A Current State Analysis of Equity-Oriented DSM Programs in Canada

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Efficiency Canada | Carleton University



Acknowledgements

This project was undertaken with the financial support of the Government of Canada. Funding was provided through the Smart Grid Regulatory Innovation program, administered by Natural Resources Canada.

The authors of this report would like to thank the many DSM program administrators who took the time to speak with us and participate in this research. We are additionally grateful for the time and attention of those who acted as peer reviewers for this research. This includes but is not limited to: Laura Tozer (University of Toronto), Marie Claire Brisbois (University College London), Deanne Turnbull Loverock (Government of British Columbia), Amy Tuck (Efficiency Manitoba), Sarah Coy (Efficiency Manitoba), Vanessa Russell (Efficiency Manitoba), Art Ladd (Efficiency Manitoba), and Derrick Nykoluk (SaskEnergy).

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Suggested citation: Turner, K., Gaede, J. 2026. A Current State Analysis of Equity-Oriented DSM Programs in Canada. Efficiency Canada, Carleton University, Ottawa, ON.

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November 2026

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Summary

Programs for low-to-medium-income households, affordable housing providers, and northern, remote, and Indigenous communities and households are prevalent across the country. These programs seek to fill a gap in traditional demand-side management (DSM) programming that, over time, has been found to exclude certain customers through a series of barriers and systemic marginalization. Through unique program design, direct engagement tactics and low-to-no-cost measures, "equity-oriented programs" seek to ensure that energy efficiency programs are accessible to eligible households. In their 2022 report, *Efficiency for All*, Kantamneni and Haley identified these programs at the provincial/territorial level through a jurisdictional scan and analysis. This report seeks to build on their work by updating their jurisdictional scan by leveraging desk research, workshops and conversations with DSM program administrators of equity-oriented programs.

Concepts of energy justice, energy vulnerability and energy sovereignty are useful in understanding the role and impacts of equity-oriented programs beyond traditional DSM objectives. While originally employed as a strategy to achieve energy savings, we understand equity-oriented programs to have wider-reaching social and environmental impacts that can create more equitable outcomes for participants. Increasingly, these non-energy benefits are a driver of participation within these programs. With the emergence of new initiatives to support electrification and demand flexibility, similar consideration should be given to ensure that new technologies, rates, and programs do not exacerbate harm, as is warned in the literature, but support the equitable distribution of benefits to households that may benefit most from them.

Equity-oriented programs have made significant progress in delivering major upgrades to eligible households but continue to face barriers to delivering full home energy retrofits. Direct-install programs offering major upgrades to heating systems and building envelopes are available in nearly every province. Heat pumps are among the most widely available upgrades offered through these programs, in part due to the contribution of federal and provincial government funding to equity-oriented programs (e.g., the Oil to Heat Pump Affordability program). Program administrators, however, continue to report significant barriers to delivering comprehensive deep retrofits for eligible households, including strained labour and administrative capacity, lack of funding for non-energy upgrades, limitations in cost-effectiveness testing, and challenges in reaching renters.

Emerging trends in the DSM landscape include demand flexibility and electrification, both of which pose opportunities for equity-oriented programs to deliver greater non-energy benefits to households. Currently, equity-oriented DSM programs facilitate the installation of flexibility-enabling technologies such as smart thermostats, block timers, and smart appliances. However, these technologies are most effective when the household has already undergone necessary energy efficiency upgrades, including deep retrofits. Mitigating barriers to more major upgrades and deep retrofits is essential to facilitating successful participation by impacted communities and securing the potential co-benefits of electrification and demand flexibility.

The federal government's Canada Greener Homes Affordability Program (CGHAP) can lessen existing barriers through flexible funding to meet unique provincial and territorial needs. CGHAP funds are eligible for a range of upgrades, including "ancillary" services that support administrators' call for funding to complete non-energy upgrades that will enable deeper retrofits. CGHAP may support in building administrative capacity for administrators, partnering organizations and participants. It is also intended to support the inclusion of renters. The program is limited, however, by the short-term nature of government funding. To ensure recapitalization, CGHAP should be embedded within a greater national strategy to end energy poverty.

Administrators of energy efficiency and demand flexibility programs can play an active role in ensuring equitable outcomes from new technologies and practices through program design and delivery, policy development, and community-level initiatives. To lessen existing barriers, utilities should support the development of stronger renter protections at both municipal and provincial/territorial levels. Administrators should also be able to attribute full energy savings from government funding in cost-effectiveness testing. When considering the development of rates to support demand flexibility, administrators should provide clear and accessible information to customers, create low-stakes rate programs, develop initiatives that reward load shifting rather than penalize non-participation, and collect data on the potential social, economic, and energy impacts of time-varying rates (e.g., customer satisfaction, total bill savings, total load reduction). Administrators should also explore and invest in community-level demand flexibility initiatives, like community solar projects, that improve system reliability, encourage local participation and ownership in energy systems, and provide direct benefits to customers (e.g., lower electricity costs).

Résumé

On trouve partout au pays des « programmes axés sur l'équité » destinés aux ménages à faible et moyen revenu, aux fournisseurs de logements abordables et aux communautés autochtones, nordiques et des régions éloignées. Ces programmes cherchent à combler les lacunes des programmes traditionnels de gestion de la demande (GD), dont on a constaté au fil du temps qu'ils excluaient certains segments de la clientèle en raison de divers obstacles et de la marginalisation systémique. Grâce à une conception sur mesure, à des démarches de sensibilisation et de mobilisation ciblées et à des mesures gratuites ou peu coûteuses, ils visent à faciliter l'accès des ménages admissibles aux programmes d'efficacité énergétique. Dans leur rapport de 2022 intitulé *Efficiency for All,* Kantamneni et Haley ont recensé les programmes offerts dans les provinces et les territoires et réalisé une analyse comparative pour caractériser les programmes axés sur l'équité. Le présent rapport actualise ce recensement au moyen d'ateliers, de recherches documentaires et d'échanges avec les responsables de programmes de GD axés sur l'équité.

Les concepts de justice énergétique, de vulnérabilité énergétique et de souveraineté énergétique aident à mieux comprendre le rôle et les effets des programmes axés sur l'équité au-delà des objectifs traditionnels de GD. Même s'ils ont été initialement conçus pour réaliser des économies d'énergie, les programmes axés sur l'équité ont des retombées sociales et environnementales plus vastes, qui peuvent favoriser des résultats plus équitables pour les personnes qui y participent. Ces avantages non énergétiques incitent de plus en plus de ménages à participer à ces programmes. Avec l'émergence de nouvelles initiatives visant à soutenir l'électrification et la flexibilité de la demande, il importe également de veiller à ce que

les nouvelles technologies, les tarifs et les programmes n'aggravent pas les préjudices — un risque signalé dans la littérature —, mais favorisent plutôt une répartition équitable des avantages au profit des ménages qui pourraient le plus en bénéficier.

Les programmes axés sur l'équité ont permis d'apporter des améliorations majeures aux logements des ménages admissibles, mais se heurtent encore à des obstacles lorsqu'il s'agit de réaliser des rénovations énergétiques complètes. Des programmes d'installation directe qui proposent des améliorations majeures des systèmes de chauffage et de l'enveloppe des bâtiments sont offerts dans presque toutes les provinces. Les thermopompes comptent parmi les améliorations les plus couramment proposées dans le cadre de ces programmes, notamment grâce au financement accordé par les gouvernements fédéral et provinciaux aux programmes axés sur l'équité, comme le Programme pour la conversion abordable du mazout à la thermopompe. Cependant, les responsables de programme continuent de signaler d'importants obstacles à la réalisation de rénovations énergétiques en profondeur dans les logements des ménages admissibles, notamment le manque de capacités en matière de main-d'œuvre et d'administration, l'absence de financement pour les améliorations qui ne concernent pas l'énergie, les limites des tests coût-efficacité et les difficultés à joindre les locataires.

La flexibilité de la demande et l'électrification, deux nouvelles tendances dans le domaine de la GD, permettent aux programmes axés sur l'équité de procurer aux ménages encore plus d'avantages non énergétiques. À l'heure actuelle, les programmes de GD axés sur l'équité facilitent l'installation de technologies favorisant la flexibilité de la demande, comme les thermostats intelligents, les minuteries pour chauffe-moteur et les appareils électroménagers intelligents. Cependant, ces technologies sont plus efficaces lorsque les logements ont déjà fait l'objet des améliorations écoénergétiques nécessaires, y compris de rénovations en profondeur. Il est donc essentiel de lever les obstacles à la réalisation d'améliorations majeures et de rénovations en profondeur pour favoriser la participation des communautés concernées et leur permettre de bénéficier des retombées positives potentielles de l'électrification et de la flexibilité de la demande.

Le Programme canadien pour des maisons abordables plus vertes (PCMAV) du fédéral peut aplanir les obstacles existants au moyen d'un financement souple adapté aux besoins particuliers des provinces et des territoires. Le financement du PCMAV peut couvrir divers travaux d'amélioration, y compris des travaux connexes non énergétiques qui facilitent les rénovations en profondeur. Le PCMAV peut également contribuer au renforcement des capacités administratives des responsables de programme, des organisations partenaires et des personnes participantes. Il vise aussi à favoriser l'inclusion des locataires. Le programme reste toutefois limité par le caractère temporaire du financement gouvernemental. Pour en assurer le renouvellement, le PCMAV devrait s'inscrire dans une stratégie nationale plus vaste visant à mettre fin à la précarité énergétique.

