

Tackling Energy Poverty

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Consumers' Association of
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I feel like that's my life. I feel like it goes rent, heat, and everything else is just a maybe.

Focus group participant, St. John's Newfoundland and Labrador

We have to neglect our food bill...would rather pay the food bill.

Focus group participant, Pimicikimak Manitoba

Heat is a basic human right.

Focus group participant, Williams Lake British Columbia

Introduction

For more than a decade, the Manitoba branch of the Consumers' Association of Canada (CAC Manitoba) has voiced growing concern for those consumers experiencing difficulty paying their energy bills, paying a significant portion of their income toward energy, and/or making unsafe or inadvisable trade-offs to make energy bill payment possible. In the autumn of 2015, the organization became aware of several emerging challenges that would impact these consumers:

- **Large energy rate increases in Canadian jurisdictions** - It became evident that Manitobans would face significant electricity rate increases in the coming years due to infrastructure development in the province. The organization noted that a number of consumers in Ontario were already struggling with unmanageable energy bills. It was rumoured that consumers in other provinces would be experiencing similar concerns in the near future.
- **Interest in energy bill affordability in several Canadian provinces** - In October of 2015, CAC Manitoba joined a number of other concerned parties in an energy bill affordability process that was ordered by the

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Manitoba Public Utilities Board after the previous electricity general rate application hearing. As discussions began around that table, the organization realized that the impact of energy poverty on affected consumers was even more far-reaching than they had previously realized. It also became evident that other provinces were conducting, or had already conducted, similar processes looking at energy bill affordability options.

- **Carbon tax** - The possible introduction of a federal carbon tax was the final impetus that the organization needed to begin research into the subject of energy poverty, and possible strategies, initiatives and programs that would be effective at alleviating or reducing it.

In spring of 2016, the organization received funding from the Office of Consumer Affairs to conduct this research.

Methodology

Based on the review of energy poverty literature, and on emerging energy issues, the following research tools were chosen to guide CAC Manitoba's research from a consumer perspective:

- A review of relevant literature and research
 - PILC was instructed to consider relevant literature from a variety of jurisdictions, including Canada, the US, and beyond.
 - The review was to include various definitions of energy poverty, and policies and perspectives regarding reduction and alleviation.
- Interviews with interested and affected policy communities, including government, energy regulators, indigenous organizations, industry energy providers, academics, and organizations working with consumers living with energy poverty
 - Guided by the literature review, and assisted by PILC, a slate of interview questions was developed. (See Appendix A)
 - Interviews were conducted by telephone, and by appointment. Each interview was recorded with the interviewee's permission. Interviewees were promised anonymity.
 - The goal was to interview two representatives of each of the categories listed above in Canada. As the work progressed, CAC Manitoba included one additional interview from the UK.
 - Four interviews were conducted, but not used as part of the results summary, due to the respondent's difficulty in answering the questions. In each case, CAC Manitoba was able to interview a more appropriate person from each organization.

- A review of programs and initiatives in Canada and other jurisdictions
 - PILC conducted this review looking at an extensive list of programs and initiatives current or attempted across Canada, and in the US.
 - Programs reviewed included a variety of funding sources (utility ratepayers, taxpayers).
 - Types of programs reviewed included bill assistance and affordability measures, affordable energy efficiency programs, a variety of rate-setting strategies (including conservation rates and lowering rates for all consumers), to name a few.
 - CAC Manitoba's initial instruction to PILC was to assist us in developing a metric for evaluating these programs and initiatives, including things like penetration rates of eligible consumers and economic sustainability. Unfortunately, there was so little evaluative information available, that a metric was not feasible. Instead, PILC developed a matrix comparing programs and initiatives based on their criteria and underlying strategy.
- A review of legislation and regulation, both provincial and federal, that enables or disables the provision of energy poverty reduction strategies
 - This was conducted by PILC. Their instructions were to look at legislation in Canadian jurisdictions that either enabled or disabled potential strategies to alleviate energy poverty. This meant that the legislation reviewed included that pertaining to other benefits available to lower income consumers (such as income assistance), rate setting mandates of energy regulators, and housing and conservation legislation.
 - Due to the sheer volume of pertinent legislation, CAC Manitoba decide, for the purposes of the report, to limit the provincial review to four jurisdictions: Nova Scotia, Ontario, Manitoba, and British Columbia. A full list of pertinent legislation across Canada can be obtained by contacting CAC Manitoba.

- Six focus groups with consumers in a variety of Canadian jurisdictions including urban and rural centres, and the north.
 - CAC Manitoba developed a script for the sessions, working with PILC and ICA, which was reviewed by Dr. Carter (methodologist) and Council members from Pimicikimak. The same script was used in all six focus group sessions. For the full script, see Appendix D.
 - ICA Associates was contracted to conduct six focus groups across Canada. CAC Manitoba's instructions, with the advice of our methodologist, was to locate centres that met certain criteria (major heating fuel use, geographic region, etc). CAC Manitoba's goal was to include one First Nation, if possible.
 - Some of the locations originally booked had to be altered due to setbacks such as the threat of early flooding (BC) and an inability to obtain band permission to conduct the session on reserve (NFLD). In the end, ICA Associates conducted five sessions, and PILC conducted one session on reserve in Pimicikimak, located in northern Manitoba.
 - Some leaders in Pimicikimak, who were not participating in the focus group, were given the opportunity to review the script. They made no suggestions for changes.

In all aspects of the research, CAC Manitoba received feedback from independent research methodologist, Dr. Tom Carter, prior to proceeding.

Results

Review of Literature

For years, energy poverty brought little attention outside of the UK and Ireland, however recently it has become a more pressing issue and has crept into a number of regulatory documents and policy proposals, in the EU as well as the U.S. and Canada (Green, Jackson, Herzog, & Palacios, 2016). Although, energy poverty lies between many areas; including social, environmental, energy and housing policy; the heart of the issue is enabling disadvantaged people so they can afford the energy services necessary for a comfortable and healthy life (McEachern & Vivian, 2010). These individuals can only achieve this if they are able to purchase relatively inexpensive energy services (Boardman 2012). Consequently, it is important to consider how increasing energy rates might disproportionately affect poor individuals. This section of the report will provide a review of the literature on energy poverty.

Defining Energy Poverty

In general, a variety of terms are used to describe energy poverty, including; fuel poverty, energy insecurity, and energy precariousness. Although they may have varied technical definitions, they all refer to the inability to obtain or meet some level of energy needs. In developed nations, energy poverty typically refers to the (lack of) affordability of energy; comprised of various issues that prevent consumers from reaching an accepted energy level – often believed to be the level of basic necessity (Koh, Marchand, Genovese, & Brennan, 2012). Whereas, energy poverty in developing nations generally concerns the availability of energy; the lack of access to modern energies like electricity (Okushima, 2016). Despite the fact that the term energy poverty is generally used in the developing nation context, this paper will use energy poverty synonymously with terms like fuel poverty and energy insecurity referring to the affordability side of the issue predominantly experienced in developed nations.

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A Historical Context

The energy poverty conversation really started to grow in the UK during the 1980's following the volatility of fuel prices in the 1970's (O'Meara, 2016). There were growing concerns regarding the impact of the affordability of energy services, specifically the affordability of heat and how it impacted public health (Day, Walker, & Simcock, 2016). Mortality statistics at the time showed a peak of deaths during winter months, which were thought to be related to the poor housing stock in the UK; making houses more expensive to heat (Koh, Marchand, Genovese, & Brennan, 2012). Additionally, Brenda Boardman published her seminal work in 1991 that led to the adoption of a national definition; households spending more than 10% of their disposable income to achieve a satisfactory heating regime (as well as other energy services – although this is often ignored) were considered fuel poor. The UK definition has since changed; revised to a low income, high costs definition in 2013 (Hills) but similar definitions inspired by Boardman's work have been used and continue to be used to this day. Subsequently, the UK has had a large influence on the energy poverty conversation – impacting both research and policy (Day, Walker, & Simcock, 2016). As a result, the dominant conversation revolves around thermal comfort - mainly warmth through heating as an essential service, while other energy services are rarely discussed (Walker & Day, 2012). However, lack of other energy services – air conditioning for example – can have consequences as severe as those resulting from a lack of heating.

Differentiating energy poverty from general poverty

The close link between energy poverty and general income poverty has led researchers to investigate the independence of energy poverty; comparing indicators of basic deprivation to those specific to energy poverty. Watson and Maitre's (2015) results suggested that energy poverty is primarily an issue of inadequate financial resources rather than housing stock and its solution may lie in understanding and addressing the factors that lead to general poverty like the ability to earn an adequate income. In contrast, energy poverty is believed to constitute its own type of deprivation – distinct from general income poverty because of its sensitivity to changes in energy prices and the fact that there is a

large capital component regarding the energy efficiency of the home and its appliances (O'Meara, 2016). In fact, many studies have shown empirically that energy poverty is a distinct problem from general income poverty (Okushima, 2016) (Walker & Day, 2012). In addition, there is a broad consensus in the poverty measurement field that deprivation is multidimensional and solely looking at income poverty is inadequate; supporting the idea that energy poverty is not just the lowness of income, but the inability to meet some elementary needs (Okushima, 2016). However, defining these elementary needs is no easy task (Walker & Day, 2012) and attempts provoke a discussion on what is trying to be accomplished, whether it's ensuring a subsistence level of heating or a relative level of energy necessary to live a healthy life in a particular society.

Implications from defining and measuring energy poverty

The definition of energy poverty is particularly important for policy formulation; affecting the scale and nature of the problem as well as ongoing monitoring and the solutions (Moore, 2012). Moore showed that altering the UK definition of energy poverty led to large variations in the estimated level of energy poverty. The way energy costs were estimated – whether they were based on average regional prices or collected through surveys – as well as the method used to calculate income affected the results. Net income can be measured before or after housing costs are deducted and ordinarily housing costs are excluded from income, however since energy poverty is specific to the households existing home their ability to pay for energy depends on disposable income after housing costs (exclusive of energy costs) (Moore, 2012). Evidently, the technique used to estimate energy poverty can have big implications and can lead to a misrepresentation of energy poverty levels. Moreover, alternating between measures does not only affect the estimated scale of the problem but the scope as well; producing a fundamentally different distribution of energy poor individuals (Moore, 2012).

There are three basic approaches to measuring energy poverty:

Expenditure Approach

Based on the nominal amount spent on fuel; using a budget threshold,

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households are considered energy poor when they spend more than a given percentage of their income on energy (e.g. 10%). Aside from the difficulty of constructing an arbitrary energy poverty line, this approach can also underestimate energy poverty levels as some households have been known to spend less of their incomes on energy precisely because they can't afford it – leading to the exclusion of these low-income households (Moore, 2012).

Predictive Approach

This method estimates the level and cost of energy needed for a specific household to attain a satisfactory level of heat or energy services in general; avoiding the underestimation experienced when using actual expenditures. Although this approach does require extensive knowledge of housing stock and if this information has not already been collected; it would be very difficult and intensive.

Self-report approach

Conversely, a subjective indicator can be used – estimating energy poverty through survey questions or other qualitative means – extracting a response regarding a household's ability to afford heat and energy services in general (Waddams Price, Brazier, & Wang, 2012). Subjective measures can provide depth to the understanding of energy poverty. Allowing individuals to identify themselves can provide valuable information to researchers and can avoid uncertainty and complexities that are more common with other measures of energy poverty (Waddams Price, Brazier, & Wang, 2012).

Furthermore, energy poverty can be measured in an absolute sense – like a static budget threshold (e.g. 10% energy expenditure – income ratio) or in a relative sense – like a variable budget threshold (e.g. twice the median energy expenditure – income ratio). Although the relative definition may seem more appealing, or at least less arbitrary than the absolute definition, it also has

shortcomings; for example, a rapid increase in fuel prices would lead to an immediate increase in the variable budget threshold while the proportion of individuals struggling to pay their energy bills would remain constant or increase. Consequently, the variable threshold would not accurately reflect the real change in energy affordability for households (Moore, 2012). Additionally, wealthy households can be mistakenly included in these estimates if precautions aren't taken.

As a result, Moore suggests an approach that evaluates a household's ability to afford energy, considering their minimum income standards (MIS) needed to participate in society – similar to the market basket measure used in Canada. Households are considered energy poor if they are unable to meet their required energy costs after deducting housing and all other minimum living expenses [(income – housing and other minimum living costs) < (energy costs)]. Moore's results with the MIS method indicate that energy poverty may be underestimated when using alternative methods.

What are the determinants of energy poverty?

High energy prices, low incomes and poor housing stock appear to be the major causes of energy poverty (Boardman, 2010). Depending on the particular climate, economy and condition of housing stock – one factor may be dominant, though it is often difficult to dissect them from each other.

Cost of Energy

The cost of energy is dependent upon the particular source of energy (natural gas, oil, electricity, biomass), the method of energy generation (coal, hydro-electric, wind, solar), the particular energy market; be it public or private (the rates offered may fluctuate), public policy (e.g. carbon tax), geographical conditions including the climate and remoteness of a location that may limit energy services, and details of the prospective consumer (credit history). Consequently, households can be trapped in to high costs and debt cycles; especially since energy bills are often used as emergency credit and low-income households frequently pay higher rates – through energy type (diesel fuel common in remote areas), and increased rates due to their poor credit history (Middlemiss & Gillard,

2015).

Household Income

The relationship between energy costs and a household's income is particularly important in the affordability of energy. Stability of income plays an enormous part in the vulnerability of a household; providing autonomy for those with reliable incomes or limited control for those reliant on benefits (Hernandez, Jiang, Carrion, Phillips, & Aratani, 2016). A lack of income or financial resources is by definition a fundamental part of energy poverty, but it does not explain the prevalence or patterning it has.

Energy Efficiency of the Dwelling

The energy efficiency of a dwelling depends on the quality of housing stock; influenced by housing regulation, age and the particular climate among other factors. The energy efficiency of a dwelling and its appliances affect its ability to retain heat or use energy services in a cost-effective manner (Maxim, Mihai, Apostoaie, Popescu, Istrate, & Bostand, 2016). Boardman (2010) and others believe the energy efficiency of the dwelling to be of particular importance as energy poor households often reside in poorer quality housing and have little ability to improve it.

Additional Determinants

Furthermore, Middlemiss and Gillard (2015) emphasize tenancy relations, social relations and ill health as critical determinants in energy poverty as well. Tenancy relations often impede investments in the home as landlords have little incentive to invest, while tenants have little knowledge of a buildings efficiency beforehand or influence in improvements. The level of social relations that a household has is reflective of the support they have – limited support leaves households more vulnerable to energy poverty. Poor health not only poses a threat to income but can also require an increased level of energy, and as the responsibility for resolving the energy poverty related health problems is not clearly defined – these sick and elderly individuals often become vulnerable.

Energy poverty is predicated on markers of social disadvantage including low socioeconomic status, race, ethnicity and housing tenure (Hernandez D. , 2016).

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Factors such as racial residential segregation and concentrated poverty play a part in who experiences energy poverty (Hernandez, Jiang, Carrion, Phillips, & Aratani, 2016). Individuals who experience these factors and are socially disadvantaged as a result are disproportionately affected by energy poverty and can experience more severe consequences because of it. The most vulnerable appear to be the elderly, children, single parents, the poor and minorities including First Nations people and individuals with disabilities. Moreover, it appears that reducing vulnerability seems to be more reliant on structural changes than individual household choices. Inefficient building stock, heating technology and household appliances are often beyond the control of these households. The social, economic and political structures that influence the lives of the poor and the respective public policy are difficult to alter.

The consequences of energy poverty

The consequences of living in energy poverty are typically cited as poor health outcomes and the reduction of disposable income to meet other needs like food and clothing. The consequences seem to be dispersed amongst three groups: physical, mental and economic effects. These consequences are also impacted by the way a household copes with energy poverty.

Coping with energy poverty

Gibbon and Singler (2008) identified three general types of coping mechanisms when confronted with energy poverty:

Fuel Use Reduction through rationing

Generally it can be seen that low-income and fuel-poor households often use less energy than necessary for maintaining good health (Boardman, 2010).

Financial measures, reducing expenditure on other essential items, particularly food

An American study has shown that poor families tend to spend more on energy in periods of cold weather, but at the same time cut back on their expenses for food in equal amount. This unfortunate situation coined the “heat or eat dilemma” (Bhattacharya, DeLeire, Haider, & Currie, 2003) results in negative health consequences.

Incurring Debt (Arrears or Other Forms of Debt)

Many energy poor households report difficulties in paying their energy bills. This experience can be damaging to mental health, leading to stress, anxiety and depression (Green & Gilbertson, 2008). An American study reported 80% of low income households reported difficulties with the provision of energy services indicating they had experienced arrears or power cuts (Hernandez & Bird, 2010).

The costs of energy poverty

The social, economic and environmental costs include: increased homelessness and unemployment, the opportunity costs of constrained economic development in low-income areas, the financial burden on the utilities and ratepayers when energy poor consumers default on their bills, and increased health care expenditures (Howat & Oppenheim, 1999). Most significantly, the consequences of energy poverty include increased mortality rates. Mortality rates have been recorded as increasing by nearly 20% in winter in England (Koh, Marchand, Genovese, & Brennan, 2012). Although this increase can't be attributed directly to energy poverty it is thought to be a major factor. Countries that have more energy efficient housing have lower excess winter death (Marmot Review Team, 2011). It has been estimated that for each 1-degree drop below the average winter temperature in the UK there are 8000 extra winter deaths, and for each additional winter death there are 8 admissions to the hospital, 32 visits to outpatient care and 30 social services call (Koh, Marchand, Genovese, & Brennan, 2012). The costs of energy poverty appear to be significant.

The World Health Organization recommends a minimum temperature of 21 degrees in living rooms and 18 degrees in all other rooms, as lower temperatures can be detrimental to human health (O'Meara, 2016). As temperatures fall below 16 – the risk of respiratory infection rises; below 12 – blood pressure increases and below 9 – deep body temperature falls (Sumbly, Ford, & Rodger, 2009). Colder temperatures place thermal stress on the body; affecting its immune, cerebrovascular and cardiovascular systems (Atsalis, Mirasgedis, Tourkolias, & Diakoulaki, 2016). The main health issues associated with thermal stress are changes in blood pressure and blood chemistry that can lead to a higher risk of

catastrophic events including strokes, myocardial infarctions or pulmonary embolisms (Liddell & Morris, 2010). Cold and damp housing conditions also increase levels of mould and dust mites – intensifying respiratory, allergic conditions and suppressing the immune system – leading to an increased risk of infections, pneumonia, influenza and respiratory illnesses (Hernandez D. , 2016).

