

Transforming income-qualified home energy retrofit programs in B.C.

Jurisdictional scan and better practices

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Glossary of terms

Equity: acknowledges the advantages and barriers that exist that limit people from having equal opportunities. Equity is a process that works to correct this imbalance so that all people have the opportunity to grow, contribute and develop regardless of their identityⁱ.

Inclusion: the intentional act to ensure people with different identities are able to fully participate in all aspects of an organization or activity.

Diversity: the presence of differences within a given setting which may include gender, race, ethnicity, religion, nationality, sexual orientation, place of practice, and practice typeⁱⁱ.

Accessibility: providing equal access to an opportunity, resource, and public good or service to everyone despite their ability or experience.

Rural community: has no access to the natural gas distribution network and experiences higher overall energy costs due to a reliance on more expensive energy sources, such as electricityⁱⁱⁱ.

Remote community: has no natural gas or electrical grid access and is typically powered by a micro-grid, often using diesel fuel^{iv}.

Transactional change: work within an existing set of institutional arrangements to reform or eliminate a single barrier to free groups to achieve the universal goal^v.

Transformative change: to restructure the system itself rather than one relationship or action within the system^{vi}.

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Recommendations

Process-based recommendations

1	Design program recruitment for the customers the program is trying to reach and the barriers they face in accessing the program.
2	Create a program application process that is quick, easy and accessible for eligible applicants.
3	Have regional program coordinators and contractors available to provide quick, efficient and informed support throughout the application and installation process.
4	Offer funding for comprehensive home retrofits capable of shifting homeowners and renters out of energy poverty.
5	Offer curating and navigating support for program participants so they can access and benefit from other complementary rebates and energy saving programs.

Outcomes-based recommendations*

6	Establish per-home targets for reductions in energy use and energy cost burden. Measure and report performance specific to these targets.
7	Create program goals that align with provincial/state mandates on energy efficiency and poverty reduction.
8	Make the four dimensions of equity central in program design, implementation and evaluation.

* For important outcomes-based recommendations that were outside the scope of this report, see [Approach and methodology](#).

Executive summary

Energy poverty is experienced by households who struggle to meet their home energy needs including thermal comfort, lighting, water heating, and cooking^{vii}. Households with low and moderate incomes (LMI) are more likely to experience energy poverty than those with higher combined household incomes; however, energy is only one side of the energy poverty equation. Disproportionately high energy costs caused by inefficient equipment, poorly insulated homes, and/or a high cost fuel source are also significant determinants for households experiencing energy poverty.

Specific to British Columbia (B.C.), approximately 15%, or 272,000^{viii} households experience energy poverty. These households experience a median energy cost burden of 9.3%, three times that of all B.C. households. Despite having one-half the income levels, B.C. homes in energy poverty also have home energy costs that are 50% higher than the provincial average. One quarter of households in energy poverty earn more than \$40,000 per year after-tax, meaning they would not fall within the general classifications of low-income nor qualify for income-qualified energy efficiency program support. Energy poverty rates are also higher among the traditionally marginalized communities of Indigenous, racialized, recent immigrant, and lone parent households^{ix}.

These statistics are all to say that energy poverty does not equal income poverty; far more factors than a household's pay cheque determine whether a household is likely to experience energy poverty and to what extent. While more current statistics are not available, higher unemployment rates and increased home energy consumption associated with the COVID-19 pandemic are reasonably assumed to have increased the incidence and gravity of energy poverty across the province.

A variety of home retrofit programs exist in B.C. to support homeowners, renters, landlords, Indigenous communities and non-profit housing providers to reduce the cost of their energy bills, degrease greenhouse gas (GHG) emissions and decrease energy consumption. Although the target technology varies, programs commonly offer one or a combination of energy efficient item installation, weatherization and energy coaching. Program structure varies by fund source and level of funding, administrator, target technology, target audience and more.

This project focuses on analyzing existing income-qualified and utility ratepayer-funded home retrofit programs across North America and considers an improved delivery model for energy cost burdened bill holders in B.C. This project focuses on principles of equitable program design^{xi} and recommends centring equity and energy poverty in program design, structure, implementation and evaluation of these income-qualified home retrofit programs.

For an income-qualified program to be successful, it must 1) recruit and enroll the highest possible percentage of eligible households, 2) deliver energy savings that result in lasting and measurable cost savings for those paying the utility bill and 3) improve household comfort. Thus far, programs designed and administered by utilities in B.C. and most other jurisdictions have not achieved widespread participation, nor significant bill savings for the bill holder.

This research project identifies common limitations and deficiencies of these utility-funded, income-qualified programs in achieving stated outcomes and impact and highlight programs that are successfully addressing energy poverty in their region.

This project involves a jurisdictional scan and interviews with administrators of income-qualified home retrofit programs across North America. Particular attention is given to analyzing BC Hydro and FortisBC's Energy Conservation Assistance Program (ECAP) - a longstanding income-qualified energy efficiency program in B.C. A literature review and interviews with ECAP administrators and users informs a journey map of a homeowner's experience through the program (note that ECAP is available to renters, Indigenous communities and non-profit housing providers, but is administered and delivered differently so is not within the scope of this project). These interviews, the literature review and the journey map inform process-based and outcomes-based recommendations to improve the reach and effectiveness of ECAP in B.C. Similar home retrofit programs across North America, of which there are many, should also find these lessons learned and recommendations to be transferrable.

Our in-depth analysis of ECAP reveals the program is not achieving meaningful reductions in household energy bills, energy usage, or carbon emissions. ECAP customers face barriers in the program application and approval process which keeps them from accessing the program altogether or accessing the extent of retrofits they need for meaningful and lasting relief from their high energy cost burdens. Several procedural problems emerged during our research, including: the ECAP application and proof of income requirements; the complex program steps and various program administrators; and the program recruitment strategy that is reactive rather than active to find qualified customers. Our analysis also reveals several outcomes-based deficiencies common to ECAP and similar programs. These include: performance metrics that are disconnected from and thus meaningful decreases in energy poverty are not occurring for the participants who manage to proceed successfully through the gauntlet of application and approval; program goals that are not ambitious enough to contribute to provincial energy efficiency and poverty reduction targets; and, programs that are designed, implemented and monitored inequitably.

Our research findings reveal common barriers to success, including lack of trust in program administrators (especially utilities and government), ineffective recruitment strategies, complex and time-consuming application and approval processes, and insufficient retrofit support for achieving meaningful reductions in energy poverty and energy usage. Regulation and policy are also key barriers to program success, however these are beyond the scope of this report.

We outline a series of recommendations for the improvement of income-qualified home retrofit programs with the goal of decreasing the prevalence and extent of energy poverty in B.C. and transferring these lessons to other Canadian jurisdictions. ECAP is a longstanding program that has been replicated across North America, most recently, in Ontario with the launch in 2021 of the Energy Affordability Program which replaced the Home Assistance Program and the AffordAbility Fund Trust; this former Ontario program is studied in this report and is the source of some better practice recommendations. Report recommendations are supported by detailed explanations and by case studies which identify trends and better practice examples.

The purpose of this project is to identify improvements and alternatives to widely accepted program shortcomings and recommend a viable path forward for an improved income-qualified retrofit program. An income-qualified retrofit program which centres equity and energy poverty in its mandate and its execution has the potential to catalyze significant retrofit activity in B.C., decrease energy emissions, decrease energy poverty and improve comfort, health and wellbeing for a significant number of households historically underserved by ratepayer funded retrofit programs.

Introduction

Energy poverty in British Columbia

Energy poverty is the experience of households that struggle to meet their home energy needs including thermal comfort, lighting, water heating, and cooking^{xii}. In Canada, energy poverty statistics^{xiii} are available through the Equity and Energy Poverty Explorer, a tool produced and published by the Canadian Urban Sustainability Practitioners (CUSP), a collaborator to this report. Households in energy poverty are measured by CUSP to be those households spending more than 6% of their after-tax income on home energy bills; this energy cost burden threshold represents twice the national median, a commonly used threshold for defining quantitative measures of energy poverty.

Specific to British Columbia (B.C.), approximately 15%, or 272,000 households experience energy poverty based on CUSP's calculations. B.C. households in energy poverty have an after-tax income of \$27,000 and spend \$2,500 on their home energy bills, an energy cost burden of 9.3% (3x the median for all BC households of 2.7%). But, while these households have income levels 56% below the average B.C. household, they also have home energy costs that are 50% higher, spending \$830 more per year. One quarter of households in energy poverty earn more than \$40,000 per year after-tax and would not fall within the definition of low-income or qualify for most any income-qualified energy efficiency program support. Energy poverty rates are also higher among those traditionally marginalized – Indigenous, racialized, recent immigrant, lone parent households^{xix}. Nearly 18,000, or 6.6% of households in energy poverty are Indigenous; research by EcoTrust Canada, a collaborator to this report, finds an even numbered split of these households between urban and rural areas, however notes that households on First Nation reserves are up to three times more likely to experience energy poverty than off-reserve households^{xx}.

Some B.C. households face disproportionately high energy bills due to remoteness, housing quality, high energy costs, bills in arrears and inability to improve home energy performance^{xxi}. Many of these are exacerbated by underlying societal inequities such as race, ethnicity, citizenship, age, ability, and fluency with the dominant language and social norms^{xxii}. Energy poverty may be experienced by renters and homeowners alike as both may experience challenges in paying their home energy bills.

Mould, inadequate heating and cooling, and poor air quality in homes experiencing energy poverty can have serious health impacts including increased incidence of asthma^{xxiii}, mental illness^{xxiv} and cardiovascular disease^{xxv}. Factors such as dwelling size, age, efficiency, and proximity to the electrical and natural gas networks can cause a moderate-income household to experience energy poverty. The age, design and efficiency of a house will impact its energy needs and comfort^{xxvi}. For example, an individual living in a home built before 1960 or a mobile home has the highest likelihood of experiencing energy poverty^{xxvii}.

Home Energy Use in B.C.

Natural gas and electricity are the two primary fuels used for home heating, hot water, and cooking. Space heating accounts for approximately 50% of home energy use in B.C., making heating fuels and appliances a key factor in determining energy costs. 2011 data from Statistics Canada revealed that 52% of homes in B.C. are heated with natural gas and 28% are heated with electricity^{xxviii}. Moving from natural gas-fired heating to energy-efficient electrical heating can significantly reduce GHG emissions while maintaining comparable yearly energy spending^{xxix}. Since homes heated with a natural gas furnace can produce up to 40 times more carbon pollution each year than an electric heat pump,^{xxx} electrification of household heating is a central component of the CleanBC plan^{xxxi} to reduce household energy consumption and GHG emissions. Provincial rebates exist to help subsidize the cost of purchasing an electric heat pump.

Natural gas distribution in British Columbia

Natural gas distribution in B.C. is dominated by FortisBC, with some distribution from Pacific Northern Gas (PNG) through the northern part of the province. B.C.'s most populated areas are serviced by natural gas, including Metro Vancouver, Southwestern Vancouver Island, the Okanagan, Highway 97 corridor, Highway 16 corridor, Fort St. John and Fort Nelson. There is a notable lack of natural gas connectivity in many less populated areas of B.C., making rural, remote and Indigenous communities reliant on more expensive sources of heat such as electric baseboard heaters, propane or diesel fuel. The cost of natural gas is approximately one-third the cost of electricity in B.C., making it the lowest-cost heating choice unless energy-efficient electric heat pumps are used^{xxxii}.