Pour veiller à ce que les nouvelles technologies et pratiques produisent des retombées équitables, les responsables des programmes d'efficacité énergétique et de flexibilité de la demande peuvent intervenir à trois niveaux : la conception et la mise en œuvre des programmes, l'élaboration de politiques et les initiatives à l'échelle des communautés. Afin de réduire les obstacles existants, les services publics devraient soutenir le renforcement des protections accordées aux locataires aux échelles municipale, provinciale et territoriale. Dans les tests coût-efficacité, les responsables de programme devraient également pouvoir attribuer aux programmes de GD la totalité des économies d'énergie rendues possibles par le financement public. Lorsqu'ils envisagent d'élaborer des tarifs visant à favoriser la flexibilité de la demande, les responsables de programme devraient fournir à la clientèle des renseignements clairs et accessibles, proposer des programmes tarifaires peu risqués, mettre en place des initiatives qui récompensent le déplacement de la consommation plutôt que de pénaliser la non-participation, et recueillir des données sur les effets sociaux, économiques et énergétiques potentiels des tarifs variables dans le temps (p. ex., la satisfaction de la clientèle, les économies totales sur les factures et la réduction totale de la charge). Les responsables de programme devraient également étudier et financer des initiatives de flexibilité de la demande à l'échelle des

communautés, comme des projets solaires communautaires, qui améliorent la fiabilité du réseau, favorisent la participation locale et la propriété collective des systèmes énergétiques, et procurent des avantages directs à la clientèle (notamment une réduction des coûts d'électricité).

Introduction

Canada is undergoing an energy system transition, a primary driver of which is the need to decarbonize. However, decarbonization is neither the only factor prompting change, nor the sole measure of success. Transitions are propelled forward and shaped by the consequences of previous actions (which both constrain future manoeuvrability and create new opportunities), by technological or socio-political developments that happen outside the system, and by evolving visions of the purpose and direction of the system in question. The interaction of these three elements for our present energy transition has important implications for how we understand the relationship between equity and utility demand-side management (DSM).

DSM refers to practices and tools that energy utilities can use to improve the operation of the utility system. It plays an important role in ensuring an equitable energy transition under the current regulatory landscape. Historically, DSM focused on "resource acquisition" — acquiring energy savings through energy efficiency programs or providing capacity through demand response initiatives, for example. While both studies and experience showed these resources were regularly more cost-effective than alternatives, distinct rules and funding arrangements were often required of utilities to improve the accessibility of programs to underserved customers (e.g., low-income households).

The context is changing, however. From a DSM perspective, rising efficiency baselines from improved codes and standards, a decline in highly cost-effective "low-hanging fruit" efficiency measures, and evolving system needs associated with electrification and flexibility are putting pressure on the existing paradigm for equity-focused DSM policy and programming. These technological and

socio-political developments combine with evolving understandings of equity in the DSM space and its multiple dimensions to reveal new opportunities for policy and programs.

This report develops a high-level understanding of the implications of these developments for equity and DSM. It assesses the current state of residential DSM programming that is income-based or for northern, remote, and/or Indigenous (NRI) communities. This research builds on previous work by Efficiency Canada to assess the state of low-income programming and presents new data to benchmark programs for NRI communities. Programs for affordable housing providers have also been included in the overall benchmarking of equity-oriented programs but were not an area of focus in conversations with program administrators and are accordingly not explored in detail in the findings of this report. Further research into the unique role these programs play in supporting underserved communities is needed.

This report is informed by desk research, jurisdictional DSM program scans completed in 2021 and 2025, and conversations and workshops held with DSM administrators of income-based energy efficiency programs and energy efficiency programs for NRI communities. The focus of this work is, accordingly, primarily centred on existing initiatives and the experience of DSM program administrators. We did not directly engage with members of marginalized communities; our findings are therefore not reflective of the diverse perspectives of persons with lived experience. This work is thus intended to be complementary to greater research needed on the perspectives and needs of underserved communities and other stakeholders as they pertain to DSM and emerging trends of electrification and demand-side flexibility in Canada.

Equity, transitions and DSM

This section provides a brief overview of different conceptions of equity and their relationship to energy and energy transitions, followed by a short review of the evolution of equity-focused DSM programming and how emerging trends are changing the context in

which equity-focused programming exists. It concludes with three insights that situate the present and future relationship between equity, energy transitions, and DSM.

How to understand equity

Equity and related concepts are found across international and national commitments and visions for a clean energy transition and a net-zero emissions future. For example, the sixth Synthesis Report of the International Panel on Climate Change notes that ambitious emissions mitigation pathways imply large and potentially disruptive changes in economic structure and pose significant distributional challenges, both within and between countries. Different regions and peoples have high vulnerability to the hazards associated with climate change, and this is often exacerbated by inequity and marginalization along identity, demographic, cultural, and socio-political lines including settler colonization. Consequently, it is important to prioritize equity, climate and social justice, inclusion, and rights-based approaches in climate adaptation and mitigation initiatives.[1]

Canada's Net-Zero Advisory Body, established in 2021, identified "Put people first" as its second core value. It noted that a net-zero transition must be "just and fair" and that no one should be left behind or forced to unduly shoulder the burdens of change because of where they live or work, or because of their identity. Other core values include the importance of acting collaboratively and grounding action in real-world experiences, and that there is no one-size-fits-all solution that respects regional or local differences and circumstances.[2] The federal government's "Powering Canada Strong" electrification strategy (May 2026) and the preceding "Powering Canada's Future" clean electricity strategy also recognize

[1] International Panel on Climate Change, "2023: Summary for Policy Makers." https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf#page=38.06.

[2] Net-Zero Advisory Body, "Foundational values & design principles" https://www.nzab2050.ca/values-principles.

affordability as a core guiding principle and objective.[3] While improving affordability is a major contributing factor to equitable outcomes for underserved customers, affordability and equity are not synonymous.

There is also a vast academic literature that explores the interrelationships between equity, energy transitions and sustainability. We can identify and draw upon three major, interrelated concepts in this research: energy justice, energy sovereignty and energy vulnerability.

Energy justice is perhaps the most commonly used term in the academic literature. commonly points to three dimensions: distributive justice (who bears the costs and benefits of energy systems); procedural justice (who gets to participate in decision-making), and recognitional justice (who is acknowledged or ignored).[4] These dimensions also extend temporarily when we consider intragenerational and intergenerational justice.[5]

Energy vulnerability, while not as clearly defined, is well contextualized by Middlemiss & Gillard, who draw on broader understandings of vulnerability to consider a household or community's "likelihood of exposure to (energy-related) harm, sensitivity to that harm, and capacity to adapt in response to it."[6] This dimension of equity is particularly relevant when considering the detrimental impacts of climate change, for example, or the potential costs (direct and indirect) of mitigating or ameliorating actions.

Finally, **energy sovereignty** might be considered an extension of the connotations of both vulnerability and justice for individuals to communities — particularly Indigenous communities. Haida scholar Valine Brown describes energy sovereignty as enabling "Indigenous

[3] Natural Resources Canada, "Powering Canada Strong: A national strategy for an electrified Canadian economy." https://natural-resources.canada.ca/energy-sources/electricity-infrastructure/powering-canada-strong-national-strategy-electrified-canadian-economy.

[4] See "Energy justice: a conceptual review" — Jenkins, McCauley, Heffron, Stephan & Rehner, *Energy Research & Social Science*, 2016; Energy justice: Conceptual insights and practical applications" — Sovacool & Dworkin, *Applied Energy*, 2015; which are influential papers in the literature.

[5] See, for example, Winfield, Hill, Gaede., eds., 2023, p. 10.

[6] Middlemiss & Gillard, "Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor," 147.

communities to own and operate our own energy systems; to use renewable and locally available energy systems; and to stop burning fossil fuels and stop relying on corporations for energy."[7] Sovereignty thus implies more than a fair distribution of costs and benefits, and it recognizes the role energy systems play in self-determination.

In practice, the distinctions between these dimensions of equity are often blurry and overlap. Accordingly, we consider their combination to adequately represent the conceptual relationship between equity and energy transitions, and together appropriately centring, from a ground-up perspective, the experience, needs, and self-determination of impacted households and communities in discussions of energy systems.

The multi-dimensionality of equity in the context of energy use can be exemplified by the concept of energy poverty. Energy poverty refers to a situation wherein an individual or household is unable to access adequate energy services. Energy poverty thus has implications across the three perspectives on equity mentioned above. Energy poverty quite obviously constitutes a condition of vulnerability to energy-related harms, as well as the health and wellness consequences of poor energy services.[8] A focus on reducing vulnerability could imply solutions that are not primarily focused on distributive or procedural justice, though these are also relevant considerations in understanding both the causes of and reasons to reduce energy poverty. Finally, energy poverty can be seen as intertwined with many of the systemic barriers to energy sovereignty that Indigenous communities may face. These can manifest as, but are not limited to, poor housing conditions, unreliable service and limited infrastructure, and culturally inappropriate energy governance systems.[9]

[7] Valine Brown, "This is what Indigenous energy sovereignty looks like: A just transition case study."

[8] Kantamneni & Haley, "Archetypes of experiences with energy poverty in Canada."

[9] Acharibasam, Datta & Lewis, "Indigenous community-led energy governance as environmental sustainability."

