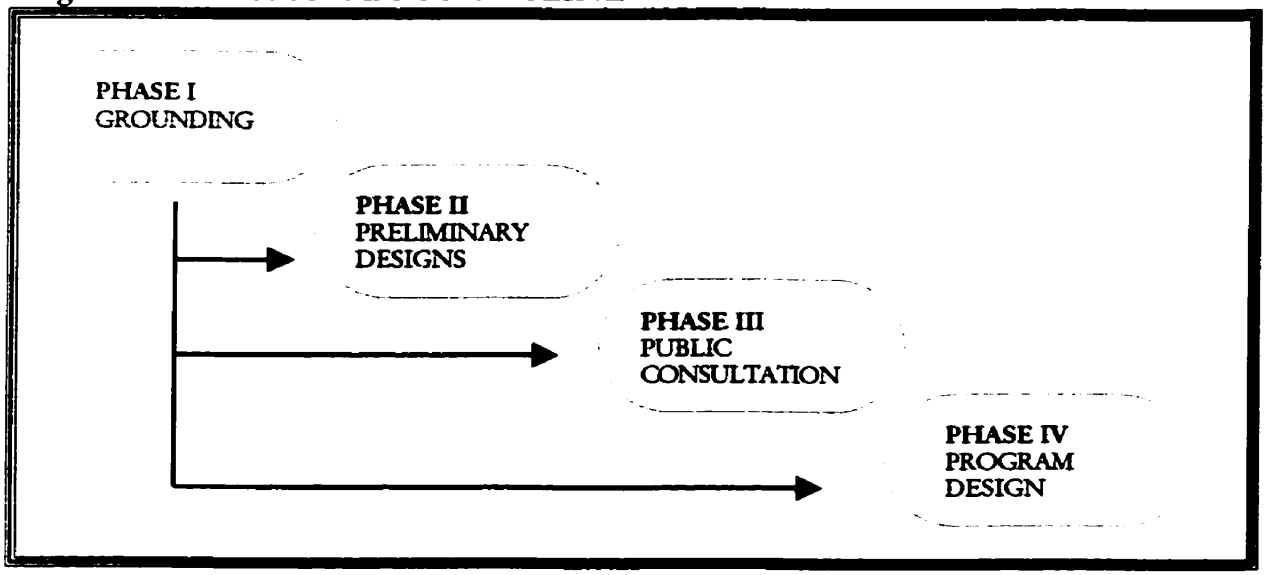
These objectives served as a guide in the development of the methodology, a focus for the duration of the project, and an outline for the completion of the final design of the voluntary challenge program.

2.2 METHODOLOGY OUTLINE

The four phases in the design process are outlined in Figure 2.1. During Phase I-Grounding, background research on EPCOR, energy conservation programs, and climate change was completed. The ideal conservation program was created in Phase II-Preliminary Design. Focus groups and telephone surveys were used to consult the public in Phase III-Public Consultation. An independent consulting firm, hired and paid for by EPCOR, designed and completed the public consultation. Input from both EPCOR and myself

directed this phase of the project. Phase III-Public Consultation also included key informant interviews with EPCOR. Phase IV-Final Design took the input gathered in Phase III and applied it to the ideal conservation program created in Phase II to create the final design of EPCOR's residential energy conservation program. All steps are discussed in greater detail below.

Figure 2.1 METHODOLOGY OUTLINE



2.3 PHASE I - GROUNDING

Phase I established a solid grounding in the relevant literature. This grounding developed an understanding of the principles behind EPCOR's actions to mitigate climate change, and determined the best possible direction for an energy conservation program. I was provided with a first hand introduction to EPCOR during this phase.

STEP ONE

Creation of Program Concept

An initial program concept emerged during the development of the project proposal. Mike Kelly, at the time the Executive Director of the Clean Air Strategic Alliance proposed the concept[14]. This concept called for a voluntary challenge program for households, similar in idea to the VCR, where households would commit to reduce their GHG emissions. This was the concept used in the project proposal to EPCOR. It was also used in initial interviews with EPCOR staff, prior to the creation of the ideal energy conservation program, and influenced the creation of the model program used in public consultation.

STEP TWO

Investigate EPCOR's Actions to Mitigate Climate Change

The second step involved an examination of the corporate structure of EPCOR and their sustainable development and climate change programs and policies. This step was necessary to understand the rationale behind the development of this project and where it fits within EPCOR's overall corporate goals and strategies. It included:

A. Documentation of the environmental and sustainable development policies of EPCOR
   - Obtained formal policy statements from the Sustainable Development Library and the EPCOR web site
   - Reviewed and documented various policies

B. Documentation of the Voluntary Climate Change Program in place at EPCOR, as well as their reports to the VCR
   - Obtained all VCR reports, as well the submitted Action Plan and Letter of Intent from the EPCOR Sustainable Development Library
   - Reviewed and documented activities and commitments stated in documents

C. Review the existence and purpose of other Sustainable Development and related marketing initiatives, in place and planned
   - Reviewed corporate structure (see below)
   - Met informally with EPCOR Sustainable Development and Energy Services Marketing staff to learn about programs in place and planned
   - Reviewed public information on the EPCOR web site and contained in environmental reports on existing programs

The review of the corporate structure was necessary to determine the best sources of information at EPCOR for the key informant interviews. This was completed by reviewing the executive phone list to determine corporate structure, and by talking to individuals in the Sustainable Development department for further understanding and direction. Individuals were then identified and contacted for potential interviews.

STEP THREE

Determine Characteristics of Ideal Energy Conservation Program

In fulfillment of the first objective this step determined the best direction for a conservation program. The evaluation of other programs led to an understanding of critical success factors. This step involved the following actions:

A. Keyword searches on the internet for information on:
   - Energy conservation/energy conservation programs/energy efficiency
   - Environmental actions of individuals

- Sustainable development
- Climate change
- Public outreach
- Environmental education
- Environmental actions of electrical utilities

B. Keyword searches on ecology, psychology, sociology, economic, and environmental science journal databases for information on:
   - Energy conservation/energy conservation programs/energy efficiency programs
   - Environmental actions of individuals
   - Environmental education

C. Survey of external reviews of energy conservation programs and actions to mitigate climate change

D. Survey of literature for common threads and conclusions
   - Read all sources
   - Note common aspects of programs designed for energy conservation specifically, and for changing or promoting behaviour towards environmental actions in general
   - Note factors that influence success or failure of programs reviewed
   - Develop critical success factors for energy conservation programs based on the above information

E. Identify barriers to energy conservation
   - Compile from literature and list

This led to the design of an ideal energy conservation program in Phase II - the base for a model program used in the public consultation process, and for the final design of the program.

2.4 PHASE II - PRELIMINARY DESIGN

This phase took the information gathered in Phase I and used it to create a preliminary design for the program. Information gathered provided the foundation upon which to build the basic design. From the literature on different types of energy conservation programs, as well as ways to change or influence behaviour changes, I developed an ideal energy conservation program.

STEP FOUR

Creation of the Ideal Energy Conservation Program

The critical success factors established in Step Three demonstrated what could and could not work in an energy conservation program. The ideal energy conservation program accounts for all the factors that contribute to success; success being a reduction in energy consumption. The steps involved in its creation:

A. Compiled the critical success factors, developed in Step Three, and organised them into categories that specified different aspects of an energy conservation program
B. Identification of both the positive and negative components of each aspect of a program
   - From the literature I compiled a list of factors that made a program more effective, these became the positive aspects of a program aspect.
   - I did the same thing for factors which limited or weakened the program aspect (distinct from the barriers identified in Step Three)
C. Took the most positive aspects of the program aspects and collected them together to idealise the most effective energy conservation program

As stated, the program created is an ideal one. That is, it is the base upon which practical programs can be built, but it is not the final design.

STEP FIVE

Creation of the Model Program

The program created in the previous step was only an ideal. Input from EPCOR was necessary to gain a preliminary understanding of what was feasible in terms of program design. This step involved a round of key informant interviews with staff from EPCOR Sustainable Development, Energy Services, and the EnVest Alberta™ program. The interviews were unstructured, but directed at gaining an understanding of the response to energy conservation in the company, to different aspects of the ideal energy conservation program, and to the initial program concept created in Step One. Aspects of the program were discussed and some revealed - by EPCOR staff - as not feasible to implement at EPCOR. The program objective, engaging residential customers in addressing climate change was also discussed. Input from the interviews confirmed the feasible aspects of the program.

Both the initial program concept and aspects of the ideal energy conservation program were used in discussions. The input from EPCOR was applied against the initial program concept, as were the characteristics of the ideal program. For example, if I was told by EPCOR that a certain program aspect could not be included in the program it was removed from the design. The initial program concept served as a base for the model program. Aspects of the ideal program were discussed individually and their inclusion in the model program determined by the input from EPCOR. The resulting model program was used as the starting point for public consultation.

2.5 PHASE III - PUBLIC CONSULTATION

Phase III is a crucial phase in program development because it deals directly with input from the public - future program participants. This project is an exercise in community-based social marketing, a four-step approach[15]:

A. Identify barriers
B. Design a program incorporating behaviour change tools
C. Pilot the program
D. Implementation and evaluation

This pragmatic approach can lead to a successful program because it focuses on the adoption of behaviour changes, not a technology fix[16]. It relies on a concerted effort to reduce energy consumption without relying on technology improvements alone. I believe that while technology improvements are certainly necessary in order to address climate change, they should not be relied upon. Changing behaviour to address the issue in everyday life is also important and should not be discounted in favour of simple or quick technology fixes. Technology improvements generally increase the efficiency of an item, product, or process. However, efficiency improvements are ineffective if behaviour or external causes result in increased consumption. For instance, improvements to vehicle efficiency have greatly improved the performance of automobiles, but there are even greater numbers of vehicles on the road, negating benefits realised from increased efficiency[17].

Public input is particularly important in this project to help identify barriers[18] and to conduct a preliminary test of the program, as a pilot program will probably not be initiated by EPCOR[19]. All of the previous steps were designed with this community-based social marketing approach. Phase I consisted of a literature review that identified barriers and critical success factors of energy conservation programs. Phase II created a test program. Phase III took this research one step further by confirming barriers identified in the literature review and gauging the initial response to the program. Although it provides valuable input, this second function does not take the place of piloting the program. A pilot program involves direct participation in the program itself and can provide insight from participants originally not anticipated - by either the program proponent, EPCOR, or the potential participants. Implementation and evaluation are discussed in Chapter Six.

STEP SIX

Public Consultation

Conducted by an independent contractor, Criterion Research Corp., public consultation took two forms: focus groups and a telephone survey. It followed these steps, in line with those identified for effective design of a community-based social marketing strategy[20]:

A. Development of a barrier list (from the literature review)
B. Clarification of public consultation purpose and goals
C. Development of focus group questions
D. Focus Groups
E. Completion of telephone survey questions
F. Telephone Survey
G. Reporting

Focus groups responded to the model program, as well as the questionnaire design. Modifications to the questionnaire were made in consultation with Criterion and the survey conducted. The questionnaire can be found in Appendix A. Focus groups took place on April 13, 1999 and telephone surveys conducted during the last week of April and first week of May 1999. From initial meetings to delivery of the final report the public consultation phase took approximately seven weeks.

Respondents were asked a series of questions on numerous topics. Aside from basic demographic information, respondents were questioned on their response to the model program and certain details of it. This included their satisfaction with the publication of names of program participants and their likelihood of participating in the program. Respondents were also asked about another program, a residential loan program for energy efficient retrofits, and their likelihood of participation in this program as well as those aspects of the program that appealed to them. This section of the questionnaire did not directly apply to this project, but in the interest of time and money EPCOR chose to include these questions in this survey. EnVest Alberta™ is researching the option of moving into the residential sector and required this information before they could proceed. Finally, respondents were asked about their knowledge of climate change, where they believe responsibility for addressing climate change lies, and perceptions of utility-run energy conservation programs. The results of this public input were used to guide the final design of the program. Chapter Five discusses these results in great detail.

STEP SEVEN

Key Informant Interviews

Phase III-Public Consultation also included further key informant interviews with EPCOR. These interviews followed the completion of the public consultation process. Based on input from both public consultation and interviews with EPCOR, the final design of the program began. Interviews outlined the process of approval within EPCOR for the program and further clarified program goals, resulting in the creation of a development plan as part of the final design. All sources interviewed in previous key informant interviews (Step Five) were included in these interviews. Additional informants from the same departments augmented the input from the program proponent.

2.6 PHASE IV – PROGRAM DESIGN

The final phase of this project was the creation of the final program design. The knowledge gathered from all previous steps was used in the resulting design. This phase fulfils the second objective: to design an informative, equitable, and empowering program challenging all EPCOR residential customers to reduce their personal GHG emissions through reduced energy use.

STEP EIGHT

Final Design

This project was for the design of a voluntary challenge program for households. The process required to do this was long, but rather straightforward. It followed a progression through all of the previous steps.

A. Creation of initial program concept (Step One)
B. Literature review providing background knowledge on energy conservation programs, environmental education, behaviour changes, climate change, and public outreach (Steps Two and Three)
C. Determination of critical success factors for energy conservation programs and creation of an ideal program (Steps Three and Four)
D. With input from key informant interviews from EPCOR, creation of model program to be used in public consultation (Step Five)
E. Public consultation and interviews(Steps Six and Seven)
    - Focus groups provided further clarification of both barriers and questions for the telephone survey
    - Telephone survey provided direct input from Edmonton residents

- Ongoing key informant interviews with EPCOR staff

F. Input from public consultation and key informant interviews with EPCOR staff was used to modify the model program, as certain aspects were not received favourably or required strengthening

All of these steps worked with each other to influence the final design. It was more or less a sequential process, but with some overlap. I created the final program design by taking the accumulated information from the described research and altering the initial program concept to account for requested or suggested modifications. In the end it was a matter of arriving at the final design through a process of discovery for what would work best in this situation.

STEP NINE

Development Plan and Launch Recommendations

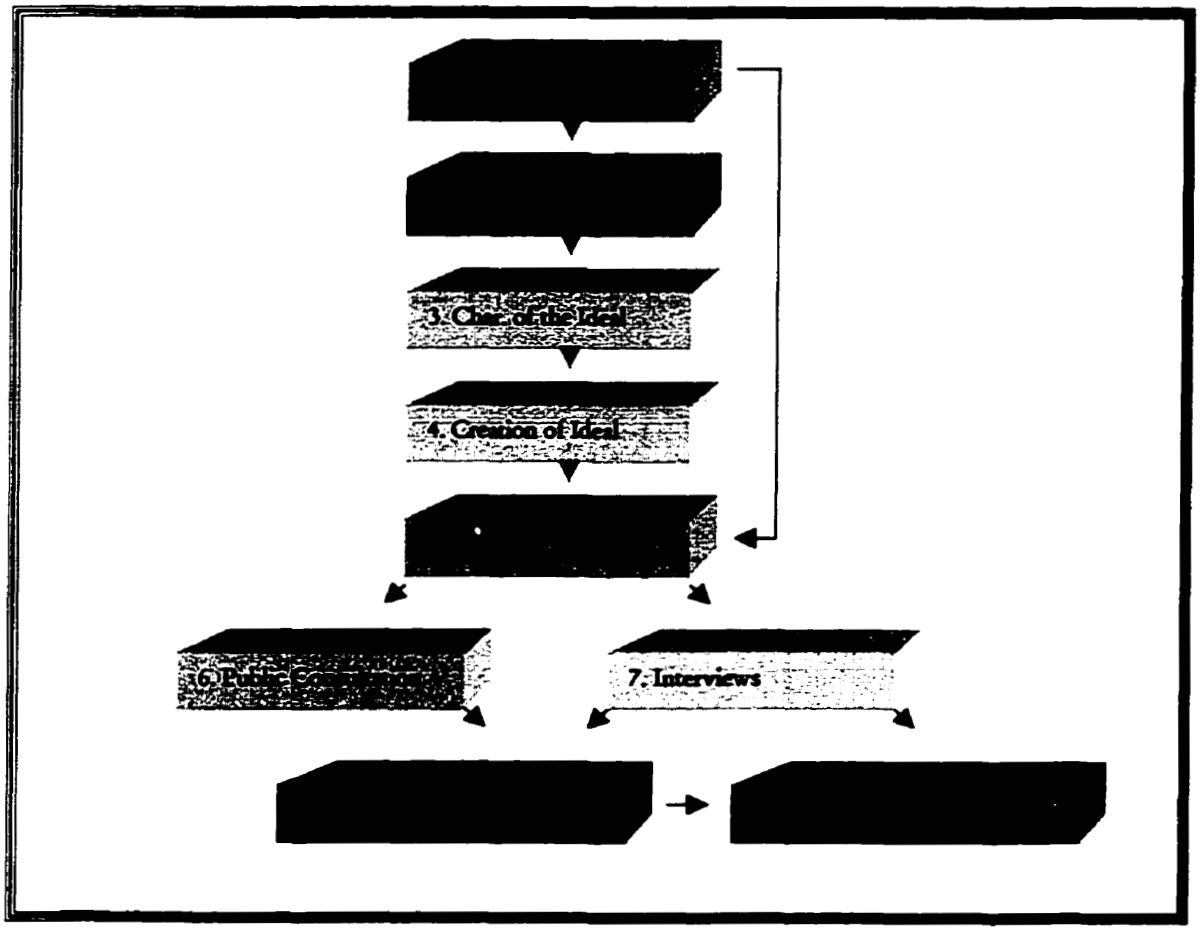
Initial interviews with EPCOR staff (Step Five) revealed that the program would not be approved and ready for launch at the completion of my involvement with the project. Therefore, I determined it was necessary to provide EPCOR with recommendations on the steps necessary to prepare the program for full-scale launch. The recommendations for the development plan and launch were created by:

A. Identifying all factors that should be part of the final design (completed in Step Eight)
B. Using information from EPCOR, separate those factors that require executive approval for their inclusion in the design
C. Organise these remaining factors into a chronological development plan

The recommendations that grew out of this step are functionally part of the program design but are presented separately to highlight the fact that final decisions rest on executive approval for the program.

Figure 3.2 further explains the relationships between all of the steps outlined in the methodology. The development of the final design of the program was a process that grew from an initial program concept through four phases to the final recommendations for program launch.

Figure 3.2 DESIGN PROCESS



Taking these nine steps ensures the program is designed as effectively as possible. These steps are replicable in the design of other utility sponsored programs because they are based on a system for creating a community-based social marketing program[21]. The specific direction the program takes is reliant upon the decision made by the program proponent.

[14] Mike Kelly, Clean Air Strategic Alliance, 1998.
[15] McKenzie-Mohr 1999.
[16] McKenzie-Mohr 1999.
[17] Sachs et al 1998.
[18] McKenzie-Mohr 1999.
[19] Joel Nodelman, EPCOR, personal communication.
[20] McKenzie-Mohr 1999.
[21] McKenzie-Mohr 1999.

CHAPTER 3
ENERGY CONSERVATION PROGRAMS

This chapter discusses the different means available for promoting energy conservation behaviour. I created five broad categories to describe the various aspects of energy conservation programs:

- Information Campaigns
- Incentive Programs
- Feedback Mechanisms
- Commitment Interventions
- Social Diffusion

These categories developed from an understanding of the literature on energy conservation programs. These categories do not distinguish between different types of programs. Rather, they differentiate tools or aspects of energy conservation programs. They can reflect a range of program objectives, from general awareness to behaviour change.

These categories are based on those found in the literature review, with two significant differences. One, feedback mechanisms and commitment interventions are usually included in discussions on information programs. I separated these aspects to emphasize their importance in realizing the success of energy conservation programs. And two, home energy audit programs are included in the category for incentive programs. Because the vast majority of these programs result in retrofits sponsored by the program (through a financial incentive) they are included as incentive programs.

The complete review of energy conservation programs highlighted one important aspect: no single program is necessarily better than any other. The goals of the program; the features of the target audience; motivational factors; perceptions of the program sponsor and of energy conservation issues; and personal norms were all revealed through the literature as factors affecting the success of a particular program. Considering these factors helps determine the specific program aspects necessary to create a successful program. An ideal program, however, is proposed in the next chapter. This ideal is a concept based on the critical success factors of all energy conservation programs identified from this literature review. This review of energy conservation programs and the various aspects available to encourage energy conservation, combined with public and internal, corporate consultation,

clarifies these issues and helps create the most effective energy conservation program possible for EPCOR.

The first section of this chapter discusses barriers to energy conservation. This includes discussion on barriers to implementing an energy conservation program and barriers to changing consumer behaviour. Discussion of the five different program aspects, as defined by the categories mentioned above, follows.

3.1 BARRIERS TO ENERGY CONSERVATION

When the objective of the energy conservation program, as it is for the voluntary challenge program, is to change behaviour, the barriers to engaging in that behaviour must be identified[22]. A number of barriers to the adoption of energy conservation behaviour exist. For this project I categorised them two ways. One, they could be barriers inherent in the program design - internal barriers. Or two, they could be social or positional barriers preventing people from adopting energy conservation measures or behaviour changes - external barriers.

Careful study must be made of the barriers to energy conservation behaviour particular to the community in question[23] because every household and every community experiences a different set of external barriers. Knowing what these barriers are is key to effective program design and implementation. Without detailed knowledge of the external barriers present for the target audience or community, any program will experience a number of internal barriers, ultimately limiting its success. This section of the chapter discusses potential barriers to energy conservation behaviour. Chapter Five clarifies barriers to those specific to Edmonton, based on this initial review.

EXTERNAL BARRIERS

Community-based social marketing schemes call for the determination of barriers to be completed through literature reviews, focus groups, and survey research[24]. This project used a combination of all three methods. A literature review provided general knowledge on potential barriers to be found in almost any instance. Those barriers identified are listed below. Focus groups highlighted some perceived barriers and informed the questionnaire

design. Finally, a telephone survey was conducted in order to confirm barriers, to gauge the response to various program aspects, and to test the awareness of climate change and related issues. The detailed results of this public consultation process are found in Chapter Five, on the application of the ideal energy conservation program.

Personal external barriers limit the ability of a consumer to act in an energy conscious manner. They may not entirely prevent one from acting, but they can affect a consumer's ability to undertake certain actions. Homeownership is one barrier. Rather, not owning your own home may act as barrier to action, as renters may be unlikely to undertake improvements to a dwelling owned by someone else, or they may not pay their energy bill directly, therefore they are not aware of the cost of their energy consumption[25]. Disposable income also affects energy use[26]. When available financial resources are limited, consumers may not be willing or see it as a worthwhile investment to spend money on retrofits, energy efficiency improvements, or technologies. Finally, a lack of home repair skills can act as a barrier to energy conservation[27]. It is worthwhile for a program to recommend weather-stripping and caulking to seal drafts, but if consumers do not have the skills to undertake this task, it most likely will not be completed. Other external barriers can include inconvenience and confusion[28].

There are larger societal issues that affect energy conservation behaviour. These are perceptions or general attitudes that may influence whether someone engages in energy conservation behaviour. On a large scale it may be difficult to change people's behaviour to reduce energy consumption because North American society, in particular, is structured around personal resource use[29], such as driving in your own vehicle or home entertainment. There is a tremendous amount of energy spent on personal consumption, something that consumers will generally not sacrifice if their comfort levels or standard of living is negatively affected. Another barrier is an apparent lack of knowledge consumers may have about their actual energy use[30]. Consumers may not truly understand how much energy they or the appliances and features they have use. Yet they pay their bill at the end of the month. This is akin to going shopping, picking all your purchases, and only being told the total when you have to pay. You have no knowledge of the price of the individual items, just as many people do not know or understand how much power is used by their lights or heating

system. A third barrier is the belief that the actions of one person cannot make an impact on a large societal issue.