Figure 1: FortisBC service area



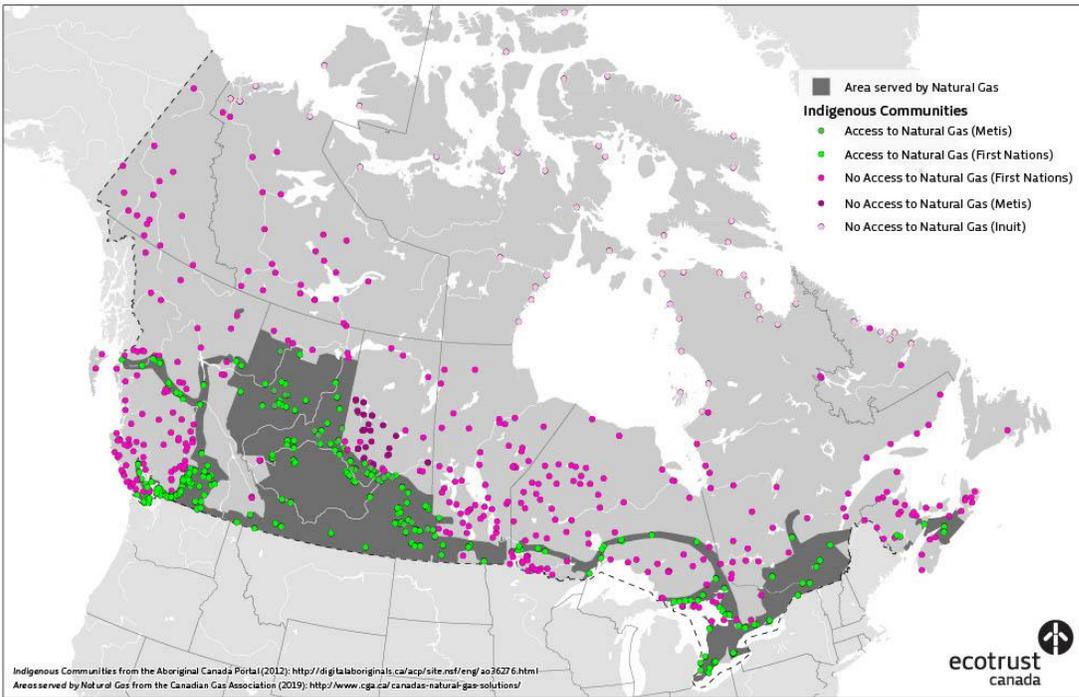
Source: <https://www.fortisbc.com/about-us/our-service-areas>

Figure 2: Pacific Northern Gas (PNG) service area



Source: <https://png.ca/residential/locations/>

Figure 3: Intersection of natural gas distribution and First Nations, Métis and Inuit communities in Canada

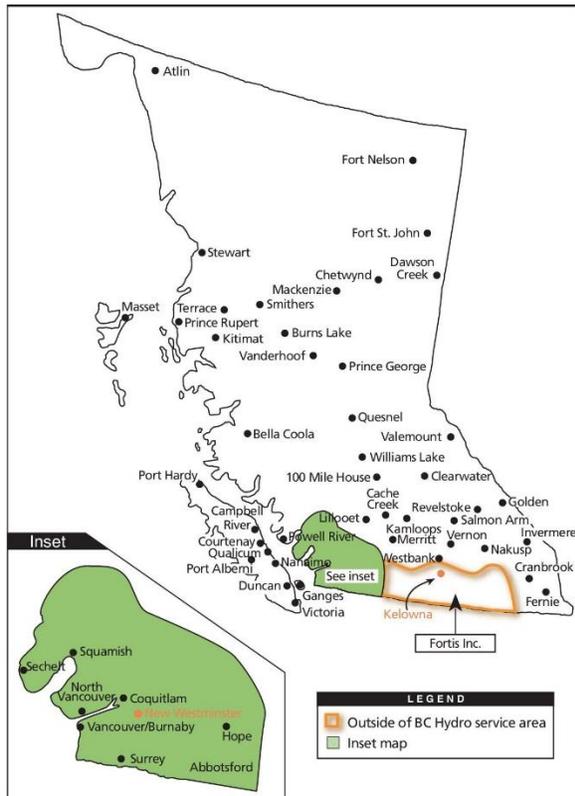


Source: https://ecotrust.ca/wp-content/uploads/2020/03/2019-Policy-Report_EC_lowres.pdf

Electricity distribution in British Columbia

Electricity production and distribution in B.C. is dominated by the crown corporation BC Hydro. All areas of the province are served by BC Hydro with the exception of the FortisBC service areas in the Okanagan, Similkameen, Central Kootenays and Boundary regions, and a handful of municipalities that operate their own electric utility.

Figure 4: BC Hydro service area



Source:

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/safety/pdf/safety_pest_control_map.pdf

Rural energy efficiency gap

Rural and remote households are more likely to experience energy poverty due to higher energy transmission costs, less choice of heating fuel, and larger household size^{xxxiii}. Furthermore, these households face geographic, financial and awareness barriers that make it difficult to invest in home efficiency upgrades^{xxxv}.

- **Geographic barriers** include isolation, distance from human and financial resources, lack of economies of scale, lack of qualified contractors willing to serve rural and remote areas.
- **Financial barriers** include the high upfront cost of energy efficiency (exacerbated by travel cost to remote areas), lower median income, unwillingness to take-on debt for energy efficiency loans, on-bill financing options are usually unavailable in rural areas.
- **Awareness and access barriers** include a lack of traditional marketing channels, lack of awareness of energy efficient technology and skepticism of existing resources.

This, in part, explains the slow uptake of energy efficiency products and services in rural and remote communities even when the changes will save consumers money. In B.C., many rural and remote

communities do not have access to natural gas and instead rely on more expensive options such as electric resistance radiators, wood stoves, and propane furnaces.

Equity-based energy programs

There has been growing interest by government and utilities to create programs that address inequities in the energy system. For example, in January 2021, the government of British Columbia released a request for proposals for a new income-qualified energy efficiency and electrification program. This program will have a budget of \$10,910,000 over two years with the potential to be extended for an additional two years depending on program performance and the discretion of the Province^{xxxvi}. This program will provide high-value incentives to LMI households with the goal of improving energy affordability and reducing GHGs from residential buildings as articulated in the CleanBC plan.

Often, income-qualified energy programs are geared toward low-income households and use one of the following metrics to determine applicant eligibility:

- Low Income Cut-Off (LICO): a threshold determined by Statistics Canada that estimates the income where a household spends at least 20% greater than the national average of their income on necessities such as food and shelter^{xxxvii}. Many low-income programs across Canada use LICO + 30% as an eligibility threshold, as the LICO thresholds are increasingly outdated.
- Low Income Measure (LIM): the most commonly used measure of low income around the world. LIMs are a fixed percentage (50%) of median adjusted household income, where "adjusted" indicates that household needs and size are considered. LIMs recognize that a household's needs increase as the number of members increases^{xxxviii}.

A 2018 report by the Urban Sustainability Directors Network (USDN) recommends that a more equitable approach to determining eligibility for an energy program should support both low and moderate-income households, as the latter often have higher energy consumption patterns that may cause a high energy cost burden^{xxxix}.

Figure 5: Four dimensions of equity to include in energy program design

Procedural equity	The inclusive and authentic engagement and representation in program and policy design and implementation.
Distributional equity	The fair distribution of program or policy benefits and burdens across members of a community, prioritizing those with the highest need.
Structural equity	A recognition of the historical, institutional, and cultural structures that have disadvantaged certain members in society, resulting in chronic subordinated groups.
Transgenerational equity	Decisions are made while considering their generational impact to not unfairly burden future generations.

12 principles of equitable clean energy program design¹

1. **Listen and respond** Local governments should first listen to the communities they seek to serve. Program design should be as responsive as possible to the needs expressed by community members, and local government staff should be transparent about their resources. Ideally, this would build from pre-existing community connections and engagement, and help define program goals.
2. **Partner with trusted community organizations** Local governments should work with community organizations to design and deliver programs, and where applicable, help build the capacity of community organizations through the partnership.
3. **Recognize structural racism** Programs targeting LMI households will not necessarily serve all disadvantaged populations. Racial analysis and baseline data must be part of an inclusive program design process to understand and address structural barriers that exist beyond income.
4. **Efficiency first** Programs should ensure LMI households can access energy efficiency benefits as a key step to reducing energy burdens and increasing household health and comfort.
5. **Reduce financial burdens** Programs should not add financial burdens for LMI households and should aim to reduce financial and other burdens.
6. **Increase benefits** Programs should seek to deliver services beyond clean energy technologies and capitalize on co-benefits, such as job creation or community resilience for people of color, indigenous communities, and other historically underserved and underrepresented populations.
7. **Make it easy** Program participation should be as easy as possible for any household with effective, efficient, and culturally competent program design, outreach, and delivery.
8. **Integrate with other services** Wherever possible, programs should align with other services for LMI households.
9. **Protect consumers and workers** Programs should have carefully considered consumer and workforce protection elements and consumer education to avoid unintended consequences.
10. **Beyond carve-outs** Programs should do more than set aside a small portion of benefits for LMI households, and where possible, center the needs of LMI households and other historically underserved communities in program design and delivery.
11. **Track progress** Programs should establish and assess against baseline equity data —both quantitative and qualitative —to inform program design, establish metrics, and track progress.
12. **Long-term commitment** Programs should provide support for LMI households beyond installing a clean energy technology, and include structures for helping with technology service, upkeep, and repair.

¹ Urban Sustainability Directors Network (USDN). (2018). *A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners*. P. 11-12. [PDF]. <https://cuspnetwork.ca/wp-content/uploads/2020/03/USDNEquitableCleanEnergyGuidebookCompressed-2.pdf>

Approach and methodology

Jurisdictional scan

A jurisdictional scan was completed between November 2020 and January 2021 where building retrofit program managers from across North America were interviewed virtually to better understand the lessons learned from their respective programs. A literature review was conducted to inform the selection of programs from across Canada and the United States. Programs were selected based off their diverse approaches to funding, outreach, communication, target technologies and payment options.

BC Hydro and FortisBC's ECAP was selected as a local case study because it is currently the largest income-qualified home retrofit program in B.C.

Customer journey map

A customer journey map is a diagram that depicts the stages of a customer's experience with a given program or product and can identify gaps between the customer experience strategy and their reality. A journey map is data-driven and covers the steps and interactions along a customer's journey. This can be beneficial to understand how complicated or simple it is to complete a given task. For the purposes of this research, a journey map was completed to better understand the experience of a homeowner participating in ECAP and to make procedural recommendations. Renters, Indigenous communities and non-profit housing residents are not included in the scope of this journey map.