Turning towards Canada

Although Canada hasn't been as active in the energy poverty conversation as some nations there have been great efforts at both the provincial and federal level, as well as through consumer advocates and voluntary organizations to address the issue.

In 2013, an estimated 7.9% of Canadian households were classified as energy poor, slightly up from the 2010 estimate (Green, Jackson, Herzog, & Palacios, 2016). These estimates classified those spending 10% or more of their total expenditures (which includes everything from food, rent, and gifts to taxes) on energy goods as energy poor. Statistics Canada has indicated that the average Canadian household's annual expenditure on water, fuel and electricity was approximately 3% in 2014, while low-income families spent over 20% of their total expenditures on fuels and electricity (2014).

This inequality was also expressed geographically. Atlantic Canada had the highest incidences of energy poverty in 2013 – 20.6 percent while B.C. experienced the lowest – 5.3% (Green, Jackson, Herzog, & Palacios, 2016). Saskatchewan had the second highest level of energy poverty – 12.9%. Ontario had a 2013 estimate of 7.5% - down slightly from 2010. Alberta saw a 21.2% jump increasing to 6.8% in 2013. Manitoba ranked third best in the country at 6.7 percent. Quebec had the second-best level of energy poverty in 2013 – 6.2%, even though it saw a 40% increase from 2010. The relatively low levels of energy poverty in B.C., Quebec and Manitoba are believed to result from the comparatively low electricity prices, driven by the substantial hydroelectric production (Angevine & Green, 2014). The situation is far worse up north, as the Northwest Territories and Nunavut experience electricity prices that are on average three times higher than southern

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Canada (Cairney, 2009).

Costs of energy in most regions have risen since 2010. Canadian energy prices included in the CPI more than doubled between 1994 and 2013; exceeding the growth in disposable income as well as the rate at which residential energy intensity is declining (Green, Jackson, Herzog, & Palacios, 2016). However, Canada still has relatively low energy costs compared to the rest of the world.

Unsurprisingly, energy poverty disproportionately affects lower-income Canadian households. Investigating energy poverty by income quintile – Green, Jackson, Herzog and Palacios observed that the first and second quintile groups – those with incomes below 27,000 and between 27,001 and 47,700 experienced the highest proportion of energy poverty; 15.8% and 16.7% respectively (2016). The third and fourth quintiles experienced much lower levels of energy poverty – 6.9% and 2.8%. The energy burden of an average low-income household is clearly disproportionate relative to the experiences of other households (Lio & Associates, 2010). An Albertan study indicated that the average low-income household in 2011-12 spent three times more than the average household on home energy services, and seven times more than the average high-income household in Alberta as a fraction of net income (Boyd & Corbett, 2015).

Interviews

Interviews were conducted with the following affected or interested policy communities from a variety of Canadian jurisdictions:

- Two representatives of provincial government departments offering other benefits to consumers (one income assistance and one housing)
- Two representatives of energy regulatory boards or tribunals
- Three representatives of indigenous organizations or nations
- Two representatives of utilities
- Two academics
- Two representatives of organizations working with lower income consumers

Identification of important issues

Interviewees identified an array of key issues to consider when addressing energy poverty. These included, but were not limited to:

- Education
 - Programs and initiatives are useless without marketing and promotion
 - Informed consumers are more able to access programs to help meet their own needs, to advocate for themselves
 - Education alone **will** not alleviate energy poverty, but it can assist
- Cost of providing programs, and economic sustainability, including
 - Administrative complexity increases the cost of program administration
 - Public acceptability of programs requiring subsidy from either ratepayers or taxpayers
 - Political acceptability of programs requiring subsidy from taxpayers
- Environmental sustainability
 - Does bill affordability encourage higher energy use?
 - Controversy surrounding the use and effectiveness of inverted rate strategies
 - Inverted rate strategies are explained in more detail under the review of programs and initiatives in the Results section – briefly inverted rates charge a lower rate for the initial block of

energy used (first 500 mwh, for example) and then a higher rate for subsequent usage...In an attempt to encourage energy efficiency.

- The inevitable connection between energy poverty and housing condition
 - The effectiveness and reach of programs to help consumers with limited income improve the energy efficiency of their homes
 - The importance of building codes and the condition of subsidized housing stock
- Energy poverty as a part of poverty in general
 - Cannot consider a solution for energy poverty without considering the impact of poverty on households
 - The dignity, despair, and lived experience of those consumers the program is designed to assist must be an integral part of program design
- Equity
 - Lack of equity amongst energy users in society
 - Lack of equity in delivery of bill assistance programs
 - Differences in legislation and regulation across jurisdictions, and between federal and provincial governments
 - Lack of equity between consumers based on participation rates
 - Lack of equity due to geographic, climatic differences
 - Lack of equity for Indigenous communities, including northern and remote
- Jurisdiction
 - Regional differences and jurisdictional overlap
 - Benefits and deficits of federal programs versus provincial or regional programs
- Engagement
 - Failure to engage potential program participants/consumer living with energy poverty before instituting programs
 - Failure to engage all relevant parties that might be impacted by programs, including those who pay for programming through rates or taxes
 - Failure to develop programs that consider the dignity, life-experience and reality of consumers living in energy poverty
- Participation rates
 - What is an acceptable rate of participation for a program/initiative

- How to encourage participation of eligible consumers
- Evaluation
 - Lack of evaluation of program penetration rates
 - Lack of evaluation of actual effectiveness (to what degree has this program alleviated or lessened energy poverty?)
 - Lack of evaluation of efficiency of program delivery and providers

Pros and Cons of various program options

Bill Assistance

Several interviewees favoured bill assistance programs, including special rates, bill discounts, and bill rebates. Reasons cited for this included ease of administration (these programs are often delivered by the energy provider or utility), limited jurisdictional dispute (usually within the mandate of the regulator), and limited bureaucratic difficulty in obtaining necessary permissions, etc. Some proponents of this type of program indicated that those consumers already receiving some form of assistance would find it easy to learn about, and register for, this type of program. When asked what an acceptable level of participation would be, proponents cited 40% to 50% of eligible households as an acceptable level. One government representative indicated that this was often the most participation that could be expected with any benefit program.

Several interviewees called these programs a short-term measure, citing cost and political will as two reasons that these programs lost favour and/or funding. Some also raised the fluctuating nature of poverty, and the tendency of some consumers to move in and out of a poverty situation, making their personal participation in these programs cumbersome and inconsistent.

Inverted rates was a system suggested by some as a way to lower energy bills while ensuring that consumers still practiced conservation. One participant cited the use of this measure in British Columbia, but was unsure of evaluative data on its effectiveness at achieving either goal. Several respondents raised concerns about those consumers with substandard housing and limited access to housing upgrades. These individuals also noted that those consumers who could not

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lower their bills to the lowest threshold of an inverted rate strategy would be in a worse situation than before the program was put in place.

Arrears forgiveness

This was raised by a number of interviewees as a vital part of any effective energy poverty reduction program. For those consumers who are in significant arrears, a program that requires them to be paid in full before qualifying is inaccessible.

Others raised the cost to ratepayers in general of this type of measure, citing large amounts of arrears in several jurisdictions across the country.

Housing quality/affordable energy efficiency programs

Most interviewees indicated that housing quality was a key aspect of energy poverty, and that affordable energy efficiency programming (offering low income consumers the opportunity to make energy efficiency upgrades to their homes for little or no cost) was effective at lowering bills. Many respondents, however, cited difficulty amongst some consumers in accessing these programs, limits on eligibility, and the limited nature of upgrades that qualified for program funding. Several interviewees indicated that they believed housing quality upgrades should be part of any energy poverty reduction strategy, although it may be combined with other efforts, such as bill assistance, government rebates or federally funded programming.

Improvements to housing codes, and energy efficiency requirements for new builds was mentioned as another housing measure that could, over time, work to reduce energy poverty, particularly in subsidized housing.

Who should pay for programs and initiatives

Once again there was clear difference of opinion amongst interviewees. Several respondents proposed that the cost of these programs should be spread amongst energy ratepayers as a whole. Others dismissed that notion as one that punished eligible non-participating households by raising their rates, rather than lowering them.

Several respondents proposed government funding models that included something modeled on the basic guaranteed income, the GST rebate, and child

tax credit. Their reasons included ease of administration, and the ability to assess, through the income tax, when participants no longer required assistance. One interviewee noted, however, that in some jurisdictions, consumers on assistance would have their assistance cut back if they received a cheque or rebate of any sort.

Thinking outside the box

Two interviewees shared potential ideas for strategies that were based on fixing cost rather than rates or rebates. Consumers who were disadvantaged due to remoteness or cold climate would be charged the same rate as the average consumer in large urban centres, thereby making costs more equitable across regions of the country. Both interviewees indicated that the additional cost of providing these programs would be passed on to urban consumers, rather than remote or northern households.

Timeliness of this research

Almost every interviewee felt that energy poverty was a crucial issue for consumers, utilities, governments and regulators at this time. Reasons cited included nation-wide failing infrastructure, the cost of expansion and development for export, pending carbon taxation, and the current state of our economy.

Review of Legislation

The legislative review focused on federal legislation and legislation from British Columbia, Manitoba, Ontario and Nova Scotia. It includes laws that relate to one or more of the causes of energy poverty. It also includes laws impacting sectors of society that experience energy poverty, namely lone-parent families, children, women, seniors, Aboriginal peoples, persons with disabilities, newcomers, the working poor, people living in rural areas, and renters.

Laws to reduce energy consumption, promote energy efficiency or alleviate poverty

There are a number of ways in which legislation is used to reduce energy consumption, promote energy efficiency and/or develop poverty reduction strategies.

Laws setting out the government's objectives and strategies

All provinces canvassed have laws that set out particular objectives and strategies relating to energy conservation, efficiency and/or poverty reduction. Those laws typically give a Minister or government department the authority to take measures to achieve the objectives or to implement the strategy. They also usually give the Lieutenant Governor in Council and/or the Minister broad regulation-making authority. Some of the laws allow for the appointment of advisory committees to give advice and make recommendations. Manitoba's *Energy Act* gives the Minister authority to direct an advisory committee to consult with the public before providing advice or recommendations.

A provincial law relevant to energy efficiency and conservation is British Columbia's *Clean Energy Act*. That law lists the province's energy objectives, which include taking demand-side measures and conserving energy, ensuring that BC Hydro's rates are among the most competitive in North America, encouraging communities to improve energy efficiency, and fostering the development of First Nation and rural communities by using and developing clean or renewable resources. A provincial law relating to the alleviation of poverty is Manitoba's *Poverty Reduction Strategy Act*. That province's All Aboard strategy includes

specific housing action plans to alleviate or reduce energy poverty.

Laws that create minimum energy efficiency standards

All of the provinces canvassed have laws that adopt building codes with minimum energy efficiency standards for building construction and renovation. The federal government and the four provinces also have laws relating to minimum efficiency standards for energy-using products and appliances. An interesting feature of the federal *Energy Efficiency Act* is that it requires the Minister to undertake a comparison every three years of federal energy efficiency standards with those in the rest of Canada, the United States and Mexico.

Laws that creates an entity or fund to promote energy conservation and efficiency measures

Some provinces have laws creating an entity or establishing a fund to promote energy efficiency and conservation. For example, British Columbia's *Sustainable Environment Fund Act* creates the Sustainable Environment Fund as a "special account" for the purposes of providing programs to protect and enhance the environment. The objectives of the Independent Electricity Systems Operation ("IESO") under Ontario's *Electricity Act* and regulations include engaging in energy conservation activities through rebates, refunds or offsetting payments.

Laws that impose specific legal obligations or requirements to eliminate or reduce energy efficiency or conservation barriers

Some provinces have laws imposing specific obligations or requirements to reduce energy usage or eliminate efficiency-related barriers. For example, British Columbia's *Clean Energy Act* requires BC Hydro to submit an integrated resource plan to the Minister that includes rates designed to encourage energy conservation or efficiency. Manitoba's *Energy Savings Act* requires Manitoba Hydro to prepare an annual Energy Efficiency Plan that includes energy efficiency targets and a strategy to achieve those targets. Ontario's *Green Energy Act* and regulations allow designated energy-saving goods, services and technologies to be exempt from restrictions that otherwise prevent or limit their use, for instance in a municipal or condominium by-law.

Laws that create energy conservation initiatives or programs or that create financial assistance programs or tax credits to help persons living with low incomes pay their shelter and/or energy costs

Federal and provincial laws and regulations have been used in different ways to create energy conservation initiatives and programs or to assist individuals and families living with low incomes pay their shelter and energy costs.

Laws that fund or create energy conservation and energy efficiency initiatives and programs

A law that funds energy conservation and efficiency initiatives is the federal *Energy Costs Assistance Measure Act*. That law gave approval to the Treasury Board to approve a payment of up to \$425 million to the Canadian Mortgage and Housing Corporation (“CMHC”) to fund measures to reduce the energy consumption of housing projects under the *National Housing Act* (Canada). It also authorized the payment of up to \$338 million to provide extra funding for the EnerGuide for Houses Retrofit Incentive Program under the *Energy Efficiency Act* (Canada).

Provincial laws relating to energy conservation and efficiency initiatives and programs vary. Some give authority to the Minister responsible or a government department to implement the initiatives and programs; some give that authority to a public utility or a public utility regulator; and some give that authority to an independent entity.

A law that gives authority to the government is Manitoba’s *Property Tax and Insulation Assistance Act*. That Act gives the Minister authority to provide loans to eligible homeowners to assist with the cost of insulating or improving the insulation of the home, or installing energy conservation options and air ventilation and quality devices. Another is the *Ontario Rebate for Electricity Consumers Act*, which requires the government to provide eligible consumers with an 8% rebate of their electricity costs.

A law that gives authority to a public utility is British Columbia’s *Clean Energy Act*. That Act requires prescribed public utilities to establish a program that offers financing to eligible home owners or occupiers to improve the energy efficiency

of a building or part of a building. Another is Manitoba's *Energy Savings Act*, which gives Manitoba Hydro the authority to establish and maintain an On-Meter Efficiency Improvements Program. A law that gives authority to a public utility regulator is the *Ontario Energy Board Act*. That Act requires the OEB to assess the expenses incurred and expenditures made by the Ministry of Energy with respect to energy conservation programs. It also gives the Minister authority to issue policy directives to the OEB to promote energy conservation and efficiency.

A law that creates an independent entity is the *Efficiency Nova Scotia Corporation Act*, which created the not-for-profit Efficiency Nova Scotia Corporation to manage electricity demand-side management programs, establish the Electricity Demand-side Management Fund, and to engage in other energy efficiency and conservation programs.

Some provincial laws expressly refer to groups that are vulnerable to energy poverty. For example, Manitoba's *Energy Savings Act* states that programs and services to encourage and realize efficiency improvements and conservation must be generally designed and delivered to ensure that people living in rural or northern Manitoba, seniors, and people with low incomes have access to them. That Act also states that energy conservation and efficiency programs and services may target particular areas or locations in Manitoba and/or assist seniors, persons living with low incomes, tenants or other specified groups.

Laws that create income assistance programs

All the provinces canvassed have laws creating income assistance programs that include a shelter allowance component and, in certain circumstances, additional assistance for shelter and/or utility costs. Some income assistance programs allow the shelter allowance to be increased in certain circumstances or allow for additional utility-related or energy efficiency-related assistance. In particular:

- British Columbia's income assistance programs allow for additional supplements and hardship assistance;
- Manitoba's income assistance program allows the director to increase the amount of shelter assistance up to the actual cost of the rent based on the person's individual circumstances. It also entitles recipients to receive an

- estimated monthly amount for the reasonable cost of utilities;
- Ontario's disability support program provides for an additional monthly benefit to help recipients pay for low-cost energy conservation measures taken on their principal residence. The Ontario Works program allows for:
 - the rental amount of furnaces and water heaters, and hook-up or reconnection charges for a utility to be included in utility expenses; and
 - a security deposit required for connection or reconnection of an energy source or heating and/or payment of utility arrears to be included as a shelter cost in certain circumstances;
 - Nova Scotia's income assistance program allows eligible recipients to receive additional shelter assistance for emergency heat or utility arrears in some situations.

Laws that create financial benefits or allowances targeted to a particular low-income group

It seemed appropriate to review these pieces of legislation as they contribute to the ability of consumers to pay their energy bills. With increased income comes a lessening of energy poverty.

Several federal and provincial laws create financial benefit programs to increase the incomes of one or more vulnerable groups. Federal laws include the *Old Age Security Act*, the *Universal Child Care Benefit Act* and the *War Veterans Allowance Act*. Provincial laws include Manitoba's *Social Services Administration Act*, Ontario's *Guaranteed Annual Income Act*, and Nova Scotia's *Senior Citizens Financial Aid Act*.

A key issue relevant to provincial income and other financial assistance programs is that they are generally not available to Aboriginal people living on First Nations reserves. For example, the *Manitoba Assistance Act* expressly states that persons living on a First Nation reserve are not eligible for shelter assistance. Ontario has addressed this issue to some extent through laws such as the *Ontario Works Act, 1997*, which allows income assistance to be provided on designated First Nations reserves.

Laws that create energy conservation and efficiency-related tax credits

Three of the provinces canvassed have laws creating energy conservation and

efficiency-related tax credits:

- British Columbia's *Income Tax Act* and regulation establish a low income climate action tax credit;
- Manitoba's *Income Tax Act* and the *Green Energy Equipment Tax Credit Regulation* create a tax credit for property owners who install a geothermal heat pump system or a solar thermal energy system. Manitoba's *Property Tax and Insulation Assistance Act* allows tax reductions for taxpayers whose principal residence is equipped with solar heating equipment; and
- Ontario's *Taxation Act* creates the Ontario Trillium Benefit made up of: (1) the Ontario energy and property tax credit to assist low- to moderate-income individuals with property taxes and the sales tax on energy; (2) the Ontario sales tax credit to assist low- to moderate-income individuals with their sales tax; and (3) the Northern Ontario energy credit to assist residents of Northern Ontario with their higher energy costs.