INTERNAL BARRIERS

Internal barriers are directly related to program design. They are faults within the program or barriers created by the design of an energy conservation program. They result from an imperfect understanding of external barriers and the most effective ways to overcome them. Internal barriers include a heavy reliance on one of two ineffective models used as the basis of program design, inconspicuous or boring information campaigns, insufficient financial incentives, program delivery with little credibility, and a program lacking motivation for the consumer to act. These barriers may act alone or in concert with each other. This section discusses these further.

The most significant internal barriers relate to the reliance on information campaigns and poor design of them. The belief is that if you provide the information it will be enough to change attitudes or behaviour. That is the basis of both the Attitude Model and the Rational Economic Model. The first says that if you can change attitudes, you can change behaviour. The second says that if you tell people the economic advantage of a certain action they will necessarily carry out that action. What both of these models overlook is the human dimension[31]. Neither takes into account other factors such as income level, number of people in the household, perceptions of benefits, or level of home repair skills. Both models are discussed in greater detail in section 3.2.

A reliance on information campaigns is a strong barrier, but it is even more constraining when the information is presented poorly. In order for the information to be effective it must be used[32]. If the presentation is boring or inconspicuous it will not capture the attention of its audience and regardless of the model used in its design, it will not succeed.

Financial incentives may also act as a barrier. The Rational Economic Model dictates that if you provide more attractive financial reasons to act, people will then act in the recommended manner. This logic justifies the provision of financial incentives, but these incentives can be a barrier to action if they are not large enough; that is, larger incentives

encourage greater participation in a program[33]. Financial incentives may also overlook human factors, the non-financial factors, which influence attitudes and behaviour.

The program must also come from a credible proponent. If the program sponsor is not trusted in the community the program will not be well received. If the program is not well received, it will not be successful in gaining participants or achieving real energy reductions. The reputation of the program proponent is very important[34].

Finally, there must be a motivation for the consumer to act. A program without a reason for action will be essentially useless. There are many factors that influence energy conservation behaviour in consumers. These can include energy prices, energy supply, environmental concerns, or others. For instance, the energy crisis of the 1970s raised energy prices and concerns over a long and short-term energy supply, fueling energy conservation. In the late 1990s concern over rising greenhouse gas levels in the atmosphere may fuel energy conservation. A clearly defined motivational goal can provide this incentive for consumer action.

Successful programs will carefully screen for potential barriers prior to program design, or as part of ongoing evaluation. Careful program design can overcome many of these barriers. Internal barriers may remain, however, even after a detailed and studied design process. Evaluation and alteration, if necessary, of the program should ensure that these barriers are addressed and overcome. The tools available to address barriers are now the focus of the rest of the chapter. Each program aspect is discussed individually. The next chapter then describes an ideal energy conservation program, built from the five program aspects.

3.2 INFORMATION CAMPAIGNS

The cornerstone of any energy conservation program is the information campaign. In order for a program to gain participants people must know the program exists. But simply providing the information is not enough. Information dissemination does not guarantee program participation or program success. Two models are often used in the design of information campaigns: the Attitude Model and the Rational Economic Model. Both assume that the provision of certain information is enough to change behaviour. This

section discusses these models, their weaknesses, and the different ways to make information campaigns more effective.

MODELS REGARDING INFORMATION CAMPAIGNS

There are two models that influence energy conservation program design, particularly information campaign design:

- The Attitude Model
- The Rational Economic Model

Both models essentially dictate the respective design of the resulting program. Both arise from a different perception of what motivates behaviour change, yet both assume that information alone can change behaviour.

The Attitude Model

The Attitude Model rationalizes that behaviour will change with favourable attitudes. Therefore, if your information campaign can influence the development of favourable attitudes, the program will be successful in changing behaviour. There is little evidence, though, of a direct link between attitude and behaviour. Education alone cannot overcome barriers to change[35]. Simply supplying the information is not the same thing as getting the information used[36]. Unfortunately, the assumption that providing information is enough to affect behaviour change is often relied upon. Utility companies that undertake advertising campaigns designed to create favourable attitudes towards energy conservation most often use this approach[37].

Programs designed with the influence of the Attitude Model rely heavily on mass media advertising. This effectively turns the energy conservation program into an advertising campaign. While advertising is certainly necessary – it helps promote the program and can spark interest in the program or the issues – it should not be the only tool relied on to reduce energy consumption in the target audience. This approach may work in the marketing of a specific product, but a different approach is required when a behaviour change is the desired result because energy conservation is not a product[38].

The diversity of barriers preventing consumers from engaging in energy conservation behaviour indicates that information campaigns alone will not succeed in bringing about a behaviour change[39]. Barriers will vary from household to household and throughout the community. A blanket approach by an information campaign may not address a number of barriers and lose effectiveness in reaching a wide audience, let alone in encouraging behaviour change in that audience.

The Rational Economic Model

The Rational Economic Model presumes that in order to influence energy conservation behaviour changes consumers only need to be informed of the financial advantage of a particular choice or action and they, being rational, will take these actions[40]. Using energy conservation as an example, the Rational Economic Model states that if you tell consumers there is a financial advantage to certain technology choices or behaviour changes, they will necessarily act accordingly. For instance, if you tell consumers that turning down their thermostat a few degrees will save them ten dollars on their power bill, this model assumes the change will be made. However, the model overlooks other factors such as comfort and convenience; the Rational Economic Model overlooks the human dimension[41].

Understanding the social and cultural factors– the non-financial factors - influencing decisions is extremely important. This is because they have a powerful influence on behaviour and choices. The previous section in this chapter established that financial factors are not the only influence on consumers' decisions and actions. The number of family members, schedules, convenience, environmental or community beliefs, home repair skills, or others can influence consumers[42]. Cost, time, and effort do play a role in decision making, but they are not the only factors. The Rational Economic Model is weak because it relies only on financial factors and conveying the notion of economic advantage. The next section establishes that a reliance on financial incentives, while beneficial, is not a guarantee of success, neither is the process of merely informing the consumer

Accounting for the Human Dimension

Information campaigns are necessary – if no one knows about a program, there is no possibility for success. Using exclusively either the Attitude Model or the Rational

Economic Model limits the potential for success of any energy conservation program, let alone information campaigns. This is because barriers may not be adequately addressed in the campaign; they ignore the human dimension and non-financial factors. This results in an ineffective information campaign where the information is either not used or is not successful in changing behaviour.

Information campaigns can be used effectively to reduce confusion, educate, and promote a program. If a barrier such as comfort level is identified as a reason why people do not conserve energy, informing them that they can adjust to a new level of comfort will not be enough. Or telling them that compact fluorescent light bulbs save energy is not necessarily going to get them to install the bulbs throughout their home. Information campaigns can work to overcome specific barriers, but they cannot be expected to address all of them. They also cannot account for social factors such as comfort level, perception of the need for energy conservation, or home repair skills. The reliance on these models limits the effectiveness of information campaigns. Information given is not the same as information used[43]. There are ways, however, to increase the effectiveness and encourage the use of information. The next section discusses them in more detail.

EFFECTIVE INFORMATION CAMPAIGNS

There are numerous ways an information campaign can be designed and implemented to increase its effectiveness. That is, it is possible to design it in such a way that the information is used. Gathered from the literature review, methods of improving effectiveness, to be discussed below, are:

- Vivid Framing of Information
- Demonstrating/Modelling Behaviour
- Credibility of Sources
- Prompts
- Providing Feedback
- Gaining Commitment

Here I will address the first four methods, the last two – providing feedback and gaining commitment – will be discussed in later sections of this chapter.

Vivid Framing

Capturing the attention of consumers should be the first priority of any information campaign. This is necessary to attract participants to the program. The Public Education and Outreach Table of the National Climate Change Process found that the Canadian public would prefer softer approaches to the presentation of climate change information[44], rather than doom saying or messages meant to inspire fear. The latter forms of messages may appear to be more vivid than the former, but that is not the case. It is the way the information is presented that is the determinant of effectiveness. A message that is only slightly more extreme than the beliefs of the target audience is the most effective[45].

There are numerous ways to present information vividly. One way is to frame the information , particularly in home energy audits, in terms of a loss rather than a gain; telling the resident how much money is lost by not fixing the problem, rather than the amount of money saved by fixing it. A study completed by Gonzales, Aronson, and Costanzo trained auditors to present audit information in this way[46]. They found that in addition to other factors, such as making the information personally relevant and seeking commitment to the process, vivid framing of information increased customer participation in the program and real behaviour changes. By making information personally relevant, residents are left with an understanding of what they can do personally to improve their energy use behaviour. The Gonzales et al study highlights another way to present information vividly. Making direct reference to the consumer's energy bill or home, rather than averages and statistical printouts is an example of framing the information vividly.

Demonstrate Behaviour

A second way to increase the effectiveness of information campaigns is to demonstrate or present a model of the behaviour changes. It is one thing to tell a consumer how to insulate their hot water heater, but it is an entirely different thing to show them how to do it. This demonstration can ease fears about complexity or clarify misconceptions. Behaviour demonstrations can also be used to illustrate the ease with which energy conservation behaviour can be incorporated into the home. This could involve the use of 'superconservers' - participants in the program who realised significant results and can

demonstrate their methods to others. This could be your friend, neighbour, or coworker, for instance. Providing behaviour demonstrations removes the barriers related to a belief that one cannot change or achieve results, or that one is 'too small' to make a difference. It also has the ability to reach individuals who may lack home repair skills by showing them how to perform a certain task. Demonstrations can be presented through videos, at home shows, or in advertisements.

Credibility of Sources

The credibility of sources or program proponents is important to program effectiveness. The consumer must see the proponent as trustworthy. Who delivers the message is as important as what the message is and how it is presented[47]. A landmark study completed in the late 1970s delivered this point clearly. A letter was sent out to groups of consumers. The first letter was written on letterhead for the local utility. The second group received the same letter, but on the letterhead of the state regulatory agency. The second group carried out more of the changes presented in the letter than those who received the letter from the utility[48]. If the utility is the program proponent, then, I argue that it might increase program effectiveness if a spokesperson is engaged or an alliance is made with more credible sources. With the voluntary challenge program in Edmonton this suggests associations with various community groups. Alternatively, work could be done to increase the credibility of the utility, but this is potentially extremely expensive and does not necessarily ensure greater success.

Prompts

Creative marketing may capture attention, but it cannot necessarily hold attention. Prompts can be used effectively to remind people of the desired behaviour change. For instance, a campaign could include instructions on a sticker or sign for participants to turn lights off in a room every time they exit it. A prompt could be designed into the campaign to continually remind people to turn the lights off. For an energy conservation program this could include statements on monthly utility bills, stickers or signs to place throughout the home, or periodic notes to employees in an office setting. Prompts are a way to encourage continued use of information presented.

Feedback and Commitment

Providing feedback is similar to prompts. Indeed it serves as a prompt. More than that, though, it presents information that directly links the action taken and the result. Securing a commitment to take action is another way to increase the use of information. Voluntary commitment is ideal because it generally gives the individual a feeling of responsibility for their actions. The next section in the chapter discusses feedback mechanisms in more detail, and commitment requirements are addressed later in the chapter.

Information is not enough to change attitudes or behaviour, but it is an integral part of an energy conservation program. Using the above tactics alone, in combination, or as a complete package can accentuate any information program. The specific tactics used will depend on the type of the overall energy conservation program, the goals of the program, the barriers to energy conservation action present, and the resources available. These should be established before any design of the program begins. Doing so will ensure the program designed will be the most effective one possible for the given community or situation.

3.3 INCENTIVE PROGRAMS

Incentive programs are based on the idea that providing assistance, usually financial, will stimulate people to take action they might otherwise not take. This is based on the concept that people will act on the principle of cost minimization[49] and according to the Rational Economic Model. That is, people will act as a direct result of the value of the financial incentive; economics will drive people to take action. This is a false assumption, however, because a number of social or positional factors affect people as well. If well designed, incentive programs can result in energy conservation. This section discusses the possibilities and limitations of incentive programs in promoting energy conservation behaviour.

DEFINITIONS

There are essentially four different forms of incentives:

- Grants/Rebates from program proponent
- Loans
- Tax Credits
- Foot-In-The-Door

In any incentive program these may be used in isolation or in combination. They may also be used within or in combination with other aspects of energy conservation programs.

Many incentive programs incorporate the grant/rebate system. With this system a direct sum of money is provided to the consumer. A grant is provided at the beginning of the purchase process, in order to facilitate purchase. A rebate is provided after purchase. As this difference is only a temporal one, grants and rebates are considered together. Money can be provided to the consumer either at the point of purchase of a specific technology or item, or through a program for the installation of a certain technology. In either case, it can be considered money in the pocket of the consumer. For instance, a consumer in the market for a new dishwasher may research a number of models. In an effort to promote the purchase of the highly efficient model – perhaps one recognized by the EnerGuide label – a rebate program may be implemented. This program might refund a portion of the purchase price to the consumer, just for purchasing the more efficient model. Because that particular model may be more expensive than comparable models, the rebate provides an incentive for purchasing a potentially more expensive model. A grant would work in a similar fashion, only it would provide the money prior to purchase, provided the intent to purchase is proven.

Loan programs also provide financial assistance. Often used in home retrofits, loans provide a capital base for the consumer, which may not otherwise exist, for energy conservation or efficiency investments. These programs inherently assume the ability or willingness to assume debt by the consumer. Energy audits are often tied to loan programs. The EnVest Alberta™ program is one such example. This program provides audits to commercial customers of EPCOR. Based on these audits, a series of recommendations for retrofits is compiled. The customer chooses the steps they want to take and EnVest Alberta™ can help secure the financing to pay for them. The loan is then paid back through the resulting energy savings from the consumer's power bill. No capital outlay is required.

The third type of incentive that can be used is a tax credit. Under this system the consumer can receive a tax credit when they undertake a certain action, such as installing a solar water heater. It is similar to a rebate, but the financing comes from government, not a private company or program. This type of incentive is relatively common in the promotion

of renewable energy technologies. It often involves a personal or corporate income tax credit or deduction for installation of or investment in renewable energy technologies[50]. There currently is no such system for personal income taxes in Canada[51].

The fourth type of incentive is the foot-in-the-door incentive. This type usually provides free technology as a way to promote energy conservation behaviour. Providing the technology directly to consumers for use has the potential to reach people who might not purchase the technology otherwise. A foot-in-the-door incentive is generally small, such as the provision of low-flow showerheads, because it is often free. The objective is that the provision of something small demonstrates the ease of energy conservation and will lead to larger changes or the adoption of new technology. This type of incentive is different from a financial one in that it encourages smaller activities or a technology change, rather than major retrofits or large investments. Doing so can increase the chance that larger investments will be made[52].

HOME ENERGY AUDITS

In a home energy audit an auditor visits the residence of a consumer to evaluate household energy consumption. It often includes a detailed inventory of energy use, the efficiency of the home, and suggestions on ways to improve efficiency or employ conservation behaviour. Home energy audit programs are included with incentive programs because they often result in a retrofit or investment assisted by some form of financial incentive. There are a number of steps in the audit process that lead to this result. First and foremost, the homeowner (in commercial cases, the building or business owner) must request the audit. Although there may be extensive marketing and information campaigns, the onus is on the homeowner to make the request. Second, the audit is conducted. This is usually done by a representative of the program, but can also be done by an independent agency. The audit produces a set of recommendations. These can range from lighting improvements to installing new windows, the ultimate purpose being to increase the energy efficiency of the dwelling. The homeowner has the freedom to choose what improvements, if any, they would like to act on. This third step is the point where financial incentives could play a factor. Through the home energy audit program (or some such similar program)

loans, grants, or rebates may be provided to assist the homeowner in fulfilling audit recommendations. The final step is to complete retrofits or investments.

Every home energy audit program is unique. Differences arise in the delivery, the type of incentive, and the comprehensiveness of the program. These differences include[53]:

- Whether or not the program has its own auditors or must contract them
- Interest free loans versus low interest loans versus grants versus rebates versus any other type of financial incentive
- Whether or not the audit portion of the program is combined with financing mechanisms
- Whether or not the program provides the contractors enlisted for retrofit work
- Who is sponsoring the program

All of the differences will affect the delivery of the program, as well as its reception with consumers.

The way home energy audit programs are marketed, as well as the way auditors present the audit results, affects the reception they receive[54]. Vivid presentations of the information found in the audit and taking steps to ensure a commitment contribute to the success of a program. As well, consumers must find the programs uncomplicated. Providing a one-stop shopping approach to the program may increase the probability of success. This means the program should provide answers to all of the steps of the home energy audit process: the auditor, the financing, the contractor, and the liaison between all parties. This is the way the EnVest Alberta™ program works for commercial customers and it is considered a successful approach[55].

LOANS VERSUS GRANTS/REBATES

There are significant differences between the forms of incentives possible. The most significant one is that between loans and grants/rebates. A loan is a provision of money, sometimes for a specific purpose, paid out to a consumer. The consumer must pay back the full amount, as well as interest (if required), in a certain amount of time. A grant/rebate is a direct subsidy. A specific amount of money is provided for the proven intent to purchase a specific technology or adopt a particular behaviour. The amount available may be the same in either case, but that is no guarantee they will be equally received[56]. The total financial worth of the incentive may be comparable, but the form of it is not[57]. If loans and

grant/rebates are not the same thing, it begs the question of whether one form of incentive is better than the other. The key differences between the two forms is the assumption of debt when taking on a loan, which may affect the willingness of some consumers to undertake an energy consumption behaviour change, and the perception the consumer holds towards each form of financial incentive.

A number of factors and program characteristics affect the determination of preference between loans and grants/rebates. These can be financial or non-financial. Factors are defined here as those things that influence a decision to participate in a program or the response to a program. Characteristics are defined as specific aspects of a program designed to ideally address the factors present. They are also designed to overcome barriers present.

Financial factors are key influences on decisions to undertake energy conservation or efficiency changes[58]. They generally affect decisions concerning retrofits or investments in technology, as opposed to general behaviour change. Financial factors include home ownership status, income, a willingness to assume debt, and the ability to manage a budget[59]. The financial characteristics of a program include the incentive itself. This accounts for:

- The size of incentive
- Interest, if any
- The form it takes
- Discount rate, with loans in particular
- Limitations or restrictions associated with the incentive

These features will also influence responses to the program and decisions to participate[60]. The features of the program should address influencing factors.

This also holds true where non-financial factors and characteristics are addressed. As well, non-financial factors and characteristics interact with financial factors and characteristics. It is important to address the following non-financial factors[61] when designing a program:

- Access to information
- Consumer confusion
- Previous choices (in appliances, design, construction, et cetera)
- Time and effort required to evaluate information
- Distrust of the program and/or information
- Inability to observe and assess impacts of energy conservation behaviour

The non-financial characteristics of a program are directly related to these factors. Promotion, simplicity, reliability, and trust[62] are the characteristics that address many of these factors. The marketing, presentation, and ability of the program to inspire and gain the trust of consumers are the best ways to ensure non-financial factors are dealt with. These factors are also instrumental in overcoming barriers. Addressing these non-financial factors carefully can increase the program's chance for success. Initial interest in a program is generated by these non-financial factors, therefore they must be strong to garner attention and trust in the financial aspects of the program. It was found that the larger the financial incentive, the more important the non-financial factors are[63].

Knowing the factors and characteristics influencing responses to financial incentive programs – indeed most energy conservation programs - makes it easier to understand preferences between loans and grants/rebates. While it cannot be stated that non-financial factors are more important than financial ones, it was found that they did have an influence over the preference for form of incentive. In general, it was found that lower-income households, people who feel they cannot spend large amounts of money, and people averse to acquiring debt, preferred grants/rebates to loans. The opposite also held true with higher-income households, those able to manage a budget, and homeowners preferring a loan[64].

This finding stresses the importance of both the financial and non-financial characteristics of financial incentive programs to promote energy conservation. If barriers are carefully determined, then all features of the program should address the factors influencing participation. Therefore, if financial incentives are indeed required and feasible, they should be designed for the factors present. This includes designing the program for different audiences. It is a false assumption that all residential customers can be classified as one group. Factors, particularly the financial ones, separate them into different groups. This can be done according to income level or home ownership status, or both. Doing so ensures that that the characteristics of a financial incentive program, including the form of the incentive itself, are designed most effectively. That is, loans will be targeted to higher income brackets and homeowners, and grants targeted towards lower income brackets and renters making transportable purchases.

DO INCENTIVE PROGRAMS WORK?

The Rational Economic Model regarding energy conservation is built on the assumption that individuals will act according to economic advantage. Therefore, if consumers are informed a certain action will benefit them economically, they will generally undergo that action[65]. Incentives are one way to make a behaviour change more economically attractive. However, money is not the only factor involved in decision making[66]. Likewise, this discussion leads to the conclusion that offering incentives alone is also not a guarantee for energy conservation. Targeting low-income renters with a loan program for housing retrofits would most likely see little, if any, results. It was also found that offering larger incentives is not a guarantee to increasing participation in a program[67]. While there is evidence that incentives support participation in programs, it is not guaranteed.

There are four techniques for increasing the potential effectiveness of an incentive program. First, it is important to note all the factors – financial and non-financial – influencing consumer decisions. This is done through the determination of barriers to energy conservation present in the community. That is, non-financial factors such as access to information or environmental beliefs may or may not influence a financial decision. There are non-financial factors that indirectly become financial through their influence on financial decisions. The resulting design of the program should address these factors, as well as all basic non-financial factors in both the financial and non-financial characteristics of the program itself. Even though the program is based on a financial aspect, it should not ignore the tools that make all energy conservation programs successful.

Second, it is important to acknowledge that the form of incentive affects the overall effectiveness of the program. Lower income households prefer grants, and higher income households prefer loans. The same study demonstrated a general preference for grants over loans, but that was still dependent on the discount rate used when equating the value of loans and grants[68]. A financial incentive program should acknowledge these different preferences. It can either market to a specific group, or choose a wide range of features in order to reach a broad market. In the electrical utility industry it should also account for customer classes. Offering one class a grant for instance, will decrease the likelihood that another class will be willing to assume a loan[69]. The Stern et al study[70] demonstrates that by

offering loans as well as grants/rebates the potential effectiveness may be increased. This will, ideally, encourage participation from various income levels.

The third design aspect to a financial incentive program is the financing itself. The program proponents must fix the amount of funding available. This funding is not just for the program itself, but also for the incentives. This is particularly important when grants/rebates are involved because money is not given back to the proponent directly. Financial incentives should either have a sunset date, or a confirmed source of sustained funding.

The final consideration in the design of a financial incentive program is the need or reason for the incentive. It would be pointless to offer an incentive if one is not required. This is one reason why the determination of barriers is important. If no financial barriers exist, an incentive program would probably be a vain attempt to change behaviour. The goal of the program must also be carefully considered. If increased awareness of energy use is the ultimate goal, then a financial incentive may not necessarily be the way to achieve this goal. That, however, must be carefully considered. For instance, this voluntary challenge program is designed to educate and empower EPCOR residential customers on climate change. For that reason financial incentives in the form of a grant/rebate or loan are not seen as necessarily the best way to achieve this goal. And, as it is a program to be run by a private company, tax credits are clearly out of the question. But if investment in energy efficiency improvements or technologies is a goal, a financial incentive such as a grant/rebate program may be the ideal means to achieve it[71]. When the goal of a program is clearly defined, the barriers are identified, and the means to implement the program are confirmed, the program, in whichever form it takes, is ensured a greater chance for success.