Equity and DSM

DSM often refers to the range of programs and initiatives to reduce energy consumption or shift energy demand patterns to improve the operation of energy transmission and distribution systems. These include incentive or behavioural programs to improve energy efficiency, demand response programs to mitigate peaks, and special rates schedules to encourage particular use patterns and encourage uptake of flexibility-enabling household technology. These programs are often — but not exclusively — developed and administered by utilities and focus primarily on resource acquisition for utility systems. Governments and other actors have and continue to play an important role in delivering such programs, or related initiatives, to transform markets for certain products or educate consumers about the benefits of conservation.

Contemporary DSM programs and the institutions that govern them have a lengthy history, dating back approximately to the 1970s when multiple oil crises prompted increased calls to focus on "soft energy" (i.e. renewables and energy efficiency) pathways of development.[10] At the outset, a central concern was to reduce the vulnerability of marginalized communities — particularly low-income households — to negative health, safety and affordability impacts associated with inefficient energy use. The U.S.' federal Weatherization Assistance Program, for example, was established in 1976 and continues to operate today, providing funding to states to administer energy efficiency programs for low-income households.[11]

It took some time for these practices to catch on within utility systems. In the 1980s, proponents increasingly called for specialized policies and rules to overcome institutional and historical biases within utility systems toward large, centralized, and utility-owned supply projects. The emergence of integrated resource planning at this time reflected the growing realization that the core objectives of utility system governance — reliable, safe, and non-discriminatory

[10] Lovins, *Soft Energy Paths*.

[11] US Department of Energy, "Weatherization Assistance Program." https://www.energy.gov/cmei/scep/wap/weatherization-assistance-program.

energy systems — were best served by treating demand and supply-side resources fairly and equally. In other words, it was generally more cost effective for utilities to invest in energy efficiency improvements for consumers (e.g., via incentive programs) to meet system needs.

Over time, the rules governing the development and administration of utility DSM initiatives increasingly formalized and institutionalized, though there remains considerable variability across U.S. and Canadian jurisdictions in program administration, funding, and screening and evaluation for cost-effectiveness. However, stakeholders and rightsholders have increasingly pointed to the inadequacy of these rules and programs for achieving public policy and social objectives beyond utility system resource acquisition. Equity is one such objective.

At the core of this is a tension between the prerogative of the utility to acquire resources cost-effectively and the public policy interest in distributing benefits fairly and reducing vulnerability. Additional tensions may exist for NRI communities with goals of self-sufficiency, self-determination and/or energy sovereignty. Certain communities and populations face barriers to participating in general energy efficiency programming, for instance, that stem from their unique social, economic, and geographic circumstances. These barriers could include a lack of access to capital for improvements, less control over housing (e.g., being a renter), language barriers or distrust in institutions, and more. Overcoming these barriers often requires distinct provisions or more extensive support that reduce the cost-effectiveness of a program, thus making it difficult to justify within utility DSM. Systemic barriers to participation may also require larger structural and regulatory changes beyond the limited scope of DSM. Barriers to participation not only deprive the affected population of the direct benefits of the program, but also increase the vulnerability of those excluded to increased energy burdens associated with the utility's need to recoup costs of the program or distribute fixed costs over a smaller base.

Accordingly, many jurisdictions have introduced rules, policies, or public funding arrangements to enable utilities to deliver programs that "target" marginalized communities. In Canada, targeted

DSM programs most commonly serve low-to-moderate income (LMI) households and NRI communities. They are not exclusively administered by utilities, nor entirely funded by ratepayers, and are thus not always technically "DSM" programs nor solely "equity-focused" initiatives. Nevertheless, both within and outside the utility system, such programs contribute to equity-oriented outcomes through upgrades to homes that deliver multiple, non-energy co-benefits.

It is important to note that income-based programs, programs for isolated and remote communities, programs for affordable housing providers, and programs for First Nations, Métis, and Inuit communities have distinct characteristics and may have expressly different goals. Energy sovereignty, for example, is a salient equity issue particularly for Indigenous communities and will look different for each community. Programs may also have multiple eligibility criteria that can result in program overlap. Furthermore, the households and communities intended to be impacted by these programs have, themselves, distinct and heterogeneous energy needs and interests. In this report, we focus on both sets of programs to highlight the range of programs with equity-oriented outcomes, not to homogenize them.

Emerging challenges

Since their inception, equity-oriented programs in Canada have evolved significantly to achieve greater rates of program participation while working to build stronger relationships with their customers. However, a series of emerging developments, both internal and external to utility DSM, pose new challenges — and opportunities — for advancing equity.

Internally, program administrators are increasingly challenged to attain their savings targets cost effectively. After several decades of DSM in many provinces, much of the most cost-effective energy savings have already been acquired. At the same time, energy efficiency baselines are being raised through advanced buildings and appliances and equipment codes and standards. Consequently, program administrators are having to explore new and innovative

ways to find cost-effective energy savings from "deeper" improvements. This may be especially true for equity-focused programming, which often struggles to pass standard cost-effectiveness tests due to the distinct conditions or services needed to overcome barriers to participation.

At the same time, Canada is undergoing an energy transition, with the goal of becoming a net-zero emissions economy by 2050. This has enormous implications for the relationship between equity and DSM. Most net-zero pathway studies converge on the finding that, if Canada is to achieve net-zero emissions by 2050, electricity consumption will need to double, and the capacity of electricity systems must grow up to three times.[12] DSM will be integral to enabling affordable, reliable and "beneficial" electrification — particularly through its ability to deliver flexibility to electricity grids and deployment of more efficient heating and cooling systems (e.g., air source and ground source heat pumps).*

Demand-side measures, like targeted energy efficiency programs, demand response programs, or time-of-use rates, can help to shift energy consumption to reduce peaks on the grid. They can also provide useful services to the grid to help manage shorter-term disruptions or variability in electricity service. In doing so, DSM can help to reduce or defer costly investments in infrastructure maintenance or development, improving the affordability and reliability of the system in transition. As provinces continue to expand their electricity systems and electrify more end-uses, the need for flexibility will

***Beneficial electrification largely refers to the transition of end-uses from fossil fuels to electricity in a manner that reduces system costs, customer costs, and emissions.**

See Farnsworth, Shipley, Lazar & Seidman, "Beneficial Electrification: Ensuring electrification in the public interest."

[12] Gaede & Haley, "No Margin for Error: Aligning utility resource planning with a net zero future."

increase, motivating utilities to extend demand flexibility initiatives beyond their traditional base in the industrial and large commercial sector to smaller-scale and residential customers.

Transmission and grid constraints act as additional drivers of DSM. Transmission and distribution networks are faced with rapidly growing demand yet are constrained by increasing congestion, aging infrastructure, and limited capacity in some regions. These constraints are especially pronounced in northern, rural and remote regions. Localized or geotargeted DSM, including energy efficiency and demand flexibility efforts, can help alleviate these constraints by deferring upgrades and preparing communities and infrastructure for future electrification.

The emergence of demand flexibility as an energy system priority has led to greater understanding of the intersection of demand flexibility and demand response programs with underserved/vulnerable households in other regions of the world. Research, primarily from Europe and the United Kingdom, was useful in informing the authors' understanding of this intersection. This research is limited in that the literature reviewed does not explicitly consider the implications of demand flexibility on energy sovereignty as it is understood in this report.

In their report *Flex-ability for All*, Sunderland and Yule-Bennet suggest that an inclusive policy system should target flexibility that delivers social value alongside system value as opposed to targeting "low-hanging fruit."[13] This suggests that greater policy direction surrounding demand flexibility (and electrification) is needed to support the equitable integration of demand response into DSM programming. In the same report, the authors suggest that the benefits of demand flexibility should first be directed toward those that stand to benefit the most — namely, low-income and underserved communities.

[13] Sunderland and Yule-Bennet, "Flex-ability for All."

There are several barriers to accessing the benefits of residential demand flexibility, depending on the needs of the household. A household's ability to respond to demand response signals or participate in demand-flexibility measures to the fullest extent can be referred to as a household's "flexibility capital." This is informed by a series of variables, including a household's:

- Affluence and working patterns
- Household composition
- Bodily capacity
- Housing and infrastructure
- Information provision and digital/energy literacy
- Administrator and utility involvement
- Geography and climate

Powells and Fell suggest that the interaction between income/affluence and flexibility capital is perhaps most present.[14] The variables and findings associated with household flexibility capital appear similar/are interconnected with a household's vulnerability to energy poverty, and have been core principles to consider in the design, engagement, and delivery of equity-oriented DSM programs.

Quality of housing and infrastructure as a determining factor of flexibility capital further suggests that underserved households have an increased chance of facing barriers to access when it comes to demand flexibility/demand response programs. As pressure to develop a more flexible energy system increases, focus on residential flexibility is also expected to amplify. This pressure could further exacerbate gaps in available comprehensive and deep retrofit programming, as a portion of homes may be unfit. Best practices suggest that demand flexibility is best integrated into homes that

[14] Powells and Fell, "Flexibility capital and flexibility justice in smart energy systems."

have already participated in DSM programs, and whose houses are optimized for flexibility-enabling assets through energy efficiency upgrades and deep retrofits.