Laws that govern public utility regulators with respect to setting utility rates

Each of the four provinces canvassed has its own unique laws governing public utility regulators with respect to the setting of utility rates.

British Columbia

The *Clean Energy Act* requires BC Hydro compare its electricity rates with those charged by public utilities in other North American jurisdictions. The *Rate Comparison Regulation* states that in its annual report, BC Hydro must include a comparison with at least one public utility in at least 15 other North American jurisdictions, including the provinces of Alberta, Quebec, Ontario and Manitoba, and the states of Washington, Oregon and California.

Subsection 59(1) of the *Utilities Commission Act* prohibits a public utility from making, demanding or receiving "an unjust, unreasonable, unduly discriminatory or unduly preferential rate for a service provided by it in British Columbia".

Subsection 59(2) states that a public utility must not "as to rate or service, subject any person or locality, or a particular description of traffic, to an undue prejudice

or disadvantage”.

The Utilities Commission determines whether a rate is unjust or unreasonable, whether “there is any undue discrimination, preference, prejudice or disadvantage in respect of a rate or service, and “whether a service is offered or provided under substantially similar circumstances and conditions”. (s. 59(4))

When setting a rate, the Utilities Commission “must consider all matters it considers proper and relevant affecting the rate”. (s. 60(1)(a)) It also must give regard to the setting of a rate that:

- “is not unjust or unreasonable”;
- “provides to the public utility for which the rate is set a fair and reasonable return on any expenditure made by it to reduce energy demands”; and
- “encourages public utilities to increase efficiency, reduce costs and enhance performance”. (s. 60(1)(b))

The Utilities Commission “may take into account a distinct or special area served by a public utility with a view to ensuring ... that the rate applicable in each area is adequate to yield a fair and reasonable return”. (s. 60(2)) If a special area is taken into account, the Utilities Commission “must have regard to the special considerations applicable to an area that is sparsely settled or has other distinctive characteristics”. (s. 60(3)) The Utilities Commission has determined that it has jurisdiction to approve low income rates if there is an economic or cost of service justification. (Decision and Order G-5-17, January 20, 2017)

Manitoba

When setting utility rates, Manitoba’s *Crown Corporations Public Review and Accountability Act* allows the Manitoba Public Utilities Board (“the PUB”) to consider “any compelling policy considerations that the board considers relevant to the matter” and “any other factors that the board considers relevant to the matter”. (s. 26(4)) According to *The Manitoba Hydro Act*, the rates charged by Manitoba Hydro for power supplied to a class of grid customers within the province must be the same throughout the province. Manitoba Hydro cannot classify customers “based solely on the region of the province in which they are

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located or on the population density of the area in which they are located”. (S. 39(2.2)(b))

Section 77 of *The Public Utilities Board Act* gives the PUB authority to set “just and reasonable” hydro rates whenever it determines they are “unjust, unreasonable, insufficient, or unjustly discriminatory or preferential”. The PUB has determined that it has jurisdiction to require Manitoba Hydro to implement a bill affordability program. (PUB Order No. 73/15, July 24, 2015)

The preamble to Manitoba’s *Affordability Utility Rate Accountability Act* states that “by reason of Manitoba’s ownership of Manitoba Hydro ... Manitobans should benefit from low rates for electricity, natural gas for home heating”. This law requires the Minister of Finance to retain an independent accounting firm to prepare a report setting out comparable costs across the country for a “utility bundle” consisting of electricity, natural gas for home heating and automobile insurance. If the cost of the utility bundle is lower in any other province, the Minister must prepare a plan “to return Manitoba to the lowest cost position”. (s. 2) It should be noted that this legislation will be repealed for the fiscal years after 2016/17.

Ontario

The objectives of the *Ontario Energy Board Act* include protecting the interests of consumers and promoting energy conservation consistent with the provincial government’s policies, including “having regard to the consumer’s economic circumstances”. (ss. 1(1), (2))

The OEB may make orders fixing just and reasonable rates for the sale of natural gas. When approving or fixing just and reasonable rates, it may adopt any method or technique that it considers appropriate. The OEB also has authority to “make orders approving or fixing just and reasonable rates for the transmitting or distributing of electricity”. (s. 78(3)) When approving just and reasonable rates for distributors who deliver electricity to rural or remote consumers, the OEB must “provide rate protection for those consumers or prescribed classes of those consumers by reducing the rates that would otherwise apply in accordance with

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the prescribed rules”. (s. 79(1)) In the case of *Advocacy for Toronto Ontario v. Ontario Energy Board*, 2008 CanLII 23487 (Ont. SC), it was held that the OEB has jurisdiction to take income level into account when setting rates to achieve its objective of protecting the interests of consumers.

The OEB may “make provision for rate assistance to rate-assisted consumers having regard to their economic circumstances”. (s. 79.2(1)) If it makes such provision, the rates and related activities may be referred to as the “Ontario Electricity Support Program”. The OEB may also make an order identifying “one or more classes of consumers as rate-assisted consumers” and regulations may be made to identify other rate-assisted consumers. (ss. 79.2(4), (5)) The Lieutenant Governor in Council may make regulations to determine the classes of consumers who are rate-assisted consumers, to calculate the amount of rate assistance to be provided, and to set maximum rate assistance amounts.

The *Ontario Electricity Support Program Regulation* requires the OEB to fix the amount of monthly rate assistance for 2016 for specified classes of consumers. According to the OEB’s website regarding the Ontario Electricity Support Program, higher assistance levels are available to eligible recipients whose homes are electrically heated and to First Nations or Métis people. The *Rural or Remote Electricity Rate Protection Regulation* sets out the classes of consumers eligible for rate protection, including certain consumers who occupy residential premises in rural areas, designated remotes areas and those referred to in the schedule.

Nova Scotia

Nova Scotia’s *Gas Distribution Act* prohibits a gas franchise holder to “make any undue discrimination in rates, tolls, charges, service or facilities against any person or locality”. (s. 15) The Utility Review Board may, on its own initiative or upon application, “approve or fix just and reasonable rates ... for the delivery of gas by a gas delivery system, including related services”. (s. 22(1)) In approving or fixing rates, the Board must give due regard to certain criteria, including “avoidance of undue discrimination in rate relationships” and “efficiency of the rates ... in discouraging wasteful use of service while promoting all justified types and amounts of use”. (s. 22(3)) The Utility Review Board may approve or fix just

and reasonable rates that are “intended to result in cost savings or other benefits to be allocated between the owner of the gas delivery system and its customers” and that are “otherwise in the public interest”. (s. 22(4))

Section 42 of the *Public Utilities Act* requires the Utility Review Board to “fix and determine a separate rate base for each type or kind of service furnished, rendered or supplied to the public by a public utility”. All rates must, “under substantially similar circumstances and conditions in respect of service of the same description, be charged equally to all persons and at the same rate”. (s. 67(1)) In cases such as *Dalhousie Legal Aid Services v. Nova Scotia Power Incorporated*, 2006 NSCA 74, and *Boulter v. Nova Scotia Power Incorporated*, 2009 NSCA 17, it was held that the Utility Review Board does not have jurisdiction to order or adopt a rate assistance program for low income consumers and requiring all customers in similar circumstances to be charged the same rate is not discriminatory under the *Canadian Charter of Rights and Freedoms*.

The *Public Utilities Act* requires Nova Scotia Power to “undertake cost-effective electricity efficiency and conservation activities that are reasonably available in an effort to reduce costs for its customers”. (s. 79I(1)) Nova Scotia Power must meet those obligations by entering into an agreement with an electricity and conservation franchise holder or in another manner approved by the Board. Nova Scotia Power may also “enter into financing arrangements with its customers or offer support for the supply of heating equipment, including heat pumps, to its customers”; and “undertake any electricity efficiency and conservation activities”. (s. 79I(3))

Laws relating to housing development and/or affordable housing

Federal housing laws

The *Canada Mortgage and Housing Corporation Act* and the *National Housing Act* are the two federal housing laws. Under the *National Housing Act*, CMHC has broad authority over such things as rental housing projects, rehabilitating and improving existing buildings, and public housing. Under these laws, CMHC improves access to affordable housing to assist people living with low incomes,

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seniors, persons with disabilities, people at risk of homelessness and Aboriginal people. According to CMHC's website, about 80% of CMHC's social housing portfolio is administered by the provinces and territories under long term agreements. It administers the remaining 20%, which includes on reserve housing and some federally funded off reserve housing units.

The federal government funds the Investment in Affordable Housing, which allows CMHC to work in partnership with provincial and territorial governments to improve access to affordable housing through various initiatives including new construction and renovations, assistance to homeowners, and rent supplements and shelter allowances.

With respect to First Nations housing, CMHC works with First Nations communities, federal partners, the provinces and territories, and Indigenous organizations. According to CMHC's website, the vast majority of off reserve housing investments are delivered by the provincial/territorial governments, but CMHC provides funding to support the housing needs of Indigenous people living off reserve. With respect to housing on reserve, CMHC provides funding to support the construction of new rental housing, renovating existing homes and for ongoing subsidies for social housing for First Nations people living on reserve. Aboriginal Affairs and Northern Development Canada also provides assistance for on-reserve housing.

Provincial housing laws

All of the provinces canvassed have laws relating to housing development and/or affordable housing. They typically give authority to implement and administer the law to a Minister or government department, a housing authority or commission, or some other entity. It seemed important to review these pieces of legislation as the quality of housing and the ability of energy poor consumers to make energy efficiency improvements, for example, was raised by interviewees, and features prominently in the review of programs and initiatives.

A law that creates affordable housing for specific low-income groups is Manitoba's *Elderly and Infirm Persons' Housing Act*. That Act allows a

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municipality, corporation or organization to establish housing accommodations for elderly people living with low incomes. A law that gives authority to a Minister or specific government department is British Columbia's *Ministry of Lands, Parks and Housing Act*. The purposes and functions of the Ministry under this Act include developing land or improvements to provide housing. Nova Scotia has similar legislation, in particular the *Housing Act*, which is intended to "improve and increase the housing stock of the Province". (s. 3) The *Senior Citizens Assistance Program Regulations* under this Act establish a program to provide financial assistance to eligible owners and occupants of single family dwellings who are at least 63 years old.

All the provinces canvassed have laws and/or regulations that gives authority over the management and development of housing to a housing authority or commission.

British Columbia's *Ministry of Lands, Parks and Housing Act* and the *British Columbia Housing Management Commission Regulation* give the BC Housing Commission the power to manage housing and developments, administer rent supplement and other housing assistance programs, and make loans or grants to First Nations to facilitate or develop affordable housing projects.

The regulations under Manitoba's *Housing and Renewal Corporation Act* create two financial assistance programs. The first is the *Homeowner Emergency Loan Program ("HELP") Regulation*, which gives Manitoba Housing the authority to make interest-free loans to homeowners for repairs related to health and safety. The second is the *Manitoba Home Renovation Program ("MHRP") Regulation*, which established one-time grants to homeowners for renovations.

Ontario's *Housing Services Act* was enacted "to provide for community based planning and delivery of housing and homelessness services with general provincial oversight and policy direction". (s. 1) The Act requires service managers to ensure that rent-geared-to-income assistance is provided in its service area for at least the prescribed number of households, including "high needs households". (s. 40)

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Lastly, Nova Scotia's *Housing Nova Scotia Act* creates Housing Nova Scotia, whose purposes include providing more adequate and improved housing for individuals and families living with low incomes.

Laws that promote community revitalization or planning

Some of the provinces canvassed have laws promoting community revitalization and renewal with respect to housing. These laws are included in this review because of the above stated relevance of housing condition to energy poverty reduction.

In particular, Manitoba's *Community Renewal Act* was enacted "to support community-based planning and renewal initiatives in designated communities". (s. 2) Manitoba's *Planning Act* allows zoning by-laws for new residential developments to require that a certain percentage of the dwelling units offer affordable housing to households with low or moderate incomes. Ontario's *Planning Act* gives municipalities authority over "community improvements" that include affordable housing. Nova Scotia's *Preston Area Housing Act* allows the Preston Area Housing Fund to provide financial assistance to community residents and areas in which it operates to provide better residential housing.

Residential tenancies laws pertaining to rent increases

The legislative review included residential tenancies laws in the four provinces canvassed. They are referred to in this analysis if they allow a landlord to increase the rent after making energy conservation or efficiency-related repairs or improvements to a building or unit.

British Columbia's *Residential Tenancy Act* allows a landlord to apply for an additional rent increase if "the landlord has completed significant repairs or renovations to the residential property in which the rental unit is located". (s. 23(1))

Manitoba's *Residential Tenancies Act* allows a landlord to increase the rent above the guideline amount if the landlord intends to carry out a "rehabilitation scheme" for a rental unit or a residential complex. According to the *Residential Rent Regulation*, when calculating the rent increase, the landlord's capital

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expenses are considered to be incurred to the extent of 1/6 of the acquisition or replacement cost, for instance of a heating system, roofing, siding or windows that increases energy efficiency. (s. 9(1.2)(c) If the acquisition or replacement does not increase energy efficiency, then the capital expense is considered to be incurred to the extent of 1/8 of the acquisition or replacement cost. (s. 9(1.2)(d))

Ontario's *Residential Tenancies Act* allows a landlord to apply for an order permitting rent over the guideline amount for any or all of the rental units in a residential complex if there has been an "extraordinary increase" in the cost of utilities or the landlord has made eligible capital expenditures. (s. 126(1)) Eligible capital expenditures include those necessary to "maintain the provision of a plumbing, heating, mechanical, electrical, ventilation or air conditioning system", or to promote water or energy conservation. (s. 126(7)) Ineligible capital expenditures include those that have "failed to promote the conservation of electricity or the more efficient use of electricity" and "the purpose for which the capital expenditure was made could reasonably have been achieved by making a capital expenditure that promoted the conservation of electricity or the more efficient use of electricity". (s. 137(15))

Conclusions

Strategies and programs designed to reduce energy poverty can be impacted from a variety of areas of legislative oversight, including housing, energy efficiency, and benefits that accrue to specific groups of consumers (low income, seniors). Legislation that is most effective at enabling programs and initiatives seeks to minimize negative externalities and maximize positive ones.

In some cases, either regional or federal legislation is limiting or prohibitive of the type of tools that can be used in an effort to reduce energy poverty. The most enabling legislation permits a wide range of tools and provides scope for creative solutions.

It became apparent during the review that consideration should be given to a pan-Canadian legislative strategy for eliminating energy poverty, and that integrated resource planning and effective utility capital cost management were

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important aspects of such an endeavour.

For a complete listing of legislation cited and reviewed, please see the bibliography.

Review of Programs and Initiatives

Low-income households often have access to a patchwork of programs implemented as a response to energy poverty – from federal, provincial and municipal governments, utilities and distributors, charities and community organizations.

A consistent theme in the research is that programs directly geared toward assisting low-income consumers with meeting their energy bills are usually more successful when they work in combination with other programs, typically addressing both short-term needs and longer-term needs, such as education, training, health care, and energy improvements in housing that also contribute to the alleviation of poverty.

Policy Responses to Energy Poverty

Policy options implemented as a response to energy poverty can generally be grouped in two broad approaches:

- Energy efficiency
- Bill affordability

Enhancing Energy Efficiency

Low-income energy efficiency programs

Low-income energy efficiency programs (“LIEEPs”) aim to improve participants’ quality of life by assisting them to invest in their homes. LIEEPs are particularly useful in reducing energy burden and can also have strong environmental benefits. The greatest benefits are typically a result of substantial energy efficient improvements, such as providing proper insulation for walls and attics or installing an efficient heating system [IndEco Strategic Consulting, 2004].

While there are a wide range of activities and programs that can increase the efficiency of residential energy services, leading to lower energy costs as a result [Boyd, 2015], LIEEPs generally include:

- An energy audit or evaluation of the residence;

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- The installation and upgrade of energy efficient products such as insulation, weather stripping, high efficiency furnaces and compact fluorescent lights to reduce the amount of energy necessary to provide a certain level of energy service, lighting or heat for example;
- Education, such as providing consumers with advice on how to lower their energy costs through the use of energy efficient products, as well as altering their own energy consumption behaviour, albeit this may have its limits;
- An evaluation after the energy efficiency interventions have been performed [Concentric, 2008] [McEachern, 2010].

Program attributes or benefits vary widely and are heavily dependent on the level of funding. The most comprehensive programs can spend several thousand dollars per home, including health and safety repairs and furnace replacement, as well as the more common weatherization measures [APPRISE, 2007]. Programs with lower funding levels spend less per home and have a smaller variety of eligible measures. Some programs set goals for the number of households to be served or an average level of spending per home [APPRISE, 2007]. Setting program limits or targets can be useful when resources are limited but can also reduce program flexibility. LIEEPs are managed and delivered in various ways depending on state-level decision making, and include individual utilities, groups of utilities, state agencies or private program implementers [Cluett, 2016]. Program services can be delivered through public, private and community organizations, or a combination of multiple organizations, including non-profit and for-profit contractors [Cluett, 2016].

Owners of single detached, duplex or row housing are typical targets for LIEEPs. Typically, for rental housing to be eligible for LIEEPs, the permission of the landlord is required, and they receive any financial incentives associated with the program [McEachern, 2010]. Most, if not all, LIEEPs set eligibility restrictions on their programs, including income restrictions/thresholds and energy usage level restrictions.

Some LIEEPs require that customers also participate in energy affordability programs. The goal of this requirement is that participation in both programs

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reduces the subsidy provided by ratepayers when energy usage declines. However, this requirement runs the risks of not serving high usage, high energy burden households who do not participate in the affordability program. Given that programs that serve higher usage households have been found to result in higher savings, some programs establish certain levels of energy usage for eligibility. The disadvantage is that it can exclude households that have a need for the program [APPRISE, 2007]. Beyond setting eligibility limits, programs sometimes try to target certain households for service delivery. The most common targeting is those households with high energy usage in an effort to serve those most in need and to maximize program savings. Other targeted groups include customers who are payment troubled or who have arrearages, households with elderly individuals or individuals with disabilities or with young children and affordability program participants [APPRISE, 2007].