Following these prescriptions is by no means a guarantee of success for a financial incentive program, but doing so can increase its chances. Careful design of the non-financial features of the program is central to the success of a financial incentive program. Careful marketing, access to clear information, broad-based versus narrow approaches, and comprehensive program management are key characteristics of the program design[72]. Other types of energy conservation program aspects are discussed for the remainder of the chapter.

The discussions can be applied directly to the non-financial characteristics of incentive programs, in addition to general energy conservation programs.

3.4 FEEDBACK MECHANISMS

Feedback mechanisms are used to provide energy use information to the consumer. This information is both personally relevant and ties behaviour to results. Regular feedback about energy use can make for a more successful information campaign[73]. Making information personally relevant increases the probability of success, particularly if that information is statistical or numerical in nature[74]. This section discusses potential feedback frequencies and presents opportunities for feedback mechanisms in different programs.

NATURE OF FEEDBACK MECHANISMS

Feedback can be provided in many different ways. The most common way is through a meter that monitors a consumer's energy use. This could be attached to specific appliances or to the power meter itself. Electronic feedback in this manner provides the information with a short time interval, essentially immediately. With this technology it is possible to monitor energy use manually. This involves reading the meter, by the consumer or the program proponent on a daily, weekly, or monthly basis, or at any time interval deemed feasible and required. The information would then be relayed back to the consumer through their power bill, an insert with the bill, or some other means. Information can also be relayed to a group, rather than an individual. This may not provide specifics on individual energy consumption, but it can still be a motivating factor for energy conservation.

Van Raaij and Verhallen[75] describe three functions of feedback:

- Learning function
- Habit Formation
- Internalization of Behaviour

Further clarification of these functions helps to understand why feedback mechanisms can be successful.

The first function refers to the general knowledge of results mentioned in the discussion on feedback mechanisms. Feedback can be instrumental in making the connection between

any behaviour change in the name of energy conservation and the results evident on the consumer's utility bill. This connection is important for consumers. Providing feedback lets them know the results of their actions[76]. As well, a lack of feedback can impede a consumer's understanding of what efficiency improvements are the most beneficial[77].

The second function of feedback is habit formation. Feedback provides knowledge and reminders on a continual basis, similar to the purpose of prompts. When behaviour changes are reinforced through information provided in feedback, they become habitual. The consumer then acts in an energy conscious manner without actually being energy conscious at the time.

Internalization of behaviour is the third function of feedback. Similar, yet different, to the goal of habit formation, this function results in the development of an energy conscious attitude. The behaviour change results in the adoption of the attitude to correspond with the behaviour change. By trying to act in an energy conscious manner the consumer eventually becomes energy conscious. Feedback contributes to this by continually encouraging energy conscious actions by the consumer.

Feedback mechanisms can also be tied to goal setting and commitment. A goal puts a definite purpose on monitoring energy use. Trying to conserve energy without a goal or commitment would be like saying you wanted to lose weight without defining how much or by when. Or it would be like saying you wanted to run faster without setting a time goal. Feedback on energy consumption is the same as watching the kilograms come off on the bathroom scale or seeing your times for a five kilometre run drop. Commitment and feedback go hand in hand. Studies show that the effectiveness of feedback increases when a goal is set or a commitment made[78]. Commitment will be addressed in greater detail in the next section of the chapter.

FREQUENCY AND SUCCESS

Feedback can be provided a number of ways and at different rates. Immediate feedback can be provided electronically. Energy use meters can monitor specific appliances or the entire household system. Indeed, all utility customers already have meters on their homes which track power and gas use. They are used to let the utilities know and record the overall

household consumption. The rate at which feedback is then provided to the consumer can occur immediately, daily, weekly, monthly, or at any other interval. Rates of feedback are at the discretion of the program proponent, but should be determined by the resources available and overall feasibility. For example, if the only way to track electricity use is by having the meter on the side of the consumer's house read by the utility, it is most likely not going to occur daily. This would put a large strain on the human and economic resources for the program.

One other way to provide feedback is through the mass media. This is effective in providing group, not individual feedback. This type of feedback can be used to demonstrate numbers of participants and overall energy savings for the program. In a program with a large audience, such as the voluntary challenge program, this may be an ideal way to provide a certain amount of feedback to participants.

A number of studies conducted have attempted to determine ideal feedback rates. One study conducted in the Netherlands used four groups[79] to ascertain an ideal rate of feedback and an ideal form of feedback. One group received group feedback; the second self monitored their natural gas use; the third group received an Energy Cost Indicator (ECI), an electronic device that reported the daily cost of energy (adjusted for the outside temperature) directly to the consumer; and the control group, which received no feedback. The first three groups all conserved more energy than the control group. The group that had the ECI installed saved more energy than both the external feedback group and the self-monitoring group. And the external feedback group conserved slightly more energy than the self-monitoring group. The study extended over a two-year period. The first year was under the experimental feedback conditions, and the second year saw those conditions removed but with continued monitoring of consumption, to view the long-term effects of the program. Another conclusion from this study is that although a learning function was realized, there was no evidence of habit formation or internalization of behaviour without the daily feedback provided by the ECI.

Another study compared the impact of feedback on groups of individuals that expressed a commitment to a certain goal[80]. Becker created five study groups. Two groups made an energy conservation goal of either twenty percent or two percent. These two groups both

received feedback. Two other groups expressed commitment to energy conservation but received no feedback. The final group was a control group that received no feedback and made no commitment. Over a one-month study period the two feedback groups were provided with meter readings every Monday, Wednesday, and Friday. The results of the study showed that the groups that received feedback saved more energy than those that did not. The study also showed that those who made a strong commitment (twenty percent reduction) saved more energy than those who made a small commitment (two percent reduction). Although this study did not evaluate the rate of feedback, it does show that frequent feedback has a positive effect on energy conservation efforts.

The study completed by Becker[81] also demonstrates the positive relationship between feedback and commitment. In both respects this can be done on an individual or group level. The next section of the chapter will discuss in greater detail the benefits of commitment.

The conclusion that is found in numerous studies and readings is that more frequent feedback is more effective[82]. Therefore, it can assumed that, in order of decreasing effectiveness, feedback can be administered:

- Immediately
- Daily
- Weekly
- Monthly
- Not at all

The rate of feedback will depend on the goals of the program and the resources available. Feedback should be provided as frequently as feasible to increase the effectiveness of an energy conservation program.

The last two keys to making feedback effective are to make sure the feedback is easily understood and the information is credible[83]. If consumers do not understand the information provided in the feedback, or they do not respect its source, it will not be received well, and may limit the success of the program. Presenting the energy saved in terms of dollar values[84], or clearly educating consumers on the nature of power consumption are two ways to make the information easily understood. As in all information campaigns, the information provided must be perceived as credible. Feedback taken from the electricity

meter must be taken by the same source that monitors monthly consumption. This consistency should ensure credibility.

3.5 COMMITMENT INTERVENTIONS

When one commits to a certain action they are declaring their intent to carry out this action. If a consumer commits to energy conservation it can be assumed that an effort will be made to reduce energy consumption. Commitment interventions have proven successful in residential energy conservation programs[85]. This evidence relies on the theory of cognitive dissonance. This theory essentially assumes two things. One, making a commitment induces action in order to comply with that commitment. And two, small commitments lead to larger ones. This section addresses the nature of commitments, cognitive dissonance as it relates to energy conservation, and ways to effectively design for securing success with commitments in energy conservation programs.

NATURE OF COMMITMENT

There are two different types of commitment: private and public. Any commitment is essentially private because it is about goal setting and personal actions taken to achieve that goal. The goal could be specific, such as a twenty percent reduction in energy consumption, or general, such as saying you will simply use less power. Private commitments can be made without program sponsorship, perhaps as a household project. Energy conservation programs can also encourage private commitments if the information campaign is effective in its delivery.

Public commitments take private commitments out of the home and into the public realm. A public commitment can strengthen an individual's private commitments[86]. The commitment can be the same, but the public acknowledgement of that commitment can inspire the consumer to definitively act on their commitment. The commitment can be made public through the publication of names in a newspaper or advertisement, through house markers, or through other public events. Commitment can be secured through personal contact, at the discretion of the consumer, or through membership in a larger group.

In one study it was found that public commitment had a stronger effect on energy consumption than private commitments or no commitment at all[87]. This study was designed to observe the effect of commitment on electricity and natural gas consumption. One study group was asked to commit, publicly, to conservation. They were told their names would be published in the newspaper. The second group was asked to make a private commitment. Even though no names were ever ultimately published in the newspaper, the group that made the intended public commitment conserved more than the group that made a private commitment. This was also found to have a long-term effect, with the group who made the intended public commitment still conserving more one year later.

Another study demonstrated a difference between a strong commitment and a mild commitment[88]. Two groups of businesses had their names published in the paper as taking part in a conservation program, one group was asked to demonstrate a mild commitment, another a strong commitment. The mild commitment group had their firm names published every second month, as participants of the program, as well as general information about the program. The strong commitment group had their names and the extent to which they had or had not conserved published. The control group received information on steps they could take to conserve energy. The strong commitment group saved the most energy, followed by the mild commitment group. While the firms in the study were assigned into the study groups, not solicited for a commitment, the strong commitment group felt compelled to make a concerted effort to conserve energy because their names and consumption were made public. This study demonstrates how cognitive dissonance works.

Both of these studies illustrate the potential effectiveness of public commitments. Commitment not only enhances the energy conservation program; public commitment over private commitment enhances effectiveness even more.

COGNITIVE DISSONANCE

Commitment interventions in energy conservation programs work because they are based on the theory of cognitive dissonance. Cognitive dissonance theory suggests two things. One, people will act to make their behaviour correspond with their attitude. If consumers believe energy conservation is important, cognitive dissonance theory suggests

that they will modify their behaviour to match this belief. Because of the desire to remain consistent with their beliefs, people who do base their behaviour on their personal beliefs will continue with the behaviour after a commitment lapses[89]. As a result of this desire, this theory also suggests that two, small commitments lead to larger ones.

Actions Correspond to Attitudes

Cognitive dissonance theory corresponds with the Attitude Model as an approach to designing energy conservation programs. This means that if attitudes can be influenced or changed, the chance that behaviours will change to remain in line with these attitudes increases, as does the chance that the changes will be evident over the long-term. Alternatively, the program could be designed to call attention to attitudes or beliefs the consumer already has[90]. Highlighting these will remind them that their behaviour may not be consistent with their beliefs.

There is an inherent weakness, however, in relying on cognitive dissonance to change people's actions because it does not account for other barriers that may be present. Favourable attitudes towards energy conservation will lead nowhere when the change required is expensive, difficult, prevented because the consumer is not the property owner, or some other barrier is present[91]. The program should be about more than changing these attitudes; it should also be about removing these barriers. However, commitment interventions remove barriers as well. They provide a sense of ownership to the issue at hand through personal action. This removes barriers related to a feeling that the problem is too large or the individual is too small to make a difference.

Small Commitments Lead to Large Ones

The second suggestion made by this theory is that small commitments lead to larger ones. This works in a cyclical process whereby making a small behavioural change may lead to a favourable attitude change, which may lead to larger changes or commitments[92]. Or, an attitude change may result in a small commitment, which may lead to a larger one. This is evident in home energy audit programs, for instance. The commitment to have a home energy audit performed is in effect a small commitment. This can encourage consumers to actually act on the recommendations of the audit. Commitment can also be enhanced by

allowing homeowners to become more involved with the audit, through participation in the audit itself. In one study, asking homeowners to participate and seeking verbal commitment at the conclusion of the audit increased the probability that retrofits or changes were made as a result of the audit[93].

Kantola, Syme, and Campbell studied the potential impact of cognitive dissonance[94]. They determined that households placed in a cognitively dissonant situation conserved more energy in the study period than groups provided with only feedback and energy conservation tips, with tips only, and a control group. There were two study periods. During the first period, the dissonance group saved more than all three groups, and in the second period the dissonance group differed only from the control group. This study established that cognitive dissonance plays a role in effective energy conservation programs. If consumers are made aware of a discrepancy between their attitudes and behaviours, more consistency in terms of energy use might be observed. Awareness was increased in the Kantola, Syme, and Campbell study through energy use feedback and information on energy conservation.

Central to effective utilization of cognitive dissonance theory is the ability to make consumers aware of any discrepancy between attitudes and behaviour. During the course of a program this can be done through regular feedback (discussed earlier in this chapter). A commitment can help make the consumer initially aware. It implies that they were not energy aware prior to making the commitment and making the commitment assumes they are now aware. Cognitive dissonance theory suggests that behaviour will then change to match the awareness.

MAKING COMMITMENT WORK

In order to make a commitment intervention succeed careful attention must be paid to designing this aspect of an energy conservation program. This section demonstrated a number of conclusions about commitment interventions. Strong commitments are better than weak ones because they inspire strong actions and a desire to remain consistent with the belief inherent in the commitment. There are three ways to make commitments strong and ensure greater success to these interventions in energy conservation programs:

- Make the commitment public
- Provide choice to the consumer
- Combine with feedback programs

There is also a fourth way, through personal contact, but in a large scale application, such as the utility sponsored energy conservation program, it is costly and difficult[95], therefore not feasible.

Public commitments should be favoured over private commitments. Private commitments are beneficial, but making that commitment public strengthens it. There are different ways to make a commitment public. Participant names could be published in the newspaper or some other media form. A window sticker, door marker, or lawn sign could also be provided to the participant. The voluntary challenge program anticipates using this type of display of public commitment. Using a display as such avoids potential security or privacy concerns about names being made public, but it still acknowledges participation in the program. Public commitments increase the potential for success by encouraging participants to remain consistent with their publicly stated beliefs. A public commitment can translate into strong private action.

Commitment interventions also succeed because of the nature of social diffusion. This is the process whereby the public knowledge that your neighbour, friend, co-worker, or other known individual is participating will encourage you to participate. This is another reason why public commitments are important. The next section of the chapter discusses this in greater detail.

Maximum choice to the energy conservation program participant is provided with commitment interventions. Commitment stresses participation in the program in order to reduce energy use, but it does not necessarily define how that commitment should be carried out. Successful commitment interventions allow the participant the freedom to exercise commitment in their own chosen way. Giving the freedom to choose the actions taken ensures greater success[96] by allowing the consumer control. For instance, one consumer may want to reduce their energy use, and publicly commit to it, but if a program only offers financial incentives they may choose not to participate. However, if they make the commitment and are free to complete an audit, assume a loan to retrofit, only make

behaviour changes, or any other action they wish to undertake, they will assume more control over the actions and the commitment, further enhancing the opportunity for success.

Finally, commitment interventions should be tied to a form of feedback. A commitment will be rendered virtually useless if the participant is given no way to track progress. Section 3.4 established that feedback is important in connecting behaviour to results. Setting a goal or committing to energy conservation requires seeing results in order for the consumers to know they have fulfilled their goals. The rate of feedback will depend on the goals of the program and the resources available. The proponent should ensure that it is often enough to be influential yet still economically feasible. Feedback at an infrequent rate will be irrelevant to the consumer because it will not be tied to behaviour or actions taken in the home. One study found that without feedback, commitment had essentially no effect[97]. Feedback and commitment work in energy conservation programs synergistically. Feedback will be more useful if a commitment is made or a goal defined. Commitment interventions will be more successful if participants receive feedback, tying their behaviour to their goals.

Commitment interventions, if designed carefully, can increase a program's success. If public commitment is encouraged over private commitments, if full freedom is provided to the participant to choose the actions necessary to fulfill their commitment, and if feedback is used in conjunction with the intervention, the success of commitment in an energy conservation program is increased. The nature of the commitment must be carefully planned. Taking into account the nature of your audience is important. If the audience of the program is opposed to their names being published it would not be ideal to have this as the form in which commitments are publicized. Taking stock of the resources available for the program is also important. While it would be ideal to use personal contact to establish commitments, this is not feasible with a large-scale program. Determining resources will fix the limits of the contact possible. Finally, developing a way to recognize commitment and reward success will be influential in renewing the commitments of participants. This final element of the program design is unique to every energy conservation program and should be determined through early work on barrier identification and target audiences.

3.6 SOCIAL DIFFUSION

Taking advantage of social diffusion is an effective way to spread messages beyond the power of mass media advertising. This is because human interactions have tremendous influence in decision making. Information conveyed through social diffusion is more likely to influence behaviour than attempts to use information to influence attitudes or rational economic decision making[98]. Designing an energy conservation program that applies social diffusion techniques can increase the range and number of people made aware of the program. This awareness will be successful if the program is well received by the public initially. To this end favourable perceptions are best cultivated early in course of the program. There are many ways to apply and encourage social diffusion. This section discusses the importance of social diffusion and different techniques for encouraging its application.

IF YOU TELL TWO FRIENDS...

Social diffusion can be very important to the success of any type of program or product. People are influenced by the behaviour and opinions of others with whom they interact. A rather famous example of this is the individual who completes extensive research on the new car he wishes to purchase. He decides to buy a Volvo, but at a cocktail party another individual recounts a story about a brother-in-law who owned a Volvo that continually broke down. Despite the high ratings given the vehicle in consumer research, the experience of one individual will carry more weight to the person looking to buy a car[99].

The strength of this interaction is also seen in situations concerned with conservation behaviour. In a shower room experiment a sign encouraged patrons to turn off the water, in order to conserve it, while soaping up. It was observed to have very little effect. However, when one person followed the suggestion, other patrons who witnessed this behaviour were more likely to also turn the water off[100]. Even though the individuals had no direct contact, the observance of the behaviour was enough of an interaction to have an effect.

Personal Contact

The previous example highlighted conformity to accepted behaviour. If people believe there is a correct or morally right way to behave, the chances of them behaving in this matter

are increased. If your neighbour tells you that it is preferable or generally accepted to engage in energy conservation behaviour, you will likely be influenced by those comments, probably more so than you would be by an impersonal contact with the same message. Energy conservation programs, therefore, can be enhanced when personal contact is promoted and facilitated.

Personal contact is successful for primarily for two reasons[121]. First, it fulfills many of the provisions for a successful information campaign. That is, information received through social diffusion is vivid, personal, and the sources are credible and trustworthy. Secondly, the community or social group is usually comprised of like-minded and similarly situated individuals, therefore the information reaches people who are in a better position to act. The influence of someone in a similar situation that has already taken action is stronger than one in a different situation altogether. Social diffusion must be oriented on different levels and directed at many different communities.

Commitment and Feedback

Social diffusion also works because it is essentially cognitive dissonance playing out on a community or societal scale. The individual, as part of the community, generally does not want to act contrary to the beliefs of the community. This is the basis of a norm. If the individual feels this pull they will change their behaviour to remain consistent with the community held belief, or norm. The desire to remain consistent with the belief is enhanced further through personal contact and the strength it holds to influence individuals.

Public commitments also play a key role in establishing norms. A sign that your neighbour is participating in a conservation program, whether it is a blue recycling box sitting on the curb, a door sticker, or a lawn marker, demonstrates conformity to a social belief. If this commitment were made privately, social diffusion would be impaired. Public commitments encourage personal contact. A sign may be questioned by the neighbour and intentions garnered from the public statement.

Feedback is also important in social diffusion. It was established in section 3.5 that feedback is important to the success of commitment programs. Feedback also helps establish norms. For instance, simply stating that it is important to recycle or conserve

energy is not enough. But stating that the community believes it to be a worthwhile cause and demonstrating, through public, group feedback that actions confirm this belief establishes the norm[102]. The feedback reaffirms the statement.

Personal contact, the theory of cognitive dissonance, public commitment, and feedback all enhance energy conservation programs. Incorporating these tools into a program that also encourages social diffusion can increase their effectiveness and the overall effectiveness of the program. The voluntary challenge program, in its initial conception, intends to grow through social diffusion. The next section highlights ways social diffusion can be encouraged.

ENCOURAGING SOCIAL DIFFUSION

Social diffusion is primarily achieved through personal contact. Talking over the fence to your neighbour, or standing around the water cooler at work are both ways to do this. There are far more formal methods though. This section discusses the use of block leaders, demonstration of behaviour, and making the norm itself visible.

Soliciting participation in a program through personal contact can be a very lengthy and expensive process. Just imagine the personnel required to individually solicit households in a major Canadian city. The use of block leaders significantly reduces the personnel required. The program proponent can recruit and train community members to act as information sources and inspiration for the rest of the community. These block leaders would then move through the community to answer questions, motivate, and generally encourage participation in the program.

Block leaders can be successful for two very important reasons. One, their employment ensures social diffusion occurs in a community of like-minded individuals in similar situations, established as a key to the success of social diffusion[103]. And two, block leaders can help a community internalize a behaviour as a norm, meaning that people behave a certain way because they believe they should – as cognitive dissonance theory suggests. One study done in Colorado tested the effectiveness of block leaders on recycling[104]. The study found that homes visited by a block leader recycled more than those who received both reminders to recycle and information, and those who only received information on the

program. Block leaders were effective in changing behaviour. Survey results from the study also indicate that those homes visited by a block leader felt obligated to recycle and were upset if they threw out recyclable materials.

With a large utility run energy conservation program it may still be too large of a task to involve block leaders in the recruitment of participants. For the voluntary challenge program it might be still feasible, however, to partner with community associations. This has the same purpose as using block leaders – reaching community members from various communities on more personal levels – without the extensive personal contact. The community associations could then be encouraged to recruit their own block leaders. The involvement of the utility would remain, but it would be at a level one step higher.

The second way to help establish norms is through demonstrating behaviour. A demonstration of certain behaviours or actions is one way to enhance an information campaign. Encouraging individuals to engage in positive, proactive behaviours, rather than merely reacting is a good way to help norms become established[105]. Demonstrating behaviours has shown a more positive effect on changing behaviour than merely presenting the information[106].

Demonstration can be done many ways. At home shows or similar events certain actions such as covering drafty windows with plastic during the winter months can be demonstrated. Information campaigns can include video footage of certain behaviours. Working with community projects on energy conservation provides the opportunity for this with the voluntary challenge program. Likewise, a block leader can serve as a model for behaviour. This leads to the notion of a 'superconserver'. If there are program participants who have gone to great lengths or have achieved significant savings, they can be used as models to motivate others. Just as the opinion of your neighbour or co-worker can have a tremendous influence, so can their actions. Many people may think that if a neighbour can complete the action they also can. This makes it easier to act according to the norms established.

The final way to encourage social diffusion and norm establishment is by making the norm itself visible. Many energy conservation activities occur inside the home. Changes to

behaviour or home infrastructure will not be visible to the community. But attaching a sign to the house or yard makes this visible. It creates or maintains the norm for the entire community[107]. This is a desired action to enhance public commitment as well.

It is clear that norm establishment is facilitated by the effective approaches of many tools or aspects of energy conservation programs. This dual purpose only enhances the effectiveness of these approaches and the resulting program.

The next chapter combines these five program aspects - information campaigns, financial incentives, feedback mechanisms, commitment interventions, and social diffusion - into one ideal energy conservation program. The relationships between the different aspects is highlighted and strengthened in the construction of the ideal. Each aspect ultimately does not stand alone, rather they stand together, supporting the program itself.

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CHAPTER 4
THE IDEAL CONSERVATION PROGRAM

The objective of an energy conservation program is, ultimately, to reduce net energy consumption. In order to succeed at this you need participants in the program. The focus of the program, though, should not be on merely getting participants, but on getting participants to achieve real and visible reductions over a sustained period of time.

The previous chapter outlined different aspects of energy conservation programs. These aspects can be taken individually or as part of a package. While there is no absolutely right or wrong energy conservation program, some programs will be better than others. The success of a program will ultimately be determined from a combination of both program aspects and characteristics of the participants. It is impossible to define an ideal program that can be applied universally, but it is possible to define characteristics of a general program that has the greatest potential to be successful in more than one application. That is, a program that is more or less universal in its potential to succeed. The key is to design a flexible program that, with careful design, can be adapted to various applications.