Both emerging trends of demand flexibility and decarbonization place pressure on the need for increasing levels of deep retrofits. The federal government is playing an emerging role in meeting this demand. The Canada Greener Homes Affordability Program (CGHAP) was launched during this research and introduces new federal funding to expand or enhance deep energy retrofit programs for LMI homeowners and tenants. This fund makes a total of $800 million available to provinces and territories over five years. To date, Manitoba, British Columbia, Prince Edward Island, Quebec and Nova Scotia have all announced CGHAP funding partnership agreements.[15] Of the announced agreements, only P.E.I. will deliver CGHAP measures through a provincial program as opposed to a utility-administered program.[16] This funding offers flexibility to program administrators to enhance programming through measures such as higher income-eligibility thresholds, opening programs to renters, and increased/deeper program offers (e.g., insulation, heat pumps). Additional funding support for Indigenous organizations is also available through existing funding agreements with Indigenous Services Canada and Crown-Indigenous Relations and Northern Affairs Canada. As funding partnerships have only recently been announced, the impact of this federal funding can not yet be assessed.

Building on past work

This work is intended to build upon past research from Efficiency Canada, *Efficiency for All*, conducted by Kantamneni and Haley in 2022.[17] Through a jurisdictional scan of energy efficiency programs

[15] Natural Resources Canada, "Backgrounder: Canada drives lower bills and cleaner energy in Quebec, British Columbia, Nova Scotia and Prince Edward Island."

[16] Government of Prince Edward Island, "Home Insulation Programs."

[17] Kantamneni & Haley, "Efficiency for All: A review of provincial/territorial low-income energy efficiency programs with lessons for federal policy."

for low-income households, this work established a baseline understanding of income-oriented programs at the provincial and territorial levels, as well as the strengths and common gaps of these programs, with additional consideration to how the federal government may support programs to achieve the policy goals of reducing energy poverty and meeting net-zero objectives. In this work, the authors identify four core gaps in energy efficiency programming that are largely related to provincial and territorial policy objectives. These gaps include:

1. Obtaining deeper energy savings
2. Fuel switching to zero-carbon (ready) fuels
3. Removing non-energy barriers
4. Targeting energy-poor and hard-to-reach households

The authors additionally suggest the following recommendations for intervention by the federal government:

1. Focus on results
2. Develop and enhance provincial/territorial programs
3. Secure long-term and stable funding
4. Create supportive systems

This report seeks to build on this existing work by updating the jurisdictional scan of energy efficiency programs for low-income households and affordable housing providers, using the same program classification methodology as established in *Efficiency for All*. More so, this report creates a new baseline by conducting a similar jurisdictional scan for energy efficiency programs for NRI communities. While a wider variety of administrator types at the provincial and territorial levels were considered in the jurisdictional

scan conducted, this report focuses primarily on programs delivered by utilities and/or included in DSM portfolios.[18]

The recommendations and gaps identified in this report are similarly used as a baseline for development for longstanding programs and supporting federal initiatives.

[18] Additional information on programs administered by Provincial and Territorial governments, Indigenous Governing Bodies, non-profits and social enterprises can be found in Efficiency Canada's *2025 Energy Efficiency Programs Report*: https://efficiencycanada.org/2025-programs-report/.

The current state of equity-oriented programs in Canada

Equity-oriented programs now exist in nearly every province and territory. In a 2025 jurisdictional scan of energy efficiency programs for LMI and NRI households, and affordable housing providers, we identified 77 programs offered at the provincial or territorial level. Of these programs, the majority (47) were administered by utilities and designated energy efficiency administrators (e.g., EfficiencyOne, Efficiency Manitoba). These same bodies make up the core administrators of DSM activities in Canada.

Of these 47 programs, three were exclusive to the new construction of housing, as opposed to upgrade programs. For the purposes of this report, we will narrow our focus to the 44 home upgrade programs identified in this scan. It is necessary, however, to recognize the many other initiatives and administrators working in this space, including but not limited to social enterprises, non-governmental organizations, provincial and territorial government offices, municipal governments, and Indigenous governing bodies. These administrators, in many instances, are responsible for driving innovation and best practices in the energy efficiency programming sector. There is increasing collaboration among energy efficiency program administrators that are notable for maximizing funding opportunities, increasing program participation and creating more culturally appropriate and accessible programming for participants.

TABLE 1. DSM energy efficiency programs with equity-oriented outcomes, by eligibility type (2025)

LMI	NRI	Affordable housing providers	Other	Total
20	15	7	2	***44***

While energy efficiency programs for NRI and LMI households were the most popular, programs targeting other underserved groups were also included. These programs included EfficiencyOne's African Nova Scotian Communities Retrofit Pilot, FortisBC's Residential Energy Efficiency Works for individuals facing barriers to employment, and BC Hydro's Free Portable Air Conditioner program for clients of the Home Care Program and Mental Health and Substance Use Program. Since Efficiency Nova Scotia's African Nova Scotian Communities Retrofit Pilot uses income to measure eligibility, it has been included in programs for LMI participants, though all African Nova Scotian households in eligible communities are encouraged to apply. Due to their unique eligibility requirements, BC Hydro's Free Portable Air Conditioner program and FortisBC's Residential Energy Efficiency Works program have been placed in a fourth category.

Several programs have been consolidated, cancelled or launched between the time this scan was conducted and the publication of this report, changing the landscape of programs available. This report primarily relies on jurisdictional scans finalized in summer 2025. We attempt to capture additional changes to the program landscape in the discussion portions of this report through comments on changes to programming and funding availability.

Through conversations with the administrators of these programs, several themes emerged with respect to the direction of programs and barriers faced by both participants and administrators in program design and delivery. These themes generally point toward a need for more comprehensive programming that multi-solves for the diverse needs/priorities of customers, utilities, and policymakers.

These themes are:

1. Funding and depth of programming
2. Cost-effectiveness testing
3. Inclusion of renters and custom measures for multi-unit residential buildings (MURBs)
4. Enabling repairs and wraparound supports
5. Labour and capacity building
6. Demand flexibility

We added the sixth category to these themes to reflect the conversations held with administrators around emerging trends in the energy sector, particularly demand flexibility. We recognize that this may not be a comprehensive list of the barriers and areas of opportunity for advancing equity in contemporary DSM.

Funding and depth of programming

The first major theme that emerged in our research was a trend toward deepening programming offers to include more turnkey, major upgrades for customers. This could also be described as facilitating deep retrofits. This trend appeared to be motivated by a range of sources, including policy priorities and external funding (e.g., the Oil to Heat Pump Affordability program, CGHAP), evolving best standard practices for home upgrades, customer needs, and a rising baseline for energy efficiency.

Program availability ranged by province, with some level of major upgrade programming available in every province but Alberta and Saskatchewan. Alberta specifically does not have utility DSM programming, though social enterprises and government bodies offer deep retrofit programs. One such example is Kambo Energy

Group's Home Upgrades Program, funded by multiple municipalities, utilities, and private foundations, and delivered in partnership with participating municipalities.[19]

Programs enabling more comprehensive deep retrofit work fall into three categories: direct-install programs with major upgrades; custom measures for multi-unit buildings; or product rebate programs.[20] These were the three most popular categories of programming for LMI, NRI, and affordable housing provider customers. Custom measures for MURBs were limited to offers for affordable housing providers, while product rebates and direct install programs were identified for all three customer bases.

[19] Kambo Energy Group, "Home Upgrades Program."

[20] Kantamneni and Haley, *Efficiency For All*.

TABLE 2. Regional availability of programs, by eligibility type

Audience	Program type	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK
LMI	Self-install	-	●	-	●	●	-	●	-	-	-
	Direct install - minor upgrades	-	◆	◆	-	-	◆	◆	●	-	●
	Direct install - major upgrades	-	●	●	●	●	●	●	-	-	-
	Rebates	-	○	◆	-	●	-	-	●	○	-
	Custom multi-unit	-	●	-	-	-	●	○	-	●	-
	Enabling	-	-	◆	-	-	-	-	-	-	-
NRI	Self-install	-	●	◆	-	◆	-	-	-	-	-
	Direct install - minor upgrades	-	-	●	-	-	-	●	-	-	●
	Direct install - major upgrades	-	●	●	●	●	●	●	-	-	-
	Rebates	-	-	◆	-	-	-	-	-	-	○
	Custom multi-unit	-	●	-	-	-	-	-	-		-
	Enabling	-	○	●	-	-	-	-	-	-	-
Other	Self-install	-	●	-	-	-	-	-	-	-	-
	Direct install - minor upgrades	-	-	-	-	-	-	-	-	-	-
	Direct install - major upgrades	-	-	-	-	-	-	-	-	-	-
	Rebates	-	-	-	-	-	-	-	-	-	-
	Custom multi-unit	-	-	-	-	-	-	-	-		-
	Enabling	-	○	-	-	-	-	-	-	-	-

○ Natural gas customers only
◆ Elements of program type are offered through another existing program

In 2022, Efficiency Canada's program scan found three programs across two provinces supporting heat pumps for low-income households. Presently, we found eight programs offering heat pumps as a potential upgrade or rebate for LMI customers, two for affordable housing providers, and five for NRI participants.[21]

The increase in heat pump availability can in part be attributed to the distribution of federal and provincial funding for deep retrofits, including the Oil to Heat Pump Affordability program (OHPA), which offers income-based funding to provinces to encourage fuel switching in oil-heated homes through higher efficiency cold climate air-source heat pumps.[22] This program is actively being co-delivered (or has been co-delivered and funds exhausted) in British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, and Ontario. Applications to OHPA closed as of July 2026. The availability of major upgrades like heat pumps, in many cases, seems to be attributed to the provision of non-ratepayer funding to these programs (e.g., OHPA, Clean Economies Leadership Fund). In our 2022 scan of programs for LMI households, only three programs offered heat pump upgrades, one of which was a utility-run program (Fortis BC's Income Qualified Rebate Program).