Low-income households (LIH's) are often considered to be ideal candidates for energy efficiency programs, as they are more likely to live in energy inefficient homes with poor appliances and lack the ability to make investments in them. Moreover, the LIHs are less likely to rebound and use energy savings on other energy-consuming products, in contrast with wealthier households [Group, 2008].

Many Canadian provinces, states in the United States and European countries have implemented LIEEPs. In Canada, Manitoba and BC have been recognized for their LIEEPs. The key to their success has been suggested to be their collaborative and community based approaches – integrating the support of provincial and federal government as well as non-profit organizations and energy providers.

Advantages of low-income energy efficiency programs

LIEEPs provide many advantages to low income consumers, some of which can reach well beyond the participants. Energy efficiency programs have the potential of not only keeping electricity affordable for low-income families but also advancing broader goals of economic development, improved public health, job creation, and environmental protection [Shoemaker,

2016].

Most LIEEPs have been found to alleviate energy poverty and to have long lasting effects as opposed to other approaches that are believed to be more temporary. The World Health Organization has identified energy efficiency improvement programs as having the greatest potential for reducing energy poverty levels [Carter, 2010] [Thomas, 2005]. When integrated with other poverty alleviation programs, LIEEPs can be an important part of broader poverty alleviation strategies [Carter, 2010]. Efficiency programs can also be targeted toward the businesses and community-based organizations that serve low-income neighbourhoods, assisting building owners and state entities to improve the conditions of affordable housing units, reduce operating expenses, and spur local economic development [Shoemaker, 2016].

Energy efficiency assistance may improve the general health and well-being of LIHs [Carter, 2010]. When families are spending a disproportionate amount of their income on energy they may be unable to heat their homes adequately, which can lead to deteriorating health and increased public expenditures on health. There is a growing body of research that identifies causal links between poverty, older homes that are poorly insulated and heated, unfavourable indoor temperatures, increases in temperature-related sicknesses, and excess winter deaths. In addition, when low income people spend disproportionate amounts of their income on energy they may have to reduce expenditures on other essentials such as food, and clothing. For some it is a choice between “heating or eating”, which can lead to health problems. The benefits of more affordable bills through energy efficiency improvements can result in fewer disconnections, late payments and bad debts. Risks of accidents from supplementary heating (e.g. fires, CO poison) or household related maintenance (e.g. frozen pipes) have also been found to decrease [Group, 2008]. LIEEPs may also help reduce unemployment. The programs themselves can be a source of employment and by reducing health problems, the programs can also reduce unemployment due to illness or disability and work absenteeism. The argument has also been made that LIEEPs help reduce

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homelessness. Rising energy costs lead some households to default on the rent and they are evicted and end up in shelters or on the streets.

LIEEPs can yield relatively greater energy savings both from a general consumption perspective and costs to low income households. Some literature has argued this is because low income households tend to consume more electricity per unit area of the home and use older less efficient appliances [Carter, 2010]. LIEEPs can help reduce credit collection, bad debt and termination and reconnection costs incurred by utilities and ratepayers often due to LIHs' inability to pay utility bills [Carter, 2010].

On a broader scale, LIEEPs can help to reduce CO2 emissions, create “green jobs” and develop skills, often for low income and unemployed individuals. This can be part of community development initiatives that help stabilize low income neighbourhoods [Carter, 2010].

Many LIEEPs focus on improvements to social and public housing, which can help relieve energy poverty for low income tenants and also reduces the cost of subsidies from tax payers to provide low income housing in the long run [Carter, 2010]. Energy efficiency programs can lead to lower public expenditures on health and building inspections, homeless shelters and housing programs. Even landlords can benefit through increased property values, reduced turnover of tenants and fewer difficulties or complaints with rent [Gibbons, 2008].

If properly structured, LIEEPs can be used as an educational and awareness building vehicle on home operation and energy conservation [Carter, 2010].

Energy efficient programs can be particularly efficacious for First Nations as their communities often have highly inefficient housing and high utility costs due to remote locations.

Disadvantages of LIEEPs and barriers to their introduction

Depending on how they are structured, delivered, and administered, there may be

disadvantages or negative spin-offs of LIEEPs and barriers to participation.

Many energy efficiency programs do not differentiate based on income level, such as Canada's federal EcoENERGY initiative, leading to the exclusion of LIHs from the programs, as they often lack the resources (e.g. initial funds) required to participate. This is known as a "funding anomaly." Through energy rates, low income consumers help fund the energy upgrades of higher income households without the ability to participate in the program [Carter, 2010] [McEachern, 2010].

There are a number of disadvantages and barriers to LIEEPs in the rental sector [Carter, 2010] [Group, 2008]. On the one hand, when tenants pay energy bills landlords lack the incentive to curb energy costs. On the other hand, when landlords pay energy bills tenants have less incentive to curb energy costs, which might undermine energy investments. These situations are known as the "split incentive" and is a significant barrier to effective energy efficiency programs in the rental sector. While owners have greater control over building quality, maintenance, and energy upgrading features, renters make decisions on the energy efficiency of appliances they purchase.

It is also more difficult to introduce cost saving energy initiatives for renters. For example, grants and low interest loans geared toward energy efficiency have to be targeted to landlords but some landlords, particularly owners of older buildings that need energy retrofits, may not be inclined to use such initiatives. Often the costs of upgrades in older apartment buildings are so high that the money provided by incentives is not sufficient. Other barriers to the participation of rental sector landlords include: long payback periods; a lack of good information and well documented analysis on the viability and short and long term benefits of incentives; and programs that often exclude apartments.

Tax policies can also be a disincentive for landlords' participation where rules allow landlords to write off 100% of building maintenance costs against rental profits but energy retrofits are considered capital investments and landlords can only write off a small percentage of these costs [Carter, 2010] [Group, 2008].

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Research shows that few prospective tenants shop around for units based on their energy performance, particularly when vacancy rates are low, resulting in little incentive for landlords to participate in programs [Carter, 2010] [Group, 2008].

A variety of factors restrict the availability and awareness of energy programs for low income people [Carter, 2010] [Group, 2008]. They may have less knowledge about them; some have language or literacy barriers; some do not access typical communications media; some do not feel comfortable dealing with the necessary bureaucracy; and some have mobility restrictions and find it difficult to travel to the necessary offices and retail outlets. Experience in many jurisdictions has shown that low income households are hard to reach, even when products, services, and programs are free. A review of US LIEEPs reveals that annual participation in the programs averages about 2% of eligible consumers [Carter, 2010] [Group, 2008].

Acceptance or lack of willingness to participate can also be a problem with low income households [Carter, 2010]. Conservation may not be a priority, but more importantly there are often more pressing needs, such as managing a limited budget to feed, clothe and shelter a family. The immediate rewards from LIEEPs are not sufficient to encourage participation. Many low-income people simply do not have the time to investigate programs and their high mobility rates mean they may be less inclined to invest in the unit they currently occupy.

Lower income households typically have fewer resources to contribute to advocacy so programs may not always meet their needs [Carter, 2010]. Programs that do not build in educational features miss the opportunity to help households understand the need for energy conservation and how they can reduce consumption through appropriate household operation [Carter, 2010].

While LIEEPs that do not take a “total building approach” may provide some assistance, they do not take advantage of all opportunities to address energy conservation and poverty. Future expenditures are usually required, and often at higher costs [Carter, 2010].

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Best Practices for Energy Efficiency Programs

In general, LIEEPs should be comprehensive and holistic in their approach [Carter, 2010]. Specific best practices identified in the literature for LIEEPs include:

- LIEEPs should be provided to low income households at little or no cost to encourage and facilitate participation [Carter, 2010][McEachern, 2010].
- All housing types and tenures should be eligible including rental, cooperative, social and non-profit housing, mixed use, mixed income and mixed occupancy [Carter, 2010] [McEachern, 2010].
- Programs can be designed to target certain groups of customers, such as high-usage customers, [APPRISE, 2007] lower income households, households with vulnerable members, customers that are participating in a ratepayer-funded affordability program [APPRISE, 2007]. The income criteria used to determine eligibility should be simple, easy to identify, and consistent with other poverty alleviation programs [APPRISE, 2007] [McEachern, 2010].
- LIEEPs should offer a range of eligible measures in order to assist households in realizing the highest savings [Cluett, 2016]. A “one-size-fits all” program is unlikely to be effective for all customers. Given that programs can most successfully address energy issues in low-income homes when various energy end uses can be addressed and when measures can be installed regardless of fuel type, programs should be developed as dual-fuel / fuel-blind [Cluett, 2016].
- LIEEPs should coordinate with government departments, nonprofit organizations, community organizations, particularly those engaged in assisting LIHs, to help deliver the programs, which can increase customer outreach, awareness and participation [McEachern, 2010] [Carter, 2010]. LIEEPs should coordinate with bill payment assistance programs [Cluett, 2016]. LIEEPs appear to be most effective when they are designed as part of, and complementary, to broader poverty alleviation programs [Carter, 2010].

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- Barriers specific to the “split incentive” of rental units should be addressed in LIEEPs [McEachern, 2010] [Henandez, 2010]. One approach is to mandate energy efficiency efforts for rental providers of low-income housing that do not pay for utilities [Cluett, 2016]. A second approach is to allow landlords to take advantage of weatherization programs that are free or highly reduced in cost, and to ensure there are more of them [Cluett, 2016]. A third approach is a weatherization loan program in which the upfront capital for weatherization is paid back via additional amortized payments that are “piggybacked” on the utility bill to be paid by the low-income tenant [Cluett, 2016].
- Programs should address health, safety and building integrity issues, which are identified as common barriers for energy efficiency improvements [Cluett, 2016] [Carter, 2010].
- Strategies for customer energy efficiency education and awareness should be incorporated [Cluett, 2016] [Carter, 2010] [McEachern, 2010].
- Central program oversight is recommended, which can be seen as a “one-stop-shop” approach [Carter, 2010] [McEachern, 2010].
- Programs work best if the agency in charge is proactive as opposed to being participant driven [Carter, 2010] [McEachern, 2010].
- Programs should include formal impact and process evaluations [Carter, 2010] [McEachern, 2010]. Evaluations based solely on energy savings do not adequately represent the value of most LIEEPs, as these programs can address multiple goals, such as improving health and safety, improving energy affordability, reducing the cost of rate affordability programs, reducing arrearages, and addressing equity concerns by ensuring that the low-income sector is adequately served by a utility’s energy efficiency program portfolio [Cluett, 2016].
- LIEEPs should integrate quality assurance into program design. Mechanisms for doing so include: distribution of clear, easy-to-use guidelines; multiple checks for customer feedback and data integrity; random sampling; and third-party inspections to ensure installation and quality [McEachern,

2010].

In addition to the best practices identified, four key effects should be considered when designing effective energy efficiency programs: [Group, 2008]

- **Free rider:** a free rider is an individual who would have participated in the energy efficiency intervention regardless of the existence of the program. Free ridership lowers the cost-effectiveness of programs, as a free rider's energy savings cannot be attributed to the program.
- **Spill-over:** spill-over can be defined as energy efficiency improvements that occur due to program influences but are not created through the programs financial incentives or technical assistance [Vreuls, 2005]. Spill-over effects increase the cost-effectiveness of energy efficiency programs by increasing the savings without increasing program costs.
- **Rebound:** rebound effects refer to an increase in a consumer's energy use after reducing their energy costs through an energy efficiency improvement.
- **Leakage:** Leakages are defined as consumption increases as a result of activity outside the affected jurisdiction or due to upstream or downstream modifications in the product life cycle.

Residential energy efficiency programs usually experience some degree of free ridership and direct rebound. Typically, products that have high aesthetic value (e.g. windows) are more vulnerable to free ridership and wealthier households are more likely to rebound after energy improvements. The magnitude of the rebound effect is typically proportional to the price-elasticity of the energy service [Dimitropoulos, 2006]. Additionally, spill-over effects are thought to be extensive in energy efficient programs.

Overall, ratepayer-funded energy efficiency programs for low-income customers appear to be a cost-effective approach to reducing energy bills over the long run. These programs can effectively complement the impacts of affordability and

broader poverty alleviation programs [APPRISE, 2007].

Lowering Energy Costs

Bill Affordability Programs

Bill affordability programs (also called bill assistance) fall within a second broad category of programs adopted by some governments and utilities as a response to customers' inability to pay their energy bills. Bill affordability programs are aimed at making energy more affordable for low income households and, as a result, making it easier to pay their energy bills on an ongoing basis [IndEco, 2004].

Reducing energy costs can be achieved in several ways, including rate discounts and design, such as a different rate for energy poor consumers, or the use of conservation rates to deter energy poverty, providing bill support directly to eligible households, fuel switching and changes to the rules governing reconnections and disconnections, security deposits and the collection of bills in arrears.

Rate discount and design programs typically reduce energy bills by charging low-income individuals less or by charging all customers the same but in a way that leads to lower costs for low-income households. Some common rate discount and design programs include [APPRISE, 2007] [Colton, 2015]:

- Percent of income: customers are assigned an “affordable bill” that is a percent of their income. The client's bill is estimated as the total bill minus the affordable amount (e.g. in a 5% of income program, a household with \$10,000 in income would be assigned an “affordable bill” of \$500. If the actual energy bill is \$740 and the “affordable bill” is \$500, the benefit to the customer is \$240.)
- Uniform rate discount: customers are granted a discount on rates (e.g. all eligible customers receive a 20% discount on energy rates).
- Income-based tiered rate discounts: a range of rate discounts are set, dependent on levels of income (e.g. households with incomes from \$10,000-\$20,000 receive a 20% discount; from \$20,000-30,000, a 15% discount; and from \$30,000-40,000, a 10% discount).

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- Benefit matrix: the benefit level or discount rate is based on the combination a number of factors (e.g. the household's income, dwelling type and relative poverty level).
- Income based “fixed credit” benefit payment: a monthly fixed credit is provided for customers, dependent on their household income (e.g. for households with income from \$10,000-\$20,000, the fixed monthly discount is \$50; for households with income from \$20,000-30,000, the fixed monthly discount is \$40; for households with income from \$30,000-40,000, the fixed monthly discount is \$30).
- Multi-tiered inclining block rate (or inverted block rate): the rate charged for electricity increases as consumption increases (e.g. for electricity consumption from 0-1,000 kWh per month, the rate of electricity is 8 cents per kWh; for electricity consumption from 1,000-2,000 kWh per month, the rate of electricity is 10 cents per kWh; for electricity consumption above 2,000 kWh per month, the rate of electricity is 12 cents per kWh).

While fixed dollar and variable discounts have proven to be most beneficial for the lowest-income consumers, the fixed-percentage is most useful for LIHs with high consumption levels, such as those with inefficient appliances or heating units. Bill affordability programs vary in the ways benefits are distributed – from monthly fixed payments to annual credits – which can impact program effectiveness. Different benefit types affect the risk experienced by customers, providers and organizers differently. For example, under a fixed payment model, customers are protected from price increases and more severe weather, while under a fixed credit model, customers bear all the risk for price increases and severe weather [APPRISE, 2007].

Most bill affordability programs face a trade-off between administrative simplicity and targeting the actual needs of customers. Some programs are based on income, designed simply and are consequently relatively easy to operate, keeping administrative costs low. However, without additional determinants, the programs may not be able to target energy poor households effectively. Other programs that are more needs-based have higher administrative costs [APPRISE, 2007].

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Some have argued that taking socio-economic factors, such as income, into account when pricing energy services could be viewed as discriminatory [Concentric, 2008]. Moreover, the responsibility of this task would fall on the energy provider, and it has been argued that this task may be more appropriately organized through government subsidies, allowing energy providers to charge all customers equally [Kennedy, 2011]. Bill support has been a frequent response to high energy costs, especially during periods of extreme temperatures where both energy consumption and prices tend to jump, making it challenging for low-income households [Group, 2008]. From a policy perspective, reducing or waiving the fixed monthly charge is usually perceived as more equitable since it improves the affordability of energy for low-income customers without regard to energy consumption [IndEco, 2004].

Another measure having indirect effects on energy poverty is a time-of-use pricing structure aimed at peak load reductions and improving system efficiency. Such a pricing structure has been used in Ontario. Smart meters record electricity usage and communicate this information digitally to the utility, enabling the implementation of a variety of time-of-use pricing structures – pricing energy higher during the peak periods. Similar to tiered pricing, this approach may lead to reduced energy costs for some low-income households, but it can just as easily lead to higher energy costs due to households' constraints. Since low-income households are more likely to rely on inefficient appliances and live in energy inefficient homes, they may be unable to adjust their energy use patterns. Single parents, for example, likely have little choice but to consume energy for daily tasks (e.g. cooking, cleaning, etc.) during peak periods, leading to higher energy costs for an already vulnerable population [Efficiency, 2008].

Fuel switching has been shown to be effective in Canada. The Yukon has benefited since developing hydroelectric power, resulting in significant energy cost savings to local communities [Kennedy, 2011]. While it may only be effective in some geographic locations, the high prices in northern Canada in general represent opportunities for this intervention .

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A significant proportion of bill affordability programs have some procedure for arrearage forgiveness, with some programs specifically targeting customers with arrears [APPRISE, 2007]. Given that a significant number of participants may start the program with arrears, forgiveness programs for pre-program arrearages supports affordability and the ability of low-income customers to pay their bills consistently [APPRISE, 2007]. However, arrearage management is unlikely to work on a stand-alone basis to address energy poverty because such a program does not recognize and address the reason that the arrearage balance was initially incurred [Colton, 2015].

Other measures that do not directly affect the cost of energy can be useful as well. For instance, equal billing has been shown to be effective. Giving customers the opportunity to pay the same monthly amount for their energy services, while actual costs are tracked and managed, allows customers to budget. A shortcoming, however, is the possibility of a large balance being accrued if the customer begins consuming higher amounts of energy after selecting this billing method [IndEco Strategic Consulting, 2004]. Prepayment meters have been used in the UK – allowing customers to pay for energy upfront. These meters have been well received by low-income customers, allowing those with past due accounts and poor credit to avoid disconnection and access an essential service. Restrictions on disconnection policies are common as well by identifying circumstances where utilities cannot disconnect customers for not paying their bills. Common disconnection policies prohibiting disconnections for households with infants and elderly individuals, those with health problems that could be endangered as a result of the disconnection, and during extreme temperature periods, such as winter.