The steps to create this journey map were as follows:

1. Complete a literature review to understand the goals, outcomes and procedures of ECAP
2. Create a skeleton process map including stakeholders and key milestones
3. Speak with ECAP administrators and program users to gather more information on program steps and points of stress
4. Create first draft of customer journey map based of research and preliminary interviews
5. Share first draft journey map with ECAP administrators and program users for feedback and fact checking
6. Finalize edits and create final journey map

Metrics

To ensure that all programs were analyzed consistently, a standardized series of questions were created to gather information on:

- Administrative body
- Funding mechanism and budget
- Assistance amount
- Jurisdiction

- Benefit design
- Eligibility design
- Lessons learned

Data gaps and assumptions

A diverse body of energy cost assistance programs exist in Canada and the United States. These can be administered privately, by a utility, or by municipal, provincial, state, or federal government. For the purpose of this research, we selected a subset of programs that exhibit unique strategies for energy cost reduction. Although we were unable to review all energy cost assistance programs in Canada and the United States, this report assumes that the selected programs are a representative sample.

This report draws on qualitative and quantitative data alike. Each case study had varying degrees of publicly available data and not all requests for private information were successful. As such, not all programs were compared with the same metrics.

There are many important recommendations that can be made to improve income-qualified home retrofit programs, some of which were outside of the scope of this report. In particular, two recommendations that are not explored in this report and require further research include:

1. Increasing program supports for income-qualified renters in B.C. The issue of the “split incentive” that arises when tenants pay for utility bills in energy-inefficient rental suites is a long-standing and complex one.
2. Creating program eligibility criteria based on a customer’s energy cost burden (ratio of utility spending to household income), rather than income qualification alone. This approach requires that program administrators have access to two types of potentially sensitive information (utility bills and income verification) and requires more in-depth consideration. The energy cost burden data derived from Census by CUSP could be used as an interim measure to analyse the number and percentage of households in energy poverty:
 - a. Included or excluded from these retrofit programs as a result of current income-qualification thresholds to assess appropriateness of this threshold.
 - b. Facing additional barriers to participation and energy bill relief due to their tenure (market renters and non-market renters).
 - c. Based on building age, type, neighbourhood, or demographic group so as to improve engagement and support through the application and approval process.

Two types of recommendations

This report includes both process-based and outcomes-based recommendations for low-income home retrofit program administrators. Process-based recommendations are made with the support of the customer journey map which illustrates the steps that an ECAP customer follows and the associated points of friction or stress. Also, these recommendations are supported by our jurisdictional scan of programs across North America and their lessons learned. Outcomes-based recommendations look

beyond a single program to more holistic and transformative changes that should be made for improved design and delivery of low-income energy efficiency and weatherization programs in British Columbia.

Recommendations are further categorized by their level of difficulty, level of impact and the type of change.

Research summary

Programs to reduce energy poverty in B.C.

Programs that are designed to reduce the incidence of energy poverty typically fall into two major categories: **one-time emergency relief funds** and **ongoing supports** for those experiencing chronic hardships paying bills. British Columbia has fewer programs to support utility ratepayers compared to other provinces, despite having a high rate of energy poverty^{xi}. Early energy efficiency programs were available on a first-come-first-serve basis and as such, saw uptake by higher income homes^{xii}. More recent energy efficiency programs can be classified as those serving low-income households or those serving households of any income level.

One-time emergency relief programs in B.C.

Customer Crisis Fund

This three-year pilot project offered by BC Hydro began in 2018 to offer one-time financial assistance for residential customers facing a temporary financial crisis that prevented them from paying their energy bill. A temporary financial crisis could include but is not limited to a loss of employment, loss of benefit income, unanticipated medical expenses, or a death in the family. For those households that have fallen behind on their energy bill and are in danger of having their energy disconnected, these were eligible for a one-time grant of up to \$600 for electrically heated homes and \$500 for non-electrically heated homes^{xiii}. Unfortunately, BC Hydro has recommended that this program not continue past the three-year pilot project and it is likely to be terminated by the end of April 2021.

Ongoing support programs in B.C.

Indigenous Communities Conservation Program (ICCP)

Offered by BC Hydro and FortisBC, the Indigenous Communities Conservation Program (ICCP) seeks to provide free energy-saving products and train First Nation community members to lead energy-saving efforts in their community. ICCP was developed to more appropriately serve First Nations in B.C. as they complete home renovations. ICCP helps build capacity and increase the energy efficiency of homes on reserve. BC Hydro and FortisBC offer rebates for larger home efficiency upgrades including insulation, ventilation, windows, doors, furnaces, heat pumps, water heaters and new appliances^{xiii}. ICCP offers two options to assist First Nations in completing home upgrades – one or both may be selected depending on the renovations they are planning on completing^{xiv}.

1. First Nations can receive salary support, installation training and free energy-savings products including energy efficient lighting, high performance faucets and showerheads, and basic draft proofing.
2. First Nations and selected contractors can receive rebate application support and training to install insulation, air sealing, and ventilation.

Energy Conservation Assistance Program (ECAP)

At a glance:

Location:	British Columbia (B.C.), Canada
Operational	2008 - present
Funder	BC Hydro, FortisBC and Pacific Northern Gas Ltd. (PNG)
Administrator	BC Hydro and FortisBC
Target audience	Low income home owners and renters (LICO + 30%)
Target technology	Energy efficiency and weatherization
Eligibility	Income qualification and home ownership (renters can apply with a signed agreement from their landlord)
Website	https://www.bchydro.com/powersmart/residential/savings-and-rebates/savings-based-on-income/free-product-install-and-advice.html

Summary: ECAP is an income-qualified program whose goal is to reduce energy consumption, reduce energy bill cost and increase comfort in low-income households in B.C.^{xlv}. Three streams of ECAP exist: for individual applicants; bulk applications for non-profit housing organizations; and bulk applications for First Nations. This program is separate from FortisBC and BC Hydro’s Energy Savings Kit (ESK) program which offers free basic energy-saving items to income-qualified homes in B.C.

ECAP includes energy coaching and two tiers of weatherization and energy efficient product installations. The level of support that a household will receive is dependant on housing type, home efficiency, home safety and heat source (electric or natural gas).

Customers can apply online or by mail and successful applicants will be contacted by It’s On Electric, a program contractor, to arrange a site visit to assess home energy needs. During the site visit, the It’s On Electric contractor will assess the home and appliance condition and energy efficiency, and install Tier 1 retrofits such as LED light bulbs, water efficient shower heads, outside door weatherstripping and faucet aerators. After the initial site visit, low-efficiency homes will be contacted for tier 2 retrofits that include large appliances and deeper weatherization. Wait times for ECAP depend on the season, geographic location, and contractor availability. There are now energy evaluators across the province and there is the capacity to visit a remote location within a short time period if there are several applicants from that community. **Figure 6** outlines the possible upgrades a home may receive based on housing type.

Figure 6: Available upgrades

Housing type	Available upgrades a person may receive
Single-family detached home Townhome Rowhome Duplex	Tier 1 retrofits: LED light bulbs Water-efficient showerheads Faucet aerators Weatherstripping Clothing drying rack or clothesline Hot water pipe wrap Carbon monoxide detector Tier 2 retrofits: ENERGY STAR fridge replacement High efficiency gas furnace replacement Insulation in walls, attic, or crawl space*
Manufactured home / mobile home	Tier 1 retrofits: LED light bulbs Water-efficient showerheads Faucet aerators Door weatherstripping Tier 2 retrofits: ENERGY STAR fridge replacement
Apartment Condominium	Tier 1 retrofits: LED light bulbs Water-efficient showerheads Faucet aerators Door weatherstripping

Source: <https://www.bchydro.com/powersmart/residential/savings-and-rebates/savings-based-on-income/free-product-install-and-advice.html>

* Includes the installation of a ventilation system and complete blower door guided air sealing

ECAP measures of success include^{xlvii}:

1. Number of customers served
2. Achieving program budget
3. Number of energy-saving items installed
4. Deemed energy savings
5. Customer satisfaction

Funding: ECAP provides free energy efficiency and weatherization products and installation for income-qualified customers. FortisBC funds program costs for high efficiency furnace installation and weatherization for homes heated by natural gas. BC Hydro funds the installation of Energy Star fridge installation and weatherization for homes heated by electricity.

Eligibility: Applicants must be customers of BC Hydro, City of New Westminster, FortisBC or a municipal electricity customer and must meet federal LICO income qualification + 30%* as outlined in **Figure 7**.

Figure 7: Income qualification guide

Number of people in household	Total household income before tax
1 person	\$34,400
2 persons	\$42,800
3 persons	\$52,600
4 persons	\$63,800
5 persons	\$72,400
6 persons	\$81,700
7 or more persons	\$90,900

Source: <https://www.bchydro.com/powersmart/residential/savings-and-rebates/savings-based-on-income.html>

* Values are updated annually

Partners: Across British Columbia, several social service organizations and non-profit societies are partners of ECAP and may help to spread awareness or provide support during the application process. FortisBC offers financial incentives to community organizations per application received through their organization^{xlix}. One such partner includes the Federal Income Tax program that encourages low-income homeowners to fill out an ECAP application as they file their taxes. There are many community organizations who create their own systems to support local homeowners to apply to ECAP.

Recently, BC Hydro and FortisBC have increased resources to support energy efficiency and weatherization for First Nations housing projects through rebates and ICCP. To increase the number of on-reserve ECAP applicants, staff from a First Nation are encouraged to support their Band members with their application and are offered payment of \$25 per application they assisted in submitting^l.

Outreach: Since ECAP began in 2008, the advertising and engagement strategies have evolved. Previous attempts for broad advertisement led to several non-low-income applicants who were subsequently rejected for the program. Though some is done together, BC Hydro and FortisBC do most of their ECAP advertising separately to their respective customers. Targeted advertising occurs through social service organizations such as organizations that offer free tax clinics for the Federal Community Volunteer Income Tax Program. Furthermore, participants of BC Hydro and FortisBC's income qualified program for free ESKs are sent information on ECAP and are encouraged to participate. Other advertising occurs through social media, direct mail through the Ministry of Children and Family Development, utility and CleanBC websites, leaflets in energy bills, and customer emails.

Programs in other jurisdictions

For more information on each program, see the [Appendices](#) at the end of this report.

Low-Income Weatherization Program (LIWP)

The California Low-Income Weatherization Program (LIWP) is administered by the Department of Community Services and Development (CSD) and offers robust energy program components including: Single-Family Farmworker Housing Energy Efficiency & Solar PV; Community Solar Pilot Program; and a Multi-Family Energy Efficiency and Renewables component. The primary goal of LIWP is to reduce GHG emissions in low-income households and to help vulnerable communities become more resilient to the

effects of climate change. LIWP is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars towards reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment^{li}.

3E Thermal

3E Thermal is a consultant agency who provides free expert project management support for energy efficiency and weatherization projects for multi-family dwellings in Vermont, USA. 3E aims to standardize the outcomes for “deep retrofits” in energy efficiency and weatherization projects to improve their quality and sustainability.

The Nova Scotia HomeWarming Program

The HomeWarming Program offers free energy assessments, insulation, draft-proof, and installation of energy efficient products to income-qualified homeowners across Nova Scotia. HomeWarming is proudly sponsored by Nova Scotia Power and the Province of Nova Scotia as part of a broad, province-wide initiative to provide energy efficient upgrades to income-qualified homeowners.