There are five design conditions that must be present in order to successfully initiate conservation behaviour changes through an energy conservation program. All use information campaigns as the base of any energy conservation program. Therefore, the information component is crucial. Costanzo et al list four necessary conditions for the information aspects of the program[108]. The fifth is added based on information gathered from the literature review[109]. The five design conditions are:

- The information must be made known
- The information must be favourably evaluated
- The information must be understood
- The information must be remembered
- The information must be used

For example, an incentive program will be more successful if people know about it, like the incentives offered, understand the way the incentive is to be applied, and remember not only how it works, but where it is applicable and successful. Finally, the participant would also have to do something to earn the incentive, such as buy a solar water heater. Without this last step the program ultimately fails. These conditions combine to create a foundation on

which all energy conservation programs must move forward. Without a solid footing no energy conservation program can achieve high levels of success.

While the foundation upon which any program is built must be firmly established, there is more to the success of an energy conservation program than just this base. Other factors can contribute to the success or failure of a program. These factors include:

- Securing a commitment
- Conveying information vividly and effectively
- Consistently reminding people of the commitment and the outcome of their actions
- Providing feedback to participants
- Making it easy to change or adapt

A number of social factors also exist that influence the success of a program. Age, home ownership, income level, or numbers of people in a household are examples of these social factors. No one program can address the many permutations of these social factors and how they interact with various program aspects. Thus, one of the final success factors for an energy conservation program is its flexibility and ability to reach many different communities.

This chapter presents an ideal conservation program. This is the ideal program for encouraging energy conservation behaviour changes. It begins with the establishment a solid base and is followed by a consideration of the other design conditions. The chapter concludes with a discussion on ways to keep an energy conservation program flexible in order to attract participants from numerous communities. This ideal program developed from a careful understanding of the literature; it does not reflect the ideal program for EPCOR. The next chapter discusses the applicability of the ideal program for EPCOR.

4.1 A STRONG FOUNDATION

The previous chapter established that changing both behaviour and attitudes requires more than education. However, it is still a pivotal part of any program. People must know a program exists - a program is effectively useless if people do not know about it. Indeed, effective information campaigns are the foundation for any energy conservation program. An effective information campaign presents the information vividly, comes from a reliable

source, is clear and targeted, demonstrates behaviour, and is repeated or re-presented often enough to keep it in the limelight.

The characteristics of a strong information campaign will answer all five design conditions: that the information be visible, favourably received, understood, remembered, and used. There are many different ways to design the information campaign to increase its effectiveness. These all relate to the content, presentation, and communication of the required information.

The content of the information will generally be the same for most energy conservation programs. It should provide details on how the program works, justification for the program, and different ways the participant can conserve energy. Clear, concise language is required. As well, recommendations should focus on positive, proactive behaviours and attitudes. When justifying the program one should avoid doom saying; fear tactics will not work unless you provide specific suggestions for action.

Presentation is key. While content is relatively straightforward, presentation of the material has a tremendous effect on how it is perceived, received, understood, remembered, and used. Careful attention should be paid to presentation in all information campaigns. Ways to enhance presentation of information include:

- Make it vivid
- Make it personal
- Focus on presenting a loss, rather than a gain
- Demonstrate behaviour wherever possible
- Use prompts

It is possible to use all of these methods together, but it is not absolutely necessary. The more of them incorporated, however, into the presentation of the information the greater the potential for success.

Information campaigns must also be communicated effectively. This is how you get people to understand and remember information. Different tools enhance communication. Providing feedback creates a loop linking information to behaviour. It acts as a prompt and creates a personal connection to actions taken for the participant. The use of personal contact is also an effective communication tool. This can be achieved in a variety of ways:

through planned events, with block leaders, or by demonstrating behaviour. The frequency with which information is communicated can also be influential. Ideally, more often is best, but a utility sponsored program will have certain resource limitations. Communication should occur then, formally as often as possible, and informally in every possible instance, such as in communications between the consumer and customer service representatives.

4.2 PILLARS OF STRENGTH

Once the foundation of the energy conservation program is firmly established the pillars of the program should be designed. Four pillars make up the ideal energy conservation program. These comprise the final four program aspects discussed in the previous chapter. The pillars are:

- Incentive Programs
- Commitment Interventions
- Feedback Mechanisms
- Social Diffusion

The stronger these individual pillars and the combined strength are, the stronger the energy conservation program.

INCENTIVE PROGRAMS

Incentives can be effective in the adoption of energy efficient technologies or retrofits. When a consumer may not be able to purchase a technology or undergo a retrofit for economic reasons a financial incentive can lessen the economic burden of taking this action. The incentive can come in the form of a loan, grant/rebate, or tax credit. A fourth form of incentive, the foot-in-the-door incentive, is usually smaller and does not always involve a form of financing. It may be, for instance, a low flow showerhead or tube of caulking.

Using the Rational Economic Model, a financial incentive program makes sense; the model states that people act according to economic interest. This only works when financial factors have a high degree of influence on decision making. If they do not, this model is weak in predicting the strength of the financial incentive pillar. Careful study in the design process can help determine the strength of financial factors and the possibility for success of this type of program.

The other critical success factor for financial incentive programs is the sustainability of the funding. The incentive is only as good as the money used to back it. When designing a program, sustained funding should be sought. If this is not possible a reasonable time frame for the availability of funding, or maximum allowable amount of funding should be set at the outset. This makes people aware of the fact that the funding is available for a limited time only and they should be encouraged to take advantage of it early. This is a viable option if the goal of the program is market development of a certain product. It may not be as viable for home energy audit and retrofit programs, but it still remains an option that can strengthen an energy conservation program, if carefully designed.

COMMITMENT INTERVENTIONS

Commitment interventions are an important pillar. They add tremendous strength to an energy conservation program because they directly engage consumers in the issue at hand and link them to their actions. Commitment interventions also play a large role in confirming actions or behaviour changes. Cognitive dissonance theory explains why commitment works. People who make small commitments tend to make larger ones; and people who say they will take an action are likely to commit to that action. This works because people have a desire to remain consistent with their beliefs. Commitment also works because it commonly involves goal setting. Defining a goal provides a focus for actions and something tangible to work towards.

There are three ways to enhance commitment interventions to make the entire energy conservation program stronger. One, encourage a small commitment initially. It must still be a significant commitment, but not so large as to be intimidating to action. A small commitment can lead to larger ones, so it is beneficial to encourage small yet solid commitments.

The second way to strengthen a commitment is to make it public. Private commitments are good, but making that commitment public reinforces it. This is because people feel an obligation to make their actions consistent with the public face they portray. Public commitments also encourage social diffusion. Ways to make a commitment public include publishing names of program participants or providing signage of some sort acknowledging

participation. The nature of a public commitment also provides the opportunity for rewards or recognition of achievements.

Combining commitment interventions with feedback mechanisms is the third way to strengthen the commitment pillar. A commitment will have the greatest impact if participants know what their actions result in. This makes them aware of whether or not they remain consistent with their beliefs. And once small goals are met, it can encourage them to make larger commitments.

FEEDBACK MECHANISMS

Feedback mechanisms make up the third pillar of an energy conservation program. They provide energy use information to the consumer that is personally relevant and directly tied to their behaviour. Information campaigns and commitment interventions are both bolstered by feedback mechanisms. Feedback serves as a prompt and as a means to make information personal, both enhancements to a solid information campaign. By tying feedback to behaviour, commitment interventions are enhanced because consumers have a tie between the goals they set and their attempts to reach them.

The rate at which feedback is provided is crucial. Because the information is on the energy consumption of the consumer, it must be provided often enough for the consumer to make the connection between the behaviour and energy use. If it is provided too often significant changes may not be recognized. Feedback can be immediate, daily, weekly, monthly, or at essentially any other rate. More often than not is better, but the feasibility of providing the feedback will ultimately determine the rate at which it is furnished.

Feasibility will also determine how the feedback is furnished. It could be provided for program participants only, for all utility customers, and on an individual or group basis. It can come on the utility bill, as a bill insert (monthly for most utilities, including EPCOR), a separate information bulletin, or even an advertisement announcing savings achieved. The ideal form will acknowledge both the information gleaned from the public consultation process and the feasibility determined by the program proponent. For example, if the public consultation reveals that publishing names is an ineffective way to enhance commitment, then recognizing energy savings in the same manner would also be ineffective.

If the functions of feedback are learning, habit formation, and the internalization of behaviour the pillar must be designed to maximize their effectiveness. Through the learning process the consumer comes to understand that their actions can make a difference. Without feedback this knowledge would not likely be possible. By providing information of a consistent quality and on a regular basis, consumer behaviour is reinforced and habits form. The internalization of behaviour results in a reinforced attitude towards energy consumption. Feedback continually encourages energy conscious behaviour and actions. The design of feedback mechanisms should account for these three functions through the rate of feedback and its mode of presentation to make this pillar as strong as possible.

SOCIAL DIFFUSION

The final pillar of an energy conservation program is the practice of social diffusion. The goal of making energy conscious behaviour a norm for an energy conservation program is best achieved through social diffusion. Consumers will not necessarily do what they are simply told is best to do or should do. However, if there is a general feeling in a community that doing such a thing is the right or best thing to do, then it is more likely that people will do it.

Social diffusion employs techniques that greatly enhance energy conservation programs. Personal contact, from a trusted, credible source gives greater weight to information passed on. Programs that take advantage of multiple opportunities for personal contact will be stronger than those that do not. Social diffusion also occurs in the statement of public commitment. For example, a lawn sign demonstrates to your neighbours that you are engaged in energy conscious behaviour. This helps establish the norm and encourage further personal contact. Cognitive dissonance is played out on a larger scale when social diffusion is encouraged. People want to remain consistent with their beliefs, and if the community shares a certain belief individuals will act to conform to it. Finally, feedback, done at a group level, can influence norms and social diffusion. Informing everyone of the success of the group reaffirms a belief the group shares and encourages further actions and diffusion.

Personal contact is the basis for social diffusion. Energy conservation programs should employ personal contacts wherever possible. For a utility sponsored program this may be expensive and time-consuming. There are ways, however, to encourage as much personal contact as possible with minimal expense through the communication of information. First, program promotion can be done in venues that foster personal contact such as home shows or payment booths. Second, relationships with community associations can encourage information dissemination along a chain of communication lines. This also focuses the presentation of the message on specific communities. Third, block leaders can be employed to move through neighbourhoods door-to-door to invite participation. And finally, the use of 'superconservers' can demonstrate, on a personal level, the different actions participants can take. These four options present many opportunities for an energy conservation program to employ personal contact. When used alone or in combination they make the social diffusion pillar stronger, thus making all other pillars stronger.

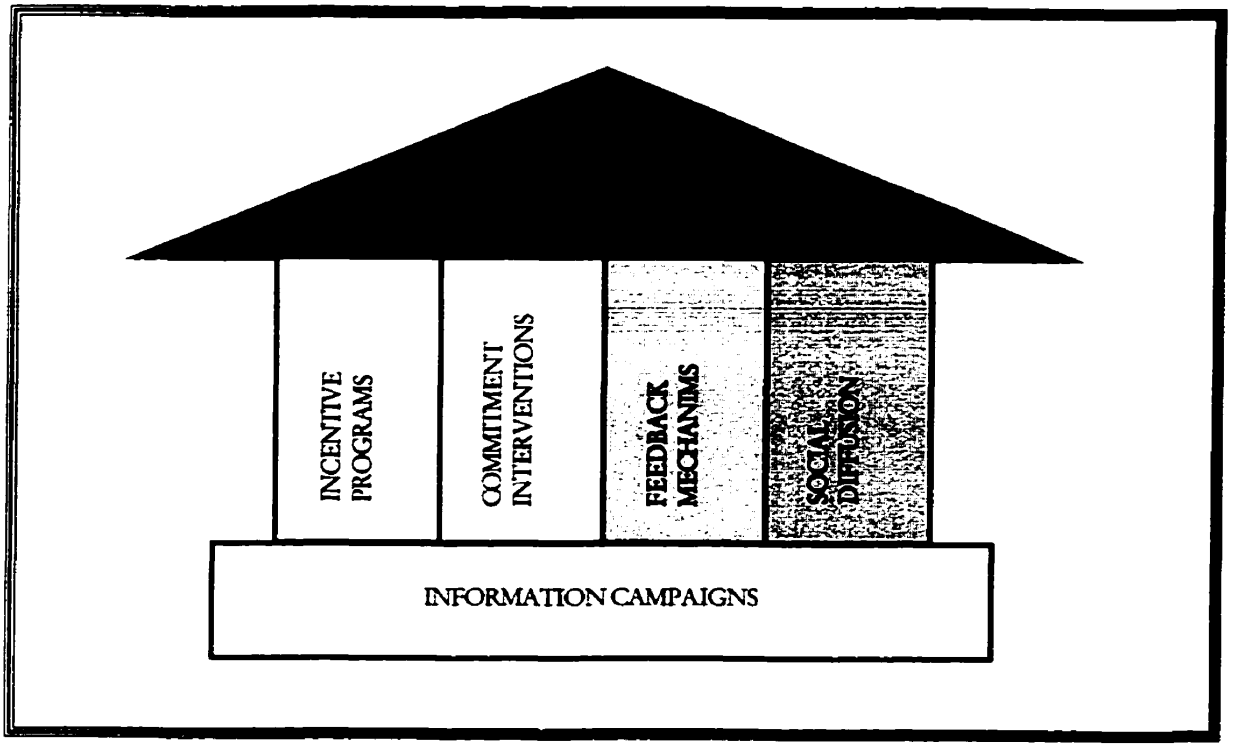
4.3 THE IDEAL ENERGY CONSERVATION PROGRAM

A solid foundation and strong pillars secure a sound energy conservation program. The foundation, as in any building, must provide a solid footing on which the program can be based. None of the pillars are mandatory, but the more that are in place the stronger the overall program. Figure 4.1 demonstrates how the strength of these pillars works. Four pillars will make it the strongest, but the roof, or the program, will still stand with three or two pillars. It may still stand with one, but as you lose a pillar it may become progressively weaker. The less pillars you have holding up your program the stronger they themselves must be.

What these pillars all have in common is their push for making energy conservation and energy conscious actions part of daily life. The ideal energy conservation program should engage the public in such a way as to make positive attitudes towards energy use the norm. It should be a program where social pressure exists to participate in the program and succeed in saving energy. To do this it must be a program that people understand, respect, value, and encourage to others. It must be strongly tied to the community. It must provide enough vivid, current information to keep people actively engaged for an extended period of time. It must be self-sustaining and be strongly supported by the program sponsor. It must

recognize the efforts of all individuals. When you have a strong program you foster a strong community attitude towards energy use.

Figure 4.1 THE IDEAL ENERGY CONSERVATION PROGRAM



The design process of an energy conservation program should be a careful one. Careful study at the initiation of the project should include an examination of the barriers to energy conservation and the feasibility of different program aspects. The determination of the barriers will point out the best possible direction the program should move in. It will also determine the pillars that should be utilized. Once the ideal direction the program should take is determined, the feasibility of that program should be analyzed. This involves study of what the program sponsor is able to promote according to the financial and time resources available to the program. The next chapter summarizes this study for EPCOR and its residential customers, it takes the ideal program created here and applies it in this setting.

[128] Costanzo et al 1986: 523.
[129] Stern and Aronson 1984: 80.

CHAPTER 5
FROM THE IDEAL TO THE REAL

The energy conservation program described in the previous chapter is an ideal. Taking this program to a utility and expecting them to design a successful program exactly as it is described is ineffective. The program must be adapted to each individual situation. Sets of barriers will be unique to each community, as will the nature of the relationship between the community and the program proponent. The feasibility of each pillar of the ideal program must be carefully analysed in order to create the most effective program for each situation.

This chapter discusses the consultation process with both the public and EPCOR. Taking both the initial program concept and the ideal energy conservation program, interviews with EPCOR provided input that led to the development a model program. This model program was used in the public consultation process where randomly selected Edmonton residents provided input on the perceptions and responses to climate change, energy conservation, and different program aspects. This information, combined with that gained from research of EPCOR's policies and programs, as well as further interviews with EPCOR officials, generated the required input to move the ideal program into a real one for EPCOR.

The first section of this chapter discusses the creation of the model program, a combination of the initial program concept and the ideal program. The second section highlights the public response to this model program, including a summary of the methods used in the public consultation process. And the third section of the chapter reviews the internal corporate response. Together, these facets of the research provide guidelines on the design of the voluntary challenge program.

5.1 CREATING THE MODEL PROGRAM

The ideal program developed in the last chapter has four pillars: incentive programs, commitment interventions, feedback mechanisms, and social diffusion techniques. These all stand on a solid foundation: the information campaign. While public consultation could reveal the barriers the community feels, it is not sufficient to determine what may or may not be feasible to offer in the program. Before public consultation could begin it was essential

to learn the initial corporate response to the program by EPCOR and assess the feasibility of certain aspects of the ideal program. This was conducted through interviews with various EPCOR officials.

EPCOR comprises the electrical utility for Edmonton, including generation, transmission, and distribution; the water utility for the city; and a light and metering company. Interviews were conducted with officials from EPCOR Sustainable Development and EPCOR Energy Services. These officials were selected because of their direct influence on the development of environmental and residential customer service programs.

The initial program concept developed in Step One was taken to EPCOR officials, as well as a brief description of this objective of the program: to engage residential consumers in climate change through energy conservation. Their responses molded the development of the model program. The initial program concept, developed in the project proposal, was the center of discussions. This program invited residential consumers to register in the program. This created a commitment to reduce their energy consumption, in any fashion they chose. Savings would be tracked through electricity consumption and results reported back to participants. A recognition program would then reward participants who succeeded in reducing their energy use. This initial concept incorporated three pillars: commitment interventions, feedback mechanisms, and social diffusion. When the concept was developed it did not include financial incentives, but the creation of the ideal energy conservation program revealed the importance of incentive programs. Therefore, incentives and their application in the program, as conceived in the initial program concept, were also discussed in the interviews.

Interviews took place both informally and formally at this stage of the project. Formal interviews discussed the program concept and four pillars and the foundation of the ideal program. Ideas for the information campaign were also briefly discussed. Informal discussions occurred during the development of the public consultation process and the description of the model program was clarified at this time.

Based on input from these interviews with EPCOR and EnVest Alberta™ I eliminated financial incentives from any program concept. One reason for doing this was that an

existing program involving financial incentives for commercial customers is planning to expand its service for residential customers. A desire for these residential programs to remain distinct was stated in discussions[110]. A second reason for eliminating them from the program design was that financial incentives were not expected to receive executive support as the funds required to sustain them were not available[111].

At this time exclusive monthly feedback on a redesigned utility bill for residential customers was also discounted. Utility bills for EPCOR were in the process of redesign at the onset of this project. EPCOR was explicit that the bill would not be redesigned again in the near future and additional changes could not be made to the new bill[112]. The new bill, however, does present opportunities for supporting the goals of feedback of the voluntary challenge program for households. These are discussed in greater detail in the next chapter.

The model program was created by taking the initial program concept, as well as the ideal program, gathering input from EPCOR on both, and combining them to create a brief description of a potential program. This was then used in the public consultation process. The model program was described the following way during the consultation process:

> *One program is to invite residential households to register and commit to reduce energy use and work towards reducing climate change. Energy saving actions will be recommended, ranging from simple ones like putting plastic on windows to renovating your house. Households' energy usage will be monitored and feedback provided. Recognition will be given to households who have reduced their electricity usage.*

This description briefly introduced the commitment, feedback, social diffusion, and information aspects of the program. Little detail was included in this description because of the nature of the public consultation process. The consultant who designed and completed the survey recommended a brief, rather than detailed, description of the program[113]. The same description was used in later key informant interviews with EPCOR, following the completion of public consultation, but before results from it were reported back to myself and EPCOR. Interviews were completed at this time as a result of scheduling, as opposed to a structured attempt at keeping the public consultation separate from the internal consultation. As the EPCOR interviews were unstructured discussions, informants were able to ask for detailed information on various program aspects if they chose to, unlike respondents to the public consultation.

The next two sections of the chapter discuss the responses from the consultation process. During public consultation respondents were asked about their perceptions of climate change and energy conservation, in addition to their response to the model program. The program and its feasibility were the focus of the key informant interviews.

5.2 TALKING WITH THE PUBLIC

Chapter Three stressed the importance of designing an energy conservation program rooted in the local community. Sets of barriers are specific to each community. Once those barriers are established the program should be designed to overcome them. The extensive public consultation process undertaken for the development of the voluntary challenge program confirmed barriers, and provided responses to and perceptions of climate change, energy conservation, and a model program. It also provided valuable input on the approach the program could take and specific aspects of the program design. What the public said in response to the model program directed the final direction the program took. Appendix B provides summary tables for the results discussed in this section.

The method for engaging the public was discussed in detail in Chapter Two, therefore, this section will only cover it briefly. An extensive literature review in Phase I-Grounding provided a basic understanding of the barriers to energy conservation. The barrier list, as well as the model program created through the literature review and interviews in Phase II-Preliminary Design, were both taken to focus groups, run by the consultant. The two focus groups helped narrowed the field of barriers and, through their responses, the consultant refined the survey questions. The consultant developed the questions for the telephone survey and conducted it on roughly 600 randomly selected (through a computer-generated list) Edmonton residents. Appendix A contains a copy of the questionnaire created and used by the consultant. The proportion of homeowners to renters was carefully monitored for the telephone survey because the focus groups identified homeownership as a key factor in their responses to the model program.

Many questions on the telephone survey were ranked on a seven-point scale. That is, respondents' answers were ranked on a scale where one end of the scale meant strong

support and the other end no support. Open-ended responses to questions were recorded and coded by the consultant.

Discussion of the results of the public consultation process[114] is in two parts. The first section deals with the perceptions found or confirmed through the consultation process. This includes perceptions of environmental issues and climate change, energy use, energy conservation, and the utility. The second section deals with direct responses to the program, and includes suggestions on program approaches. This section of the chapter then concludes with the conclusions drawn from the public consultation process.

PERCEPTIONS

In order to communicate most effectively the program proponents should know how the public sees a particular issue, problem, or object. In the design of an energy conservation program this reveals barriers and gives the program proponent a clear direction in which to take the program[115]. This section of the chapter reveals how the Edmonton public sees climate change, energy conservation, and the role of the utility in addressing both issues. This information helped guide the design of program and contributed insight into how the program should be marketed.

Climate Change

Understanding the views held by the Edmonton public on climate change was very important because the objective of the voluntary challenge program is to engage consumers directly in climate change mitigation, thereby increasing their awareness of the issue. The first key finding was that not only was climate change not on the list of important issues facing Alberta, the environment ranked very low, sixth out of ten issues identified. One quarter of respondents to the telephone survey could not mention any environmental issues facing Alberta. The second key finding was that not a single respondent mentioned climate change as a specific environmental issue. A significant portion of respondents did mention air quality and pollution issues, which are generally, scientifically and politically, tied to climate change, but did not mention climate change itself. These issues include air quality/pollution; factory industry emissions; oil/gas industry emissions; vehicle emissions; urban expansion; and others. Indeed, many issues identified may be indirectly related to

climate change, such as deforestation, but it was not the purpose of the survey to neither clarify nor understand all of these possible connections.