Heat pumps, however, are not the sole indicator of a deep retrofit or major upgrade. Attic, wall, and/or basement insulation — as well as major appliance upgrades such as boilers, water heaters, and furnaces — all play large roles in improving the overall energy efficiency of a household. These offers were available through both major upgrade programs, rebate incentives and minor upgrade programs. Insulation upgrades were most commonly available across provinces, while windows and doors were less common in both programs for LMI households and NRI communities.

[21] Program availability has recently increased in Quebec with the launch of both the province's CGHAP initiative and heat pump pilot for low income housing stock in partnership with the Société d'habitation du Québec, both administered by Hydro-Québec.

[22] Natural Resources Canada, "Oil to Heat Pump Affordability program."

TABLE 3. Availability of major upgrades and enabling measures by energy efficiency program for low-income households[23]

			Major upgrades						
PT	Administrator	Program	Water heater	Heat pump	Windows & doors	Insulation	Electrical service upgrade	Ventilation	Health & safety
BC	BC Hydro, Fortis BC, Province of BC	Energy Conservation Assistance Program	-	●	-	●	-	●	●
	Fortis BC	Income Qualified Rebates program	-	●	●	●	-	●	-
MB	Efficiency Manitoba	Energy Efficiency Assistance Program	●	●	●	●	-	-	●
ON	IESO	Energy Affordability Program Tier 1	-	●	-	●	-	-	-
NB	NB Power	Enhanced Energy Savings Program	-	●	-	●	●	●	●
PE	efficiencyPEI	Home Insulation Rebates - Low Income	-	-	●	●	-	-	-
		Energy Efficiency Equipment Rebates - Low Income	●	●	-	-	-	●	-

[23] Electrical service upgrades have been acknowledged in this table, and subsequent tables, to the extent that they are included in each program's offerings listed on their website. Electrical service upgrades may be offered by programs in other and unique circumstances.

			Major upgrades						
PT	Administrator	Program	Water heater	Heat pump	Windows & doors	Insulation	Electrical service upgrade	Ventilation	Health & safety
NS	Efficiency Nova Scotia	HomeWarming	-	●	-	●	-	-	●
		African Nova Scotian Communities Retrofit Program	-	●	-	●	-	-	●
NL	Newfoundland Hydro & NL Power	Oil to Electric Incentive Program	-	●	-	-	-	-	-
	NL Power	All in Attic Insulation Program	-	-	-	●	-	-	-

TABLE 4. Availability of major upgrades and enabling measures by energy efficiency program for northern, remote, and Indigenous communities and households

			Major upgrades						
PT	Administrator	Program	Water heater	Heat pump	Windows & doors	Insulation	Electrical service upgrade	Ventilation	Health & safety
BC	BC Hydro, Fortis BC, Province of BC	Partners in Indigenous Energy Efficiency & Resilience Program	●	●	●	●	●	●	●
SK	SaskPower	Northern First Nations Home Retrofit Program	-	-	●	●	-	●	●
MB	Efficiency Manitoba	First Nation Energy Efficiency Program	-	-	●	●	-	-	-
		Community Heat Pump Program	-	●	-	-	-	-	-
		Métis Energy Efficiency Offers	●	●	●	●	-	-	●
ON	IESO	Remote First Nations Energy Efficiency Program	-	-	-	●	-	●	-
NB	NB Power	First Nations Energy Efficiency Program	●	●	●	●	●	●	-
NS	Efficiency Nova Scotia	Mi'kmaq Home Energy Efficiency Program	-	●	-	●	●	●	●

TABLE 5. Availability of major upgrades and enabling measures by energy efficiency program for affordable housing providers[24]

			Major upgrades						
PT	Administrator	Program	Water heater	Heat pump	Windows & doors	Insulation	Electrical service upgrade	Ventilation	Health & safety
BC	BC Hydro	Social Housing Retrofit Support Program*	●	●	●	●	-	-	-
ON	Enbridge	Affordable Housing Multi-Residential Program	-	-	-	-	-	●	-
QC	Énergir	Low-income household supplement component - Business	-	-	●	●	-	-	-
NS	Efficiency Nova Scotia	Affordable Multi-Family Housing Rebate Program	●	●	●	●		●	

* This program has since been consolidated with CleanBC offers and is delivered under the Social Housing Energy Savings Program, which further includes electrical service and ventilation upgrades.

[24] This table is limited to programs dedicated to servicing affordable and social housing providers and thus does not reflect other equity-oriented programs that may serve affordable and social housing providers in addition to a range of other housing types.

LogisVert and Heat Pump for Modest Income programs through Hydro-Québec were not available during the time of this scan, but are notable in their provision of heat pumps to and enhanced deep retrofit offers to LMI participants and affordable housing providers.

Nearly 43 per cent of programs analyzed were funded by diverse portfolios, including provincial and/or federal funding sources. At the time of this scan, Manitoba and Ontario were the only provinces to offer direct-install programs with major upgrades, funded almost entirely by ratepayer dollars. Since then, Ontario has signed on to deliver OHPA funding through the IESO, and Efficiency Manitoba launched CGHAP.[25]

Government funding streams are especially valuable to equity-oriented programs as they enable deeper retrofit measures that may otherwise not be deemed cost-effective. This funding has more potential to be used for deeper retrofit measures alongside enabling strategies and initiatives such as electrical panel upgrades or health and safety remediation. The often short-term nature of government funding, however, can lead to uncertainty for administrators to conduct long-term planning. Stop-start patterns in government funding (due to program cancellations, budget cuts, or changes in political priorities) can lead to confusion for customers as to what offers are available. This can also lead to less reliable and predictable work for contractors.[26] Administrators also noted that for funding allocated on an annual basis, programs in high demand are often exhausted by mid-year, creating a lag in service for customers and contractors.

Cost-effectiveness testing

While government funding can enable deeper upgrades in equity-oriented DSM programs through non-energy objectives, ratepayer funding provides stability. This funding, while more predictable,

[25] Save On Energy, “Energy Affordability Program”; Natural Resources Canada, “Canada Launches Greener Homes Affordability Program to Cut Energy Bills and Emissions.”

[26] Kantamneni & Haley, *Efficiency for All*.

is often more limited in scope due to traditional utility cost-effectiveness testing (CET) practices that still struggle to effectively value the societal and non-energy benefits of DSM initiatives that are often drivers of participation within equity-oriented programming.[27] These benefits can include improved reliability, improved health and well-being outcomes, reduced outdoor air pollution, and job creation. The larger incentives offered through equity-oriented programs are also larger barriers to cost-effectiveness testing.

With recognition of the social and economic value of these programs, certain modifications and exemptions have been made to cost-effectiveness tests to ensure they are screened more equitably. Exemptions include excluding programs from tests, testing at the portfolio level instead of the program level or adjusting test ratio thresholds for equity-oriented programs.[28]

[27] The Regulatory Assistance Project, *Cost-Effectiveness Testing Of Demand-Side Management Programs.*

[28] For more information, see Haley & Maas, *Aligning DSM Cost Effectiveness Testing with Public Policy.*

TABLE 6. Level of assessment used for cost-effectiveness testing and unique modifications, by administrator

Administrator	Assessment level	Exemption for equity programs	Details
BC Hydro	Portfolio	-	-
Efficiency Manitoba	Portfolio	-	-
Efficiency NS	Portfolio	-	-
efficiencyPEI	Portfolio	-	-
Enbridge	Program	●	Programs must pass lowered threshold of 0.7
Énergir	Measure	●	Programs historically accepted despite not passing CET
Fortis BC	Program	●	-
IESO	Program	●	Income-targeted programs and programs for Indigenous households exempted from CET
Hydro-Québec	Portfolio	-	Programs historically accepted despite not passing CET
NB Power	Program	●	-
Newfoundland and Labrador Hydro	Program	-	-
Newfoundland Power	Program	-	-
SaskEnergy	Portfolio	-	Equity-oriented programs exempt from CET at program level
SaskPower	Program	●	-

Findings from administrators suggest, however, that while these modifiers are enablers of some deeper retrofits, they are not sufficient in capturing the total value of programs. Some administrators are looking for new ways of demonstrating the economic and social value of programs. Due to the challenges of cost-effectiveness testing, some programs have deviated from traditional DSM funding structures and are now operated primarily through external funding streams. NB Power's First Nations

Energy Efficiency Program is one such example.[29] While still being administered through the utility, the program has secured somewhat stable funding through New Brunswick's Climate Change Action Plan and other federal sources.[30] Traditional utility cost-effectiveness tests can limit the kinds of programming offered, and generally favour more minor upgrades due to their lower cost. As programs mature, the customer base for these kinds of upgrades reduces. Some administrators of LMI programs have responded by expanding eligibility requirements and thresholds to reach a wider audience. Customers, however, are also reported to be calling for more comprehensive, deeper retrofits that are more costly but offer greater financial, energy, and non-energy benefits.

Enabling upgrades and wraparound services

Another key barrier in the delivery of more comprehensive programming for customers was the lack of available funding to conduct repairs or offer in-home services that enable major upgrades. Enabling repairs may include upgrades such as electrical panel upgrades or structural repairs. This is especially pertinent for equity-oriented programming, as lower-income households often occupy older buildings in need of repairs.[31] For many older buildings, structural repairs and health and safety upgrades, such as mold removal, are needed to fully take advantage of, or even qualify for, offers included in DSM programs.