EcoSave

The Nelson Hydro EcoSave program is a City of Nelson initiative and began as a pilot program in 2011 to encourage homeowners, who were also Nelson Hydro customers, to retrofit their homes to become more energy efficient. The goal of this program is to reduce energy consumption and GHG emissions. The program offers support through the process of having energy evaluations, energy coaching, support in accessing rebates and contractors and on-bill financing for energy efficiency retrofits in single-family homes in the Regional District of Central Kootenay (RDCK) in B.C.

AffordAbility Fund Trust (AFT)

The AffordAbility Fund Trust (AFT) operated from 2017 to 2021 to provide support to reduce the cost of electricity bills for Ontario residents who do not qualify for low-income home energy programs. The Ontario government made a one-time contribution of \$100 million for the creation of the AffordAbility Fund Trust which was overseen by an Independent Board of Trustees. Program operations were managed by Hydro One Networks, while Local Distribution Companies (LDCs) delivered the program benefits to homes in their area. The program offered energy saving measures that ranged from LED lighting, to replacing inefficient appliances, and high impact energy upgrades such as insulation or heat pump system upgrades^{lii}.

Energy Affordability Program

The Energy Affordability Program (previously the Home Assistance Program) is an energy efficiency and weatherization program offered to income-qualified households in Ontario. The goal of this program is to reduce the home energy costs for income-qualified households in Ontario and to increase home comfort. Two tiers of retrofits are available, energy savings kits (ESK) that are tailored to a home’s unique needs and comprehensive support that includes free items such as LED light bulbs, an efficient

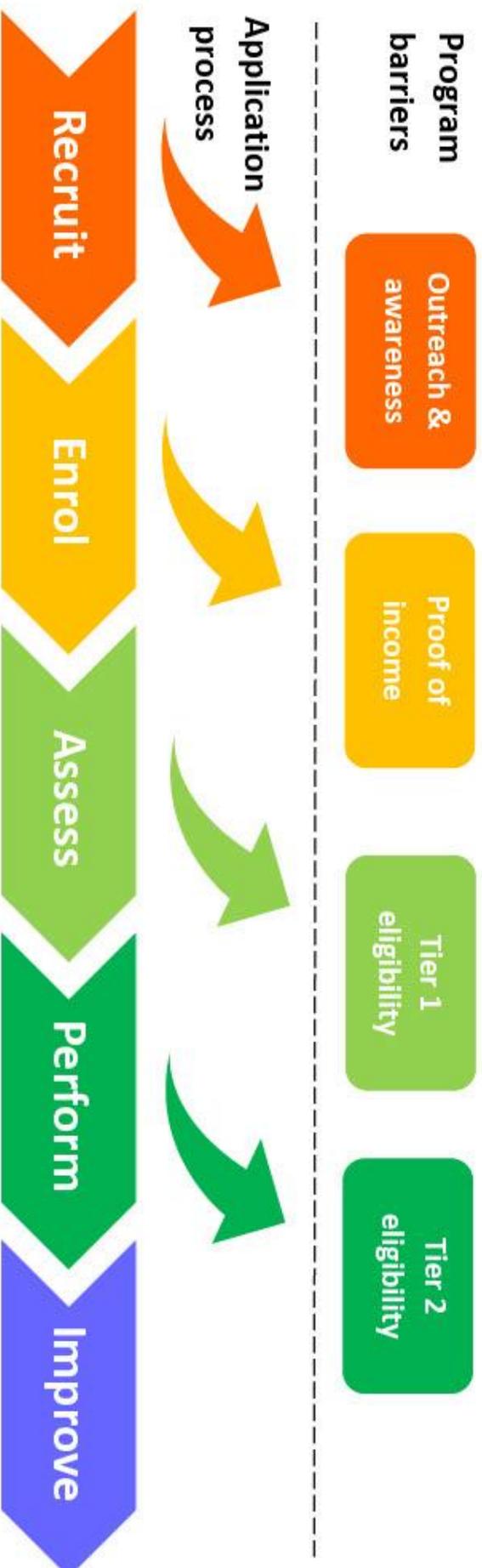
refrigerator, and a window air conditioner. Further measures are available to homes heated by electricity.

Findings

Journey map of ECAP customer experience

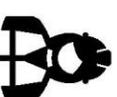
Included on the next several pages is the journey map of an ECAP customer as they move through the program. This map is intended to demonstrate the program process, showcase program strengths and pinpoint procedural points of stress that can be improved. This journey map is based off interviews with ECAP administrators from BC Hydro and FortisBC as well as program users and community administrators. Please note that this map is accurate to the best of our knowledge and at the time this report is written, however the program is subject to change on a yearly basis which may impact the customer experience. Also, this map outlines the customer experience for property owners and does not reflect the experience of renters, Indigenous community members or non-profit housing associations participating in ECAP.

ECAP Customer Experience Map



1. RECRUIT

Customer hears and learns about ECAP



Main contact for customer:
Contractor: It's On Electric

Customer hears about ECAP

Word of mouth

- Social service organization
- Friends and family

Online sources

- BC Hydro, FortisBC or CleanBC websites
- Social media
- BC Hydro or FortisBC e-newsletter
- Local government websites and newsletters

Mail

- Energy bill insert
- ESK participant mail

Customer wants to learn more

Word of mouth

- Ask friends and family
- Social service organization

Online

- BC Hydro, FortisBC or CleanBC websites

Phone

- Call It's On Electric to learn more

Customer consults others

- May speak with others in the home, neighbors, friends or their social service organization representative.

Frequently asked questions

- Should we apply?
- Is it worth it?
- How easy is it?
- Am I eligible?

Recommendation: Design program recruitment for the customers the program is trying to reach and the barriers they face in accessing the program.

2. ENROL

Customer gathers required documentation and applies to ECAP



Main contact for customer:
Contractor: It's On Electric

Lose customers who cannot provide proof of income or do not feel comfortable

Customer decides not to apply
Reasons
-Does not meet low-income qualifications
-Language, awareness, time or cultural barriers



- Can apply online or by mail
- Support available for applicants applying through community service organizations. Ex. Revenue Canada Volunteer Income Tax Support Program
- It's On Electric is available to support application

- Must provide one of the documents listed on ECAP application for proof of income

Recommendation: Create a program application process that is quick, easy and accessible for eligible applicants.

Customer receives letter indicating ineligibility

Common reasons

- Above the income qualification limit
- Does not meet other eligibility
- Letter includes why customer is ineligible

3. ASSESS

Customer is accepted in to phase one of ECAP to receive light retrofits and a home assessment



Main contact for customer:
Contractor: It's On Electric

Contractor, BC Hydro and FortisBC evaluate applications

- Maximum 4-6 week wait

Customer receives letter of acceptance

- It's On Electric will help online applicants whose applications were incomplete.

Customer is contacted by contractor

- Customer and contractor schedule appointment for home visit
- Appointment wait time depends on season, geographic location and contractor availability.

Contractor visits customer's home

- Light efficiency retrofits take place
- Data collection on home efficiency
- Advise for behavioural changes to reduce energy

Decide if home is eligible for deeper retrofit

- Household efficiency data is assessed by a third-party for eligibility for a second home visit and efficient item installation.

Recommendation: Have regional program coordinators and contractors available to provide quick, efficient and informed support throughout the application and installation process.

4. PERFORM

Customer is accepted to phase two of ECAP and receives deeper retrofit and installation of energy efficient appliances

Main contact for customer:

Contractor: EcoFitt

Secondary contact:

It's On Electric (for those receiving a fridge installation)



Customer hears they are not eligible for more retrofits

Common reasons
 -Health, safety, or infrastructure barriers
 -Home is above ECAP efficiency baseline

No follow up if not eligible for second home visit

Common reason
 -Home is above ECAP efficiency baseline

Customer is contacted for a second visit

- Customer and Ecofitt contractor schedule home visit

Customer receives second home visit

- More in-depth home assessment occurs by an Ecofitt contractor to assess whether home is eligible for weatherization, insulation and a new furnace.

Customer is confirmed to receive more retrofits

- 1 follow-up message and consent form to be signed for each additional retrofit

Schedule retrofit(s)

- Schedule retrofits with Ecofitt or their subcontractors
- Fridge installations are completed by It's On Electric

Deeper retrofit occurs

- Be present at installation (optional)

Recommendation: Offer funding for comprehensive home retrofits capable of shifting homeowners and renters out of energy poverty.

out of energy poverty.

5. IMPROVE

Customer has completed ECAP
and can offer feedback

Main contact for customer:

Contractor: It's On Electric

Secondary contact:

Contractor: Ecofitt



Customer receives
owner manuals &
learns about
appliances

Customer receives
email summary of
services and items
they have received

Customer
completes
program feedback
survey

Customer tells
others about their
experience

- Email sent from Ecofitt

- Participants of **phase 1** **only** complete an optional paper survey (left during first home visit)
- Participants of **phase 1 and 2** are contacted by It's On Electric for a phone survey that can be finished online

- Program experience review with BC Hydro or FortisBC (only for some participants)
- Conversations with family & friends

Recommendation: Offer curating and navigating support for program participants so they can access and benefit from other complementary rebates and energy saving programs.

ECAP strengths

ECAP is intended for LMI households across B.C. to receive free energy efficient items, appliances, and weatherization to improve the comfort and decrease the energy bill cost in their home. The direct install method of the program means that utilities can set very high installation standards that are vetted by some of the best building scientists. Tier 2 retrofits are completed by an independent contractor to provide quality assurance and ensure that their high standards are met 100% of the time. As a result, the quality of ECAP's installation work is above the general market standard which means that equipment is properly commissioned and will last longer.

The partnership between BC Hydro, PNG and FortisBC means the program can serve electrically and natural gas-heated homes. Also, this partnership helps homeowners to decrease their natural gas and electricity consumption. Recently, the ECAP program has evolved to serve more rental households - a traditionally a difficult to reach segment of the market. BC Hydro estimates that up to 75% of participants from 2017-2019 were renters or tenants^{liii}.

ECAP has evolved over the past 12 years to be more inclusive of Indigenous community applicants, which is essential as at least 17,000 Indigenous households experience energy poverty in the province^{liv}. A recent example of this is FortisBC's partnership with the Fort Nelson First Nation and the Osoyoos Indian Band. The on-reserve housing councils of these First Nations worked with FortisBC to arrange free home energy assessments, weatherstripping and installation of energy efficient items for community members^{lv}.

ECAP weaknesses

Savings from ECAP Tier 1 are small

BC Hydro estimates that between 2012 and 2016, Tier 1 ECAP participants saved between 642 and 899 kWh per year per home. These averages were applicable across all regions, building types, and heating fuels.^{lvi} Therefore, at the current Step 1 electricity rate^{lvii}, these savings would translate to between \$60-\$85 per year. Even at the higher Step 2 rate, savings would amount to just \$89-\$125 per year. In the case that energy savings resulted from a decrease in natural gas consumption, savings would be significantly less, approximately one-third of these numbers.