These responses show us that climate change is not a central issue to Edmonton residents. When asked, though, whether they knew and understood what climate change is the response was favourable. Respondents were asked the following two questions:

- Do you believe the world's weather pattern is changing?
- Do you believe the world's temperature is rising?

Over three-quarters answered yes to both of these questions. This implies that a vast majority accepts the notion of climate change. What is also made clear is that although they accept that it is happening, they do not see climate change as an issue.

When asked about the causes of climate change, after they were told to assume it was occurring, the top two answers given were vehicle emissions and industry emissions or pollution. While the use of fossil fuels was mentioned by slightly more than ten percent of respondents, it is very interesting to note that not a single respondent mentioned personal energy use. This makes it clear that Edmontonians see no direct link between their household energy use and climate change. This presents some difficulty for the program, as the program objective is to engage households in climate change mitigation through reduced energy consumption. This will have to be carefully addressed in the information campaign

Energy Conservation

Attitudes towards energy conservation were also surveyed. The results were wide-ranging in this section. When asked if they were prepared to make shifts in lifestyle to conserve energy roughly seventy percent said they were willing to do so. This is a positive step forward, but there is little to link environmental attitudes and energy conservation behaviour[116]. Therefore these responses may not be a reliable gauge of behaviour changes that will occur. The number of respondents still remained high (thirty five percent) when only the strong responses are counted. The second key point to highlight from this section of the survey was that approximately one quarter of respondents felt that even if they tried to conserve energy the impact on reducing climate change is negligible, therefore not worth

the effort. While this level of dissention appears high, it is heartening to see three quarters respond positively.

The key factors identified that influence energy conservation, in order, were reducing the negative impact on the environment, dollar savings, and the knowledge that others are conserving energy. Eighty percent of respondents considered each and every one of these factors important. The program, then, should stress both the environmental and economic benefits of energy conservation, to appeal to a wider audience. This also indicates an early potential for success of commitment interventions, particularly if they are made public.

An important aspect of any energy conservation program is the information on how to conserve energy. The level of familiarity of respondents with ways to conserve energy and reduce climate change was surveyed. Only one quarter of respondents were very familiar with ways to conserve energy, and fifteen percent with ways to reduce climate change. This highlights two points. One, respondents again see little connection between personal energy use and climate change. And two, attention should be directed towards teaching people what they can do to reduce their energy consumption. These findings provide focus to the information campaign. The majority of information received comes from the utility, followed by newspapers and television. This shows that utility information is getting out, but it is perhaps not as effective as it could be.

The Utility

Respondents were surveyed about utility involvement in reducing climate change and sponsoring energy conservation programs. The government, at all levels, was held primarily responsible for efforts to mitigate climate change. When asked who should run energy conservation programs, only ten percent of respondents thought utilities should. The government was still held responsible and environmental organisations and community groups were placed ahead of utilities. However, when asked to rate their support for a utility running an energy conservation program, three-quarters voiced support. This implies that a utility-run program would probably be favourably received in Edmonton, and associations with environmental organisations or community groups would enhance the reception of the program.

Leadership is an important issue. The survey results indicate a strong belief in the need for government to take a leadership role in addressing climate change. The focus groups developed an understanding among the participants that industry was primarily responsible for climate change and that they, along with government, were responsible for solving the problem. The focus groups also held the perception that industry and government were not doing anything to reduce the effects of climate change. This led to a belief that the public should not be asked to address the issue if those responsible for it were not.

RESPONSES

Survey respondents were also asked about the model program. This section presents the response to a brief introduction to the program and different aspects of it. Respondents in the focus groups and telephone survey were provided with a brief outline of a model program (see Section 4.1). They were then asked if they were likely to participate, the reasons for why they would or would not be likely to participate, and their level of support for various features of the program.

Likelihood of Participation

Almost two thirds of respondents indicated that they were likely to register in the program as it was described. Twenty two percent were very likely, and thirty nine percent were likely to participate. This indicates a relatively high level of initial support for the program as it was described in the model. However, if any changes are made to the program design, there will be no test response. Likewise, the survey cannot account for the reception to rather specific parts of the program, such as the format of the registration form.

Demographic information provides insight on the audience most likely to participate in the program. Female respondents are more likely than male, and renters more likely than owners to participate. Respondents under the age of thirty five are more likely to change their lifestyle to conserve energy, believe that individual actions make a difference, see the knowledge that others are conserving energy as important, and have stronger support for utilities running energy conservation programs. Those with children, students and homemakers, and those with an income less than $70,000 per year are the most likely to participate. It is my recommendation that EPCOR target the program launch for the

audience most likely to participate initially. This should increase the potential for success and concentrate resources. EPCOR supports this suggestion[117]. The initial target audience then is households with middle to lower income levels, female members, children, and a head under the age of thirty five.

Reasons for Participation

The reasons one would be likely or not likely to participate were then surveyed. The sixty two percent who said they were likely to participate were asked to give reasons for this likelihood. The top two answers were significant compared to all other answers. Forty six percent cited saving the environment or reducing emissions as the reason they would participate. Forty two percent cited saving money as the reason. Other reasons identified were the ability to learn to be more energy efficient, it sounds interesting or challenging, or to serve as an example to others.

A number of reasons were mentioned by those unlikely to participate. Some of the results referred to the portion of the survey questioning responses to a home loan program (see Section 2.5). Discarding those responses, the reasons given, in order of rating, for not choosing to participate include:

- Rent (or own) condo
- Not interested
- House already energy efficient
- Require more information and proof of effectiveness
- Invasive/ too many regulations
- Too old to participate
- Hard to get household participation

These responses correlate with some of the barriers or factors influencing decision making identified in Chapter Three. Home ownership is an important factor, with renting often considered a barrier to taking action[118]. The number one response was that the consumer would not be willing to participate because they rent or own a condo. When the statistics are taken to an evaluation of responses from renters versus owners it seems that renters are less likely to participate in the program than owners are. Forty eight percent of respondents answered that their home ownership status of a condo was the reason they were unlikely to participate, compared to only four percent of owners. Overall, though, renters appeared

slightly more willing to participate in the model program, sixty five percent versus fifty eight percent of owners. Home ownership does not necessarily appear to be a factor in influencing a decision to participate, but it is a key factor for people who choose not to participate.

Although it is impossible to know why respondents believe it is hard to get household participation, it may be for some of the reasons related to a belief that an individual's actions cannot make a difference, or a reliance on personal energy consumption. These, however, are just assumptions based on the literature review, the survey question does not ask for clarifications to responses. Barriers not considered previously were also identified, such as age, a feeling the program is too invasive, and an understanding that their home is already energy efficient.

These responses also indicate that some barriers identified in the literature review of the project may not apply in this situation. Respondents did not identify the availability of disposable income as a factor, for instance, that influenced likelihood of participation in the model program. Neither was the level of home repair skills identified as a factor.

Model Program

Respondents were also asked about some specific features of the model program. While the questioning did not cover every aspect of the program, it covered three important issues:

- Making the names of participants public through newspapers and other means
- Making the names of people who have reduced their energy use public through newspapers and other means
- Giving awards or prizes to those who have reduced their energy use

These issues were chosen to gauge support for the registration and recognition aspects of the model program. As the model program relied heavily on a commitment intervention it was important to determine initial support for this.

Slightly more than half of the respondents supported both making the names of all participants and the names successful participants public. This is not a high level of majority support, but it does show support for the intervention. The survey did not question why or why not people support these aspects so it is not possible to determine their reasons. The

focus groups, however, provide some indication, as support was also split in them. Those who supported names being published said that it would act as an incentive and set an example for others, and that the names would illustrate the success of the program by providing the number of participants. Others saw publishing names as a disincentive because some people may not want their names published. Suggestions then arose about providing a window sticker, for instance, as a way of indicating public commitment. It could be concluded, from the reasons people were not likely to participate and these responses that an obvious statement of public commitment, such as publishing names in the newspaper, is not the ideal way to publicise commitment. However, it might be possible to publish the number of participants, the total amount of energy reduced by all participants, and provide participants with window stickers or lawn signs to display their commitment.

Respondents were greatly in favour of recognition for participants who succeed in reducing energy. Almost three-quarters of respondents were in favour of giving awards or prizes to those who reduced their energy use. They were not asked what these awards could be, nor were they told what they might be. The focus groups suggested different awards for different levels of reduction, receiving a percentage off their electricity bill, coupons, or Air Miles® points. The recognition system will be largely determined through what EPCOR believes is feasible.

The public consultation phase provided valuable input to be applied in the final design of this energy conservation program. The next section summarizes these conclusions.

CONCLUSIONS

Input from the public consultation process confirmed and identified barriers to be overcome, indicated potential for success for certain aspects of the program, and directed possible approaches of the program. This section discusses the application of the model program and potential modifications.

First, it is necessary to understand the barriers to be overcome. The literature review provided a list and the public input confirmed or refuted some of those barriers. The most flexible and inclusive program will aim to attack many of these barriers. Key barriers identified are:

- No linkage between energy use and climate change
- A belief that home is already efficient
- Home ownership status
- Age of participant
- Difficulty in getting household participation
- Too invasive of a program
- Lack of information or proof of effectiveness
- Lack of interest
- Little motivation to take action

Many of these barriers can be addressed through careful design of the energy conservation program. The pillars used to hold up the program and the way they are structured can overcome many of these barriers. As well, the approach the program takes toward consumers can address some barriers.

The pillars used in the model program were social diffusion, commitment interventions, and feedback mechanisms. Financial incentives were discarded in Phase II-Preliminary Design as a result of interviews with EPCOR and EnVest Alberta™. Social diffusion was evaluated by asking respondents to rate the importance of various factors influencing energy conservation. The knowledge that others are conserving energy rated high, with eighty percent believing it to be important. This indicates that the final program should ensure there are ways of publicizing participation. Increasing awareness through social diffusion would be acceptable and could influence further action among Edmontonians. Directly related to social diffusion are commitment interventions. One way of enhancing social diffusion is to display a measure of commitment to or participation in a program. Social diffusion can lead to the establishment of norms. The display of a sign or publication of the number of participants enhances both a public commitment and social diffusion. This makes the norm visible for the community, and is a display of commitment[119].

Commitment interventions were tested through questions on the publication of names of both participants and those who reduced their energy use. There was support for the notion, but only by a slight majority. However, input from the focus groups, combined with a belief the program is too invasive (revealed in the reasons why one would be unlikely to participate) may indicate that if the public commitment were softer it might be more strongly supported. That is, publishing the actual names of participants appears to be too intrusive, but demonstrating the commitment publicly through a window sticker or lawn sign may be

feasible. Likewise, publishing the results of a group could provide the incentive required to motivate others and help establish the norm.

Feedback mechanisms were not directly tested. The model program description did state that feedback would be provided, but did not state how this would happen. Interviews in Phase II-Preliminary Design revealed that EPCOR would be revealing a new utility bill to their customers[122]. Included on this bill are bar graphs showing electricity consumption for the previous 24 months. Please see Appendix C for an example of the new bill. It was also revealed that redesigning or adding to this bill would not be done. Therefore, it was not stressed in the survey. Whether additional feedback in an alternative form is feasible was determined with further interviews and will be discussed in the next section of this chapter.

The results indicate, then, an energy conservation program to be held up by three pillars: commitment interventions, social diffusion, and feedback mechanisms. The way these pillars are designed and used to approach consumers is very important. Public input provided valuable information on ways to approach the program and consumers. General conclusions drawn related to approach include:

- A recognition program would be well-received
- Education on many different ways to conserve energy is required in the information campaign
- Careful effort must be made to encourage consumers to make a connection between energy use and climate change
- Marketing approaches should focus on both environmental and economic benefits of reducing energy consumption
- Associations with environmental organisations and community groups would most likely enhance a utility sponsored program

Taking these factors into account in the final design directly addresses numerous barriers, but not all of them. For instance, none of these approaches directly addresses age as a barrier to undertaking energy conservation actions. A belief that the program is too invasive is tackled by not publishing names for the public commitment and encouraging choice of energy conservation actions and behaviours. Providing numerous ways to conserve energy, through both technology and behaviour changes can challenge an understanding that the home is already energy efficient. This same information can be used to try and convince renters to undertake behaviour changes and incorporate transportable actions in their home. Unfortunately though, this cannot provide motivation for renters who do not pay, let alone

see, their energy bill. By developing associations with environmental organisations and community groups the program not only encourages social diffusion, it also increases its ability to reach many members of a household. These associations could also be used to educate children on the program and the benefits of energy conservation. This can be achieved through EPCOR's involvement with Destination Conservation, an education program for children. Educating consumers to make the connection between energy use and climate change may provide the right information for motivating participation. And marketing that highlights both the environmental and economic benefits may motivate more people than by simply focusing on only one of these approaches. Finally, indicating the leadership role already taken by government and industry may motivate consumers to take part in reducing the impacts of climate change.

These conclusions must be connected to what is feasible according to EPCOR. The next section discusses the results of consultation with EPCOR and recommendations for the approach and the final design of the voluntary challenge program.

5.3 TALKING TO THE PROGRAM SPONSOR

The second part of the application of the ideal program is consultation with the program proponent. This first occurred prior to public consultation, in order to determine the model program that would be used in the consultation. It also occurred after the consultation was finished. Information was gathered from staff and gleaned from corporate literature. Working directly in the EPCOR corporate environment I was given access to both the internal and external face of the company. This opportunity was more revealing than relying on public information alone because it increased the opportunity for identifying internal influences on program design that may not be well-known, are informal, or are only in the planning stages. Corporate literature reviewed included the sustainable development policy statement, the Voluntary Climate Change program in place at EPCOR, and reports to the VCR. Interviews, both formal and informal were conducted with EPCOR Sustainable Development and Energy Services officials. These interviews were unstructured and discussions focussed on comments about various program aspects of the initial program concept and the model program, input from the public, how residential energy services are

delivered at EPCOR, and suggestions on the final design of the voluntary challenge program.

This section of the chapter describes the details of that input, in order to highlight the suggestions used in the final design of the program. It summarises key points of EPCOR public policy, and highlights internal responses to the approach and to different aspects of both the ideal and model programs. The next chapter outlines the final design.

EPCOR POLICIES AND PROGRAMS

EPCOR has a public sustainable development policy that guides the actions of the company. An environmental policy statement specifies an action or activity the corporation plans to take in order to reach the goals it sets for protecting the environment and conserving resources[121]. The EPCOR Sustainable Development Policy declares commitment on efficiency, partnership, stewardship and precaution, and a shared responsibility and trust[122]. Included in these four key themes are fifteen specific commitments. A voluntary challenge program would fulfill five of those fifteen commitments. The directly related commitments refer to improving the efficient use of energy and promoting sustainable energy services, moving beyond regulatory compliance (can refer to VCR commitment), and assistance to government and interested parties in the promotion of sustainable development policies and decision making. A voluntary challenge program complies with these commitments because it promotes energy efficiency and energy use awareness; it is an initiative of sustainable development energy services; it is a part of EPCOR Climate Change Program; and it involves cooperation between EPCOR, the University of Calgary (through which this research was completed), and potentially the federal government.

There are also a number of programs, existing and planned, that a voluntary challenge program can work with at EPCOR. On a large scale this program fits within the Voluntary Climate Change Program, a program that sets targets and commitments for meeting GHG emissions reductions. EPCOR's projects under this program include reduction projects, offset projects, and leadership projects. A voluntary challenge program would be a

leadership project. Other programs at EPCOR that a voluntary challenge program can work with are:

- EnVest Alberta™ - an energy efficiency program (planning to move to residential service in 2000)
- Alberta R-2000 program - promoting energy efficient new home construction (EPCOR is a member of its steering committee)
- Green Power - an initiative offering green power options to residential customers
- Solar Power Program – which may be expanding in 2000 with more demonstration and residential projects
- North Sun '99 Legacy – promotion of community work as a legacy from the North Sun '99 conference, for which EPCOR was a major sponsor
- Customer Energy Awareness Programs
- Destination Conservation - a child education program in which EPCOR takes part

There are numerous ways a voluntary challenge program can work with these various programs. The two most positive ideas received at EPCOR were for a voluntary challenge program to work as an individual residential energy service program or for it to become one program overriding all other residential programs. In the first instance the program would become one of many residential programs, on par with Green Power, for example. The latter instance would see the voluntary challenge program as one that encompasses all other residential energy service programs focused on the sustainable use of energy.

THE APPROACH FROM EPCOR

There are two facets of the approach addressed by EPCOR. The first is the approach to the public the program will take and the second is the way the program will be approached within EPCOR. The first refers to the approach addressed in the previous section: whether the program will focus on climate change, and whether it should emphasize economic or environmental justifications for energy conservation. The second refers to how the program should be designed to fit into the corporate structure at EPCOR. This section of the chapter discusses both of these facets and additional suggestions from EPCOR.

External Approach

The objective of this energy conservation program is to engage residential customers in the climate change issue. This objective was tested in the public consultation process. People do not know a lot about climate change and make almost no connection between

personal energy use and climate change. At EPCOR this was seen as relatively positive[123]. As an electrical utility, EPCOR is part of an industry contributing to rising GHG emissions. If people are not aware of the level of pollution caused by electricity production it may be best to have this ignorance remain, decreasing the possibility of anger or protest directed at the utility[124]. However, the utility believes that it is important to address climate change, as evidenced by its participation in the VCR, its sustainable development policy[125], and as confirmed in discussions with them[126]. The key to a successful approach, then, is to find a way of engaging residential customers in climate change mitigation without fostering any hostility towards the utility.

The second factor that must be accounted for in the approach is to target the market most likely to participate. The program will most likely be launched incrementally, therefore, targeting the most promising market will make for the most effective launch. According to EPCOR this will also make the program flexible and easily adaptable[127]. Based on the input from the public consultation process the initial target audience then is households with middle to lower income levels, female members, children, and a head under the age of thirty five. Once this market is penetrated and new alliances are formed with other programs and groups the program should expand incrementally.

The third factor to be addressed in the program approach is whether to emphasize the economic benefits, environmental benefits, or other benefits of participation. Public response revealed that economic and environmental benefits are the top reasons why individuals would be likely to participate in the program. These two approaches are also favoured by EPCOR[128]. It is believed that the most effective program would stress both equally, in order to motivate the greatest amount of people[129], and alienate as few as possible.

Internal Approach

The approach the program takes internally is also important. The way the program is focused and presented to the executive can influence final decisions on whether the program is ultimately launched[130]. Therefore, the program must be carefully constructed. It must stay true to its objectives, but be designed in a way that is commensurate with executive goals and beliefs[131]. With deregulation of the electricity industry in Alberta occurring in 2001 customer

service and customer loyalty are key factors for programs proposed to the EPCOR executive[132], as is the ability of the program to generate revenue[133].

A voluntary challenge program will not generate revenue. Fees will not be required for participation. The actions participants choose to take in order to conserve energy may lead to revenue generation, but the program itself will not. However, the program can been viewed as a customer service program[134]. A voluntary challenge program could be an umbrella program for many other EPCOR residential initiatives[135]. This would allow all other residential programs to be managed by one group and a single registration process provided for different actions ultimately resulting in reduced GHG emissions.

Taking this umbrella approach necessitates that one department take ownership of the program. Currently housed in the Sustainable Development department, responsibility will shift to a residential services department if customer service does indeed become the focus[136]. This department will ultimately be responsible for development of the business plan for executive approval and running the program once it is launched. As EPCOR has a centralized management structure[137], this would move the program to an entirely different branch of the company. In the process it could lose its original environmental focus. However, if the program is launched as it is designed this focus will remain, no matter who is running it. This is helped by the fact that it supports all four corporate goals, as identified in the EPCOR Focus: growth, environment/regulation; people; and operational excellence[138]. It could bring in new residential customers within a de-regulated market; it addresses a key environmental issue for the company; it encourages employees to motivate customers; and it could help maintain the market share of power in Alberta.

INFORMATION CAMPAIGNS

The information campaign is the foundation of any energy conservation program. It must be strong enough to support the program; it must increase awareness of the program and the issue at hand, it must educate participants, and it must encourage consistent participation. EPCOR acknowledged that, in the past, its efforts at educating consumers on energy awareness was not as successful as intended[139], but that it does have an effect[140]. It focused on informing consumers about what they can do to conserve energy and how to

become more energy efficient, primarily through brochures and billboard campaigns. The information campaign for a voluntary challenge program should be more extensive and very strong[141].

There are two aspects to the information campaign for the voluntary challenge program: the marketing of the program and the information provided to participants. The marketing will be the first key to attracting participants to the program. It must be a sustained effort, in order to continually attract participants[142]. It must also be a phased approach, targeting the audience most likely to participate first[143]. Phasing will also allow for incremental growth, particularly concerning associations with community organisations, and increased flexibility[144]. The marketing must also be straightforward and clear[145]. This should reduce confusion and increase participation.

The second aspect of the information campaign is the information provided to the participants. This should include more detailed information on the program itself, on energy use and climate change, and actions participants can take to conserve energy and reduce personal GHG emissions – including related programs such as Green Power and EnVest Alberta™. EPCOR is in favour of providing participants with an information kit including all of this information[146]. This way the information could be targeted to the participant. For instance, the kits could distinguish between type of dwelling or ownership status[147].

Part of the information campaign is the messages included in feedback mechanisms and those that encourage commitment and social diffusion. This refers to notes included with utility bills, separate letters or newsletters available to participants, and signs displaying a public commitment. These are discussed in more detail in the following sections.

COMMITMENT INTERVENTIONS

Commitment interventions are the cornerstone of a voluntary challenge program. Like the VCR, participants in EPCOR's program will commit to reduce their GHG emissions. In a residential program run by EPCOR, commitment is most easily monitored through electricity consumption. It could, however, extend to natural gas use and transportation in the future. The voluntary challenge program calls for participants to register their commitment with EPCOR. EPCOR believes this is feasible and welcomes it as a positive

step towards engaging their residential customers in the issue of climate change[148]. One program already in place, Green Power, seeks a financial commitment from consumers to purchase renewable energy - through a premium on their utility bill. EPCOR is achieving preliminary success with this program and, as a result, views commitment interventions positively[149].

Making the commitment public is also received favourably at EPCOR[150]. The Green Power program provides lawn signs for this same reason, and is looking at ways of promoting the commitment further[151]. EPCOR is in favour of lawn signs, window stickers or a similar display, but against publishing names of participants[152]. Rather, they would prefer to publish the total number of participants with program information.

EPCOR also supports the notion of group commitment[153]. Associations with community organisations could encourage groups, as a whole, to commit their members. These members would have to register individually, but would be supported by their community organisation. For instance, members of a neighbourhood association could encourage residents to register. In effect, this results in the organisation endorsing and marketing the program. These associations will be sought as a part of the marketing effort and will most likely become involved on an incremental basis[154]. No commitments or agreements have yet been made for this to happen.

There is one difficulty that EPCOR foresees with securing public commitment. Customer service representatives will facilitate the majority of participant registration. It must, therefore, be added to their duties and to the system that records customer information. As this is not a financial matter to be included on bills this may be difficult, but not impossible to do[155].

SOCIAL DIFFUSION

Directly related to commitment interventions is the notion of social diffusion. Displays of public commitment, such as lawn signs, can encourage social diffusion. This is one of the reasons lawn signs are used in the Green Power program[156]. Means to encourage social diffusion are supported and encouraged by EPCOR[157] because, it is hoped, this program will eventually hold a similar place in the minds of city residents as the Blue Bag Recycling

program[158]. There is an unspoken and undocumented pressure to recycle as a result of this very visible recycling program. EPCOR believes that a similar obligation can manifest itself in a voluntary challenge program[159].