For many administrators, ratepayer funding is not eligible to cover these repairs. Not coordinating enabling upgrades makes much of the worst-performing housing ineligible to participate in DSM programs, excluding participants who may benefit most. Administrators noted the lack of available funding for enabling upgrades as a major barrier to delivering more comprehensive programming and/or engaging hard-to-reach customers.

[29] Save Energy NB, "First Nations Energy Efficiency Program."

[30] Government of New Brunswick, *Our Pathway Towards Decarbonization and Climate Resilience: New Brunswick's Climate Change Action Plan 2022-2027,* 24.

[31] Kantamneni, Gaede & Haley, "Making Net-Zero Retrofits Work for Energy Poor Households."

Administrators also noted insurance restrictions as a non-energy barrier. Some insurance providers would not recognize certain sources of backup heating, including wood stoves and biomass, resulting in challenges when considering the electrification of certain households.

Housing realities in Indigenous communities were additionally raised as a distinct challenge to program implementation. For NRI communities on reserve, the likelihood of living in housing in need of repairs is significantly higher. According to 2021 census data, people in First Nations communities are six times more likely to live in homes in need of major repairs than non-Indigenous people.[32] Additional unique barriers to implementation in Indigenous communities, observed by administrators, include aging housing stock, overcrowding, limited maintenance budgets and complexities in home ownership.

While limited, some programs have begun to incorporate enabling repairs and social services into their programs. The Partners in Indigenous Energy Efficiency & Resilience (PIEER) program is an example of a current program that includes enabling funding for health and safety remediation as a part of program offerings.[33] Some social services may also be required to enable upgrades. For example, Efficiency Manitoba has introduced a decluttering service to the Energy Efficiency Assistance Program to support residents in preparing for home upgrades and installations.

Enabling services also reflect the reported desire from customers for more comprehensive service models to address housing quality, including home energy efficiency. More so, they reflect a best practice approach where energy upgrades and retrofits have minimal disruption and administrative burden for the household.

Some support exists for this kind of enabling work. Primarily, these supports are government-funded initiatives through Indigenous Services Canada or the Canadian Mortgage and Housing

[32] Office of the Auditor General of Canada, “Report 2- Housing in First Nations Communities.” https://www.canada.ca/en/auditor-general/our-work/audit-reports/parl-oag-202403-02-e.html.

[33] BC Hydro, “Programs for Indigenous Governing Bodies.”

Corporation. Select provinces and territories also run programs to fund major housing repairs for income-qualified residents and seniors. Administrators recognized a need for greater coordination between DSM programs and existing housing repair programs to better facilitate upgrades for participants who qualify for both streams.

Renters and custom measures for MURBs

Administrators also noted that expanding programs to reach renters posed ongoing challenges and is an area for future development. Facilitating major upgrades at low-to-no cost can create unique challenges for renters, wherein property owners treat upgrades as grounds for rent hikes, above-guideline increases and renovictions. Renters are uniquely vulnerable to energy poverty and housing vulnerability as they have limited control over the upgrades and heating/cooling systems employed in their homes. Ensuring that the benefits of energy efficiency upgrades reach tenants remains a priority for program administrators. In select cases, provincial renter protections are not well-embedded in legislation, creating high-risk scenarios for utilities to potentially perpetuate harm rather than secure benefits for renters. Administrators also reported challenges in designing affordability covenants that remained attractive to property owners. Strong renter protections, in addition to programs geared to renters and property owners, are needed to ensure that this growing segment of the population is not left behind in the energy transition.

Our program scan found that 16 (36 per cent) of total programs analyzed were available to renters, though often requiring landlord consent. The majority of these programs were direct-install programs with major upgrades, offered in British Columbia, Manitoba, Ontario, and Nova Scotia. Renter-friendly programs were primarily available through income-based programs for LMI households (75 per cent). Upgrades available through these programs include air source heat pumps, ground source heat pumps, attic, wall, and basement insulation, furnace or boiler upgrades, and minor upgrades. Major upgrade programs for renters are primarily available only to those not

living in MURBs. Three programs for NRI communities and households are also available for renters, as is the Free Portable Air Conditioners program.

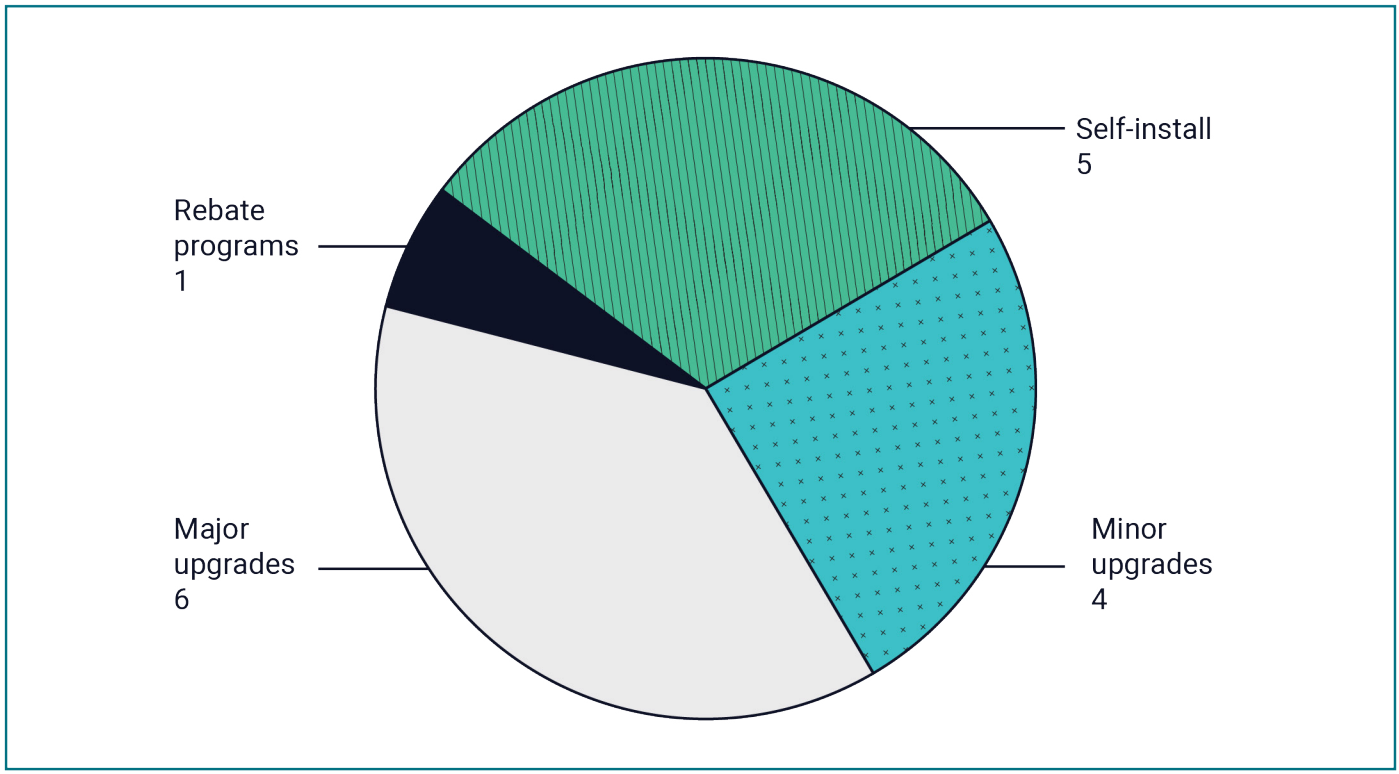

FIGURE 1. Number of renter-friendly programs by program type

Notably, CGHAP funding streams are available to homeowners as well as renters. Some provinces delivering CGHAP are expected to expand programs to include renters where possible.

To further address the needs of tenants through DSM, additional programs have emerged to specifically target providers of social and affordable housing units (seven). Programs for affordable housing providers were identified in British Columbia, Ontario, Quebec and Nova Scotia. For programs offered in British Columbia (four), these programs applied specifically to non-profit/charitable organizations, government social housing, cooperatives, or Indigenous housing providers rather than private building owners. Enbridge, Énergir, and Efficiency Nova Scotia all offered programs for private property owners of rental housing that met specific rental rate criteria. The majority of these programs identified in our scan offered custom

measures for MURBs (five). Potential measures varied by program, ranging from rebates on high-efficiency heating and cooling equipment (e.g., heat recovery ventilators, air source heat pumps, electric water heaters, boilers and control systems) to appliances (e.g., laundry equipment, refrigerators), lighting, and unit envelope upgrades (windows, doors, insulation).

Labour and capacity-building

Labour and contracting standards are also an evident shift in LMI and NRI programming. Sourcing preferred contractors within a community or neighbourhood is a best practice where capacity is utilized and potentially developed within communities to ensure that ongoing maintenance is reasonably accessible to customers, and that employment opportunities and benefits of DSM programs are prioritized. Utilizing local labour and/or allowing the customer to select their own contractor where possible can further build trust and comfort during the customer experience.

Administrators of programs for NRI communities identified labour shortages in rural and remote areas as a key barrier to completing work in these communities, as well as market and contractor readiness to install heat pumps. More so, coordinating qualified tradespersons to travel to more remote communities has proven challenging for multiple administrators. Similarly, administrators reported a low availability of home inspectors, who are required in certain jurisdictions.