In comparison, the average electricity consumption across BC Hydro's service area is 900 kWh per month.^{lviii} An annual electricity bill for the 'average' customer is therefore around \$1130 per year, excluding fixed charges. However, homes that heat using electric baseboards or electric furnaces, often located in rural and remote households, typically pay much more over a year, with many households that suffer from high rates of energy poverty averaging bills that exceed \$3000/year.

An annual savings of less than \$100 from participation in ECAP does not address the core need facing these households. These savings are also largely insignificant when compared to the steady rise in

electricity rates in B.C., which have increased by almost 50% in the last decade and are set to further rise 6-8% over the next five years.^{lix}

Participation in the ECAP Tier 1 is low

In 2019, an information request to BC Hydro revealed their estimate that just 17,000 households (excluding FortisBC electric customers) had participated in the ECAP program since its inception in 2008, or around 5% of eligible households in its entire history.^{lx} It is unclear whether these statistics are completely up to date. However, between 2017-2019, it is known that just over 10,000 households participated in ECAP Tier 1^{lxi}.

There are over 384,000 households that are eligible for low-income programs based on BC Hydro's criteria. Therefore, even considering these more optimistic numbers, ECAP Tier 1 is currently reaching only around 1% of eligible households per year. In its current forecast of program participation, BC Hydro estimates that this rate will continue at just over 1% per year during the period of 2020-2022, reaching perhaps 13,000 homes during these three years. At these low rates, it will take many decades to reach all the homes that are eligible for the program.^{lxii}

Savings from ECAP Tier 2 may be higher, but participation is negligible

ECAP's advanced weatherization, or Tier 2 stream claims to offer a higher level of savings to customers. However, issues like mould or structural damage in homes precludes them from participation in ECAP Tier 2^{lxiii}. As a result, many of the homes that could benefit most from the Tier 2 interventions are rendered ineligible for the advanced weatherization they need.

True to these limitations, by BC Hydro's own admission, participation in the ECAP Advanced Weatherization program has been "too low to enable statistical analysis"^{lxiv}, but based on an information request to program managers appears to be between 300-400 homes per year between both BC Hydro and FortisBC (based on 2018-2019 data).^{lxv} This translates to a rate of around 0.1% of eligible households per year, which is so low as to be almost negligible.

Effectiveness of ECAP compared to a direct subsidy

BC Hydro's total budget for demand-side management (DSM) activities, including all residential, commercial and industrial programs, is approximately \$100 million per year. Of this total, around \$3.5 million went towards residential low-income programming in 2019. During the same time period, the reported energy savings as a result of all low-income programs was estimated at 7 GWh/year, leading to an average cost of \$0.52 for every kWh saved.^{lxvi}

Compared to the currently prevailing Step 1 residential rate of \$0.093/kWh^{lxvii}, this means that low-income DSM programs currently cost the utility over five times as much as the base cost of electricity, illustrating the relative ineffectiveness of these programs compared to simply subsidizing electricity

rates for these customers. Unfortunately, this trend is set to continue. Although low-income program spending is forecast to increase to \$7.8M per year by 2022, with forecast savings of 9 GWh, the forecast average cost per kWh is even higher, at \$0.87/kWh.^{lxviii}

Discussion

Recommendations

Legend



Transactional change: work within an existing set of institutional arrangements to reform or eliminate a single barrier to free groups to achieve the universal goal^{lxix}.



Transformative change: to restructure the system itself rather than one relationship or action within the system^{lxx}.



Low difficulty: changes that can be implemented in 0-2 years and require relatively low effort and/or institutional changes.



High difficulty: changes that require 2+ years to implement and require high effort and/or institutional changes.



Low impact: changes that result in low impact to success indicators such as program cost, energy savings and participation.



High impact: changes that result in a large impact on success indicators such as program cost, energy savings and participation.

Process-based recommendations

1 	Design program recruitment for the customers the program is trying to reach and the barriers they face in accessing the program.
2 	Create a program application process that is quick, easy and accessible for eligible applicants.
3 	Have regional program coordinators and contractors available to provide quick, efficient and informed support throughout the application and installation process.
4 	Offer funding for comprehensive home retrofits capable of shifting homeowners and renters out of energy poverty.

5 	Offer curating and navigating support for program participants so they can access and benefit from other complementary rebates and energy saving programs.
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Outcomes-based recommendations

6 	Establish per-home targets for reductions in energy use and energy cost burden. Measure and report performance specific to these targets.
7 	Create program goals that align with provincial/state mandates on energy efficiency and poverty reduction.
8 	Make the four dimensions of equity central in program design, implementation and evaluation.

1 Design program recruitment for the customers the program is trying to reach and the barriers they face in accessing the program.

Recruitment is an important step in an income-qualified retrofit program where people are first exposed to the program and have the opportunity to decide whether they will apply to participate or not. At this step, it is important for customers to: be able to understand program advertisements, see themselves reflected in program advertisements, feel like the program would benefit them, and feel like they have the skills and tools to apply to the program^{lxxi}. Unfortunately, ECAP and many other income-qualified retrofit programs do not have advertisements that are designed for the customers they are trying to reach and the barriers they face. One major problem with the ECAP recruitment strategy is that it is advertised separately by BC Hydro, FortisBC, It's On Electric, Pacific Northern Gas and CleanBC Better Homes on separate websites and with different messaging, making it hard for customers to understand the program. Furthermore, the advertisements that do exist are uninviting and do not include images, symbols or language that reflects the low-income customers they are serving.

Many low-income energy efficiency programs have their own website, including [Nova Scotia HomeWarming](#) and the Ontario [AffordAbility Fund Trust \(AFT\)](#). This directs customers to one central location where they can find clear information on the application and who to call if they have questions. However, research completed on the AFT revealed that program administrators should not rely too heavily on online messaging for their program recruitment as it accounts for a small percentage of program participants (1%). Their research indicated that 85% of AFT participants heard about the program through utility communication (50%), family and friends (23%) and offline advertising (13%)^{lxxii}. Furthermore, it is important to have clear and inviting messaging that is targeted for LMI households. A report released by BEworks on the AFT recommends highlighting the following messages when marketing to LMI households^{lxxiii}:

- An easy enrollment process

- Quick process with both connection and completion time
- The local nature of the program
- The program's ability to increase household comfort
- Program participants will receive something new
- The program will help homeowners reduce waste

2 Create a program application process that is quick, easy and accessible for eligible applicants.

Based off the results of our jurisdictional scan, we heard that the first point of stress for many retrofit programs is the application process. If a program’s application is confusing and challenging, people are not likely to be motivated to apply. A review of the Affordability Fund Trust (AFT) in Ontario revealed that this is especially true for LMI households who may face additional barriers to applying such as time, language, culture or isolation^{lxxiv}.

Our analysis of ECAP revealed an application barrier that is common amongst income-qualified programs which is the requirement for customers to provide proof of income. Despite expanding their list of approved documents to prove low-income status, an interview with BC Hydro^{lxxv} and FortisBC^{lxxvi} staff revealed that this continues to be a barrier for ECAP applicants. People are inherently sensitive about their income, and some suggest that asking people to “prove they are poor” will turn away many low-income applicants^{lxxvii}. Furthermore, customers may struggle to access the required documentation or may distrust sharing personal information with a utility company.

Streamline income verification

The [Ontario Electricity Support Program](#) offers streamlined income verification through their partnership with the Canadian Revenue Agency (CRA). On their application, the homeowner includes their personal information and, upon submission, the CRA is contacted to confirm on a yes/no basis whether the applicant meets the low-income requirements. This income-verification model reduces the upfront burden on customers, protects customer privacy and prevents utility companies from accessing information on customer income. Implementing this does require changing program terms, consents and would require senior government support. However, the potential impact it could have on a program’s participation rate could be significant.

3 Have regional program coordinators and contractors available to provide quick, efficient and informed support throughout the application and installation process.

The ways which energy poverty presents itself varies across geographic regions. In B.C., indicators of energy poverty and potential solutions will look different for homes in Metro Vancouver compared to those in northern, rural, Indigenous, and remote communities. Climate, connectivity to natural gas and the electrical grid, local energy costs and local capacity all impact a community member’s likelihood of

being in energy poverty, and similarly, their ability to get out of it. It is for this reason that an income-qualified retrofit program should have regional program coordinators who understand the challenges faced by people in their region and can work to build a trusting relationship with customers. Furthermore, hiring regional program coordinators and contractors would allow customers in all areas of the province to be served more quickly.

Recently, ECAP administrators and contractors have begun to realize the importance of hiring local contractors in building provincial capacity and stimulating energy efficient economy in B.C. Currently, the program hires two main contractors, [It's On Electric Company](#) (oversees Tier 1) and [Ecofitt](#) (oversees Tier 2). Recently, It's-On Electric has hired regional evaluators for ECAP Tier 1 support in the following areas: Vancouver Island; Lower Mainland; Fraser Valley; Okanagan; Shuswap; Nelson; and the north. Similarly, Ecofitt has over 10 subcontractors in the following regions: north; southern interior; Vancouver Island; Lower Mainland; Fraser Valley & Merritt.

There are several ways in which a low-income retrofit program can increase regional capacity:

- Hire regional program coordinators and contractors
- Create a network of energy coaches and contractors across the province who are employed on a per-project basis

4 Offer funding for comprehensive home retrofits capable of shifting homeowners and renters out of energy poverty.

Our jurisdictional scan revealed that many homes who experience energy poverty require more support than most retrofit programs provide. Unfortunately, many homes have other structural problems that need to be addressed in tandem with energy-related retrofits, such as:

- Health and safety
 - Poor ventilation
 - Mould
 - Roof leaks
 - Vermiculite insulation
- Infrastructure
 - Wall needing to be removed for a furnace

For ECAP, a household may be disqualified from the Tier 2 retrofits they need if there are structural problems that need to be addressed. Sometimes, the homeowner is told that they can not proceed with ECAP until their home's structural problems are addressed at their own cost. This is not possible for many low-income households. This is problematic as the homes who need deep retrofits the most may have other problems that preclude them from being eligible for ECAP's Tier 2 retrofits.

Other retrofit program coordinators have found unique ways to deal with this problem. The [California Low-Income Weatherization Program \(LIWP\)](#) has embedded structural program costs into their budget

so that they can offer more holistic and comprehensive retrofits to single-family homes. This includes any infrastructure or health and safety work that needs to be done that would otherwise block energy efficiency retrofits from occurring^{lxxx}. In Ontario, the [Energy Affordability Program](#) offers customers \$500-\$750 to complete any fixes that are preventing the energy efficiency retrofits from occurring^{lxxxi}. This money may also be used to repair walls where new insulation has been installed.

5 Offer curating and navigating support for program participants so they can access and benefit from other complementary rebates and energy saving programs.

There is considerable value in utilities continuing to operate low-income energy efficiency programs like ECAP. Ratepayer-funded programs are durable and long-lasting, and can continue to exist for as long as the BCUC approves their expenditures. In contrast, taxpayer-funded programs are vulnerable to political shifts, changes of government, and budget restrictions. A historical glance at government-administered energy efficiency programs in Canada shows that these tend to be short-lived, creating boom and bust cycles that damage the energy efficiency sector and prevent long-term, transformative change.