Bill affordability programs must identify procedures for qualifying customers, as well as recertifying customers [APPRISE, 2007]. There tend to be three levels of program eligibility certification:

- Comprehensive certification: clients are required to provide a comprehensive set of documents including information on the ages and

employment status of all household members, all sources of income, participation in other assistance programs and proof of residency status.

- Income certification: Some programs have less complex certification procedures that focus on obtaining income verification documents.
- Self-certification: Some programs ask customers to certify that their income is at or below a certain level without requiring income verification documents [APPRISE, 2007].

Programs tend to use two procedures to improve customer enrollment rates [APPRISE, 2007] :

- Presumptive eligibility: some programs use proof of certification for a similar low-income program as verification that the household is eligible for the ratepayer-funded affordability program.
- Automatic enrollment: participants of other energy assistance programs and/or other public assistance programs are automatically enrolled by matching utility records to assistance program records and screening the assistance program records to determine eligibility

In terms of the recertification processes, the question of documentation requires program designers to make a trade-off between the perception of reduced fraud on behalf of customers and the encouragement of eligible households to participate. Some programs require annual recertification, but many evaluations of utility affordability programs have shown that large number of eligible customers are dropped from the program at recertification time, when customers may not be aware of the need to recertify or may have difficulty re-amassing the required documentation, which discourages application for continued participation. In light of this, many programs are moving to an 18-month cycle or longer [Brockway, 2014].

Many bill affordability programs include an emergency assistance component, which typically provides households with financial assistance during urgent

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situations such as: an impending energy service cut-off, a short term spike in energy services, the need to replace or repair home heating equipment [IndEco Strategic Consulting, 2004]. Government-sponsored programs, such as social assistance, often have emergency assistance programs, as well as some utilities and charitable organization. Emergency programs are often seasonal, unable to provide enough money and run out before the heating season is over.

Accessibility, lack of awareness and social stigma also prevent many from benefitting from emergency assistance. These programs are often criticized as poor long-term solutions as they are thought to only react to the problem and to provide a temporary, rather than long term and sustainable, solution [Atanasiu, 2014]. Nevertheless, strong demand for such programs will likely remain in the case of LIHs as they often deal with insecure work and unstable incomes [Network, 2011].

Advantages of bill affordability programs

The literature identifies a number of advantages of bill affordability programs.

- According to a number of program evaluations and literature, affordable rates can bring higher net revenues for the utility [Brockway, 2014].
- Affordable bills can improve the payment patterns of customers such that a greater percentage of participants pay a higher percentage of their bills, and leading to more customers being able to and paying their entire bill. Pursuing standard collection practices causes the utility to spend money on ultimately fruitless efforts. Based on the findings in a number of program evaluations, the relative inefficiency of a traditional collection processes is manifest in the level of activity that it takes to achieve a reduction both in dollars of arrears and in the number of accounts in arrears [Brockway, 2014].

The more a program can make bills affordable, the greater the customer, utility and societal benefits.

- On the one hand, burden-based affordability programs can have positive

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impacts as they aim to match bills with affordability. This is particularly the case if they are linked to the household's situation: level of poverty based on income, number of members in the household, and perhaps other variables (e.g. rural/urban).

- On the other hand, the better a program tailors the bill reduction to the actual burden on each household, the more administrative resources will be required to calculate this burden and translate it to a bill reduction. These costs will undermine at least some of the expense savings achieved through affordability. Policy makers have to determine the balance between targeted assistance and other factors, such as administrative resources available [Brockway, 2014].
- Utility affordability programs have the benefit of enabling customers to maintain service and avoid disconnection [Brockway, 2014]. Reducing disconnections has many benefits for society, such as having positive effects on food consumption, homelessness and avoiding dangerous conditions for low-income households [Brockway, 2014].
- Energy affordability programs reduce the cost of using energy, and therefore some program managers have expressed concern that they may result in increased energy usage. However, program evaluations have only found small and insignificant increases in energy usage, or sometimes even declines in energy usage [APPRISE, 2007].

Disadvantages of bill affordability programs

The literature also identifies a number of disadvantages of bill affordability programs:

- Bill affordability programs are typically viewed as short-term solutions to energy poverty. While energy bills for participating households may be reduced in the short-term, bill affordability programs do not address the root causes of high energy bills, which are often linked to **energy**-inefficient homes.

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- In addition, increases in energy prices results in pressure on all customers and on bill affordability programs, as they require additional subsidies to meet customer needs. As a result of rising rates, there is likely to be more general consumer resistance to further subsidies, making bill affordability programs ultimately unsustainable.
- Establishing the budget for a bill affordability program can be challenging. Where the budget for the program is fixed, there may not be enough funds available to reach all households in need of assistance or households may not receive sufficient assistance to have an impact on their energy bill. While an open-ended budget may lead to higher levels of benefits and more program participants, it can lead to a lack of predictability for ratepayers contributing to the program [APPRISE, 2007].

The different types of bill affordability program benefit computation and distribution all have inherent disadvantages.

- Where a program is relatively simple to administrate, the benefits are typically not targeted to consumers' needs.
- Most programs that are targeted to need are typically more difficult to implement and more administratively intensive, particularly where benefits vary each month [APPRISE, 2007].

An important consequence of a program not being tied directly to a consumer's need is an inherent inefficiency. Typically, where a program is not tied to the need of the consumer, some program participants will be receiving more than is needed for their bills to be affordable, and some consumers will be receiving less than is needed [Colton, 2015].

While inclining block rates are identified as a possible response to energy poverty, this structure tends to be a poor way of providing assistance to LIHs since income is often weakly or even negatively correlated with consumption. Furthermore, there is no way to ensure the benefits will be passed on to customers whose bills are included in their rent [IndEco Strategic Consulting, 2004]. An evaluation

performed on B.C. Hydro's two-tiered pricing system showed a small but positive effect for low-income customers – their annual bills were cheaper, while high-income customers experienced an increase. However, there can be substantial variation in the amount of energy used among low-income customers. As a result many with high-energy needs, due to energy inefficient housing and appliances or medical conditions, are left worse off, making this initiative particularly controversial.

Bill affordability programs are usually not as effective unless they are combined with a preprogram arrearage forgiveness or management program. Where a program reduces the customer's bill to a level considered affordable but does not address arrearages incurred by the customer, ongoing problems may remain [APPRISE, 2007] [Colton, 2015].

Low penetration rates and low customer re-enrollment rates have also been identified as significant disadvantages of bill affordability programs [APPRISE, 2007]. Where programs achieve low rates of penetration both in terms of absolute percentages and for households that are most in need, the program reaches a relative small portion of the low-income population and costs are increased for other low-income households as a result.

Best practices for bill affordability programs

While program evaluations do not consistently define or evaluate success, [Campbell, 2013] the literature has identified a number of best practices [APPRISE, 2007] :

- Targeting benefits to need: programs can improve their impact on energy poverty by providing benefits to customers that are related to the amount of assistance needed. Indicators of need include arrearages, energy burden, and an unsafe or unhealthy home environment [APPRISE, 2007].
- Facilitating long-term participation: many customers continue to require energy assistance over time. Programs can improve affordability by

facilitating reapplication or recertification and by allowing customers to continue to participate in the program, even after they have paid off their full arrearage [APPRISE, 2007].

- Forgiveness of preprogram arrears: arrearage forgiveness is an important component but the programs need to also improve bill payment compliance. One potential method for improving payment compliance is to provide an arrearage forgiveness component that is tied to bill payment, and to educate customers about this requirement [APPRISE, 2007].
- Integration with other program: integration with federal bill assistance program and other provincial bill affordability energy efficiency and social assistance programs appears to increase participation [APPRISE, 2007].
- Equal monthly payments: customer surveys have shown that customers place great value on equal monthly payments and that they can improve program performance. Participants in programs with equal payments have been found to have more continuous and increased cash payments on the programs [APPRISE, 2007].
- Refinement of program operations: process evaluation findings often provide detailed recommendations for improving the programs' operations and reducing administrative costs, leading to improved program performance [APPRISE, 2007].
- Comprehensive evaluation: a program should be evaluated using an evaluation question list and data should be made available.

Other Policies and Programs

Non-energy poverty specific policies and programs can also achieve the desired results of making energy bills more affordable, therefore, it seemed appropriate to review some of the relevant policies and programs here. A stronger economy combined with more redistributive policies could increase the incomes of the poorest households, thereby alleviating energy poverty. National policies ensuring all jobs have a living wage, or increasing the level of income transfers and

public services/investments could have a great influence on reducing energy poverty [Lee, 2011].

Increasing incomes can be achieved through targeted action; one-off payments to a specific group; or through wider macro-economic improvements that increase employment and income levels in general. The level of benefits and government transfers LIHs receive has a tremendous influence on the income of these households, accounting for 45% of the poorest quintiles' after-tax income [Boyd, 2015].

Alternatively, direct benefits, including tax breaks and payments can be made to energy poor households. Some programs include a payment at the onset of winter when energy bills are the highest, while others provide benefits during extended periods of extreme temperature or for individual households in crisis.

In Canada, provincial/territorial legislation generally requires individuals on income assistance to have rental agreements that include a shelter allowance component. While all provinces have a social assistance program, these programs have gone through significant changes over the past couple decades. Benefit levels and eligibility have been tightened. They now encourage greater labour force attachment, economic self-sufficiency and reduced reliance on government programs; through an increasing level of welfare-to-work programs [Canada, 2007].

There are also some more general income programs including the federal government's Old Age Security (OAS) Pension (a monthly payment to seniors 65 and over), the Guaranteed Income Supplement available to low-income OAS recipients, the Working Income Tax Benefit (a credit intended to provide relief for low-income individuals who are in the workforce), and GST/HST tax credits (quarterly payments intended to offset the GST/HST that low-income individuals pay) [Canada S., 2016]. In addition, some programs are targeted towards specific vulnerable groups, like families with children or individuals with disabilities. The Canada Child Tax Benefit and Universal Child Care Benefit are both monthly

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payments for families with children in an effort to help cover their child care costs.

Housing Policy

Housing policy is important to acknowledge as household energy use is generally included in housing programs. Households are said to be in core housing need if they fail in adequacy, standards, affordability or suitability and affordable housing includes all payments for electricity, fuel, water and other municipal services; meaning that those involved in housing programs have both their energy and housing affordability issues addressed. The public housing program for example, requires households to pay on a rent to income basis, at or below 30% of their wage [Corporation, 2014]. The payment covers both housing and energy expenses; eliminating housing and energy affordability issues simultaneously. Consequently, some researchers interpret energy poverty as a part of a larger housing problem and look towards housing policy for the solution.

United Kingdom

United Kingdom has long been a leader in research and policy to address energy poverty, with its federal strategy aimed at the root causes of energy poverty: household energy inefficiency; high fuel prices; and low household income. The Government of the United Kingdom provides a Benefits Calculator on its website to assist individuals and families to determine which benefits they can access, including energy-related benefits [Government of UK]. While there have been significant changes recently to the energy poverty programs in the UK, the federal government continues to respond to energy poverty through a suite of complementary programs. These programs include:

- **Warm Home Discount Scheme:** this program is a one-off discount on electricity bill from October to April for individuals who receive the Guarantee Credit element of the Pension Credit (an income-related benefit) [Govnment of UK1].
- **Cold Weather Payment:** customers receive a payment for each 7-day periods of very cold weather between 1 November and 31 March.

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Customers may be eligible if they receive certain income-related benefits [Government of UK2].

- Winter Fuel Payments: Individuals born on or before 5 May 1953 may receive a tax-free payment to help pay heating bills if they lived in the UK, or certain other countries, during the qualifying period. Other criteria include receipt of certain government benefits that might either make them automatically eligible, or disqualify them. [Government of UK3].

Individuals who receive heating and housing benefits may be eligible to have their bills (including rent, service charges, fuel or water bills) paid directly out their benefits. This is called 'third party deductions' and sometimes Fuel Direct [Govt of UK4].

Subsidized energy-efficient home improvements are available through the Energy Company Obligation (“ECO”) for households that qualify. “ECO is the government's umbrella term for its program to make houses in the UK more energy efficient” [Government of UK5] and it covers the Affordable Warmth Obligation and the Carbon Emissions Reduction Obligation (CERO), programs that assist households with energy efficiency improvements to their homes [Government of UK6][Government of UK7].

Ontario's Fair Hydro Plan

As a response to recent significant increases in energy bills, in March 2016, Ontario introduced legislation that, if passed, would have the effect of reducing electricity bills by 25% on average for all households and as many as half a million small businesses and farms across the province, starting summer of 2017 [Government of ON]. On May 1, 2017, the OEB reduced electricity rates across the Ontario for all Regulated Price Plan eligible customers, which includes a portion of Ontario's Fair Hydro Plan. If the Fair Hydro Plan legislation is passed, the OEB would be required to lower rates again within 15 days after Royal Assent to meet the government's commitment to cut electricity bills by 25% on average for all households and as many as half a million small businesses and farms [Government of ON].

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In addition, if the proposed legislation is passed, bills:

- would not increase beyond the rate of inflation for four years; and
- would be further reduced for households in an eligible rural community or low income households [Govt of ON].

The proposed 25% on average reduction includes an 8% rebate that took effect on January 1, 2017 [Government of ON]. The Ontario government is also proposing additional savings via access to credits, including:

- an expansion of the Ontario Electricity Support Program (OESP) to include more households and increase credits by up to 50%. The OESP is a program that lowers bills for lower income households by providing monthly credits calculated based on the number of individuals in the household and the income;
- the continuation of the Ontario Energy and Property Tax Credit (tax credits for low-to-moderate income households and eligible seniors) and the Northern Ontario energy credit (tax credit for certain Northern Ontario residents);
- the First Nations On-Reserve Delivery Credit, which removes the electricity delivery charges for all on-reserve First Nations residential customers; and
- additional reductions through the new Affordability Fund which will support eligible customers by providing them with funds to make energy-efficiency improvements to their homes. [Govt of ON]

Proactive measures against energy poverty

While LIEEPs and bill affordability programs are considered responses to energy poverty, governments and regulators can also pursue proactive measures aimed at preventing energy poverty. Energy regulators can aim to reduce energy costs through better regulation, including of large capital programs. Best practices, such as integrated resource planning, can be implemented in order to protect consumers from significant rate increases.

Coordination of programs

In terms of programs that respond to energy poverty, the findings from a

comprehensive 2007 study in the United States, which studied program evaluations from 13 states, suggest that “the most comprehensive and effective low income programs would coordinate the delivery of affordable and energy efficiency programs” [APPRISE, 2007]. In addition, the literature demonstrates that collaborative efforts are particularly advantageous especially between organizations focused on health, on energy and on welfare at multiple levels [Group, 2008]. In energy conservation, energy literacy and utility rate affordability and relief should be harmonized to have the greatest positive effect [Henandez, 2010].

Consideration should also be given to the coordination of any bill affordability and energy efficiency programs with social assistance programs, general income programs and tax benefits. Additionally, there has been a renewed interest in Canada in recent years in the idea of a basic income guarantee, which could have an impact on energy poverty by preventing households from dropping below a certain threshold of income [The Star, ON].

Consumer education, awareness and protection

Energy efficiency education and energy literacy are identified as important parts of programs geared toward alleviating energy poverty. Raising customers’ awareness of energy issues, regardless of their income, is critical to affecting change with respect to energy efficiency and conservation. Customers should understand how much energy they use, the impacts of their energy use and how they can benefit by using energy more efficiently [IndEco, 2004]. Low-income tenants can be more proactive if they have an expanded knowledge base regarding energy conservation efforts at home. Policies that promote greater energy literacy and teach methods to conserve energy at home and reduce utility expenses would presumably improve a transition to higher energy efficiency and less energy burden [Cluett, 2016].

Some of the literature has argued that the most effective way to educate customers on energy efficiency and conservation is as part of a comprehensive

weatherization and energy efficiency audit and installation. The research also suggests that the most effective energy education program is one that is designed to motivate customers and to give them a sense of control over their environment [Cluett, 2016].

Critics argue that energy literacy and strategic consumer decisions are less likely for low-income energy consumers, but that argument has been countered by qualitative evidence showing how respondents made smart, careful energy decisions. Comprehensive low-income consumer outreach and education is essential to help address energy burden [Cluett, 2016].

While emergency assistance and bill assistance programs directly reduce the energy burden of low income consumers, other consumer protection and education initiatives can indirectly reduce energy burden and/or protect low income consumers from the risks associated with high energy burdens. These initiatives may be implemented by government or by other stakeholders such as local community action agencies [IndEco, 2004]. Some examples of these types of measures include no cut-off policies [IndEco, 2004], payment plans for past due accounts that can help customers avoid disconnection and utilities avoid defaulted accounts [IndEco, 2004] [Advisors, 2008], energy efficiency standards for buildings and appliances [IndEco, 2004], fuel switching [IndEco, 2004] [Kennedy, 2011] and equal billing plans [IndEco, 2004].

Conclusion

The main priority for governments and regulators should be proactive energy regulation aimed at keeping energy costs affordable for all ratepayers. As a response to energy poverty, the two main types of programs implemented by states and utilities in North America and in Europe are bill affordability programs and LIEEPs.

While the literature does not identify one program or initiative as the magical solution to energy poverty, incorporating best practices and addressing the

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disadvantages of the programs can lead to greater effectiveness. Coordination of bill affordability programs and energy efficiency programs tends to lead to the best results to address both short-term and long-term causes of energy poverty. Collaboration between key stakeholders can help ensure that resources are used in a cost-effective manner. Education and awareness are key components of any program designed to address energy poverty.

Focus Groups

Participants, Energy Use, and Demographic Data

The intention of these focus groups was to obtain a snapshot of the attitudes of Canadian consumers about the costs of energy and power, the concept of energy poverty, and how best to address energy poverty to better inform the work of the Consumers' Association of Canada (Manitoba Branch). It is important to note that this is a qualitative study with a limited sample size, and the results of these focus groups are not intended to be generalized to all Canadian consumers.