A number of capacity-building initiatives were identified in the jurisdictional scan, as both

Capacity-building initiatives refer primarily to initiatives or measures that support the coordination and longevity of upgrades in households and communities through salary funding, job and skills training, and local education and advocacy around energy efficiency.

standalone programs and elements of a suite of program offerings. The majority of these programs were available to NRI communities. Offers ranged from salary funding to support project management to training local community members on heat pump installations, maintenance and repairs. Capacity building offers are available through the Indigenous Community Energy Efficiency Program and Ground Source Heat Pump Training in Manitoba, and PIEER in B.C.

Programs for NRI communities in British Columbia are increasingly evaluated based on their contributions to local workforce development, including local contractor participation, community employment and skills development. Incorporating workforce and long-term capacity-building initiatives in the evaluation of programs contributes to a more holistic and comprehensive view of the potential impact of programs beyond energy savings for the utility. While it can be difficult to capture and quantify community benefits such as workforce development and strengthened internal capacity, a range of associated metrics and qualitative data may be useful indicators.

Administrators emphasized the importance of both the utility and community having internal capacity in order to build strong relationships as well as navigate and communicate competing priorities. To secure this kind of capacity, skills training and long-term, stable funding are often required. Some administrators further suggested alternative models where contractors are paid directly by the utility as a potential consideration to reduce administrative burden on participants. Alternative contracting models are often best used when accompanied by fair and transparent processes that establish clear qualification, pricing, quality assurance, and customer service requirements for customers.

Community-led energy and emissions planning (CEEP) was also recognized as an effective precursor to energy efficiency programming that can assist in capacity building within Indigenous communities. CEEP can help to highlight the kinds of governance and administrative capacity required to reach a community's energy goals, as well as the feasibility work needed to realize these

goals. Programs such as PIEER and the Community Energy Diesel Reduction program have found that CEEP is an enabling strategy to successful participation in their programs.

Demand flexibility

Demand flexibility is an emerging trend among utilities and other energy service providers at large. To date, nearly every province and the Yukon operates some form of flexibility-enabling program or time-varying rate (TVR).[34] As demand rises and grids become increasingly strained, demand flexibility is anticipated to become a highly valuable strategy for managing peak periods/loads. As is consistent with other technology adoption curves, demand-flexibility enabling programs and technologies appear to be primarily oriented toward those with the upfront capital to pay for them. This is reflective of a standard utility system focus rather than one that recognizes the heterogeneous needs of customers.

To better understand the capacity and availability of demand-flexibility initiatives for affordable housing providers, LMI and NRI households and communities, we conducted a jurisdictional scan of demand response programs and TVR structures available in Canada. Programs were available in nearly every province and the Yukon, with 13 programs identified. Fourteen TVR options were also identified in British Columbia, Prince Edward Island, Nova Scotia, Alberta, Ontario, and Quebec. No programs or TVRs were identified for residential customers of Saskatchewan, Manitoba or New Brunswick.

Of the demand response programs identified, we found few initiatives (three) explicitly address or target underserved groups. Initiatives that did explicitly address these communities ranged in offers from enhanced rebates/incentives for enabling

[34] Gaede, Nippard and Turner, The 2025 Energy Efficiency Programs Report.

technologies to community-scale distributed energy resourceDER) programs. Programs were operated in B.C., P.E.I., and the Yukon. These programs were:

- BC Hydro Rebates for solar panels and battery storage
- efficiencyPEI and City of Summerside Heat for Less! Rebates
- Government of Yukon and Yukon Energy Peak Smart Home Rebate

We identified other programs, such as Hydro-Québec's HILO and Énergir's *Supplément ménages à faible revenu*, as supporting programs given their free-of-cost offerings (e.g., smart thermostats) or direct linkages to demand-side flexibility-centred programs.

What was far more common in our findings was the delivery of equity-oriented energy efficiency programs that assist in building household and community flexibility capital through including enabling technology in their suite of offers. Out of the 44 equity-oriented DSM programs identified in our scan, 13 advertised offers with demand response enabling technology. This count does not include heat pumps, water heaters, furnaces, or boilers. While all energy efficiency retrofits may be considered an "enabling" activity that inevitably supports the integration and/or maximization of demand-side flexibility (e.g., wall insulation upgrades, window and door replacements), we have limited enabling technologies to the following devices that were identified in program offers:

- Smart control panels / smart thermostats
- Smart power bars
- Block timers

TABLE 7. Demand flexibility-enabling technology included in energy efficiency program offerings for LMI households and affordable housing providers, by province

Province	Smart controls	Smart power bars	Block timer
BC	● ○	-	-
SK	●	-	●
MB	● ○	-	-
ON	● ○	●	●
QC	● ○		-
NB	● ○	●	-
NS	-	-	-
NL	-	-	-
PE	●	●	

● Residential
○ Affordable housing

TABLE 8. Demand flexibility-enabling technology included in energy efficiency program offerings for NRI participants, by province

Province	Smart controls	Smart power bars	Block timer
BC	● ○	-	-
SK	-	-	-
MB	●	-	-
ON	●	●	-
QC	-	-	
NB	●	-	-
NS	-	-	-
NL	●	-	-
PE	-	-	-

● Residential
○ Community building

Administrators of programs for NRI households and communities noted specifically that distributed energy resources such as solar installations and battery storage systems were of particular interest given the opportunity for said technologies to increase local

autonomy over energy resources, increase reliability, and contribute to energy sovereignty within communities. These technologies are often not limited to securing DSM outcomes. DERs like solar installations and battery storage may also contribute to broader energy objectives within NRI communities (e.g., community-owned generation, reduce dependence on diesel fuels) that support non-energy benefits and outcomes like improved resilience, health and wellbeing, and advance energy sovereignty. Some potential complications of implementing the technologies noted arose from mixed ownership structures of equipment between governing bodies and individual households. While few programs analyzed offered DERs to participants, this was noted as an area of future research and development for administrators.

Like flexibility-enabling technologies and DERs, TVR programs are emergent in Canada. Active TVR structures exist only in British Columbia, Ontario, Nova Scotia and Quebec, while provinces such as Prince Edward Island have discounted flat rate offers as exemplified by the Heat for Less program. ATCO Alberta ran a time-of-use rate pilot, the results of which have yet to be released. Nova Scotia also has two pilot rates, one for critical peak pricing, or dynamic pricing, and one for general time of use.

TABLE 9. Residential time-varying rate programs and/or pilots available, by province (adapted from the 2025 Programs Report)[35]

Province	Time of use	Dynamic pricing
AB*	○	-
BC	●	-
MB	-	-
NB	-	-
NL	-	-
NS	● ○	○
ON	●	-
PE	-	-
QC	-	●
SK	-	

● Rate program
○ Pilot
* ATCO Alberta offers time-of-use rate in a limited capacity to some customers as part of an ongoing study

None of these rates were directly tailored to underserved consumers, but instead offer cost savings or benefits to all eligible consumers. Time-of-use, time-of-day (TOD) and dynamic pricing rates were the three alternative rate structure types identified in this scan. Certain rates were identified explicitly or implicitly as equipment-based rates. Nova Scotia Power's TOD rate is explicitly for homes with electric thermal heating storage systems, while BC Hydro's TOD and the Ontario Energy Board's Ultra-low overnight rate are both more directed to households with electric vehicles. BC Hydro's TOD rate was the only rate structure that advertised that the TVR may not be suitable for residents in MURBs.

[35] Adapted from Gaede, Nippard and Turner,"The 2025 Energy Efficiency Programs Report."

Key findings

1. There remains considerable variation across provinces in terms of program offerings, depth, and funding levels.
2. The number of programs offering comprehensive/major upgrades has grown, driven in part by federal initiatives.
3. Government funding (federal and provincial) is essential to the broader world of equity-oriented DSM programs.
4. There is a lack of available funding to support enabling repairs and social services needed for eligible households to participate in DSM programs.
5. Administrators are not yet designing or delivering demand flexibility programs specifically for equity purposes (with some exceptions), though some do offer flexibility capital-building/enabling measures, such as smart thermostats, through existing programs.

Discussion

While significant progress has been made in securing major upgrades through equity-oriented energy efficiency programs and efforts to increase participation, similar gaps still persist as those identified by Kantamneni and Haley in 2022: invest in deeper retrofits; target populations most in need; fund enabling upgrades; and fuel-switch to zero-carbon fuels.