A recognition program could also encourage social diffusion. This would not include financial rewards (other than realised savings on the utility bill), rather it would aim to recognise participants for their efforts in conserving energy. It is supported by EPCOR, but no details were provided on what this aspect of the program might entail[160].

FEEDBACK MECHANISMS

In order for program participants to see the connection between their efforts to conserve energy and actual energy consumption it is beneficial to provide feedback. EPCOR redesigned their utility bills during the course of this project. During the creation of the model program it was revealed that modifications to the new bill would not be made[161]. However, there are ways in which feedback can, and will, be provided.

The new utility bill includes a summary of electricity use for the previous twenty-four months. Refer to Appendix C for an example of this new utility bill. Monthly feedback is thus provided, but it is not feasible for EPCOR to provide feedback more often[162]. One problem makes itself clear with this method: new renters or owners will be starting a new energy use history and will not have a reference point for knowing whether they are saving energy. The bill, however, will be useful as a reference point for connecting behaviour with energy use. Included on this new bill is a spot for reminders and tips from EPCOR. This could also be used for information and prompts about the voluntary challenge program[163].

An additional feedback option is for the creation of a newsletter or information bulletin. This could be included as a bill stuffer or a separate letter. This is considered feasible, but with some caution[164]. The tracking of participants and creation of the newsletter will require someone to work essentially full-time on this task, and the logistical details of this may be difficult to define. If these details can be clarified this option is strongly supported[165].

INCENTIVES

The recognition aspect is not an incentive program. It offers no financial incentive and is not meant to be the primary incentive for participation[166]. EPCOR traditionally relies on the belief that the savings realised and the personal knowledge that one is helping the environment is a strong enough incentive[167]. As this may not be enough for some participants, the recognition program rewards them for their efforts. For some, this may be seen as an incentive, but no direct incentives can be provided to participants without outside sponsorship or support of the program[168].

With the conclusion of Phase III-Public Consultation the discussion now turns to the final design. The next chapter takes the accumulated input and information from Phase I-Grounding, Phase II-Preliminary Design, and Phase III-Public Consultation and discusses the design of the voluntary challenge program for households. Based on the initial program concept and the ideal program, and molded with input from Edmonton residents and EPCOR, the final design of the program accounts for the barriers present and suggests ways to overcome them. This process determined that the recommended program design is the most effective way to engage Edmonton residential consumers in the issue of climate change.

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[153] Marilyn Noble, EPCOR; Andy Riley, EPCOR; Tannis Tupper, EPCOR; and Joel Nodelman, EPCOR, personal communication.
[154] Joel Nodelman, EPCOR; Marilyn Noble, EPCOR; and Andy Riley, EPCOR, personal communication.
[155] Marilyn Noble, EPCOR, personal communication.
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[157] Joel Nodelman, EPCOR, and Marilyn Noble, EPCOR, personal communication.
[158] Joel Nodelman, EPCOR, personal communication.
[159] Joel Nodelman, EPCOR; Tannis Tupper, EPCOR; and Marilyn Noble, EPCOR, personal communication.
[160] Joel Nodelman, EPCOR; Marilyn Noble, EPCOR; and Andy Riley, EPCOR, personal communication.
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[164] Joel Nodelman, EPCOR, and Marilyn Noble, EPCOR, personal communication.
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[166] Joel Nodelman, EPCOR, personal communication.
[167] Marilyn Noble, EPCOR, personal communication.
[168] Marilyn Noble, EPCOR, and Andy Riley, EPCOR, personal communication.

CHAPTER 6
THE PROGRAM

This voluntary challenge program is the result of a careful research and consultation process. It follows a community-based social marketing approach. I used current literature to identify barriers and the best possible ways to overcome them. Then I undertook careful study of the perceptions of the local community to confirm the literature review. I also carried out detailed consultation with the program sponsor – EPCOR. The program was then designed according to responses from the consultation process and information gathered in the literature review. The final stage of program development in a community-based social marketing approach is an evaluation process. Until now this MDP discussed the first three steps of this process and the results. This chapter highlights the resulting program design. A recommended evaluation process is also proposed as part of the design. Also included in this chapter is a detailed development plan and launch recommendations.

6.1 A VOLUNTARY CHALLENGE PROGRAM FOR HOUSEHOLDS

The goals of the program are not the same as the objectives set out in Chapter Two. Rather, they are goals for the program itself, as determined through the development process. The many interviews and interactions with EPCOR staff provided valuable input on the goals of the program. I synthesized this input to identify three goals. Goals identified:

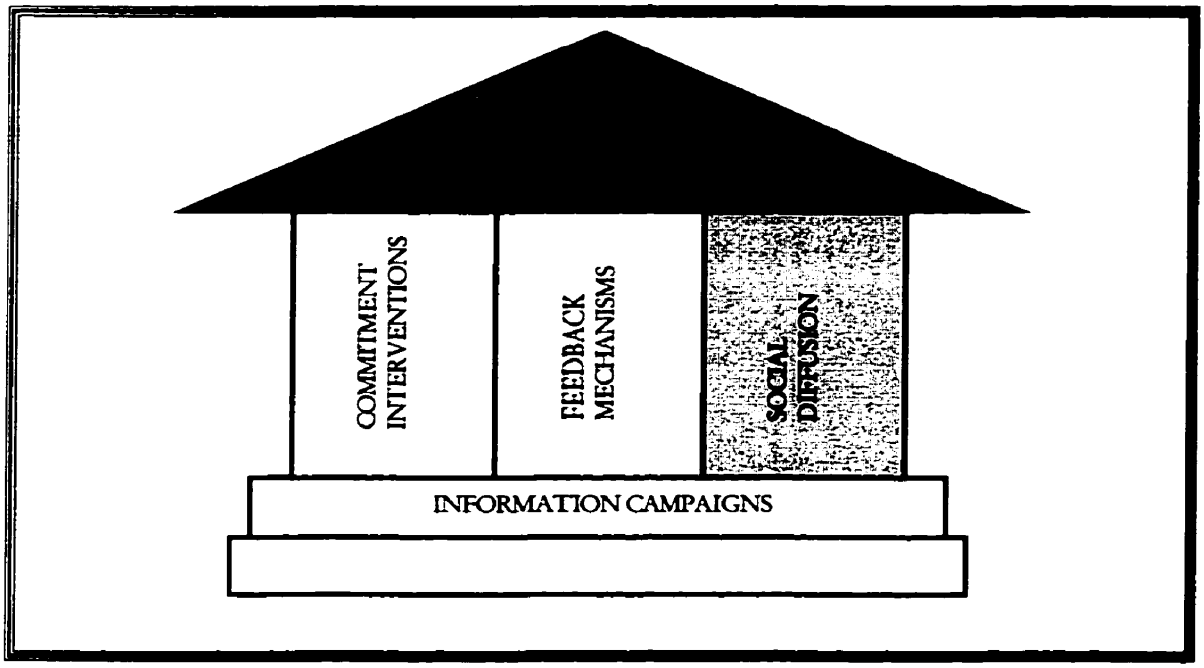
- To engage EPCOR's residential customers in the issue of climate change
- To encourage residential customers to participate in energy efficiency and clean energy programs
- To increase customer loyalty towards EPCOR

The program seeks the active participation of consumers. This brings about not only environmental benefits attributed to the consumer, but corporate benefits to EPCOR in their demonstration as an environmental and customer service leader.

A program built on a strong foundation, held up by three interconnected pillars, is the key to achieving these goals. Figure 5.1 outlines the voluntary challenge program recommended for EPCOR. This program is very similar to the one outlined in Chapter Three. The ideal energy conservation program also includes a pillar of incentive programs,

but it is not included in the voluntary challenge program because EPCOR believes they are not feasible for this program. The pillars are closely connected as one fosters the development of or strengthens another. For instance, the ways in which a commitment is made public fosters social diffusion. All aspects of the included pillars are deemed feasible by EPCOR and received a positive response from the Edmonton public.

Figure 6.1 RECOMMENDED PROGRAM DESIGN



COMMITMENT INTERVENTIONS

Commitment interventions are the first pillar. The very nature of the program demands a commitment from all participants through the registration process. Registration tracks the consumer's commitment to energy conservation and climate change mitigation. EPCOR customer service representatives will complete the registration process. Both social diffusion and feedback mechanisms are supported by commitment interventions.

Commitment is strengthened by making participation public. Lawn signs, window stickers, or some such similar item will be provided to all participants in order to demonstrate their commitment. In addition to this, the numbers of participants will be made publicly available in program material and through advertisements.

Group commitments will be encouraged through partnerships with various community associations. EPCOR will work with various community groups, such as neighbourhood associations, to provide leadership for residents and encourage large-scale commitment. The intention is to gain a commitment from the group as a whole, with leaders encouraging individual registration. The involvement of community groups will happen on an incremental basis.

FEEDBACK MECHANISMS

Feedback mechanisms comprise the second pillar. Individual feedback will be provided on all residential customers' monthly utility bills. These illustrate the consumer's twenty-four month history of electricity and water use. They only account for consumption and make no adjustments for temperature and weather changes. They are individual to the consumer or household and cannot be individualised further.

Group feedback will also be provided. Advertisements and program material can supply the number of participants and provide total energy savings for all participants in the program. Newsletters will also be provided to participants, updating them on the program and its successes.

SOCIAL DIFFUSION

The final pillar is built on the notion of social diffusion. This is the ability of a community to influence its members; the ability of a neighbour to influence another. This influence may not necessarily be overt, but it could manifest itself as a form of peer pressure to participate in the activities of the group. Making commitment to the program public is one way social diffusion is encouraged. By displaying a commitment the participant invites observation and possibly comment from social peers. This opens the program up to a new form of advertisement and discussion. Through social diffusion, participation in this program has the potential to turn into a social norm.

Community associations are another way to foster social diffusion. As part of this program associations with community groups will be sought. Partnerships with community groups provide two key benefits. One, these leaders are ideally respected and influential with

their members, therefore they provide opportunities to influence membership and foster positive behaviour. And two, they provide models of behaviour. If the leaders of a community are successful in reducing energy consumption they are better able to demonstrate positive behaviour changes.

This aspect of demonstrated behaviour can continue with or without community associations. Behaviour changes and retrofits will be demonstrated in the information video provided with registration. EPCOR's participation at Edmonton home shows offers further opportunities for recruitment and demonstration. Success stories will be included in program newsletters as well.

INFORMATION CAMPAIGN

All of these pillars are based on the foundation of the information campaign. The information campaign is two tiered. The first tier is general program information. This consists primarily of the marketing campaign, including promotional literature. Residential customers must be made aware of the program for it to generate participants. Advertising will most likely include inserts with utility bills, newspaper and transit bus advertisements, and possibly a television or radio campaign. The program will also be highlighted in a setting where behaviour and actions can be demonstrated, at Edmonton home shows, for instance. Although dependent on the schedule of complete program development at EPCOR, the program launch would ideally coincide with Energy Awareness Week or Environment Week. Benefits of the program highlighted in this campaign will be both environmental and economic. This tier of the information campaign will be sustained, although modifications may be required, based on initial responses and participation levels.

The second tier of the information campaign is the detailed information provided to program participants. Upon registration in the program all participants will receive an information kit. This kit will contain:

- Details about the program itself
- Promotional material
- A lawn sign or window sticker (display of commitment)
- Energy conservation tips
- Information about related programs

The kits will be geared towards the type of dwelling the participant inhabits, and will offer suggestions for permanent retrofits, temporary or take-away retrofits, and behaviour changes. This approach provides opportunities and suggestions to both renters and owners, and to different income levels. Newsletters for participants are also part of this tier of the information campaign.

EVALUATION

A means for evaluation must be included in the final program design. This is the last phase of design for a community-based social marketing scheme. Community-based social marketing schemes recommend completion the steps thus far, a pilot of the program, evaluation, redesign, and launch[169]. EPCOR, however, does not want to pilot the program, they would prefer a full-scale launch of a flexible program, one with the ability to grow incrementally and change if necessary[170]. An evaluation plan must therefore be designed as well. It should consist of three parts:

- Follow-up survey
- Evaluation forms filled out by program participants
- Indicators of success

Combined, these provide opportunities to evaluate response to the program, as well as success or failure.

The first part of the evaluation plan is to carry out a follow-up survey. EPCOR maintains records from the initial public consultation process. These include the computer tables of the results as well as written summary report submitted by the consultant. These can be used a base point for future research. One to two years after the program is launched EPCOR should initiate a follow-up survey of Edmonton residents. Similar questions should be posed to gauge changes in response to the program and awareness of climate change. This survey will also be useful if the number of participants is not satisfactory, in order to try to determine reasons why consumers are not participating in the program. It is recommended that EPCOR use the same consultants that carried out the public consultation process in Phase III-Public Consultation. Criterion Research Corp. has completed numerous projects for EPCOR and is already familiar with this project. The work they completed for the development of the voluntary challenge program was very good

and this level of work could be expected on a follow-up survey. Follow-up surveys are a key factor in judging the general public's response to the program and awareness of climate change.

An evaluation form filled out by participants in the program is the second part of the evaluation plan. Once the company clarifies its specific goals for the program, such as numbers of participants or energy savings realised, and finalises details of the recognition program, additional sponsors, and the registration process, a form that most effectively evaluates participants' responses to specific aspects of the program should be designed. Waiting until these issues are clarified ensures the form evaluates all necessary factors. It should gauge responses to the registration process, the commitment level required, whether social diffusion is occurring, and should also include the opportunity for participants to suggest modifications or additions to the program. Again, Criterion Research Corp. should be brought in to guide this part of the plan. Their experience with the program, EPCOR, and Edmonton make them ideal for the job.

Finally, when specific goals for the program are defined, indicators can be developed to measure success rates. A clear example is the number of consumers registered in the program. Measuring the energy saved by participants is another indicator. Indicators can also help refine goals and increase support for the program. They also act as feedback on the program to all participants, connecting actions to results.

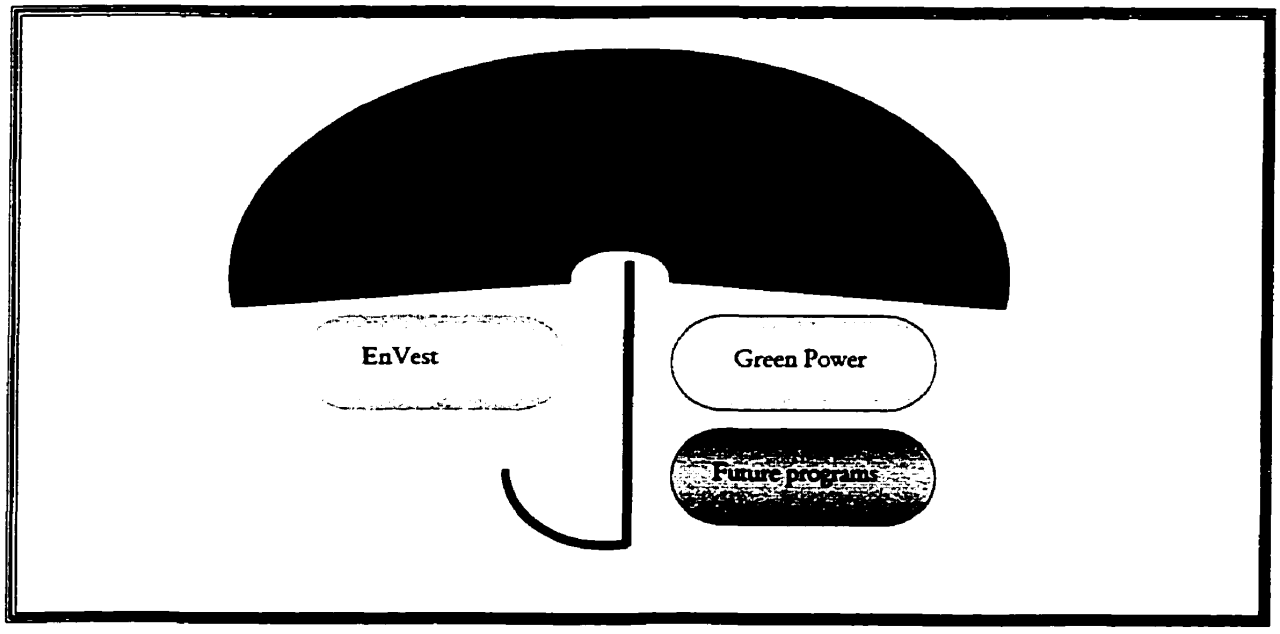
This concludes the discussion of the basic components of the voluntary challenge program for households. The next section discusses the final concept of the program.

6.2 THE UMBRELLA CONCEPT

All of these details comprise the voluntary challenge program recommended for implementation at EPCOR. The form and import of the program is also unique to the company. This program is designed to work as an umbrella program for all residential energy efficiency and clean energy programs (see Figure 5.2). As designed, the umbrella program does not call for specific actions such as retrofits or paying a premium for renewable energy. It merely registers the commitment to reduce energy consumption and address climate change. Registration in this program will encourage consumer participation

in other programs, some which ask for specific actions. Registration in one of any of these other programs, such as Green Power, will automatically register one in the umbrella program, simplifying participation in the umbrella program. However, registration in the umbrella program does not automatically register one for the other programs. It is left to the discretion of the participant whether they will participate in the other programs or not, but the process is facilitated by the umbrella program.

Figure 6.2 UMBRELLA CONCEPT



This concept of the program allows for greater flexibility once new programs are launched, or old ones are removed. The nature of the umbrella will essentially stay the same, with modifications as required (based on evaluations).

The name of the program is tentatively the EPCOR Energy Challenge. This puts the focus on a notion of challenging all consumers. The inclusion of EPCOR's name fuels customer loyalty through the program. And by not putting the focus strictly on electricity consumption, but on energy consumption, the program remains flexible to the inclusion of different forms of energy use, such as natural gas consumption. The name will be confirmed when EPCOR Executive approves the program.

The next section of the chapter discusses final design recommendations. A number of steps remain to be completed before the program can be launched. They are discussed below.

6.3 DEVELOPMENT PLAN

While the program design is complete, the following steps remain to prepare the it for a full-scale launch:

- Executive approval
- Design promotional material
- Design registration system
- Develop recognition program
- Design newsletter
- Complete information kits

This section of the chapter discusses these steps in greater detail. I strongly recommend the completion of all these steps for an effective and successful launch. This development plan is flexible and more steps may be added if the need arises. For instance, executive approval may hinge on other steps being included.

EXECUTIVE APPROVAL

The first step required is to gain executive approval for the program itself. The final program design anticipates this step by stating enhanced participation in other energy efficiency and clean energy programs as one goal, and improving customer loyalty to the company as another. The latter was included because an understanding exists at EPCOR that unless a program generates profit or improves customer loyalty it will not be approved[171].

Formally, the project should also follow EPCOR's corporate strategy. There are four facets to the strategy: growth; environment/regulation; people; and operational excellence. The EPCOR Energy Challenge answers all four of these goals. It has the potential to bring in new residential customers in a competitive market; it responds to a key environmental issue for the company – climate change; it encourages employees to motivate customers; and it could help maintain EPCOR's market share in Alberta.

As the EPCOR Energy Challenge is a residential energy service it must move from Sustainable Development - where I worked when designing the project - to a more appropriate department, such as Energy Services Marketing, a department familiar with residential programs. The new department will develop the business plan for the program. Once this is completed, an internal review by the department and appropriate directors will take place. The director for the department can then seek the approval of the executive for the program.

Once executive approval is gained the rest of the steps involved in final program development can be completed. They are included only as recommendations here because without executive approval they cannot be undertaken. The following sections discuss these steps in greater detail.

DESIGN PROMOTIONAL MATERIAL

Before any material, kits, or forms can be designed it is necessary to create a logo for the program. This is the first step in the design of promotional material for the program. Promotional material is extremely important because it creates a visible face to the program. When a consumer sees the logo they should be able to associate it directly with the program, or they should be intrigued to find out more about what the logo represents.

Promotional materials recommended include:

- Utility bill inserts
- Brochures and pamphlets
- Newspaper advertisements
- Video
- Display of commitment (lawn sign, window sticker, etc.)

Numerous other items are recommended, but their use would be at the discretion of EPCOR, and on par with any budgetary concerns. These include:

- Magnets
- Key Chains
- Bumper stickers
- Mugs
- Posters
- Television advertisements

The intent of these items is to increase the awareness of and generate interest in the program. They also act as a display and reminder of the commitment made by the consumer.

Included with the promotional materials is the development of the web site for the program. The web site includes all information available in the brochures. This includes program information, energy conservation tips, and an on-line registration form. Directly linked with the EPCOR web site, it acts as an on-line source of the program newsletter.

REGISTRATION

The registration system is central to the program. A clear, simple process is required to track commitment from consumers. There are two aspects to registration. The first is the form itself, and the second is the system that tracks registration.

While there will only be one registration form, it will exist in different formats. On-line registration, a sheet as part of the brochures, and telephone registration should all be made available. All three will require the same basic information:

- Name
- Address
- Utility account number
- An invitation to participate in related programs

This can be gathered in a few minutes with an EPCOR customer service representative, quickly downloaded, or mailed into EPCOR.

The format of the registration form will depend, however, on the system created to track registrations. Accounts are managed by a large computer system at EPCOR. Every time a new program or initiative to be tracked on a consumer's bill is added, the computer system must be updated. It will be more difficult to do this for the EPCOR Energy Challenge because there is no cost for the consumer associated with registration and it is easier for the current system to track additional billing[172]. Another difficulty that presents itself is that the system must also be accessible by program staff for newsletter and information kit distribution. These issues are difficult, but not impossible to overcome.

The registration system is the backbone of the program. It is the process through which consumers state their commitment to reduce energy consumption. It is also how EPCOR tracks participants. Without a clear system consumers may be deterred from the Challenge, and EPCOR may experience difficulties in delivering the program effectively. EPCOR must realise this importance and it is strongly recommended they devote significant time and energy to creating an effective and comprehensive system.

RECOGNITION PROGRAM

While incentives are not part of the EPCOR Energy Challenge, the program does aim to recognise and, if feasible, reward successful participants. There are different ways this can be done. This section discusses three ways.

The first way ties into a customer loyalty program. If consumers are provided with incentives for choosing EPCOR as their electricity provider, these incentives could ideally spread to participants in the EPCOR Energy Challenge. Likewise, the Challenge could encourage consumers to choose EPCOR, further enhancing customer loyalty initiatives through rewards or prizes, discounts at local businesses, or reduced energy prices. It not recommended that this last item be used in relation to the EPCOR Energy Challenge. This could act as a disincentive to conserving energy because a lower energy price would no longer be a motivation to act. It is also believed that low energy prices act as a disincentive to energy conservation[173]. The form of recognition related to customer loyalty programs will ultimately depend on the type of customer loyalty program implemented at EPCOR.

With or without a customer loyalty program, recognition can occur by awarding prizes to successful participants. Sponsors would have to be found to provide prizes or discounts. This enhances community support for the program. Rather than participants receiving money directly (beyond what they will ideally be saving on their utility bill), they will receive other benefits such as discounted dinners or entertainment.

A more simple form of recognition can occur through program literature. At the very minimum this form of recognition should be included in the Challenge. In this instance successful participants could be listed, profiled, or otherwise recognised in program

information such as the newsletter or web site. This form of recognition can provide models to encourage social diffusion and also act as a form of feedback.

With executive approval, and pending creation of a customer loyalty program, the recognition aspect of the program can be fully developed. In its most simple form recognition can be provided with program literature. An increase of community support, perhaps incrementally, can expand this to sponsored awards. If a customer loyalty program is launched, ties can be made between the two programs. Recognition of successful participants, in some form, is an incentive to action – as the public consultation process revealed – and should be included in the EPCOR Energy Challenge.