While governments can and should administer their own income-qualified energy programs, including bill subsidies, rebates and financing offers, utilities (and ratepayers) should not be let off the hook in funding programs like ECAP; rather, they should strive to improve upon these programs so that they achieve meaningful results for participants. ECAP has the potential to be a stepping stone for home owners and renters to complete energy efficiency retrofits beyond what ECAP can offer. This could include directing customers to rebates on equipment, fenestration and insulation, alternate financing and further home retrofit programs. Many programs offered by CleanBC and utilities complement each other and customers who get involved in one should be connected with other programs if they are interested.

6 Establish per-home targets for reductions in energy use and energy cost burden. Measure and report performance specific to these targets.

When completing a deep analysis of ECAP, we found that there is a disconnect between the program's goals and their measures of success. ECAP's goals are to support low-income households by:

1. Reducing energy consumption
2. Reducing energy bill cost
3. Increasing home comfort

BC Hydro and FortisBC measure the success of these goals by measuring the following:

1. Number of customers served
2. Achieving program budget
3. Number of energy-saving items installed

4. Deemed energy savings
5. Customer satisfaction

Unfortunately, these measures of success are not always indicative of increasing home comfort and decreasing home energy consumption and bill cost. Also, it is more important to ensure that each home has been retrofitted in a way that helps lift the owners out of energy poverty. Unfortunately, the light retrofits offered to many participants of ECAP and similar programs have little impact on home comfort, energy consumption or bill cost. There are several meaningful program target examples that would lead to measurable and lasting impacts for each home served:

- Set a minimum energy reduction target so that each participating home is brought up to a specific standard. *For example, Step 4 of the BC Energy Step Code*^{lxxxiv}
- Set a target number of homes to reach each year such that all eligible homes are reached by a target year. *ECAP aims to support 10,000 homes every year so that 190,000 homes are serviced by 2040.*
- Set a target spending envelope for each home. *For example, \$10,000 spent on each home.*

In addition to these metrics, attention should be paid to the funding model of the ECAP program and the justification of program expenditures before the BC Utilities Commission. Currently, all demand-side management programming, including ECAP, must be justified by utilities to the Commission on the basis of resource cost tests, which are essentially markers of cost effectiveness, with some allowance for non-energy benefits built in (for example, the health and comfort benefits of energy efficiency, or the reduction of greenhouse gases). However, these “modified” tests are subject to spending caps.

Other North American jurisdictions are moving toward stronger, more equitable metrics in their funding models, including the use of comprehensive social cost tests that improve upon B.C.’s. Some jurisdictions, including the State of Vermont, go a step further and set minimum funding thresholds that must be spent on low-income programs. This is a much more flexible funding model and allows low-income programming to be justified on the basis of reducing energy poverty as a broad societal goal, rather than as a cost-effective program for ratepayers.^{lxxxvi}

7 Create program goals that align with provincial/state mandates on energy efficiency and poverty reduction.

A reimagined ECAP program could be one of the key targeted delivery methods for a more comprehensive provincial retrofit strategy. This reimagined program could include a combination of incentives, financing and regulation, with a goal of achieving the retrofits needed to meet climate targets^{lxxxvii} and overall poverty reduction^{lxxxviii} objectives across British Columbia. The former requires that the province reduce greenhouse gas emissions by 40% from 2007 levels by 2030, in addition to sectoral targets expected to be set this year. The latter is guided by the TogetherBC plan under which B.C. has a legislated target to reduce overall poverty by 25% from 2018 levels by 2024.

Both of these strategies demand that aggressive action be taken to ensure that every home and building in B.C. is zero-emissions and meets modern standards for energy efficiency, health and comfort over the coming years and decades. According to modelling, achieving B.C.'s long-term climate targets means retrofitting 30,000 homes, 17,000 apartment buildings and 3 million square feet of commercial space every year for 30 years^{lxxxix}.

It is critical that low- and moderate-income households have access to the programs, funding and resources that are necessary for them to take part in this transition. While meeting these targets will require historic investment of approximately \$1 billion per year, it will also create massive economic stimulus and help to solve the climate, housing, health and energy poverty crises simultaneously. In this province-wide program, a reimagined ECAP would fill the role of ensuring that no one is left behind and that income-qualified homes receive home retrofits at little or no cost.

8 Make the four dimensions of equity central in program design, implementation and evaluation.

Equity is a process that works to correct the socio-cultural, economic, and environmental imbalances that limit some people in society so that everyone has the opportunity to grow, contribute and develop regardless of their identity^{xc}. Equity is central in the development, operation, and monitoring of an income qualified program. An updated version of ECAP should integrate the following dimensions of equity as outlined in the 2018 report by the USDN^{xcii}:

Procedural equity is to offer authentic and inclusive community engagement sessions and offer community representation in program and policy design. Also, to offer transparent information on the program process and clear communication with customers at every step of the program. Shortly, ECAP will be undergoing program redesign and involving the LMI community should be central in this process. Most importantly, ECAP administrators should involve equity-based organizations in this process as they have the knowledge, experience and skills to inform an equitable redesign of ECAP. Other feedback can be taken from ECAP customer experience surveys, phone calls, through social media, an open town hall or other.

Distributional equity is to ensure that there is fair distribution of program benefits and burdens across members British Columbia, prioritizing those with the highest need. This could include equity across geographic locations, gender identities, race and ethnic backgrounds, or economic backgrounds. Income qualified home retrofit programs such as ECAP should prioritize households who experience the highest rate and severity of energy poverty such as rural, remote, Indigenous, and immigrant households.

Structural equity is to recognize the historical, institutional, and cultural structures that have disadvantaged certain members in B.C., resulting in groups who are chronically deprived. Also, recognize the complex relationships that some communities have with energy companies in B.C. Many homes who experience energy poverty have a complex relationship with their energy provider which may prevent them from trusting them to enter their home, especially if their power has been cut off in the past. Increased local program coordinators and contractors, partnerships with local organizations and

representation at local events can help to build trusting relationships between the utility and the LMI households they are trying to serve.

Transgenerational equity is when making program and policy decisions, consider their generational impact to not unfairly burden future generations. When creating retrofit programs, it is important to plan for positive changes that will last beyond one generation. This could include decreased GHG emissions, improved air quality, improved housing codes and standards and increased regional capacity building to build local economies.

Lessons learned

Our literature review, interviews and journey map have revealed several limits to program success that are faced by ECAP and other programs across North America. Limits to success include anything that decreases program participation rate, energy reduction, energy bill savings or customer satisfaction. Included below is a summary of common barriers to program success and programs or measures that have successfully addressed these challenges.

Active program recruitment strategy

Several programs heavily rely on their website, social media and mail advertisements to recruit customers to their program. Our research revealed that those who experience energy poverty may be hard to reach through traditional engagement strategies because of their geographic location, age, language, available time, and attention to energy-related services. Here is how some programs are addressing this:

- Case **Study 3: AffordAbility Fund Trust (AFT)** worked closely with marketing experts to determine the language, messaging, colors and tools that should be used for the people they were trying to recruit to their program. From there, AFT staff connected with local organizations and distribution companies to actively find and recruit customers to their program.
- Case **Study 4: Nova Scotia HomeWarming Program** staff are very engaged in local events, meetings and workshops to build connections and recruit customers to their program. Many Nova Scotians living in energy poverty are seniors or live in rural areas and, as such, can be hard to reach with passive recruitment such as social media or through a program website.

Easy application

Several income-qualified programs struggle to get customers through their application process, especially when customers are required to provide proof of income. Here is how some programs are addressing this:

- The **Case Study 5: Nelson EcoSave** program coordinators and local volunteers help customers apply for their own programs and more (including ECAP). Support is offered in-person and over the phone where people can ask questions and receive free advice. On occasion, these program support people have, with permission, completed applications on behalf of others (especially senior citizens). This support is energy intensive and works best for a local or regional program.

- Components of the **California Case Study 1A: Low-Income** Weatherization Program (LIWP) have pre-approved neighborhoods based off results of the CalEnviroScreen tool. Single-family homes and multi-family units in these areas are invited to participate, rather than requiring they prove their eligibility.

Easy program process

Many programs have several steps and points of contact that are confusing for participants. Some customers may choose not to apply for a program that seems complex and time-consuming. Here is how some programs are addressing this:

- **Case Study 2: 3E Thermal** provides expert project management for multi-unit building owners to ensure they get the retrofits they need, and that quality work is done. Since this is very resource and time-intensive, this works best for multi-unit retrofit projects.
- The **Case Study 3: AffordAbility Fund Trust (AFT)** worked with local distribution companies to roll out program benefits across the province. This decreased program wait-time, increased clear communication for customers, and decreased the number of contractors and administrators a customer was required to work with.

Build trust

During our interviews, several program administrators expressed the importance of building trust with community members. Retrofit program are quite intrusive as contractors enter a home several times to assess it and make changes to it. There are many complex relationships that people have with government and utilities that may prevent them from trusting them and participating in their program. This is especially true if someone has had their power disconnected in the past.

Many program administrators mentioned the importance of partnering with trusted local organizations and contractors to help customers feel safe to participate in their program. A strong example of this is demonstrated by **Case Study 5: Nelson EcoSave** who partnered with local volunteers and organizations to install energy efficiency items into the homes of senior citizens.

Conclusion and next steps

Energy poverty is a problem that is faced in B.C. and beyond, and can have serious impacts on human health, the environment, and household financial stress. Low-income households, residents of rural, remote and Indigenous communities, and those with older less efficient homes experience a higher energy cost burden. Retrofit programs are one approach used by government, utilities and organizations to increase household efficiency to reduce the energy cost burden for homeowners and renters.

The drivers of energy poverty are complex and cannot be addressed by home retrofit programs alone. Changes to policy, energy rates and emergency supports are also necessary to decrease the incidence and severity of energy poverty in B.C. However, our research reveals that equity-driven retrofit

programs are one tool that can decrease energy poverty and increase the quality of life amongst homeowners and renters. Our jurisdictional scan involved interviews with innovative program administrators who shared better practices in the field, notably the Affordability Fund Trust in Ontario, Canada, 3E Thermal in Vermont, USA and the Low-Income Weatherization Program in California, USA. ECAP, B.C.'s largest income-qualified retrofit program, has been replicated in other jurisdictions, most recently in Ontario as the Energy Affordability Program. Unfortunately, the model that ECAP and similar programs follow is not receiving high enough participation rates or energy savings to meaningfully help customers get out of energy poverty.

BC Hydro is celebrated as a leader in green energy and energy savings across Canada. As such, they are well positioned to lead innovation in program design to transform the landscape of income-qualified home retrofit programs across Canada. Recognizing that income-qualified programs are an expensive undertaking for utilities and government, we hope that these recommendations and better practices can lead to streamlining program process and improving outcomes to increase the benefits to beneficiaries. It is our hope that the recommendations made in this report will be considered by BC Hydro, FortisBC and the Government of British Columbia in order to reassess and redesign ECAP and a more comprehensive energy poverty reduction and retrofit strategy across B.C.