Six focus groups were conducted across Canada in the following locations:

- St. John's, Newfoundland and Labrador (10 participants)
- Halifax, Nova Scotia (9 participants)
- Guelph, Ontario (10 participants)
- Edmonton, Alberta (8 participants)
- Williams Lake, British Columbia (9 participants)
- Pimicikamak, Manitoba (7 participants)

In total, 53 consumers participated in the focus groups. Of that, 30 participants were female, and 22 were male participants. One participant declined to answer regarding gender. 10 were Indigenous and 7 were newcomers. 10 were retired, 3 were students. 5 were identified as low income (the goal in each group was to achieve a range of income levels), and 2 were people with disabilities. Of those,

- 28 own their homes
- 18 rent their homes
- 1 rents their home on a reserve
- 5 live in band-owned housing
- 1 partially owned their home

All consumers that stated that they lived in band-owned housing were from the

community of Pimicikamak, Manitoba. The facilitators noted that “Our understanding from discussions with focus group participants and a resident of Pimicikamak who assisted the facilitators in organizing the focus group, is that the community has also asserted self-governance and does not recognize the authority of the Cross Lake Band government. Therefore, 'band-owned housing' may not be an accurate term, as our understanding is that the community, and not the Band, collectively owns the housing”.

The participants in the focus groups heat their homes in a variety of ways:

- 12 heat their homes with electricity
- 13 heat their homes with electricity and natural gas
- 6 heat their homes with electricity and oil
- 1 heats their home with electricity, oil, and wood
- 7 heat their homes with electricity and wood
- 11 heat their homes with natural gas
- 2 heat their homes with oil
- 1 heats their home with oil and wood

Oil was only used as an energy source by participants in St. John’s and Halifax. All participants in Edmonton use natural gas, with two using natural gas and electricity. Natural gas is not available in St. John’s or in Pimicikamak. Natural gas is available in certain parts of Halifax, but is not used as an energy source by any of the focus group participants.

Participants in the focus groups were asked to respond to 19 questions about their energy use, the cost of their energy, the concept of energy poverty, and how best to address it. Participants were then given the opportunity to make any general comments about the questions or energy poverty. The following is a thematic summary of their responses.

Key Cross-Canada Themes

Heat as a Human Right

Almost half (24/53 participants) of the focus group participants reported having difficulty paying their power bills. Of those who said that they did not currently have difficulty paying their power bills, some indicated that they have in the past. One participant in Guelph stated that while they are able to pay their bill, being on maternity leave has put a significant strain on her household's finances. Regardless of whether they were able to pay their bills, all but one participant had heard something about people having problems paying their power bills (either through the media or by word of mouth).

In addition, regardless of whether or not they personally were able to pay their energy bills, respondents were overwhelmingly in favour of programs to help consumers with challenges paying for their energy bills. In Williams Lake, while only one participant stated that they had difficulty paying their bill, all were in favour of programs to help consumers lower their energy costs. The reason given by two participants was that "heat is a basic human right". Heat was also described as a "basic need" and a "primary need" in Guelph and Halifax, where all participants agreed that there should be help available for those experiencing energy poverty.

In St John's almost all participants viewed the government as being the appropriate actor to help consumers who experience energy poverty. Reasons given for this belief included the government's access to information about residents, government's legislative authority, utilities not having access to the right information and having a conflict of interest due to the profit motive. One participant expressed that utility companies **should not be** able to cut consumers off without first going through a consultation process.

Halifax participants were also heavily in favour of government playing the role of helping consumers who face energy poverty issues. However, some participants saw non-governmental organizations as being a better option because their priorities are less likely to change than a government's, which would lead to a

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more consistent approach.

As with St. John's and Halifax, participants in Guelph were also largely in favour of government intervention to help alleviate issues of energy poverty, however, many participants expressed frustrations with Hydro One's management and stated that the utility should be contributing to lessen the impact of energy poverty as well.

Unlike St John's, Halifax and Guelph, the majority of participants in Edmonton did not favour initiatives for helping people who experience energy poverty. Themes of taking responsibility for one's situation and changing one's lifestyle were expressed. **Five** participants expressed either uncertainty or disagreement with the idea of programs to help with energy poverty, while 3 participants expressed support for such initiatives. There was no consensus within the group as to who should provide services to those who experience energy poverty: utility companies, non-profits and government were all mentioned.

In Williams Lake, the response to whether or not there should be help for households experiencing energy poverty was unanimously yes. Participants spoke about the need to save lives in winter, and energy being a basic human right. Participants were divided on which types of institutions should be helping those who experience energy poverty: governments, utilities, corporations and individuals were all mentioned as options.

In Pimicikamak, the group indicated that everybody had difficulty paying their energy bills but that “everybody is dependent on electricity”. In general participants believed that both bill assistance and energy efficiency programs were positive ways to address energy poverty. With respect to programs for providing assistance with energy bills, one participant stated “It would be nice, if it was guaranteed it would work – to go to energy efficiency. Even bill subsidy would help. Every little bit helps.” One participant suggested that: “They should create a formula so people up here are paying the same as the south regardless of what kind of heat is used. Everyone should pay the same bill.”

Tough Choices

Participants provided a number of measures that they take or have taken to reduce energy costs. One participant in the St. John's focus group stated that she eats more processed foods at certain times of the month to stretch her money to pay for power. Another participant from St. John's stated that "I feel like it goes rent, heat, and everything else is just a maybe". A number of participants from St. John's, as well as a participant from Guelph, mentioned buying used cars or driving older cars to keep transportation costs down.

Participants in Edmonton, Halifax, Guelph, and St. John's intentionally keep their thermostat low during the winter to save on heating costs, with one participant in St. John's stating that they only heat a part of their home. One participant in Williams Lake characterized their power bill as a "second rent". Eating lower quality foods, giving up comfort in the household (turning down the heat in winter), going out less and borrowing money were all common practices for individuals who were trying to manage their energy bills.

A number of participants reported making changes to their homes to lower their energy costs. One participant in St. John's installed a heat pump. Another participant in Guelph had a home energy audit done, while another homeowner in Edmonton did a number of renovations to improve energy efficiency. One participant in Halifax reported that their parents moved from a house to an apartment complex because they could not afford the cost of oil to heat the house. Many participants in St. John's expressed feelings of helplessness and anxiety at the rising costs of living, including energy costs, and a related inability to do anything about it.

In Pimicikamak, participants indicated that many community members have stopped opening their Hydro bills because they are not able to pay them. For many of them, the choice is between paying for power and basic necessities. As one participant stated, "We have to neglect paying our Hydro bill - would rather pay the food bill". One participant indicated that the need to buy necessities once her spouse retired meant that the family could no longer afford to be on an equal

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payment plan for their energy bill.

Geographic Disparity

Participants frequently commented on the varying prices of energy because of geographic location. As one participant in Guelph stated, “Ontario seems to be out of whack with the other provinces”. In St. John’s, one participant noted that they do not have access to natural gas, thereby increasing their costs in comparison to other places. Two participants in Edmonton remarked that they had heard of high prices in Montreal, while one in Williams Lake had heard that prices were higher “down East and in the Maritimes”.

Geographic disparity was an important discussion in Pimicikamak, where participants frequently mentioned that the prices of Hydro in Thompson and Winnipeg was far lower than in their community. As one participant put it, “Makes you wonder how much we pay up here compared to down south. Our bills are egregious”. For Pimicikamak participants, paying the same energy bills as urban or southern ratepayers would be viewed as a fairer arrangement.

Fluctuating Costs

When asked for the amount their household paid for energy in the previous month, participants in all focus groups except in Pimicikamak responded with answers ranging from \$32 in Guelph, to \$900 in Halifax. In St. John’s, participants reported paying between \$40-\$600; In Halifax, between \$35-\$900; in Guelph between \$25-\$350; in Edmonton from \$100-\$600; in Williams Lake from \$30-\$280.

In Pimicikamak, while participants reported having monthly bills between \$300-\$700, due to being in severe arrears with Manitoba Hydro, many participants have an outstanding energy debt of between \$30,00-\$40,000. In Pimicikamak consumers are in such arrears on their Hydro bills that it appears to be a hopeless situation. As such, many people no longer open their Hydro bills. Six of seven participants echoed that they do not usually open their Hydro bills as there is no point in doing so, and one participant stated “I do not think anyone is paying their bill.” Many focus group participants shared that even where households attempt to reduce their energy bills, for example by heating with a wood stove, their

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Hydro bill remains very high. Even in cases where there had been a decrease in the number of individuals living in the household, Hydro bills remained high.

Individual consumers in all focus groups reported a wide range of energy costs over the course of a year, if they were not on an equal payment plan. The widest range was in Halifax, where one participant who heats their home with electricity and oil reported a \$775 difference over the course of the year, with their costs increasing significantly in the winter.

“Energy Poverty” Unclear or Inadequate

Participants were asked to choose the most meaningful definition of energy poverty from the following three measures: total household income and size, percentage of total household income, or combined level of total household income plus percentage of total income. A number of participants did not understand the question, particularly in Edmonton and Williams Lake.

In Pimicikamak, all participants felt that the definitions of energy poverty presented did not apply in their community. There were several reasons for which the Pimicikamak participants felt that the definitions could not appropriately be applied to their community due to its unique socioeconomic situation: extremely high unemployment rates (80%), significant overcrowding of households and widespread issues of outstanding energy bills in arrears (up to and including \$40,000). One participant in Pimicikamak indicated that objective standards, such as the number of people living in a household, should be used to determine energy costs that would be set and could be relied upon, and that these costs should not increase beyond 5% of a household's income.

When participants did understand the question, the preferred measure of energy poverty was a combination of household income and percentage of total income spent on energy. However, as noted by participants in St. John's, this definition still does not accommodate for short-term financial difficulties resulting in energy poverty. In Guelph, participants felt that the energy efficiency of homes should also be considered, particularly since lower-quality housing is often not insulated.

Participants' Perceptions of Energy Poverty in relation to their lives

Responses to these questions were similar in both St. John's and Halifax, where just over half of the participants of both sessions viewed energy poverty as occurring when 8% of total household income was spent on energy costs. Half of the participants of both groups, with the remainder paying 8% or 10%. All participants in St. John's felt that their household fit within one or several of the definitions of energy poverty. While not every participant in Halifax responded to the question about their own perceived situation in relation to energy poverty, those who did respond overwhelmingly felt that they qualified as living in energy poverty by one of the metrics (4 participants indicated yes, one indicated no but went on to say that they have to pull from their credit almost monthly because their budget is gone over).

In Guelph, only two participants gave a percentage value for what they perceived to be an appropriate threshold for spending, above which individuals should be considered to be experiencing energy poverty. Both individuals believed that spending more than 10% of annual income was the threshold for energy poverty. Within this group, total household spending on energy was more diverse, 2 ranging from 2 participants spending less than 6% of income on energy, and 1 participant spending more than 10%. In Guelph, the participants were split almost half and half on whether they saw themselves as living in energy poverty, 4 participants claimed they did not fit any of the models and 3 participants stated that they fit one of the models for energy poverty.

In Edmonton, despite none of the participants having heard the term “energy poverty” before, each of them were able to give an opinion as to what percentage of an annual income spent on energy would place someone in a situation of energy poverty. The most common response in Edmonton was that a household would have to spend more than 10% on energy to be in a situation of energy poverty (4 participants). Edmonton also had the highest number of participants (4) paying more than 10% of their annual income on energy. Unsurprisingly, Edmonton had the highest rate of participants claiming that their energy spending fit into one of the definitions for energy poverty, with 5 participants responding

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that they did fall under a definition of energy poverty, and only 3 participants claiming they did not fall under one of the definitions.

In Williams Lake, the large majority of participants (7) claimed that spending more than 6% of annual income would place someone in energy poverty. 7 participants expressed that their own household was spending no more than 6% of their annual income on energy costs. Only 1 participant in the group saw themselves as currently being in a situation of energy poverty.

The situation in Pimicikamak was quite different from the other focus groups, with participants often in multiple thousands of dollars in arrears and ongoing very high monthly bills. It was difficult for participants to answer how much they typically paid for their energy bills. The perception of energy poverty of participants from Pimicikamak will be discussed in greater length in the following section on key local factors.

Seniors, People with Disabilities

Participants noted the particular energy needs of seniors and people with disabilities. In St. John's, for example, participants noted that seniors may pay more for heat because of medical conditions, which was echoed in Halifax. One participant in Halifax mentioned that modifications to homes to ensure accessibility, such as using a power wheelchair or a mechanized elevator, could drive up energy costs. Participants in St. John's, Halifax, and Guelph, when prompted, agreed that whether or not a household had additional medical costs, divorce or if a senior lived there should be considered in definitions of energy poverty.

Renting vs Owning

The question of whether or not a participant owned their home came up frequently in the focus groups. This was particularly important to participants when discussing what programs would be best suited to addressing energy poverty. The options presented were direct assistance with bill payment or programs that provide energy efficiency upgrades at little or no cost. A number of participants felt that only offering support for energy efficiency upgrades was exclusionary to renters, as well as those with a low income. In Williams Lake, for

example, six participants could not afford to upgrade their homes to be more energy efficient. One participant in St. John's talked about the high interest rate charged to her by Nalcor when making an upgrade to her home.¹ Participants felt that the best, most inclusive approach would be a combination of both options: bill assistance and energy efficiency. Some participants in St. John's and Edmonton indicated that they had already made energy efficient upgrades to their homes.

Negative Impression of Energy Companies

A number of participants reported negative feelings towards the companies or company responsible for power in their community, regardless of the location. The participants in Guelph clearly stated that they were not happy with the operations of Ontario's Hydro One, such as the production of electricity to sell to the United States. Another participant commented on the salaries of Hydro workers driving up costs. The facilitator of the Williams Lake focus group noted that the profit motive of the energy company was questioned by the group throughout their conversation.

In Edmonton, the focus group felt that the funding for programs assisting people to get out of energy poverty should not be from consumers (either through an extra levy on utility bills or through taxes) but rather from the profits of the energy companies themselves. One participant stated that deregulation in the province had done little to reduce rates. Participants in St. John's reported feeling anxious about the increase in energy costs due to the building of the Muskrat Falls dam by Nalcor. Nalcor is the provincial crown corporation responsible for energy in Newfoundland and Labrador.

The negative perception of energy companies was most prominent in the focus group held in Pimicikamak, where the community's past relationship with Manitoba Hydro has led to a cynical attitude towards the company in much of the community. Participants indicated that community members feel they have been lied to by Manitoba Hydro and that the corporation is strong-arming community members by threatening power disconnection if payment plans are not agreed to

(for a brief description of the community’s history with Manitoba Hydro, see the next section).

Key Local Factors

Local Energy Cost Concerns

It was noted by one participant in Edmonton that a number of landlords include utilities in the price of rent in order to attract tenants in a competitive rental market. The only participant in the focus group in Edmonton that rents their home did not indicate that this was the case for them. Edmonton was also the only community surveyed that has an unregulated energy market. As a result, one participant uses two different power companies. Another participant has switched companies to get a better rate. Finally, another participant stated that “Deregulation was supposed to create competition and reduce prices but there is very little competition”.

As mentioned above, Nalcor Energy, is currently building a new dam at Muskrat Falls. This was discussed by participants in St. John’s and by their facilitator as being a prominent public conversation, partially due to uncertainties around rate increases. Two participants said that it is talked about frequently in local media, with one host, “always getting an earful”. The facilitator noted that “[m]ultiple participants used the word ‘anxiety’ or a related expression to describe how energy impacts their lives”.

The participants in Guelph also indicated that energy and energy costs were in the news locally, largely due to the upcoming Ontario election in June 2018.

Pimicikamak

Pimicikamak has a unique history with energy in its community due to the reserve’s experiences with Manitoba Hydro. Pimicikamak is located a short distance from the Manitoba Hydro Jenpeg Generating Station (built 1977, completed 1979) and is a signatory of the 1977 *Northern Flood Agreement*. This agreement remains a source of conflict between the community and the federal and provincial governments. Participants in the focus group were clear that the

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Jenpeg Generating Station contributed to environmental devastation in the surrounding area which impacted hunting and fishing, and as a result, the community's economic base.

The historical context is very important to the community, a fact made evident by the number of times it was brought up in participants' answers. Of particular relevance to this research on energy poverty, participants felt strongly that Manitoba Hydro, as well as the Governments of Manitoba and Canada, had unfulfilled obligations to Pimicikamak which would require those bodies to pay the Hydro bills of Pimicikamak residents.

There was consensus among the group in Pimicikamak that everybody has difficulty paying their energy bills, but that “everybody is dependent on electricity”. Hydro bills were referred to as “sky high” by multiple participants at multiple times, even when wood is used to heat the home. One participant stated that nobody is paying their Hydro bills, except maybe those who are working and those who receive benefits from social assistance.

The unemployment rate in Pimicikamak is 80-85% and is therefore significantly higher than the other locations where focus groups took place. As a result, residents are often unable to pay their power bills. Some participants reported having Hydro bills between \$30,000-\$40,00 due to being in arrears. According to participants, while Hydro bills usually range from \$300 to \$700 a month, social assistance only pays approximately \$100 toward a Hydro bill. A portion of total bills is due to a loan provided to Cross Lake Band from Manitoba Hydro, to be paid back by the community. Because of this arrangement, participants indicated that every member of the community pays an additional ~\$100 per energy bill for loan repayment, to which they feel they did not consent.

Given the high cost of the Hydro bills, participants stated that a number of community members do not even open their Hydro bills. One participant wondered if their high energy bills were due to the poor quality of housing in the community: “We had a visitor from Halifax. He said that these houses here are made of paper. Maybe that’s why our Hydro bills are so high”. Another

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participant mentioned that they were hoping to insulate their home and build a porch in order to cut down on the high Hydro costs.

While the participants agreed that programs should be put in place to assist with alleviating energy poverty, the focus group in Pimicikamak identified a number of unique challenges in their community with respect to power and access to Manitoba Hydro services. For example, residents stated not having access to the Manitoba Hydro Power Smart program, a program designed to incent energy efficiency through various subsidies, loans, and rebates. As well, participants indicated that Manitoba Hydro does not check the residents' meters, meaning that their bills are always estimated. Because of this, participants who burn wood in the winter to heat their homes or use other alternatives to hydro-electricity saw no decrease in their monthly energy costs, which participants reported as being between \$300-\$700.

Participants also identified that if a person is disconnected from Hydro, the reconnection fee is very high and the bill that had existed before the disconnection remains in place.