NEWSLETTER

The format of the newsletter is the next step towards launch. It should be designed prior to launch so that the first issue can be included in the information kits. Although the newsletter fulfils many responsibilities, first and foremost it would be a regular source of information for program participants. It should be distributed monthly to participants in the EPCOR Energy Challenge, separate from their utility bill, if EPCOR finds this financially feasible, to increase the probability it will be read. It should also be distributed twice a year to all EPCOR residential customers, as a promotional item to increase interest in the program. And thirdly, it should be published on the program web site.

Numerous functions exist for the newsletter beyond the provision of program information. First, it serves the role of providing group feedback to participants. Second, it provides an opportunity to recognise successful participants. And third, it is another means of providing energy conservation tips. The newsletter is the primary contact between EPCOR and participants. Therefore, it should be easy to read, entertaining, and inspiring.

INFORMATION KITS

Upon registration all participants will receive an information kit. The kit is intended to act as motivation for participants to fulfil their commitment. In order to do this the kit should contain:

- Basic program information
- Energy conservation tips
- Commitment display (lawn sign, window sticker, etc.)
- Information on related programs
- Video presenting tips and information

This should make for a substantial and thorough kit. I recommend that they be geared towards the type of dwelling the participant lives in. Apartment dwellers, for instance, will not receive information on installing motion sensor lights at the front of a house.

Kits can be completed just prior to program launch. Promotional material should already be developed and ready for inclusion. Information on related programs can be included, as it becomes available. Existing programs can also be promoted in the kits at the outset.

Tentatively included with the information kit is a video presenting energy conservation tips and further information. The video may be created in 2000, in conjunction with the University of Alberta Human Ecology Theme House. This is a demonstration project designed to show how existing dwellings, through technology and behavioural changes, can become eco-efficient. It will be retrofitted to use less energy and less water, incorporate sustainable practices such as composting, and will use environmentally friendly and recycled materials in its interior design. EPCOR plans to film renovations and use the house to model retrofits and behaviours. Footage will then be edited and used as a video for the information kit.

With the completion of this last preparatory step the EPCOR Energy Challenge will be ready for full-scale launch. Program design will be complete and all facets of the program clarified and prepared for active participation. The next section of the chapter provides recommendations for the launch itself.

6.4 LAUNCH RECOMMENDATIONS

The launch of this program is central to initial success. It must be assertive, bold, informative, and inspiring. It has to catch the attention of consumers and bring them to the program. This section of the chapter addresses a number of recommendations put forth to

enhance the launch and the program as a whole. This includes when it should be launched, how to announce the program, and ways to enhance positive publicity.

TIMING

The success of the launch will be influenced heavily by its timing. It must not follow too closely on the heels of other programs, but also must not be introduced at a time when no one will be paying attention to the activities of EPCOR or energy conservation. The ideal time for launch, then, is during Energy Awareness Week.

EPCOR is heavily involved in Energy Awareness Week in Edmonton, from sponsorship to organisation. A number of activities during this week are designed to increase consumer's awareness of their energy consumption and the effects it has on society and the environment. This is done through various activities and displays. Launching the EPCOR Energy Challenge during this week would take advantage of this heightened awareness. It would also increase the success of Energy Awareness Week, as the EPCOR Energy Challenge has similar goals.

ANNOUNCEMENT

The announcement of the EPCOR Energy Challenge should generate excitement and interest in the program. There are many ways to do this. For instance, when the Green Power program was launched the advertising campaign started two weeks before the program was launched. It created some mystery and inquiry as to what green power was, and what the program was about. When the program was officially launched people had already been introduced to the concept of the program. Initial results from the program are indicating strong success[174]. While this approach proved successful for Green Power, it is not recommended for the EPCOR Energy Challenge. The launch of the EPCOR Energy Challenge should be very clear and attempt to answer all questions at the outset

As registration is key to the program's success, it is recommended that the announcement of the program involve high profile registrants. This includes EPCOR executives, City of Edmonton officials, and local celebrities. This not only increases publicity for the program, it is also a demonstration of community support for the program

and should strengthen it. This occurs because these high profile registrants model behaviour and they demonstrate a commitment by a wider social group.

PUBLICITY

The EPCOR Energy Challenge follows another successful residential energy service program – Green Power. This fact should be highlighted during the launch. It is important to acknowledge past and current successes and build on these for the future. In this respect the EPCOR Energy Challenge might be viewed as an expansion of the Green Power program. EPCOR should try to avoid this and instead push for acceptance of an overall residential energy service through the EPCOR Energy Challenge, with Green Power becoming part of that.

That concludes discussion of the launch of the EPCOR Energy Challenge. The next section of the chapter moves through the experience of two imagined participants in the program. These hypothetical examples highlight the flexibility in participant responses, and demonstrate the potential to reach many consumers.

6.5 THE PARTICIPANT'S EXPERIENCE

During Energy Awareness Week, in October 2000, EPCOR launches the EPCOR Energy Challenge. An extensive media campaign through print, transit, and television spots will introduce the Challenge to the general public. Residential customers will also be provided with program information with their monthly utility bills in both October and November. This campaign will continually heavily for at least six months and upwards to eighteen months, dependent on the marketing budget for the program. It will then taper somewhat to provide a sustained general marketing campaign. It will also become more focused with attention given to community group associations and demonstration events six months after launch.

Joan Luchky* is a mother of two school-aged children. She works part-time as a laboratory technician. Her husband, Phillip, is a computer consultant. They own a small home in the neighbourhood of Castledowns, in the north side of Edmonton. The couple

* All names are pseudonyms used to represent random potential participants.

considers themselves to be relatively environmentally aware. They recycle through the Blue Bag Program, they teach their children not to waste water and electricity by turning off taps and lights, and they often take camping holidays to experience the natural world. During the evening news Joan views a commercial for the EPCOR Energy Challenge. Recalling some information about it from her utility bill she confers with her family and they decide to register. Savings would be a boost to their family income, and the children would benefit from becoming more aware of the way in which their actions influence the world around them.

The next day Joan calls an EPCOR customer service representative. Over the phone she goes through a simple process that registers her commitment to the program. That day an information kit is sent to her. Joan and her children place the sticker included on their mailbox. This way everyone who comes to the house can see that they participate in the program. The family studies the tips and suggestions provided. By changing a few things around the house, such as turning down the water heater, using the dishwasher for full loads only, and turning down the thermostat a few degrees the family finds it is able to save dollars a month. With this money they decide to sign up for the Green Power option offered by EPCOR. In the future, they might even want to retrofit their house or buy new, energy efficient appliances.

Roger Strup is graduating from school with a Heavy Duty Mechanic Certificate. He already has a job and has just put in a bid for his first house. It is in an older neighbourhood and is small, but it is close to work. He hopes to make some renovations in his spare time in order to improve it. He not only wants to make cosmetic changes such as new paint and new doors, but would also like to seal drafts and add more insulation. His boss at work mentions a program he heard EPCOR is offering. They will provide attractive financing for energy efficiency improvements on your home. Roger sees this as a good opportunity to help finance his renovations.

In order to qualify for the financing he must have a home energy audit. The audit points out the drafts that Roger knew about and a few energy losses he was not aware of. Moving forward he takes the recommendations from the audit, qualifies for the financing, and proceeds to retrofit his home. The difference is measurable on his first electricity bill.

He cannot pay back the loan through his energy savings alone, but concludes he has improved his home's resale value, therefore the loan was a smart move.

In the meantime Roger received information on the EPCOR Energy Challenge from EPCOR. He wasn't aware of this program, but his participation in the loan program automatically registered him in the program. Initially he felt no interest to actively participate. But the savings realised from the retrofits inspired him to see how else he could improve his energy use. The information kit provided with the Challenge showed him a few simple behaviour changes, such as turning down the thermostat for the twelve hours a day he was working, could save him even more money. It also, for the first time, showed him how his actions influenced the environment. As a result he started recycling and walking to work a few days a week.

These examples illustrate only two different ways consumers could participate in the EPCOR Energy Challenge, there are many others. The program is designed to be as flexible as possible, inviting as many participants as possible. It does not aim to focus on only one small section of the population, rather it aims to generate interest from as many residents as possible. The experience of the individual participant will be unique.

6.6 FUTURE STEPS

During the course of this project EPCOR launched or began investigating endeavours related to or in support of the EPCOR Energy Challenge. These endeavours will strengthen the program. This section briefly outlines these, and introduces future recommendations for the direction of certain aspects of the program.

ADDITIONAL FUNDING

Completion of the final steps of project development requires a significant cost for EPCOR. To alleviate this financial expense, EPCOR is completing an application to the federal government for funding. This application, made to the Climate Change Action Fund: Public Education and Outreach Program, aims to direct funds towards a successful launch of the program.

The Climate Change Action Fund (CCAF), introduced after the Kyoto Protocol was signed in early 1998, is designed to fund projects that will build the foundation for a national implementation strategy to address GHG emissions reductions commitments. The Public Education and Outreach Program is one aspect of the CCAF. Projects funded under this program must aim to increase awareness and understanding of climate change, and promote actions by Canadians to reduce or adapt to climate change[175].

Funds received from the CCAF will be used by EPCOR to complete project development. This will include all but one step (executive approval requires no additional funding) listed in the development plan for the move towards launch: design of promotional material, registration system, recognition program, newsletter, and information kits.

RESIDENTIAL PROGRAMS

During the course of this project EPCOR planned investigations into several other residential programs. These include a residential version of EnVest Alberta™ and a solar power program. If launched I recommend that they be supported under the EPCOR Energy Challenge as a residential energy services program. Indeed, the Challenge could provide administrative support and guide participants through the learning process. Proponents of these programs were contacted and influenced the design of the EPCOR Energy Challenge in anticipation of their own program.

RECOMMENDATIONS FOR THE FUTURE

The final program design recommended in this MDP is the most feasible and the one with the most potential for success. However, certain restrictions prevented some aspects of an ideal program from being included in the final program design. There are two further recommendations this MDP proposes to EPCOR for increased success of the program. They are not included in this final program design because of feasibility, but these circumstances may change in the future.

The first recommendation is to further redesign the energy bill provided to residential customers. While the bill currently provides an energy use history, it does not acknowledge GHG emissions. A recommendation for the future is to include a graph, similar to the one

now presenting energy use, which shows GHG consumption. This would provide a greater opportunity for consumers to make a connection between their energy consumption and climate change.

More frequent feedback is the second recommendation. Chapter Three showed that frequency of feedback affects success rates of energy conservation programs, the higher the rate of feedback, the more successful the program. It is recommended that EPCOR investigate opportunities for more frequent feedback to program participants or all consumers. The form and frequency of this feedback will depend on EPCOR's investigation.

The final program design, as it is presented here, calls for a very thorough and inclusive program. It answers the goals set out in the initial stages of the program, as well as those determined by the program proponent in design phases. The methodology used to create the program is sound and recommended by the National Climate Change Process[176]. The resulting design addresses all the issues introduced by the creation of the ideal energy conservation program. Consultation with both the public and EPOCR contributed to the program design. The EPCOR Energy Challenge should succeed in engaging Edmonton's residential consumers in energy conservation, and result in a reduction of GHG emissions.

This chapter discussed the final design of the EPCOR Energy Challenge – from the pillars holding up the program to the concept of its design, from the additional steps still required to take to the participant's experience. This design built on the work discussed in previous chapters to create a flexible, wholistic approach to energy conservation in Edmonton. The next chapter concludes the body of work by acknowledging how the EPCOR Energy Challenge achieves the goals set out in the project, and where this project fits in the wider circle of climate change mitigation in Canada.

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[169] McKenzie-Mohr 1999.
[170] Joel Nodelman, EPCOR, and Marilyn Noble, EPCOR, personal communication.
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[175] National Climate Change Secretariat 1999b.
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CHAPTER 7
SUMMARY

The EPCOR Energy Challenge aims to achieve three key goals:

- To engage EPCOR's residential customers in the issue of climate change
- To encourage residential customers to participate in energy efficiency and clean energy programs
- To increase customer loyalty toward EPCOR

All three goals are achieved through the design and implementation of this program.

Straightforward education programs ideally introduce or confirm concepts and notions to the public, but Chapter Three showed that this alone is not the most effective way to change behaviour and influence the public. There are a number of techniques for increasing the potential for success of a program. The EPCOR Energy Challenge incorporates many of these techniques, broadly identified through its three pillars: commitment interventions, feedback mechanisms, and social diffusion. These all stand on a solid information campaign, also incorporating certain techniques to enhance success.

Community-based social marketing schemes were the basis for development of this program. They directed the process of development and the resulting techniques employed in the design. The design seeks the active participation of the consumer in the issue of climate change. Asking consumers to register their commitment engages them initially. Making that commitment public bolsters it and promotes efforts to reduce personal GHG emissions and overall energy consumption. The freedom to choose how they will fulfil their commitment provides the greatest flexibility to the program. And providing feedback on their energy use and the program continues to keep them engaged, aware of their commitment, and ties results to their actions. Active engagement from consumers in climate change and its mitigation is theoretically achieved through this program design.

The second goal of the EPCOR Energy Challenge is to encourage participation in other energy efficiency and clean energy programs. EPCOR currently runs two such programs: Green Power and EnVest Alberta™. Of these two only Green Power is a residential program, but EnVest Alberta™ is planning to move, in a similar form, to residential service[177]. EPCOR is also a sponsor of Alberta R-2000, a new home efficiency product.

Other programs, such a residential solar program, are in the planning stages[178]. All of these programs have a direct role in climate change mitigation. Rather than many separate programs, these programs and participation in them can be grouped. The umbrella program brings all these programs together under one banner to address climate change and the sustainable use of energy.

The EPCOR Energy Challenge promotes all of these other programs. By acting as an umbrella over all residential energy service programs it promotes many ways to address climate change on a residential level. Registration in the Challenge provides participants with information on these other programs and facilitates their participation in them. Overall it represents a strategy towards residential energy services and ways to encourage the public to address climate change, through as many means as possible.

This directly leads to the third goal of the EPCOR Energy Challenge – to increase customer loyalty towards EPCOR. De-regulation of the electrical industry is underway in Alberta. In 2001 residential consumers will have the choice of electrical suppliers. Current electricity suppliers do not want to lose customers when this happens, so efforts to increase customer loyalty to the current supplier are growing[179]. The EPCOR Energy Challenge is one way for EPCOR to increase its customer loyalty.

The EPCOR Energy Challenge demonstrates EPCOR's commitment to the environment and progressive customer service. The program is unique and offers a level of energy services previously never available. It aims to set EPCOR apart from competing utilities. It also ties in well with plans to launch a customer loyalty program on a larger scale[180]. This would work well with a recognition aspect in the program. A loyalty program could recognise valuable customers, and this could extend to successful participants in the EPCOR Energy Challenge. Registration in the program promotes many EPCOR and EPCOR sponsored activities, thereby increasing the programs' profile, as well as EPCOR's.

This Master's Degree Project set out to design an informative, empowering, and equitable program challenging EPCOR residential customers to reduce their personal GHG emissions through reduced energy consumption. This objective was met by following the careful methodological design set out by the community-based social marketing scheme.

This scheme aims to ensure success in programs designed to promote energy conservation behaviour by focusing efforts on what works in each individual community. Barriers to sustainable behaviour change are unique, as are the best means to overcome them. The EPCOR Energy Challenge is what should work best for EPCOR and Edmonton residents to reduce energy consumption and address climate change.

Behaviour change is important for long-term results. Climate change is a long-term issue that cannot be remedied with quick technological fixes. Seriously addressing climate change requires an alteration in the way we view our consumption of resources[181]. While there are many gains to be realised from efficiency improvements throughout many levels of society[182], I believe the general public needs to become more aware of the potential consequences of energy consumption. This may prevent increased consumption as efficiency increases, which ultimately defeats any efficiency gains. The EPCOR Energy Challenge is one step towards raising this awareness among energy consumers, among the general public. Participants have many options under the program to address climate change. Many more exist outside of the program, such as transportation issues or urban design.

The Public Education and Outreach Table of the National Climate Change Process put out the call for this type of concrete action[183]. Numerous programs have been launched to answer this call. Those funded by the federal government include programs to educate corporate employees on climate change, a formula for calculating personal carbon dioxide emissions, and awareness campaigns. The EPCOR Energy Challenge is different from most other programs in that it directly engages the public. It works to get them involved in actions that address climate change. Instead of just being spoken to about the issue they are getting directly involved in it. Community-based social marketing results in this approach to foster behaviour change, rather than mere awareness of the issue. With successful implementation of the program and careful evaluation and re-working, if necessary, this program does present a very real opportunity for success in reaching the public and engaging them in climate change.

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[177] Lloyd Bertschi, EnVest Alberta™; Joel Nodelman, EPCOR; and Andy Riley, EPCOR, personal communication.
[178] Tannis Tupper, EPCOR, and Joel Nodelman, EPCOR, personal communication.

[179] Marilyn Noble, EPCOR, personal communication.
[180] Marilyn Noble, EPCOR, personal communication.
[181] Sachs et a1998.
[182] Von Weizsacker, Lovins, & Lovins 1998.
[183] Public Education and Outreach Issue Table 1998: v.

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APPENDIX A
TELEPHONE QUESTIONNAIRE

Criterion Research Corp. - Final
EPCOR

Hello, I'm _____of Criterion Research, an independent research company located in Edmonton. We are conducting a survey about general issues of interest to Albertans. We are interested in hearing your opinions and we are NOT selling anything.

A. Are you the head or joint head of the household?

Yes

No ASK FOR HEAD OR JOINT HEAD OF HOUSEHOLD ARRANGE CALLBACK IF NOT AVAILABLE

RE-INTRODUCE IF NECESSARY

We would like to talk to a cross-section of people. So, we like to ask a few questions before the interview.

B. Do you own or rent the home in which you live? WATCH QUOTA TERMINATE

Own	WATCH QUOTA
Rent	WATCH QUOTA
Refused	TERMINATE

C. Do you, or does anyone in your household work for.....RANDOMIZE & READ

Yes	No	
1	2	A radio or television station?
1	2	A newspaper or magazine?
1	2	An advertising agency or public relations firm?
1	2	A market research firm?

IF YES TO ANY IN QU.C, TERMINATE

1. RECORD

1	Male	WATCH QUOTA
2	Female	

2. What are the THREE MOST IMPORTANT issues facing Albertans today? Anything else? PROBE FULLY. DO NOT READ

IF ENVIRONMENT MENTIONED, RECORD IN FULL WHAT RESPONDENTS SAY

01 Education
02 Health care
03 Crime
04 Employment/Layoff
05 Taxes
06 Others (SPECIFY)_____
09 Don't know

3. What are the THREE MOST important environmental issues that are facing Albertans today? Anything else? PROBE FULLY

_____

_____

4. INTENTIONALLY OMITTED (By Criterion)

5a. As far as you know, do you believe the weather pattern in the world is changing?

1 Yes
2 No
9 Don't know

5b. Do you believe that the world temperature is rising?

1 Yes
2 No
9 Don't Know

6. As you may or may not know, the weather pattern in the world has been changing and the term for it is CLIMATE CHANGE. Climate change is often associated with global warming and greenhouse gas emissions. In your PERSONAL opinion, what are the factors or what are the things that people do that IMPACT or CAUSE climate change? Anything else? PROBE FULLY

_____

_____

_____

7. INTENTIONALLY OMITTED (By Criterion)

8. I am going to read a number of statements. For each, please indicate your response using a ONE to SEVEN scale where ONE means COMPLETELY DISAGREE, FOUR means you AGREE and SEVEN means you COMPLETELY AGREE. RANDOMIZE & READ

a. I believe that whatever I do in my daily life has minimal impact on climate change

Completely disagree
2
3
4 Agree
5
6
7 Completely agree
DO NOT READ
9 don't know

b. I ACTIVELY seek to purchase products that are environmentally friendly

c. To conserve energy, I am prepared to make shifts in lifestyle such as using public transit or cycling instead of driving

d. Unless I invest to make significant changes, whatever I do will have little impact on reducing climate change

e. Even if I try to conserve energy usage, the impact on reducing climate change is so little that it is not worth the effort

f. Everything possible should be done to reduce climate change or greenhouse gas emissions

g. I'm concerned about health problems caused by climate change or greenhouse gas emissions

h. Alberta should set a long term goal to reduce greenhouse gas emission

9. INTENTIONALLY OMITTED (By Criterion)

10. Please tell us how familiar you are with each of the following topics using a ONE to SEVEN scale where ONE means NOT FAMILIAR AT ALL, FOUR means FAMILIAR and SEVEN means COMPLETELY FAMILIAR. RANDOMIZE & READ

a. Things the general public can do to CONSERVE energy

1 Not familiar at all
2
3
4 Familiar

5
6
7 Completely familiar
DO NOT READ
9 Don't know

b. Things the general public can do to REDUCE climate change or green house gas emissions

11. INTENTIONALLY OMITTED (By Criterion)

12. Please tell me how important each of the following factors is or would be in influencing you to conserve energy, using a one to seven scale where ONE means NOT IMPORTANT AT ALL, FOUR means IMPORTANT and SEVEN means CRITICALLY IMPORTANT

a. The dollar savings as a result of conserving energy

1 Not important at all
2
3
4 Important
5
6
7 Critically important
DO NOT READ
9 Don't know

b. The contribution to reducing negative impact on the environment

c. The knowledge that your friends or others in your community are conserving energy.

13.& 14. INTENTIONALLY OMITTED (By Criterion)

15. Using a one to seven scale, where ONE means NOT INTERESTED AT ALL, FOUR means INTERESTED, and SEVEN means VERY INTERESTED please tell me how interested you are to learn more about.....

RANDOMIZE & READ LIST

a. The public's role and impact on climate change

1 Not interested at all
2
3
4 Interested
5

6
7 Very interested
DO NOT READ
9 Don't know

b. Steps the public can take to reduce climate changes or green house gas emissions

IF QU.B= 1, ASK QU.16a
IF QU.B= 2, ASK QU.16b

16a. Programs are being considered to help households to conserve energy in order to reduce climate change or greenhouse gas emissions. One program may provide a loan for specific recommended home renovations. The loan may be up to $10,000. Repayment of the loan will spread over a few years. Suppose such a program were available to you, please indicate how likely you are to participate in this program, using a ONE to SEVEN scale where ONE means VERY UNLIKELY, FOUR means LIKELY and SEVEN means VERY LIKELY

1 Very unlikely
2
3
4 Likely
5
6
7 Very likely
DO NOT READ
9 Don't know

16b. Programs are being considered to help households to conserve energy in order to reduce climate change or greenhouse gas emissions. One program may provide a loan for specific recommended home renovations. The loan may be up to $10,000. Repayment of the loan will spread over a few years. Suppose you were to own your own home and such a program were available to you, please indicate how likely you are to participate in this program, using a ONE to SEVEN scale where ONE means VERY UNLIKELY, FOUR means LIKELY and SEVEN means VERY LIKELY

1 Very unlikely
2
3
4 Likely
5
6
7 Very likely
DO NOT READ
9 Don't know

IF QU.16a or 16b=1 or 2 or 3, ASK QU.17a
IF QU.16a or 16b=4 or 5 or 6 or 7, ASK QU.17b

OTHERS, GO TO QU.18

17a. What are the MAIN reasons why you are NOT LIKELY to participate in the program? Anything else? PROBE FULLY

_____

_____

17b. What are the MAIN reasons why you are LIKELY to participate in the program? Anything else? PROBE FULLY

_____

_____

IF QU.16a or QU.16b= 1 OR 2 OR 3, ASK:
OTHER, GO TO QU.19

18. Your honest and frank opinion is very important to us. Please indicate the degree of influence each of the following factors has on your decision NOT to participate in the program, using a one to seven scale where ONE means NOT IMPORTANT AT ALL, FOUR means IMPORTANT and SEVEN means CRITICALLY IMPORTANT

a. The feeling that you CANNOT make enough of a difference

1 Not important at all
2
3
4 Important
5
6
7 Critically important
DO NOT READ
9 Don't know

b. Your reluctance to get into debt

c. There is not enough return in dollar value for you to invest in the renovation

d. Preference for a grant that you do not have to pay back

19. One program is to invite residential households to REGISTER and commit to reduce energy use and work towards reducing climate change. Energy saving actions will be recommended, ranging from simple ones like putting plastic on windows to renovating your house. Households' energy usage will be monitored and feedback provided. Recognition will be given to households who have reduced their electricity usage. Please indicate how likely your household will register for the program, using

a one to seven scale where ONE means VERY UNLIKELY, FOUR means LIKELY and SEVEN means VERY LIKELY.