Appendices

Case Study 1A: Low-Income Weatherization Program (LIWP)

At a glance:

Location	California, USA
Operational	2015 - Present
Funder	California Climate Investments – Greenhouse Gas Reduction Fund (Cap-and-Trade)
Administrator	California Department of Community Services and Development (CSD)
Target audience	Low-Income Multi-family rental communities (5+ Units), Single-family Farmworker Housing and a Low-Income Community Solar Pilot.
Services offered	Rooftop solar, community generation, weatherization, energy efficiency
Website	https://www.csd.ca.gov/Pages/Low-Income-Weatherization-Program.aspx

Summary: The California Low-Income Weatherization Program (LIWP) is administered by the Department of Community Services and Development (CSD) and offers robust energy program components including: Single-Family Farmworker Housing Energy Efficiency & Solar PV; Community Solar Pilot Program; and a Multi-Family Energy Efficiency and Renewables component (see **Case Study 3B**). The primary goal of LIWP is to reduce GHG emissions in low-income households and to help vulnerable communities become more resilient to the effects of climate change. Other important co-benefits include reducing household energy bills, improving public health, creating jobs and job training opportunities, and stimulating economic activity in low-income communities. The current LIWP model has been in operation since 2015, however California has offered federal weatherization programs since the 1970's. Each program component of LIWP is administered by separate organizations who have experience in the respective fields. The multi-family program component is managed by a statewide administrator, the Association for Energy Affordability (AEA), and the farmworker component is administered by La Cooperativa Campesina de California. The community solar pilot is being constructed by GRID Alternatives on tribal land owned by the Santa Rosa Band of Cahuilla Indians in Southern California and has included a workforce development component that provided paid renewable energy technology and job training to 5 tribal members.

Funding: LIWP is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars towards reducing GHG emissions, strengthening the economy, and improving public health and the environment^{xciiv}. Since 2014, LIWP has received \$212 million from the Greenhouse Gas Reduction Fund^{xcv}. Included below is the approximate funding allocation to date^{xcvi}:

- \$70 million: Single-family energy efficiency & solar PV

- \$63.9 million: Multi-family energy efficiency & renewables
- \$51 million: Single-family solar PV
- \$10.7 million: Farmworker housing energy efficiency & solar PV
- \$2.05 million: Community solar pilot program

Eligibility: Low-income farmworker households are eligible for the Farmworker Housing component if they reside in one of the 12 targeted counties in California with the highest farmworker populations. Customer eligibility for all LIWP program components (Single and / or multi-family dwellings) is also predetermined by the CalEnviroScreen – a mapping tool that helps identify California communities that are disproportionately impacted or disadvantaged by the many sources of pollution, and where people are often especially vulnerable to pollution’s effects. This tool uses environmental, health and socioeconomic information to produce scores for every census tract in California so that pollution burdens can be compared and addressed^{xcvii}. Some indicators of pollution burden include air quality, water contamination, traffic density, and proximity to solid waste facilities^{xcviii}. Often, low-income households, people of color and immigrants experience higher pollution burdens than their white counterparts^{xcix}. This is in part due to location of residency, employment and other social and economic factors.

Outreach: Administrators of each component of LIWP conduct targeted outreach and marketing in areas with high pollution burdens as identified by the CalEnviroScreen. For the farmworker component, this targeted outreach occurs in the 12 counties with the highest farmworker populations.

Highlights: The single-family weatherization component of LIWP (which concluded in March 2019) utilized a regionalized approach where one program administrator works in each of California’s 5 regions. This approach helped to roll out funds more efficiently and allowed the administrators to focus on the unique needs of low-income households in each region. The success of the program was the result of a strong working relationship between CSD and the regional administrators, where an exchange of ideas during the program design phase helped to generate a successful approach and appealing program offerings that generated public interest and ultimately built the trust necessary with clients to allow for successful program administration.

Many health and safety and infrastructure barriers arise during weatherization and energy efficiency projects that may increase scope and cost. This can be of particular concern in farmworker households where due to low wages and seasonal employment, critical home maintenance is often deferred or unable to be addressed by the families. To properly address energy efficiency or renewable energy needs in these homes, it was necessary to provide a budget to pay for non-energy benefit improvements. These included health & safety concerns, attic and crawlspace ventilation, minor roof or wall leak repair, electrical panel upgrades (to allow for solar PV or electrification / decarbonization), floor or platform repair for water heaters, and mobile home skirting repair. LIWP administrators understand that addressing structural problems in a home are essential to pave the way to improving household energy efficiency and, as such, a portion of the farmworker program component’s budget was allocated to this need.^c

Case Study 1B: Multi-Family Energy Efficiency and Renewables

Component of the Low-Income Weatherization Program

At a glance

Location	California, USA
Operational	2016 - Present
Funder	California Climate Investments (Cap-and-Trade)
Administrator	Association of Energy Affordability (AEA)
Target audience	Low-income multi-family dwellings (5+ units)
Target technology	Energy efficiency, weatherization, rooftop solar
Website	https://www.csd.ca.gov/Pages/Multi-Family-Energy-Efficiency-and-Renewables.aspx

Summary: The Association of Energy Affordability (AEA) works under the portfolio of initiatives in the California Low-Income Weatherization Program (LIWP) to reduce greenhouse gas emissions amongst multifamily dwellings of 5+ units. The program offers a tiered incentive structure that incentivises building owners to do projects that will decrease the energy bill and increase the comfort for renters. More than 89% of the properties served to date are in disadvantaged communities as identified by the CalEnviroScreen mapping tool^{ci}. The Multi-Family Program has highly trained in-house technical analysts who offer the following support:

- Complete a site assessment that includes identification of health, safety, and energy challenges of the property
- Create detailed building energy models and present an energy savings plan to building owners
- Expert project management for energy efficiency, solar PV, and weatherization retrofits

The building manager must select retrofits that generate a minimum of 15% energy savings, although the majority of projects see an average of 40-60% energy savings from baseline levels^{cii}. All participants receive light retrofits such as lights, low-flow showerheads and ceiling duct replacements with many receiving deeper and longer lasting retrofits such as interior and exterior insulation, cooling and heating system replacements, electrification and air sealing^{ciii}.

According to the November 2020 Impact report, the multi-family component of LIWP has achieved the following^{civ}:

- 930 multi-family buildings have received technical assistance and incentives for energy efficiency upgrades.
- 8,131 low-income rental units served.
- 58 properties (approximately 4,633 units) projected to be served with remaining uncommitted funds.

- Over 180 additional properties are wait-listed and waiting for additional funds.

Partners: AEA works closely with the Department of Community Services and Development (CSD) in the program design, implementation, and reporting. In the first two years of the program, AEA worked with the California Housing partnership and TRC Companies who helped with targeted outreach to qualified low-income building owners. However, the program received overwhelming interest and has discontinued advertising as they wait for funding to serve the building owners on their long waitlist.

Highlights: This component of LIWP aims to make qualification as easy as possible. Property owners apply by submitting an interest form on the program website and submit documentation to verify that the property meets the program eligibility requirements. Furthermore, AEA staff program support building owners to select a contractor that suits their needs. This allows them the flexibility to select someone they trust to do good work. This program recognizes the limited time and capacity for building owners to undertake energy efficiency and weatherization work and, as such, an analyst is present before, during, and after retrofits take place to guidance, gather data, and ensure project quality.

Case Study 2: 3E Thermal

At a glance:

Location	Vermont, USA
Operational	2009 - Present
Funder	Efficiency Vermont, Vermont Home Weatherization Assistance Program & VLITE
Administrator	3E Thermal
Target audience	Multi-family housing
Services offered	Expert program management and home assessments for weatherization and energy efficiency retrofits

Summary: 3E Thermal is a consultant agency who provides free expert project management support for energy efficiency and weatherization projects for multi-family dwellings in Vermont, USA. 3E aims to standardize the outcomes for “deep retrofits” in energy efficiency and weatherization projects to improve their quality and sustainability. Many multi-family building owners do not have the time or experience to effectively manage energy efficiency and weatherization projects. 3E’s consultants provide unique support to building owners from the beginning of a project to its completion, including:

- Complete a building energy-needs assessment
- Support finding and securing incentives
- Support finding a trusted contractor
- On-site inspections before, during and after project completion for quality assurance
- Complete follow-up assessment of energy usage

The 3E team works remotely and each staff member lives and is responsible for projects in their region of the state.

Funding: 3E Thermal’s primary funding comes from Vermont’s participation in regional energy markets, though additional funds are received from the Vermont Home Weatherization Assistance Program to facilitate the completion of weatherization in multi-family dwellings^{cv}. Additional support is provided by Efficiency Vermont’s funds for low-income residential projects and from VLITE to help build an energy secure Vermont.

Partners: One of 3E Thermal’s strengths is the breadth of their partnerships throughout Vermont which allows them to connect building owners with the incentives and program funding they need to complete their building retrofits. Some of these partners include Efficiency Vermont, the Vermont Home Weatherization Assistance Program, the Vermont Energy Investment Corporation, Vermont Housing & Conservation Board and the Vermont Housing Finance Agency^{cvi}.

Outreach: 3E Thermal is mainly advertised through word of mouth at landlord meetings or from the recommendations from other program managers. Staff at Efficiency Vermont will recommend eligible building owners to 3E Thermal. Staff at 3E attribute a large amount of their success to strong relationships and partnerships which have continued to bring in new customers through word of mouth^{cvi}.

Case Study 3: AffordAbility Fund Trust (AFT)

At a glance:

Location	Ontario, Canada
Operational	2017 - 2021
Funder	Government of Ontario
Administrator	Independent Board of Trustees, Hydro One Networks, Local Distribution Companies
Target audience	Single family homes
Services offered	Energy efficiency and weatherization
Website	https://www.affordabilityfund.org/

Summary: The AffordAbility Fund Trust (AFT) operated from 2017 to 2021 to provide free energy efficient items and weatherization to reduce the cost of electricity bills for Ontario residents who do not qualify for low-income home energy programs. Program design and oversight was managed by an Independent Board of Trustees (representing both electrical utilities and community service agencies) and the day to day operations were managed by Hydro One Networks, while Local Distribution Companies (LDCs) delivered the program benefits to homes in their area. The program offered energy saving measures that range from LED lighting, to replacing inefficient appliances, and high impact energy upgrades such as insulation or heat pump system upgrades^{cvi}.

Funding: In 2017, the Ontario government made a one-time contribution of \$100 million for the creation of the AffordAbility Fund Trust. An Independent Board of Trustees was created to design and administer the funds for energy efficiency and weatherization upgrades to residential homes in Ontario.

Eligibility: Beneficiaries were required to own, rent or lease a residence in Ontario and be the primary or secondary electricity bill holder with their LDC^{cix}. Income verification was based off a beneficiaries Electricity Affordability Burden (EAB) – a measure which indicates the amount a household spends on electricity compared to their household income. Those beneficiaries with a higher energy burden were offered a higher level of support according to the following criteria^{cix}:

- Level 1: applicants with an EAB of less than 3%
- Level 2: applicants with an EAB between 3% and 5%
- Level 3: applicants with an EAB over 5%

Outreach: The AFT worked with communications experts to develop a specialized approach to reach their target audience who have a high energy burden but do not qualify for traditional low-income energy programs. This outreach strategy focused on the following messages^{cxi}:

- Enrolment will be fast, both in terms of getting connected to a representative and completing the application.
- The program and its representatives are locally-focused, this was supported by local LDC's and non-profit partnerships.