Participant Quotes

“Today we’re scared to open our Hydro bill.”

- Participant, Pimicikamak, Manitoba

“It’s like paying a second rent.”

- Participant, Williams Lake, British Columbia

“In the most recent times money has been stable so it’s not a choice I have had to make [of whether or not to pay the power bill]. But in the past it was a huge

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problem and I had the power cut about twice a year for 2 or 3 years.”

- Participant, St. John’s, Newfoundland and Labrador

“I feel like that’s my life. I feel like it goes rent, heat, and everything else is just a maybe.”

- Participant, St. John’s, Newfoundland and Labrador

“We have to neglect our food bill – would rather pay the food bill.”

- Participant, Pimicikamak, Manitoba

“Never going without [power], but eating lower quality foods than I usually would, like soup and tuna, until the next pay day comes around.”

- Participant, Halifax, Nova Scotia

“[Programs for people experiencing energy poverty] shouldn’t come from consumer, should come from government.”

- Participant, Edmonton, Alberta

“Poverty needs robust system for support. Something too specific excludes people who can still need help.”

- Participant, St. John’s, Newfoundland and Labrador

“We have the education and resources to make our home as efficient as

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possible...Not everyone can do that. We are fortunate.”

- Participant, Guelph, Ontario

“There are so many things that bear upon the circumstances of poverty. Energy is just one part.”

- Participant, St. John’s, Newfoundland and Labrador

“Energy is an essential for life. You cannot go without it, especially if you live in a Northern climate.”

- Participant, St. John’s, Newfoundland and Labrador

“Ontario seems to be out of whack compared to other provinces”

- Participant, Guelph, Ontario

“We had a visitor from Hydro. He said that these houses here are made of paper. Maybe that’s why our Hydro bills are so high”.

- Participant, Pimicikamak, Manitoba

“‘Energy Poverty’ is only one dimension of poverty writ large. It does, however, highlight the particular dynamics and impact of energy choice – a mechanism that is significantly influenced by the particular legislative and enterprise environment that is present.”

- Participant, St. John’s, Newfoundland and Labrador

“We don’t have much choice in Alberta. Energy is narrow field [of providers] to take money. Deregulation was supposed to create competition and reduce prices but there is very little competition.”

- Participant, Edmonton, Alberta

Conclusions

During the course of this research, several recurring principles, themes, and ideas rose to the surface, supported by more than one of the research tools:

- Engagement

One deficit that became startling clear, from the initial interviews right down to the consumer focus groups, was the prevailing lack of effective engagement with consumers, potential program users, and other relevant policy communities in the design and facilitation of programs, strategies, and initiatives. It was also clear that the most successful of these benefitted, in most cases, from not just initial engagement, but ongoing, two-way engagement, where input was recorded and responded to (if an idea was not used, why was it not used, etc.)

- Education

Another important aspect of program/strategy effectiveness, that was absent from so many of the programs and initiatives reviewed, is consumer education. With input from interviewees, consumers, and best practices of successful programs, consumer education includes two components: information, and the skills necessary to use the information provided to pursue one's own best interests.

- Energy efficiency

Energy efficiency is inextricably tied to the alleviation of energy poverty. Programs and strategies that help consumers to conserve in a cost-effective or affordable manner can definitely assist in the reduction of energy poverty. It has been pointed out by interviewees, and borne out by the

review of programs, that a focus on energy efficiency alone will not reduce energy poverty. This approach can be a double-edged sword, encouraging those consumer who find it difficult to pay their bills to resolve that difficulty by doing without a healthy and reasonable amount of heat or other energy product. A wholistic approach is likely to be more successful, incorporating energy efficiency into the model that considers other components, such as quality housing, quality of lifestyle, and healthy living.

- Bill/income affordability

Bill affordability programs appeared to be another potentially double-edged sword. While they provide relief for those consumers who qualify, are aware of them, and apply to participate, interviews and the review of programs revealed that the percentage of eligible consumers who actually participate in these programs is painfully low (at best close to 50%). At the same time, consumers who are eligible but do not participate, for whatever reason, are often further burdened by paying for the cost of these programs on their already unmanageable energy bills.

Conversely, programs designed to increase income may enable consumers to achieve more than just the reduction of their personal energy poverty. There can be lifestyle and health benefits from these programs. Increased income may increase energy consumption, but when coupled with education and energy efficiency programming, consumers have the opportunity to conserve in a manner that maintains their health and supports other societal benefits.

- Housing

Housing condition and quality is another strategy inextricably tied to the reduction of energy poverty. Housing improvement programs must be affordable if they are to be effective in reducing energy poverty. They are

also tied to energy efficiency improvements, and to the bolstering of building codes. This theme was raised in the interviews, became apparent in the review of programs and initiatives, and even more apparent from the input of consumers during focus group sessions.

- Enabling legislation

The review of relevant legislation, both provincial and federal, highlighted the interaction of legislation governing a wide a variety of policy areas, that has an impact on energy poverty strategies and programs, and vice versa. Legislation regarding housing, health, and benefits to different groups of consumers, both provincial and federal, was seen to intersect with energy poverty reduction programs and initiatives, in both positive and negative ways. Also, some regional legislation was seen to limit or prohibit the introduction of certain types of energy poverty reduction strategies. The most effective legislation, or the legislation that enabled the most creativity and scope in energy poverty planning, permitted a wide variety of tools and strategies, while minimizing negative externalities and maximizing positive ones. Facilitating this requires engagement, with consumers, and with policy makers from all departments and levels of government, and utilities/industry providers.

Recommendations

Based on the review of literature, the engagement with policy community interviewees, the focus group results and the review of national and provincial legislation and programs, CAC Manitoba developed a number of recommendations. These recommendations include six strategies for energy poverty reduction and alleviation:

- Engagement
 - Education
 - Energy efficiency
 - Bill/income affordability
 - Housing
 - Enabling legislation
1. Any energy poverty program or suite of program should be evaluated. The evaluative criteria should include, but not be restricted to:
 - a) Efficacy (is it actually working) in energy poverty alleviation
 - b) Universality
 - c) Sustainability (economic and environmental)
 - d) Equity
 - e) Efficiency (administrative)
 2. Engagement: consumers, relevant policy communities, government and utilities should be equally engaged – on a level playing field (eg: adequate resources and access to expertise) – prior to planning, during planning, before launching any energy poverty reduction initiative, and in the evaluation of programs and strategies. Input from engagement initiatives should be collected and addressed. Information should be available publicly to those who participated.
 - a) Engagement should be conducted not only on proposed plans, but also

- on the definition(s) of energy poverty, the criteria and the eligibility for any initiatives.
- b) Engagement should recognize that energy poverty is a pan-Canadian phenomena extending beyond our urban centres to rural and remote communities and should be location-based.
3. Recognizing that energy poverty is a problem across Canada, but that there are regional disparities (BC is low, Maritimes is high), that some of the significant successes in addressing energy poverty have come from federal initiatives, and that utility-specific bill affordability programs struggle to meet penetration rates, it may be desirable to consider federal financial support akin to the UK federal programming, in addition to province-specific legislation and programming, to achieve equity amongst jurisdictions and amongst consumers across the country.
- a) Legislation should be designed to maximize positive externalities and minimize negative externalities, thereby enabling governments (at all levels) to provide support for, and accommodate a range of, energy poverty reductions strategies and initiatives.
4. Any energy poverty program or initiative must address housing type and condition.
- a) Housing type: for example, any program or initiative should address “split incentive” for landlords and tenants.
 - b) Housing condition: this includes energy efficiency standards for buildings as well as consideration of cost-effective energy source options (geothermal, solar).
5. There should be active exploration of energy source-switching (i.e. diesel to hydroelectricity) consistent with reduction of energy poverty and with environmental sustainability.
- a) Consideration should not be given to energy source-switching where it may assist with energy poverty but is not reconcilable with general

environmental sustainability and Canada's climate change commitments.

6. Recognizing the important connection in the literature between energy poverty reduction and energy efficiency / housing upgrades, housing improvement and energy efficiency opportunities should be considered as part of any energy poverty reduction program.
 - a) Energy efficiency upgrades can provide a long-term solution and puts more control in the hands of consumers.

7. Any energy poverty reduction initiative or strategy should include a mix of demand reduction (energy efficiency programming), and) income or bill assistance solutions, with the priority being government-directed programs and initiatives for reasons of equity and for reasons of administrative efficiency, and consumer education.
 - a) Consideration should be given to legislative flexibility (legislation that enables both variation amongst jurisdictions and consideration of a variety of options) to consider the full array of tools to address energy poverty with a priority on energy efficiency, bill affordability (government-led and utility-led), proper engagement, with a view to economic and environmental sustainability.
 - i. Any income or bill assistance program should be designed to achieve more than 75% of the target population.
 - b) One type of bill or income assistance solution may be the consideration of a basic income guarantee.

8. Any energy poverty reduction strategy should include better regulation of energy costs, including integrated resource planning and capital expenditure programs.

9. While the literature indicates that community organizations should be involved in energy poverty reduction initiatives, our experience shows that it has not always been demonstrated to be the best way to deliver the

program.

- a) Community organizations could help with outreach and evaluation
 - i. In conjunction with a portfolio of marketing strategies.

10. Recommendations for future research:

- a) Recognizing the depth of energy poverty on a First Nation in one province and the lack of information on those consumers living in other provinces, and recognizing the importance of respecting the nation-to-nation relationship in Canada, further research should be conducted on the breadth and depth of energy poverty in First Nations across Canada.
 - i. In the spirit of reconciliation and nation-to-nation relationship, First Nations should play a core role in designing and conducting the research and there should be ongoing collaboration with First Nations on this research.
- b) An energy poverty dialogue should be started at the federal level in Canada, including government, policy-makers, consumers and community organizations.
 - i. This dialogue should include an engagement and feedback mechanism.
 - ii. The energy poverty dialogue should recognize that energy poverty is a pan-Canadian phenomena extending beyond our urban centres to rural and remote communities and should be location-based.

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Appendices

Appendix A – Interview questions

1. What is your (or your organization's) experience with, or interest in, energy poverty?
2. What issues do you believe should be part of, or will arise during, any research on energy poverty? (brainstorm, then prompt for more info on responses)
3. What principles should underly any program, initiative, or strategy designed to reduce energy poverty?
4. What models, programs, initiatives, strategies have been effective, in your experience or through your research, at reducing energy poverty or helping consumers to pay their bills?
 - a. What are the major benefits of each of these approaches?
 - b. Are there any drawbacks or pitfalls for each of these?
 - c. (explore each suggested option fully)
5. Are there any models that should be avoided at all cost?
 - a. Why? (explore fully)
6. Are there any ideas that you have for programs, initiatives, or strategies that are not currently being used, or have not been tried, but that you think would work to reduce energy poverty? (prompt for more details)
 - a. What would be the benefits of this program, initiative, or strategy?
 - b. Do you see any potential drawbacks or challenges that would need to be addressed to make this work?
7. Are there other perspectives, individuals, organizations that you believe we should interview?
8. Would you like to see a draft of the final report on these interviews before it is published as part of the full project report?
9. Would you like a copy of the full project report when it is completed?

Appendix B – Canadian Policy, Programs and Initiatives

Canadian Policy

Unlike the UK, or some EU countries, there is no legal standard for energy affordability in Canada [Group, 2008]. However, programs to alleviate this problem have multiple objectives, such as social equity, better homelessness, improved health outcomes, and utility customer service cost reduction. The experience in Canada and the UK indicates that it can be difficult to establish who is best suited to lead initiatives considering such an interdisciplinary issue. Consequently, it is believed that collaborative efforts are particularly advantageous especially between organizations focused on health, on energy and on welfare at multiple levels [Group, 2008]

The federal government approved several low-income energy affordability programs in 2006. One program – the Energy Cost Benefit was intended to provide rate assistance nationally – a total of 565 millions to 3.1 eligible low-income consumers – based on household income and qualification for other social assistance programs such as the National Child Benefit and the Guaranteed Income Supplement [Advisors, 2008]. It was funded through federal and provincial grants, and payments were made directly to eligible recipients. However, funding for the Energy Cost Benefit was discontinued in 2007. The Federal Government also passed Bill C-66 unanimously, which would have funded a 5 year national low-income energy efficiency program had it not been scrapped as well in 2007 – depriving 130,000 low-income households of significantly lower energy bills [Loney, 2009]. Up to \$5000 per low income household was to be allocated through the EnerGuide for Low Income Households (EGLIH).

In contrast, EGLIH's replacement – the federal ecoENERGY program (2008- 2012) – focused on individuals who owned their homes and could afford the upfront costs needed for improvements. As a consequence, provinces have developed programs in an effort to help LIH's [Loney, 2009]. Additionally, the federal program does have some capacity to facilitate provincially operated low-income targeted programs; incentivizing delivery agents as well as homeowners [Group, 2008].

The Canadian Mortgage and Housing Corporation (CMHC) administered a national program as well – the Homeowner Residential Assistance Program; providing forgivable loans to low-income households so they could bring their homes up to health and safety standards. A maximum of \$16,000 - 24,000 for energy efficient initiatives, as well as heating, electrical and structural repairs is available depending on location. A similar program now exists for on-reserve upgrades. The CMHC has continued to partner with provinces through bi-lateral agreements; providing funds that the provinces will match and allocate to programs of their choosing [Corporation, 2016].

Overall, there appear to be more energy efficiency programs across Canada than programs addressing low incomes or high-energy costs. Some programs pre-approve certain homeowners while other programs have an official application process. Moreover, programs like New Brunswick's take protective measures – requiring participating owners of rentals to not increase rents as a result of any retrofits. This also guarantees that where energy costs are included in rent, the savings that result from retrofits will be passed along to renters.

Regional Policies

Manitoba

Manitoba stands out as a particularly advanced province when it comes to LIEEPs. Through collaborative, community-based programs they have been successful – with support from federal, provincial government, Manitoba Hydro and local non-profits [McEachern, 2010]. Manitoba Hydro has partnered with social enterprises including BUILD and AKI energy to complete these programs, which has led to some additional benefits through job and business creation. These social enterprises train and hire low income individuals to perform the installations and retrofits [Loney, 2009]. The program continues to employ locally – conducting retrofits free of charge using supplies provided by Manitoba Hydro. The overall success of programs like this contributed to Manitoba earning an “A” rating from

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the Canadian Energy Efficiency Alliance. Nonetheless, the programs also experience challenges – including maintaining a steady worker force, and establishing processes and eligibility [Loney, 2009].

Manitoba Hydro also coordinates First Nations targeted programs – partnering with communities to help them become “Power Smart”. Energy efficient specialists audit and recommend energy efficient measures for households in first nation communities. Energy saving measures include insulation and basic upgrades such as, CFL’s, low-flow showerheads, draft proofing and insulated pipe wrap. The Community Geothermal Program – with the aid of AKI Energy trains local businesses to install and maintain geothermal heat pumps. Pay as you go financing is offered to homeowners – allowing them to have little to no upfront costs while significantly decreasing their energy consumption [Manitoba Hydro, 2016]. Similarly their Power Smart Affordable Energy Program offers financing and free energy efficiency upgrades to low-income households province wide. Additionally, Salvation Army organizes Neighbours Helping Neighbours – a charitable program funded by private and corporate donations – that provides counselling, job training and financial assistance to low-income households who are unable to pay their energy bill due to emergencies and personal hardship.

Moreover, Manitoba Hydro was directed to look at different ways to improve bill affordability programming in 2015. Consequently, a bill affordability working group was formed including a diverse number of interested stakeholders in Manitoba – the first collaborative in-depth examination of bill affordability in the province. The working group published their report in 2016; including results, recommendations and a “made in Manitoba” definition of energy poverty.

Manitoba Hydro rate increases are projected to increase energy poverty levels between 10% and 24% by 2026 [Associates, 2016]. The working group indicated that an arrangement of tools are needed to address the energy poverty problem. Surprisingly, their findings indicated that there is a relatively low correlation between energy poverty and unpaid bills as well as energy poverty and a

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disproportionately high-energy consumption in Manitoba. As a result the costs of potential rate reduction policies may not be offset by decreased arrears, disconnections and writeoffs. The working group also evaluated three rate assistance options; a straight rate discount, a fixed charge waiver and a percentage of income payment plan. The simulated results suggested that the percentage of income payment would be the most effective – eradicating energy poverty entirely. A fixed charge waiver would lead to a 19% reduction in energy poverty and a straight rate discount of 25%, 35% and 45% would reduce energy poverty by 54%, 62% and 75% respectively [Associates, 2016].

The bill affordability working group’s recommendations were largely supportive of Manitoba Hydro’s current approach to bill affordability and include some proposed improvements to increase the impact of existing programs:

- Maintain or increase funding for LIEEPS/Weatherization initiatives
- Explore fuel switching possibilities regarding the relatively higher price of electricity compared to natural gas in Manitoba
- Continue emergency assistance
- Reduce barriers to landlord and tenant participation
- Consider mitigation for extreme weather impacts
- Explore program enhancements and educate/inform customers regarding equal payment plans
- Continue to provide and improve customer service regarding arrears/bill collection
- Consider a bill payment/matching program targeted to low-income individuals
- Consider government funding (to be used to mitigate the impact of rate increases on lower-income consumers, northern and Aboriginal communities)

[Group, 2016]

Quebec

Through several energy distributors Quebec hosts a variety of energy efficiency retrofit programs. Gaz Metro offers low-income households that are participating in their energy efficiency program supplementary financial assistance [Gazifere.,

2016]. Gazifere encourages low-income households to upgrade windows and doors – providing them with 5\$ per square foot of upgraded ENERGY STAR models, up to a maximum of \$500 [Gazifere., 2016]. Econologis is a free provincially operated seasonal program for LIH's that includes a visit from energy efficient consultants, who provide personalized suggestions on ways to save energy [Quebec, 2016]. Some minor interventions may be performed including caulking, weather-stripping, installing CFL bulbs and electronic thermostats.

Ontario

Ontario has many programs scattered through provincial, municipal, utility, distributor and non-profit initiatives. One distributor - Enbridge provides a home winter proofing program; available to low-income qualifying households that heat their homes with natural gas. Improvements such as, insulation and draft proofing are offered at no cost [Enbridge., 2016].