1 Very unlikely
2
3
4 Likely
5
6
7 Very likely
DO NOT READ
Don't know GO TO QU.21

IF QU.19=1 OR 2 OR 3 ASK QU.20a
IF QU.19=4 OR 5 OR 6 OR 7 ASK QU.20b

20a. What are the MAIN reasons why you are NOT LIKELY to participate in the program? Anything else? PROBE FULLY

_____

_____

20b. What are the MAIN reasons why you are LIKELY to participate in the program? Anything else? PROBE FULLY

_____

_____

21. We want to know your response to specific features of the program. Using a seven point scale where ONE means COMPLETELY OPPOSE, FOUR means SUPPORT and SEVEN means COMPLETELY SUPPORT, please indicate your response to the idea of....RANDOMIZE & READ

a. Making public the names of the participants through newspapers and other means
1 Completely oppose
2
3
4 Support
5
6
7 Completely support
DO NOT READ
9 Don't know

b. Making public the names of the people who have reduced their energy usage through newspapers and other means

c. Giving awards or prizes to those who have reduced their energy usage

22. In your PERSONAL opinion, who should be ACTIVELY running energy conservation programs. Any others? DO NOT READ

1 Private companies or private organizations
2 Provincial government
3 Federal government
4 Environmental groups
5 Community groups
6 Electrical utilities/utilities (general)
7 Other (SPECIFY)_____

23. Please indicate your support for the idea of electrical utilities running the type of energy conservation programs described earlier using the ONE to SEVEN scale where ONE means COMPLETELY OPPOSE, FOUR means SUPPORT and SEVEN means COMPLETELY SUPPORT.

1 Completely oppose
2
3
4 Support
5
6
7 Completely support
DO NOT READ
9 Don't know

24. Who do you think should be responsible for ACTIVELY making efforts to reduce climate change or greenhouse gas emissions? Any others? DO NOT READ

1 Private companies or organizations/Business or industry leaders
2 Provincial government
3 Federal government
4 Environmental groups
5 Community groups
6 Individual households
7 Other (SPECIFY)_____

25. What are the sources that you have obtained information on how to reduce or conserve the amount of electricity you use? Any others? DO NOT READ. MULTIPLE RESPONSES

1 TV
2 Newspapers
3 Pamphlets or newsletters from your electrical supplier
4 Computer web sites

5 Other
(SPECIFY)_____
9 Don't know

BASIC DATA

The next few questions are for classification purposes.

26. What is the type of dwelling you live in? READ

1 Single Family home
2 Duplex/Fourplex
3 Townhouse/Condominium
4 Apartment
5 Trailer/Mobile home
6 other
(SPECIFY)_____

27. In which of the following age groups do you belong? Please stop me when I read the group you belong. READ

1 Under 18
2 18 to 24
3 25 to 34
4 35 to 45
5 45 to 54
6 55 to 64
7 65 or older
DO NOT READ
9 Don't know/Refused

28. Are you.....READ

1 Married/Common law
2 Single
3 Widowed
4 Divorced/Separated

29. How many people live in your household?

_____

30. Are there any children aged 18 or younger in your household?

1 Yes
2 No GO TO QU.32

31. Are there any children .....READ

Yes	No	
1	2	Under 6 years old?
1	2	7 to 11 years old?
1	2	12 to 18 years old?

32. Are you currently.....READ

1 Working full-time
2 Working part-time
3 A student
4 A homemaker
5 Retired
6 Unemployed
7 Self-employed
8 Or something else (SPECIFY)_____
DO NOT READ
9 Refused/Don't know

33. Which of the following describes your highest level of education? READ LIST

1 Completed elementary school
2 Completed high school
3 Completed Technical/vocational/community College
4 Completed university
5 Completed post-graduate university studies
DO NOT READ
8 Refused/DK

34. For classification purposes, in which of the following categories does your 1998 household income fall before taxes.....READ

1 Less than $20,000
2 $20,000 to $29,999
3 $30,000 to 39,999
4 $40,000 to $49,999
5 $50,000 to $69,999
6 $70,000 or more
DO NOT READ
8 Refused

35. How long have you lived in Edmonton? DO NOT READ

1 Less than 1 year
2 1 - 2 years
3 3 - 5 years
4 6 - 10 years

5 over 10 years

36. Does your household pay the electricity bill directly or is it included as part of the rent or condo fees?

1 Pay directly
2 Included as rent or condo fees

Thank you for your time and cooperation.

Table B.1
MOST IMPORTANT ISSUES FACING ALBERTANS

All Respondents	(N=606)
Health Care	63%
Education	48%
Taxes	31%
Employment	26%
Social Services/Welfare	18%
Economy	14%
Environment (NET)	14%
Pollution/Emissions	6%
Loss of Habitat/Deforestation	5%
Industry Regulation	4%
Environment (general)	3%
Crime	11%
Government Debt	4%
Politics (general)	3%
Other Mentions	8%
Nothing/Don't Know	

Table B.2
MOST IMPORTANT ENVIRONMENTAL ISSUE FACING ALBERTANS

All Respondents	(N=606)
Deforestation/Wetlands/Greenspace	40%
Water Quality/Pollution	26%
Air Quality/Pollution	21%
Factory/Industry Emissions	18%
Landfills/Hazardous Waste	16%
Recycling	13%
Oil/Gas Industry Pollution	13%
Vehicle Emissions	13%
Ozone Layer Depletion	10%
Depletion of Natural Resources	8%
Pollution (general)	7%
Lack of Laws/Regulations	5%
Pulp Mill Waste Pollution	5%
Urban Expansion	4%
Natural Disasters	3%
Other Mentions	7%
None/Nothing	2%
Don't Know	26%

Table B.3
PERCEPTIONS OF CLIMATE CHANGE

All Respondents	(N=606)
Believe the World Weather Patterns Changing?	
Yes	84%
No	12%
Don't Know	4%
Believe World Temperature Rising?	
Yes	75%
No	16%
Don't Know	9%

Table B.4
FACTORS BELIEVED TO CAUSE/IMPACT CLIMATE CHANGE

All Respondents	(N=606)
Vehicle Emissions/Usage	59%
Industry Emissions/Pollution	37%
Deforestation	15%
CFC's	14%
Use of Fossil Fuels	12%
Carbon Dioxide/Greenhouse Gases	7%
Ozone Layer Depletion	6%
Pollution (general)	5%
Not Recycling	5%
Space Program	5%
Lack of Environmental Laws/Regulations	3%
Water Pollution	3%
Hazardous Waste Disposal	3%
Air Pollution	3%
Overpopulation	3%
Burning/Burning Waste	3%
Garbage	2%
Other Mentions	10%
Nothing/Don't Know	10%

Figure B.1
IMPORTANCE OF FACTORS INFLUENCING ENERGY CONSERVATION

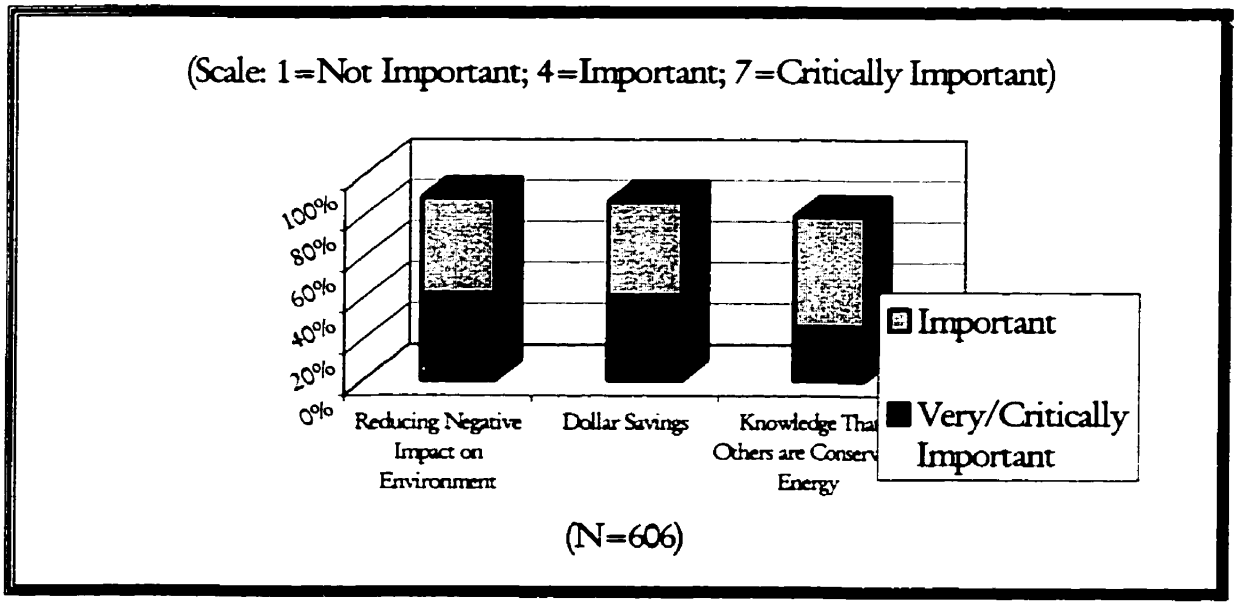


Table B.5
WHO SHOULD BE RESPONSIBLE FOR ACTIVELY MAKING EFFORTS TO REDUCE CLIMATE CHANGE?

All Respondents	(N=606)
Government	46%
Provincial	35%
Federal	34%
Municipal	10%
Individual Households	41%
Private Companies/Industry	29%
General Public/Everyone	13%
Community Groups	7%
Environmental Groups	5%
World Organisations	3%
Other Mentions	4%
Don't Know/Response	9%

Table B.6
WHO SHOULD ACTIVELY BE RUNNING ENERGY CONSERVATION PROGRAMS?

All Respondents	(N=606)
Government	50%
Provincial	39%
Federal	26%
Municipal	15%
Private Companies/Industry	17%
Environmental Organisations	12%
Community Groups	10%
Electrical Utilities/Utilities	10%
General Public/Everyone	8%
Scientific Community	2%
Independent Committees	2%
Other Mentions	8%
Don't Know	15%

Figure B.2
SUPPORT FOR ELECTRICAL UTILITIES RUNNING ENERGY CONSERVATION PROGRAMS

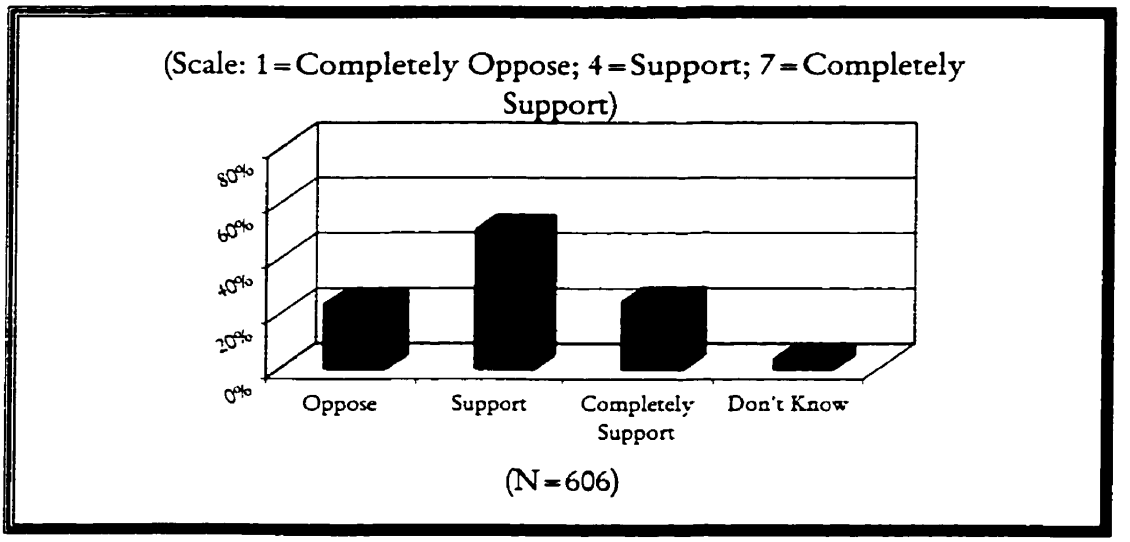


Figure B.3
LIKELIHOOD OF PARTICIPATING IN THE MODEL PROGRAM

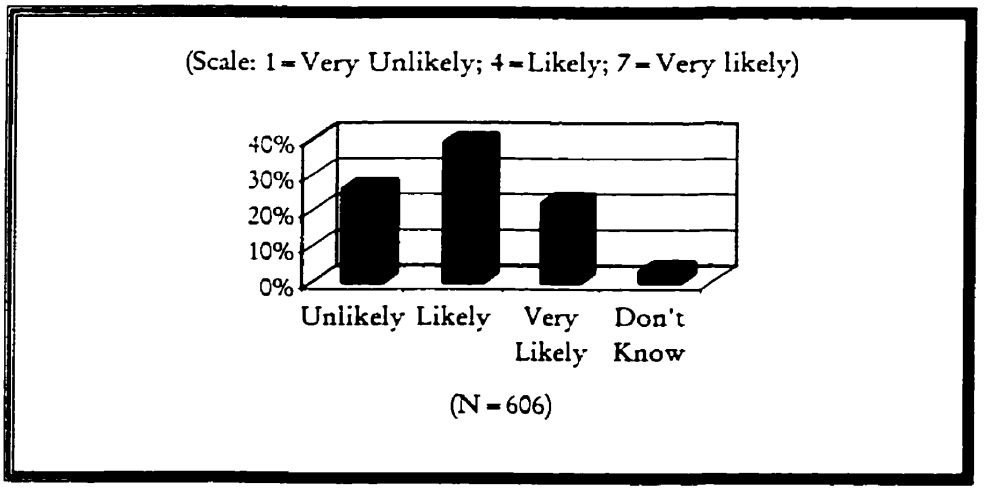


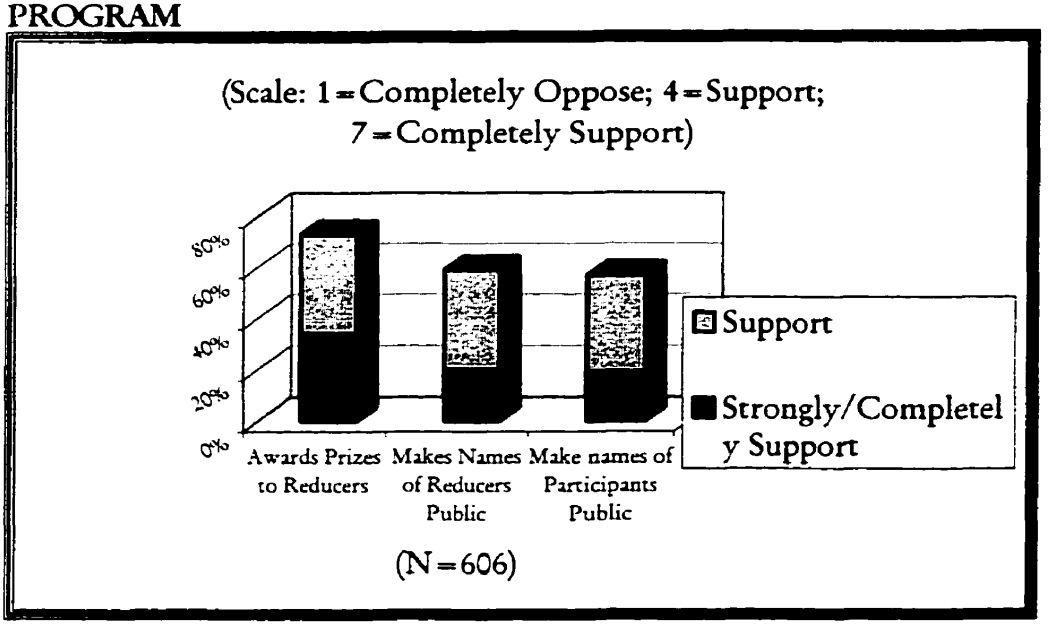
Table B.7
MAIN REASONS FOR BEING *LIKELY* TO PARTICIPATE IN THE MODEL PROGRAM

Those who are likely /very likely (4,5,6,7 ratings) to participate in the program	(n=367)
Save Environment/Reduce Emissions	46%
Save Money	42%
Learn to be Energy Efficient	11%
Sounds Interesting/Challenging	10%
Be an Example to Others	9%
Other Mentions	8%
Don't Know/No Reason	4%

Table B.8
MAIN REASONS FOR BEING *UNLIKELY* TO PARTICIPATE IN MODEL PROGRAM

Those who are unlikely (1,2,3 ratings) to participate in the program	(n=233)
Rent/Own Condo	22%
Not Interested	19%
House Already Energy Efficient	18%
Need More Info/Proof of Effectiveness	12%
Invasive/Too Many Regulations	10%
Too Old to Participate	5%
Couldn't Pay Back Loan	5%
Hard to Get Household Participation	4%
Don't Like Loans/Prefer Grants	3%
Other Mentions	15%
Don't Know/No Reason	4%

Figure B.4
SUPPORT FOR SPECIFIC FEATURES OF VOLUNTARY CHALLENGE PROGRAM



EPCOR

Edmonton

Your utilities bill

May 1 to May 30, 1999

Mary Constance Wentworth
For service at **210 Grandin Village NW**
Your account number **1234567**

Here's what you owe *For details, please turn over*

Amount of your last bill	$120.41	
Payments we processed *Thank you*	– 50.00	
Amount outstanding		70.41
New charges		121.03
Late payment charge	1.76	
Electricity	62.01	
Water	29.07	
Sewage	23.19	
Waste disposal	5.00	
Total payment now due		**$191.44**

Payment due after June 22, 1999 $194.47

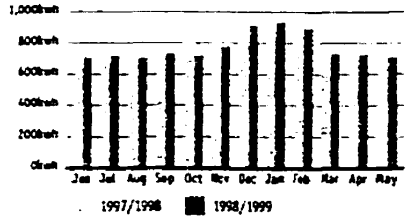
- **HIGHLIGHTS OF THIS BILLING**
  Number of days in the period: 30
  Average temperature: 12°C Average precipitation: 14mm
  Total electricity you used: 743 kWh
  Your average daily electricity cost: $2.07
- **OVERDUE AMOUNT**
  If credit arrangements are required, please call Edmonton Power Credit Office. If payment has been made, please disregard this notice. Payments processed after (DATE) will not appear on this statement.

Questions?

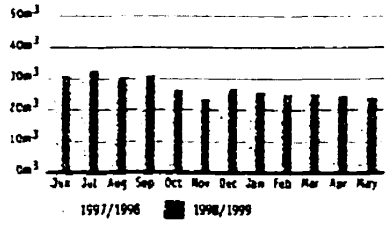
For account enquiries, call (780) 412-4000
Monday to Friday 8 am - 8 pm,
Saturday 9 am - 5 pm

Utility troubles? Call:
Electricity (780) 412-4500
Water (780) 412-6800
Sewage (780) 496-1717

YOUR ELECTRICITY USE AT A GLANCE



YOUR WATER USE AT A GLANCE



Turn over for details of your bill ▶

00000000037013640000128236000012823600000000037013640028

Payment return slip

Please complete and return this slip with your payment. Make your cheque or money order payable to EPCOR. For other payment options, please turn over.

EPCOR 71030 3250 ABC E N

Your account number	Total payment due	Payment due after June 22, 1999
1234567	**$191.44**	$194.47

Payment enclosed
$

MARY CONSTANCE WENTWORTH
210 GRANDIN VILLAGE NW SUITE 3456
EDMONTON AB T6K 2V6

EPCOR
PO BOX 500
EDMONTON AB T5J 3Y3

346001 010 267165 97

Your utilities bill
May 1 to May 30, 1999

Mary Constance Wentworth
For service at **210 Grandin Village NW**
Your account number **1234567**

Details of your previous payments

Amount of your last bill	$120.41
Payment by cheque we processed on Apr 25	- 50.00
Amount overdue from your last bill	**$70.41**

Details of your new charges

ELECTRICITY
Provided by EPCOR

Basic monthly service charge		$8.32
Meter reading on May 30 (phoned in)	17,084	
Meter reading on Apr 30 (actual)	- 16,341	
Amount of electricity you used, in kilowatt hours	743 kWh	
Cost of electricity you used at 6.68¢ per kWh		49.63
Total		57.95
GST (registration 893254854RT) @ 7%		4.06
Your total electricity charges		**$62.01**

WATER
Provided by EPCOR

Basic monthly service charge		$3.55
Meter reading on May 30 (phoned in)	383.7	
Meter reading on Apr 30 (actual)	- 360.3	
Amount of water you used, in cubic metres	23.4 m^3	
Cost of water you used at 94.22¢ per m^3		22.06
Monthly surcharge for water main renewal May 30		3.46
Your total water charges		**$29.07**

SEWAGE
Provided by Drainage Services Edmonton

Basic monthly service charge	$5.78
Sewage charges based on total water used of 79.7m^3:	
15 m^3 at 74.24¢ per m^3	11.14
8.4 m^3 at 74.66¢ per m^3	6.27
Your total sewage charges	**$23.19**

WASTE DISPOSAL
Provided by Waste Management Services Edmonton

Monthly waste disposal fee	**$5.00**

TOTAL NEW CHARGES $119.27

For your information

- **CONTACT US - EPCOR CUSTOMER SERVICES**
  Telephone: (780) 412-4000 Fax: (780) 412-4295
  Website: www.epcor-group.com Address: 11th Floor Capitol Square, 10065 Jasper Avenue NW, Edmonton, AB T5J 3B1
- **LATE PAYMENT CHARGE**
  We charge a one-time, late payment charge of 2.5% on amounts outstanding after the due date shown.
- **PLEASE ALLOW TWO BUSINESS DAYS NOTICE FOR CLOSING ACCOUNTS**
  The customer in account is responsible for all charges until service is formally disconnected.

Options for paying your bill

You can pay your bill:

BANK STAMP

- by the Automatic Payment Withdrawal plan
- by telephone or PC banking, available 24 hours a day (see your bank for details)
- currently utility bills may be paid, for a nominal charge, at most Financial Institutions
- in person by cash, cheque or direct debit at Capital Square, 10065 Jasper Avenue, 8:00am - 6:00pm, Monday to Friday.
- by cheque in the drop box at Capital Square or City Hall during office hours
- 24 hour depository City Hall (Northside) or Capital Square
- by mail to P.O. Box 500, Edmonton AB T5J 3Y3

Please bring your complete bill when paying in person. If your cheque is returned because of insufficient funds, we will add a service charge to your account.