- The administrative process is fast and easy and focuses on the well-being of its beneficiaries.

Highlights: By operating as a Trust, the AFT was able to be more flexible, experimental and adaptable to changing demand and technologies than a traditional utility or government operated program^{cxii}. The AffordAbility Fund Trust had a brand that was powerful and simple and, to build community trust, they partnered with known and respected brands and community groups. The AFT brand was shared using a diversity of advertising strategies including (listed from highest to lowest reach): utility communication; family and friends; advertising; others; social media; the Carrot App; News Story; community and social services; AFT website^{cxiii}.

Case Study 4: Nova Scotia HomeWarming Program

At a glance:

Location	Nova Scotia, Canada
Operational	2015 - Present
Funder	Nova Scotia Power & Province of Nova Scotia
Administrator	Efficiency Nova Scotia
Target audience	Income-qualified homeowners
Target technology	Energy efficiency & weatherization

Summary: The HomeWarming Program offers free energy assessments, insulation, weatherproofing, and installation of energy efficient products to income-qualified homeowners across Nova Scotia. Started in 2015, HomeWarming is specifically designed for low-income households as identified by the LICO measure. In Nova Scotia, many low-income residents live in rural areas and many whom are ageing, have retired and are without employment income. As such, HomeWarming outreach and strong community partnerships help to reach and engage low-income seniors and rural residents in the province.

Funding: HomeWarming is proudly sponsored by Nova Scotia Power and the Province of Nova Scotia as part of a broad, province-wide initiative to provide energy efficient upgrades to income-qualified homeowners. Nova Scotia Power volunteered to fund \$37 Million for a 10-year, low-income energy efficiency program for electrically heated homes to be delivered by the Clean Foundation. The cost of the program will be a charitable contribution by the company, and not recovered from ratepayers. This support started in 2015. The Province of Nova Scotia continues to fund non-electric low-income energy efficiency programs, delivered by Efficiency Nova Scotia. The Province is committed to helping more than 22,000 low-income homeowners lower their energy bills through this investment. This funding covers 100% of the home assessment, product purchase and installment costs for low-income homeowners who qualify for the HomeWarming Program.

Partners: The Clean Foundation, a province-wide non-profit organization, is a key program partner who has been involved in program design, delivery, and advertisement since it began in 2015. Furthermore, municipal governments, politicians and local non-profits are key partners for awareness-building in Nova Scotian communities^{Cxiv}. The program works with experienced, safe and, whenever possible, local companies who know the energy efficiency industry.

Outreach: Efficiency Nova Scotia, the administrator of the program, markets the program to income-qualifying residents through various marketing tactics including advertisements on social media, by mail, attending community events and more. Furthermore, Efficiency Nova Scotia employs a designated HomeWarming outreach specialist with expertise in engaging with seniors, local non-profits, and local government at local events, meetings, and workshops. This outreach specialist is instrumental in

program outreach to rural communities and low-income residents who may otherwise be hard to engage.

Highlights: HomeWarming's experienced staff have been instrumental in the program's success to build partnerships that are essential in engaging rural residents and the ageing population. By attending local events and speaking with community organizations in-person, the program is able to reach rural residents and seniors who may have not been reached through traditional advertising methods. Furthermore, the Clean Foundation, in partnership with the Province of Nova Scotia, launched [Energy Assist](#) - a hub that connects Nova Scotia residents with rebates, subsidized programs, and energy coaching for residential, business and trade buildings. This website serves as a central location for the province's energy efficiency initiatives and facilitates learning and program participation.

Case Study 5: Nelson EcoSave

At a glance:

Location	Regional District of Central Kootenay (RDCK), British Columbia, Canada
Operational	2011 - Present
Funder	Nelson Hydro
Administrator	Nelson Hydro
Target audience	Single family homes and businesses
Services offered	Energy efficiency and weatherization
Website	https://www.nelson.ca/222/EcoSave-Program

Summary: The Nelson Hydro EcoSave program is a City of Nelson initiative and began as a pilot program in 2011 to encourage Nelson Hydro customers and homeowners to retrofit their homes to become more energy efficient and reduce GHGs. The program offered support through the process of having energy evaluations, accessing current rebates and on-bill financing for energy efficiency retrofits in single-family homes in Nelson, B.C. In 2019, the program was expanded to include residents in the Regional District of Central Kootenay (RDCK) – an area that includes Nelson, Castlegar, Creston and several villages.

This program has offered a variety of services over the years, including discounted energy evaluations, energy coaching, rebate support and a contractor guide. Recently, EcoSave launched a marketing initiative titled “The Great Escape” where household heat loss is mapped using aerial thermal imaging and is used to connect homeowners to the program where they can learn more about energy saving options. The EcoSave registration includes an optional section where applicants can check a box if they are interested in applying for BC Hydro and FortisBC’s ECAP.

Financing: EcoSave is unique in British Columbia for its energy efficiency financing options. Individuals can choose to pay for energy efficiency upgrades up-front and out of pocket or through a loan with on-bill payback of 5 or 10 years. Those who choose on-bill financing are eligible for a loan of up to \$16,000 with a fixed interest rate of 3.5% to complete energy efficiency-related upgrades^{cxv}. The loan approval is based on good electric utility bill (Nelson Hydro) account standing and property ownership verification. Rental spaces are not eligible. Applicant credit scores are not assessed in the approval process to prevent excluding those people who need the on bill financing the most. The loans are of no risk to the City of Nelson, since they are deemed part of the Nelson Hydro bill and are subject to the same default measures, which can result in discontinued electrical service and the balance transferred to property tax.

Outreach: Central to EcoSave is the relationship between the Program Manager, Carmen Proctor, and potential participants. Carmen and her team assist residents who have questions related to eligibility, the application, or retrofit options. EcoSave staff are committed to helping applicants successfully access rebates and financing and will send follow-up emails or calls with customers who are struggling with the process.

Highlights: In 2019, the EcoSave program involved the West Kootenay Eco Society (WKES), a trusted local Non-Governmental Organization (NGO), to engage and invite senior citizens in an innovative new program. The Seniors Energy Efficiency Program provided free installations of energy saving measures and assistance to seniors citizens to access programs like EcoSave and ECAP. The program was delivered by the WKES and volunteers who were trained to install energy savings products into the homes of senior citizens. Also, volunteers would speak with seniors to determine if they were eligible for further programs and, if so, would help them to complete these applications. 100 senior citizens registered and were excited to get free items installed, especially those who applied to ECAP and received a free fridge. EcoSave program manager Carmen Proctor explains that this partnership was successful because people knew the WKES and volunteers and trusted them to come into their home and keep their best interests in mind.

Case Study 6: Energy Affordability Program (Previously the Home Assistance Program)

At a glance:

Location	Ontario, Canada
Operational	(Save on Energy) Energy Affordability Program: 2021 - Present (Save on Energy) Home Assistance Program: 2011 – 2020
Funder	Independent Electricity System Operator (IESO) of Ontario rate payers (global adjustment)
Administrator	IESO
Target audience	Income-qualified residential customers
Services offered	Energy efficiency and weatherization
Website	https://saveonenergy.ca/For-Your-Home/Energy-Affordability-Program

Summary: The Energy Affordability Program (EAP) (previously the Home Assistance Program) is an energy efficiency and weatherization program offered to income-qualified households in Ontario. The goal of this program is to reduce the home electricity costs for low-income households in Ontario and to increase home comfort.

Two tiers of eligibility are available: comprehensive support or do-it-yourself energy savings kits (ESKs). Eligibility is determined based on household income. The first level offers comprehensive support to lower-income homeowners, tenants, and social housing residents who may be eligible to receive the following at no cost to them, based on the results of an energy needs assessment: LED light bulbs, drying rack for clothes, powerbar with timer, block heater timer, and energy efficient showerhead with aerator. In addition, ENERGY STAR® certified replacement appliances such as refrigerators, freezers, window air conditioners, and/or dehumidifiers may also be offered. Homes heated by electricity are eligible to receive insulation in walls, attic, and basement as needed, as well as comprehensive draft-proofing. The second level of support offers ESKs to moderate-income households with contents tailored for each applicant, such as LED light bulbs, low-flow showerheads and faucet aerators, and car blockheater timer. Both levels of support provide customers with energy-use education and energy-saving tips. The Home Assistance Program and the AffordAbility Fund Trust programs concluded in 2020 and the new Energy Affordability Program has replaced these two distinct programs. The new Energy Affordability Program has increased the band of income eligibility for in-home energy-efficiency improvements, when compared to the Home Assistance Program, and has also simplified access to energy efficiency measures.

Funding: The Energy Affordability Program is funded by Ontario’s Independent Electricity System Operator (IESO) from the Global Adjustment and all services and products are offered to eligible customers free of charge.

Eligibility: Individuals are eligible for the first tier of Comprehensive Support if they: are a resident of an eligible social housing, OR; an individual who owns, rents or leases a residence and is listed as the

primary or secondary utility account holder, AND; is in receipt of a qualifying government or energy-support benefit OR has an annual household income that does not exceed limits based on the Statistics Canada Low-Income Measure + 35%^{cxvi}. Individuals are eligible for an Energy Savings Kit if they: own, lease or rent a residence in Ontario and are listed as the primary or secondary utility account holder; and meet the household income qualification limits which are based on the Statistics Canada Low-Income Measure and have a limit of 22% above the first tier of eligibility and support^{cxvii}. Complete eligibility specifications can be found on the [Energy Affordability Program Website](#).

Complementary Programs: Enbridge Gas Inc. has a Home Winterproofing Program for income-eligible natural gas customers (in Ontario, approximately 75% of households are heated by natural gas). Income-qualification criteria for this program is aligned with the Energy Affordability Program and coordination of program delivery is being undertaken where possible to help maximize the benefits to income-eligible Ontario energy consumers. The Ontario Electricity Support Program (OESP) helps lower-income households to reduce their electricity costs by applying a monthly credit directly to their bill. Lower-income households who are behind on their electricity or natural gas bill and face having service disconnected, may qualify for emergency financial help through the Low-income Energy Assistance Program (LEAP). Finally, on June 1, 2020, the Government of Ontario made available \$9 million for the COVID-19 Energy Assistance Program (CEAP) to support residential customers struggling to pay their energy bills as a result of the COVID-19 emergency.

Outreach: Outreach for the Energy Affordability Program strives to reach those most in need of energy-affordability support. To do this, efforts have focused on building and leveraging relationships with community organizations and social service agencies which serve and interact with income-eligible communities. These efforts are undertaken with the goal of raising program awareness to better enable organizations to provide referrals to participate in the EAP when they are encountering consumers in need of support. Select targeted marketing (e.g. Search engine optimization) is also pursued to help build awareness and drive enrollments.

Highlights: The program has a built-in budget for health and safety upgrades to the home that need to take place to permit energy efficiency and weatherization upgrades to proceed. \$750 per home is available to complete fixes such as ensuring proper ventilation^{cxviii}.

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