The Ontario Power Authority (OPA) developed a province wide conservation initiative. The Save On Energy Home Assistance Program helps LIH's improve the energy efficiency of their homes through a detailed home energy assessment, followed by retrofit installations and detailed advice on how to save further. The Ontario Energy Board also offers a comprehensive emergency financial assistance program. The program – Low-income energy assistance program (LEAP) - is intended to supplement existing government initiatives. LEAP offers grants of up to \$600 to qualifying individuals that are experiencing difficulty paying their energy bills [Network, 2011]. The OEB also offers an electricity support program – providing a monthly credit – applied directly to the bill - to eligible customers based on household income and size.

In contrast, the Watt Reader Load Program is a simple consumer education program organized by the community-owned utility PowerStream. Homeowners simply borrow meter monitors from local libraries so they can monitor the amount of energy they consume and identify ways to save. Furthermore, five former homelessness-related programs were combined in to one program – the community homelessness prevention initiative (CHPI). Now, CHPI has the ability to

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provide flexible locally based solutions for municipalities [Network, 2011]. Consequently municipal service managers employ a variety of programs, including emergency assistance for payment of utilities arrears.

As a response to recent significant increases in energy bills, in March 2016, Ontario introduced legislation that, if passed, would have the effect of reducing electricity bills by 25% on average for all households and as many as half a million small businesses and farms across the province, starting summer of 2017 [Ontario, 2017] In addition, if the proposed legislation is passed, bills:

- would not increase beyond the rate of inflation for four years; and
- would be further reduced for households in an eligible rural community or low income households [Ontario, 2017].

The proposed 25% on average reduction includes the 8% rebate that took effect on January 1, 2017 [Ontario, 2017].

The Ontario government is also proposing additional savings via access to credits, including:

- an expansion to the Ontario Electricity Support Program (OESP) to include more households and increase credits by up to 50%. The OESP is an Ontario Energy Board program that lowers bills for lower income households by providing monthly credits calculated based on the number of individuals in the household and the income;
- the continuation of the Ontario Energy and Property Tax Credit (up to \$1,023 per year in tax credits for low-to-moderate income households and up to \$1,165 for eligible seniors) and the Northern Ontario energy credit (a tax credit for certain Northern Ontario residents of up to \$148 per year for individuals and up to \$227 per year for families);
- the First Nations On-Reserve Delivery Credit which removes the electricity delivery charges for all on-reserve First Nations residential customers (providing an estimated \$85 benefit, per household); and
- additional reductions through the new Affordability Fund which will support eligible customers by providing them with funds to make energy-efficiency improvements to their homes [Ontario, 2017].

On May 1, 2017, the OEB reduced electricity rates across the Ontario for all Regulated Price Plan (RPP) eligible customers, which includes a portion of Ontario's Fair Hydro Plan. If the Fair Hydro Plan legislation is passed, the OEB would be required to lower rates again within 15 days after Royal Assent to meet the government's commitment to cut electricity bills by 25% on average for all households and as many as half a million small businesses and farms [Ontario, 2017].

Saskatchewan

Saskatchewan does not have many programs available to low-income households. Unlike most provinces, there are no low-income energy efficiency programs available, although they do have several non-targeted home energy efficiency programs. However, SaskEnergy does organize a program in conjunction with several community partners – Share the Warmth supports low-income families – providing grants to local initiatives that allocate the assistance amongst LIH's themselves [SaskEnergy, 2016]. The Saskatchewan housing corporation also provides low-income households with financial assistance in the case of emergency home repairs, such as furnace failure.

Nova Scotia

Nova Scotia has a number of low-income energy affordability programs. Efficiency Nova Scotia organizes many programs provincially, including product rebates, financing for energy saving upgrades, energy audits and retrofits and free product installation. The Low Income Homeowner Service will seal holes and cracks and provide new insulation for free. An energy audit is first used to determine what improvements should be made. If draft proofing and insulation upgrades are recommended the homeowner will receive them at no cost [Scotia, 2016]. Other energy efficient items, including CFL's, LED lights, low-flow shower heads, electric hot water tanks and pipe wrap are also provided at no cost.

Province wide programs also include direct financial assistance programs - Your Energy Rebate is designed to help customers as energy costs continue to rise. The

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rebate is directly applied to most participants' energy bills, although those who use alternative energy sources like wood pellets receive it separately [Scotia A. N., 2016]. Additionally, the Heating Assistance Rebate Program (HARP) provides low-income Nova Scotians with rebates ranging from \$100 to \$200. Community based programs as well – like the Good Neighbour Energy Fund and Community Service Loans provide additional help for those in more extreme cases – households in crisis and those who rely on income assistance. Community service loans, however, are temporary loans; recovered through deductions on future assistance cheques.

Although Nova Scotia's LEAP approach is more extensive than several other provinces, they have greater levels of energy poverty. Critics argue that none of the programs provide targeted assistance to the most vulnerable low-income households as determined by energy burden or address the energy bills as unsustainable. The programs are either restricted to one time emergency assistance or are rebates targeted much too wide; leading to an inconsequential impact [Gifford, 2013].

New Brunswick

The provincial utility – NB Power coordinates an appliance meter-lending program similar to the Ontario program organized by PowerStream. NB Power also offers an energy efficiency program to low-income households – targeting homes in need of major energy efficiency upgrades [Power, 2016] The provincial government also offers several financial assistance programs. Social assistance recipients can receive additional funds during winter months - from November to April they may be eligible for a \$145 monthly fuel supplement. Low-income families (incomes under 30,000) are eligible for the Home Energy Assistance Program; a one time payment of \$100 in an effort to help families cope with high energy bills [Development, 2016]. Emergency fuel benefits are available as well – up to \$550 to those in difficult situations.

Prince Edward Island

Prince Edward Island has one low-income energy efficiency program – the home energy low-income program (HELP). Households with a total household income

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under \$35,000 are eligible to have a comprehensive air sealing upgrade at no cost. The intervention includes caulking, weather stripping, sealing gaskets as well as installation of a programmable thermostat, a low-flow showerhead and a number of energy efficient light bulbs [PEI, 2016].

Newfoundland and Labrador

The one provincial program – the Residential Energy Efficiency Program (REEP) is an initiative with the objective of improving the energy efficiency of homes in Newfoundland and Labrador for those with incomes under \$32,500. Owners of single, row and semi-detached homes are eligible for grants up to \$4000. Repairs are first determined through a home energy evaluation. Upgraded basement, attic insulation and draft proofing are common improvements. The interventions have resulted in average household savings of roughly 35% [Cowan, 2014].

Newfoundland Power and Newfoundland and Labrador Hydro also offer a range of “takeCHARGE” energy efficient programs although most of them have barriers preventing low-income households from utilising them. Rebates are also offered to residential customers in Labrador’s isolated communities who receive their power from diesel generators. Through the Northern Strategic Plan approximately 3,500 customers receive this electrical rebate.

Alberta

Similar to Saskatchewan, Alberta does not have a province-wide LIEEP. There are several energy efficiency rebate programs at municipal levels; but none of them are targeted towards low-income households. The provincial government does offer emergency financial assistance to Albertans facing bill arrears and utility disconnections [AlbertaWorks, 2016].

British Columbia

British Columbia boasts an impressive number of energy efficient programs, including several that target low-income households. Similar to Manitoba, British Columbia has been recognized for their energy efficient programs - receiving an “A” from the Canadian Energy Efficiency Alliance as well. B.C. Hydro as well as the energy distributor FortisBC offer Energy Conservation Assistance programs. The programs provide qualified low-income households with free energy audits,

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advice and energy saving products, such as:

- low-flow showerheads and faucet aerators
- water heater blanket and pipe wrap
- draft proofing, such as caulking and door sweeps
- insulation for attics, walls and crawlspaces
- ENERGY STAR® refrigerator
- Energy saving light bulbs (CFLs)
- high-efficiency natural gas furnace

[FortisBC., 2016]

Programs also target aboriginal housing and provide free energy savings kits. Emergency financial assistance is also offered through the provincial government.

Territories

The Yukon and Northwest Territories both offer energy efficient program but none are targeted towards low-income households. The Yukon does operate a program – the pioneer utility grant – that assists seniors with their heating expenses in the winter. Income testing was recently added to the program; now targeting seniors with low incomes to receive the full grant [Yukon, 2016]. The Northwest Territories offers a similar subsidy – providing financial assistance to seniors during winter. Conversely, Nunavut has no established programs targeting low-income households energy affordability. Support is only available through the federal programs.

Appendix C - Summary Matrix of Ratepayer Funded Energy Poverty Programs

	Targeted to need	Easily administrated and implemented	Inefficiency problems *	Promotes conservation	Customer bears risk of price/ consumption changes	Predictable bill	Can improve health and well-being	Can help reduce utility costs **
Bill Affordability Programs								
Percent of Income (fixed monthly payment)	X					X	X	X
Percent of Income (fixed monthly credit)	X	X (compared to the fixed monthly payment)			X	X	X	X
Percent of Income (fixed annual credit)	X					X	X	X
Uniform rate discount		X	X		X (some risk for customer)		X	X
Income-based tiered discount		X	X		X (some risk for customer)		X	X
Benefit matrix	X (depending on the factors)						X	X
Income based fixed credit benefit payment		X	X				X	X
Multi-tiered inclining block rate		X	X	X			X	X
Low-income energy efficiency programs (LIEEPs)								
LIEEPs				X			X	X

* Inefficiency refers to some customers receiving higher benefits than necessary to achieve affordability, while other customers receive less than necessary.

** Utility costs refer to bad debt, collection costs, termination costs and reconnections costs.

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Summary Matrix of Ratepayer Funded Energy Poverty Programs (continued)

	Funding anomaly***	Split incentive (landlord and tenant challenges)	Awareness and adoption challenges	Spill-over effects	Free-ridership	Leakage	Rebound effects	Short-term energy poverty alleviation	Long-term energy poverty alleviation
Bill Affordability Programs									
Percent of Income (fixed monthly payment)			X ****					X	
Percent of Income (fixed monthly credit)			X ****					X	
Percent of Income (fixed annual credit)			X ****					X	
Uniform rate discount			X ****					X	
Income-based tiered discount			X ****					X	
Benefit matrix			X ****					X	
Income based fixed credit payment			X ****					X	
Multi-tiered inclining block rate								X	
Low-income energy efficiency programs (LIEEPs)									
LIEEPs	X	X	X	X	X (in some cases)		X (in some cases)		X

*** The funding anomaly refers to low-income consumers contributing to LIEEPs through energy rates but lacking the ability to participate in the program.

**** Certification and recertification procedure can help alleviate these challenges.

Appendix D – Focus Group Script

Energy Poverty

Draft focus group script

Welcome participants and offer your usual opening comments. Please include the following:

Our topic today is energy poverty. There are many ways to define energy poverty, but one way is to say that energy poverty occurs when the cost of a household's energy is more than a certain percentage of total household income. The Manitoba branch of the Consumers' Association of Canada (CAC Manitoba) is conducting this research on this topic across Canada with funding from the Office of Consumer Affairs, Innovation, Science and Economic Development Canada. This is one of several sessions which are being conducted across Canada.

Your comments this evening will be anonymous. While we might quote your words, we will not name you in any written reports. The report will not refer to any person or any particular person. Recordings and note taking will be for the purposes of developing the final reports only.

Facilitator: In your final report, when you record individual responses, please note each comment by a persons code a,b,c,d,e etc. which can refer back to a name and, therefore a participant demographic. We will delete the name for the report.

Introduction

1. Ice breaker and first names around the table.

2. What (if anything) have you heard lately regarding consumers having a tough time paying their energy bills (electricity, gas, oil, diesel, or other energy source)?
 - a. Where did you hear it?
 - b. *Facilitator: Record all comments*

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3. Raise your hand if you know roughly how much your household paid for energy bills last month. (The total of electricity, heat, etc.)
 - a. For those who have an idea, are you prepared to share that amount with the group? (*Facilitator, please record this by code. Please record the actual dollar amount stated, or the fact that they were not willing or able to give an amount*)
4. Raise your hand if you are on a monthly equal payment plan for energy bills. (record this)
5. If you are NOT on a monthly equal payment plan (every bill is based on actual consumption that month), what is the largest MONTHLY amount your household paid for energy in the last year (combined from all sources)?
 - a. What is the least amount?
6. My next question is going to be: Have you ever had difficulty paying your energy bills? We can answer this question by a show of hands, or by jotting it on the sticky notes in front of you anonymously. Is the group comfortable answering by a show of hands?
 - a. *Facilitator: You may have another way of determining the will of the group....all fine with us.*
7. Have you ever had to give something up to pay your energy bills, or avoid buying something or paying for something because of the need to pay your energy bills (such as food, clothing, prescriptions, rent, school supplies or sports programs for children, etc)
 - a. *Facilitator, this questions can be answered verbally or on paper, depending on the group.*

Energy Poverty

We will provide some powerpoint slides to use with this section, for those consumers who are not auditory learners. These can be handed out for discussion.

8. I mentioned there are a variety of ways that people define the term energy

poverty. I am going to read you a few of these, and then ask for your initial thoughts.

- a. **Total household income and size** – Tools used by those who collect statistics, such as Stats Canada’s Low Income Cut-off (LICO), or the Low Income Measure (LIM), categorize consumers’ income level based on the number of people in the household and the total household income. The formulas for different measures vary, but the information required about households is the same...Number of people and total income. For example, in 2014, the LICO for a family of four (after tax) living in a large urban centre (>500,000) was an annual household income of \$38,117. These definitions of energy poverty assume that consumers with income below the cut-off have difficulty paying their energy bills. Some researchers and programs consider a percentage above the tool, such as 125% of LICO used by one utility as the cut-off to qualify for low income energy efficiency programs.

- b. **Percentage of total household income** - This definition defines energy poverty based on the percentage of total income that is spent on energy. For example, if a consumer household spends more than X% of their total income on gas and electricity combined, they would be considered to be experiencing energy poverty. There are various versions of this, mostly involving different percentages, including 6%, 8%, and 10%. For example, let’s say a family’s total annual household income is \$30,000, and the threshold for energy poverty is 8% of annual income spent on energy. If this family spends more than \$2,400 (8% of \$30,000) on energy bills in one year, they would be experiencing energy poverty by this definition.

- c. **Combined level of total household income plus percentage of total income** – This definition involves setting both a maximum total household income level plus a minimum percentage of that income that can be spent on energy for a household to fit the definition of energy

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poverty. In this definition, if the threshold for income spent on energy was still 8%, our family of 4, earning \$30,000 in 2014, would qualify. Their total household income is below the LICO for a family of 4 in that year.

There are quite a number of versions of this type of definition used in different jurisdictions. Some of these include other criteria, such as interviewing a member of the household to determine whether or not they have to make trade-offs to pay their energy bills, for example. (A large number of consumers meeting the various definitions of energy poverty who pay their bills fully and on time. The purpose of this measure is to determine at what cost they do pay their bills).

9. What do you think is the most meaningful way to define energy poverty, and why (discuss)?:
- a. Household income and number of household members
 - b. Percentage of total household income spent on energy
 - c. Combination of household income and percentage of total income spent on energy
 - d. Other criteria/models that should be considered

Your own energy bills

Facilitators, please ensure that responses are recorded by personal code for this section of questions.

10. Thinking about the percentage of total household income spent on energy, what percentage of income do you think best defines energy poverty:
- a. 6%
 - b. 8%
 - c. 10%
 - d. Other

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11. Thinking about the combined definition of total household income and percentage of income spent on energy, what additional criteria, if any, do you think should be added to this definition? For example, would you ask if the household had some special medical or other issues that required more than usual energy use, or would you ask if the household ever had to make trade-offs between paying energy bills and paying other bills?
12. Thinking now about your own household energy bills, raise your hand (or use the sticky notes) if you spend more than 6% of your income on combined energy costs (electricity and heat from all energy sources).
 - i. Same question for 8%
 - ii. Same question for 10%
13. Given the definitions you have heard today, raise your hand (or use the sticky notes) if you think your household fits one or several of the definitions of energy poverty.

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14. Should there be help (programs, initiatives, discounts) for those consumers/households experiencing energy poverty
 - a. *Capture yes and no and why or why not.*
15. Who should help consumers experiencing energy poverty?
 - a. If no response, prompt for government (provincial, federal, municipal), utilities, non-profits, foundations, other???
16. There are a number of different ways that different governments and utilities in many countries, including Canada, try to help consumers experiencing energy poverty. Some of these are government funded programs, paid for by taxpayers. Others are funded by utility ratepayers (customers) on their energy bills. Both of these approaches are paid for by consumers, either through their utility bills, or through their taxes. How do you think consumers should pay for

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the cost of programs that assist those households experiencing energy poverty? Utility bills, taxes, or do you have another suggestion?

- a. *(For example, some consumers have suggested to us that foundations should fund this through non-profits, as an example of an alternative suggestion)*
- b. *Facilitators, please record by demographics*

17. There are two main types of programs designed to help consumers experiencing energy poverty:

- a. **Programs that provide energy efficiency upgrades for little or no cost** –
The idea here is that the reduced use of energy lowers consumers' bills regardless of the rate.
- b. **Programs that provide a discount or reduced rate (bill assistance)** –
This enables consumers experiencing energy poverty to pay less on their bills, possibly regardless of how much energy they use.

18. Which of these two approaches do you think would be most effective at helping consumers out of energy poverty?

- a. Ask why and discuss the pros and cons of each.

19. Which of these two approaches do you think would be most helpful to you and your household, if you were experiencing energy poverty?

- a. Why?

20. Some places combine both types of programs.

- a. Do you see an advantage to a combined energy efficiency and bill assistance approach to tackling energy poverty?
- b. Do you see a disadvantage?

21. If you were experiencing energy poverty, what would be the best way to let you know about programs that might help your family pay their energy bills, and why?

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- a. If you were experiencing energy poverty, what would be your preferred way for you to receive the benefits of the program
- b. Fill out an application form and provide financial information
- c. Check off a box on your income tax form, giving the government permission to use your tax return information to provide you with benefits of the program
- d. Other???

22. Is there anything else you would like to tell us about energy poverty, your own energy bills, or energy rates, etc...?

Thanks on behalf of CAC Manitoba.