Deep retrofits and fuel switching both remain central to decarbonization in Canada to ensure that not only is nobody left behind in this transition, but that everybody benefits. Wraparound support and enabling upgrades are required to reach the most vulnerable households. The addition of major federal funding opportunities (e.g., OHPA, Low Carbon Economy Leadership Fund, Future Electricity Fund) has greatly supported DSM administrators' ability to make progress on closing these gaps. New funding opportunities such as CGHAP are additionally promising for their ability to provide existing programs with more flexible funding to mitigate barriers to programming that increase affordability, resilience, comfort, health, and safety for LMI and Indigenous participants. Administrators have also been employing innovative strategies internally to overcome barriers to participation and depth of service delivery. Notable strategies employed include:

Forming partnerships and relationships with community-based organizations to facilitate engagement and program delivery

- *Example: Efficiency Manitoba has partnerships with local neighbourhood renewal corporations to pre-qualify entire neighbourhoods for the Energy Efficiency Assistance Program, reducing administrative barriers for participants.*

Delivering programming through trusted Indigenous partner organizations and intermediaries

- *Example: The Community Energy Diesel Reduction program in B.C. is delivered by New Relationship Trust, an Indigenous-led not-for-profit that provides funding for clean energy initiatives, including DSM, in remote communities.*

Internal recognition of best practices that centre unique participant needs and build community capacity

- *Example: BC Hydro's PIEER program now offers project management funding to support internal capacity to navigate and facilitate deep retrofits in-community.*

Adapting cost-effectiveness testing and funding agreements to provide more adequate, stable funding to equity-oriented programs

- *Example: The IESO removed both the Energy Affordability Program and On-Reserve First Nations Energy Efficiency Program from the portfolio of Conservation and Demand Management programs for cost-effectiveness testing.*

Braiding external funding sources (e.g., federal programs) to enable deeper upgrades

- *Example: Efficiency Nova Scotia has combined federal (OHPA, CGHAP), provincial and ratepayer funding streams to offer its suite of equity-oriented programs and facilitate fuel switching for oil-heated homes.*

While these strategies are promising — and effective, as demonstrated by the boom in regional availability of major upgrade programs and the provision of heat pumps — administrators note that barriers to conducting comprehensive retrofits persist. These include upgrades to building envelopes, enabling structural repairs, and health and safety remediation. While programs across the country range in levels of maturity, they share commonalities when it comes to barriers to development, particularly in the face of conducting deeper energy retrofits and enabling repairs.

Without accompanying upgrades, initiatives such as heat pump installation may not render the same level of benefits (e.g., cost savings, access to cooling, improved indoor air quality) as otherwise possible. These programs also risk missing an opportunity to further prepare households for effective participation in demand flexibility and fuel-switching initiatives by maximizing the overall efficiency of the home. Lastly, without the ability to conduct enabling upgrades, programs may continue to exclude households that are ineligible due to poor housing conditions.

Canada Greener Homes Affordability Program

Underlying many of the barriers to program development is a call for flexible and consistent funding. Government initiatives appear effective in assigning non-energy mandates to funding for equity-oriented programs, but to date, have followed a stop-start pattern that disrupts progress, creating uncertainty for administrators, contractors, and participants. CGHAP is promising in that it seeks to reduce participant costs and greenhouse gas emissions while enhancing the health, safety and resilience of participating households. Furthermore, the funding is intended to support the accessibility of equity-oriented energy efficiency programs for a wide audience of low-income households. By providing flexible funding to existing programs, CGHAP may support in surmounting some of the existing barriers to programming and development articulated by administrators in our findings.

Enabling upgrades

“Ancillary,” or enabling, upgrades are eligible under CGHAP, including health and safety remediation and electrical panel upgrades. This is a beneficial addition as it supports customers in poorer quality housing. Without said upgrades, we risk perpetuating cycles of injustice evident in past programming, where customers who may benefit most from energy efficiency upgrades are excluded. By providing increased funds to conduct enabling repairs, CGHAP

would support the development of more comprehensive service models, reducing administrative burden for customers and potentially increasing participation among harder-to-reach customers.

However, the scope and level of funding are unlikely to be sufficient in addressing the extent of upgrades and repairs needed for a portion of otherwise eligible households. To ensure these households do not continue to fall through the cracks, CGHAP should be situated within a greater mix of policy and programs to address housing challenges beyond energy efficiency, including structural upgrades and health and safety.

Recommendation: The federal government should situate CGHAP within a larger suite of policies and programs to support the development of more comprehensive service models.

Renters

This funding stream is intended to support both homeowners and renters in accessing major upgrades and deep energy retrofits. To date, none of the announced programs appear to have expanded their eligibility to include renters as a result of CGHAP. However, some programs receiving funds through this stream, including Efficiency Manitoba's Energy Efficiency Assistance Program and BC Hydro's Energy Conservation Assistance Program, were already inclusive of renters. Efficiency Nova Scotia's HomeWarming has remained exclusive to low-income homeowners.

Some concerns persist with the inclusion of CGHAP, including how utilities will ensure that tenants are protected from renovictions and above-guideline increases. More so, while participants may benefit from increased comfort and lower energy costs as tenants, property owners, including landlords, benefit long term from increased property value as a result of these upgrades. In addition to anti-renoviction clauses, utilities can support advocacy efforts for

stronger renter protections at the municipal and provincial level, such as anti-renoviction bylaws and closing legislative loopholes to above-guideline increases.

Recommendation: Utilities should support the development of strong renter protections at municipal and provincial levels.

Labour and capacity

A primary takeaway from conversations surrounding gaps in labour was the necessity for long-term planning. Given the intensive administrative resources that may go into programming for isolated, remote and rural communities, having resources available for longer-term planning is advantageous, especially when delays in available labour and/or equipment may be a potential barrier. By recapitalizing CGHAP and ensuring its availability at a longer timescale, administrators of NRI programs may have increased confidence and ability to plan for deeper in-community retrofits.

A reported barrier among administrators, particularly of NRI programs, was reduced administrative capacity on the part of the participant. Both households and communities, particularly those under financial strain, may be regularly juggling competing priorities that can cause delays in applications, coordinating upgrades, and reporting. Programs such as the Energy Conservation Assistance Program have included salary funding as part of program offers to support the ongoing participation of Indigenous communities in energy efficiency programming. Efficiency Manitoba additionally offers administrative support through its programs for First Nations by offering funding for a local Energy Efficiency Advocate, dedicated support for administrative functions, and flexibility in labour solutions, including coordinating delivery schedules.

CGHAP funding is allowed to be transferred to partnering organizations and service providers for purposes such as project management and advocacy. However, it is unclear to what extent skills training (e.g., heat pump repair and servicing) is included in capacity-building initiatives under this fund. Possible areas of expansion under, or in support of, CGHAP could include funding for local training pathways and partnerships. This funding should be

available over a reasonable period of time to allow communities the opportunity to develop qualified capacity.

Recommendation: The federal government should look beyond recapitalization of CGHAP as a minimum step and toward securing it, and the relationships built with program administrators and implementors, through predictable, multi-year program frameworks. Doing so will help to reinforce certainty and reduce boom-and-bust cycles in equity-focused DSM programming.

Recommendation: Governments and program administrators should also incorporate long-term workforce and market-capacity planning into equity-oriented DSM programs, including support for local skills development, appropriate trade qualifications, installation quality, commissioning, maintenance and ongoing service capacity. This could be reinforced through CGHAP design and requirements.

The role of community energy and emissions planning has been demonstrated to be an effective enabling strategy of participation in DSM by helping to build technical and administrative capacity. More so, CEEP is a valuable tool in advancing a community's greater energy objectives and planning for non-energy benefits such as improved resilience and healthier, safer homes. DSM administrators can be valuable partners in the CEEP process by acting as technical advisors, program and incentive navigators, and providing data.

Recommendation: Administrators should budget for contributions to CEEP as a part of enabling strategies, particularly for DSM programs for NRI communities, if existing contribution agreements or programs are not already offered.

A national strategy to end energy poverty

While CGHAP is still in the early stages of implementation, it does not fully address the need for more stable and long-term funding that administrators are calling for; the program is only designed to run over a five-year period with little assurance of recapitalization. This program is further vulnerable to interim budget cuts and shifting policy objectives.

To build on existing momentum, the federal government could increase the funding of CGHAP and cement the program in a national strategy to end energy poverty. This strategy should be complementary to Canada's existing calls to retrofit a million homes (Powering Canada Strong) and significantly improve the quality of housing in Indigenous communities through the Indigenous Housing Strategy that is currently under development.[36]

By joining CGHAP to a national strategy, the program would ideally be guided by specific goals to reduce instances of energy poverty, interim targets, a range of evaluation metrics and accountability mechanisms that would clearly point to the needed continuation of government investment in equity-oriented programming, thus forming a basis for recapitalization.

Recommendation: Establish a national strategy to end energy poverty that includes a focus on improving housing quality and energy efficiency as a pathway to achieving strategy goals. The strategy should support programming that multi-solves for the heterogeneous needs and priorities of customers.

Cost-effectiveness testing and mandate

Without external funding sources, the mandate to pursue deeper energy savings and co-benefits through energy retrofits is weakened for DSM administrators. While some administrators acknowledged that utilities and DSM providers are well-positioned to enact these upgrades, there is little mandate or budget to do so without the work being tied to external funds and objectives. Current cost-effectiveness testing practices in Canada do not effectively capture the full range of societal, health and resilience benefits accrued through more major upgrades and deep retrofits. The majority of programs have adopted either portfolio-level assessments, which allow traditional residential DSM programs to offset the higher costs

[36] Natural Resources Canada, "Powering Canada Strong: A National Strategy for an Electrified Canadian Economy;" Crown-Indigenous Relations and Northern Affairs Canada, "Indigenous Housing Strategy."

associated with equity-oriented programs, or offer some form of exemption from program-level testing. These strategies are useful in ensuring that equity-oriented programs pass cost-effectiveness testing but do not necessarily incentivize increasing the budgets of these programs, thereby limiting the potential depth of retrofit offered.

It may be beneficial to allow the CGHAP administrator to count full savings and co-benefits from the federal funding as program benefits in cost-effectiveness testing, without including funds as program costs. This may encourage DSM administrators to continue growing investment in equity-oriented programs. While attribution agreements may have already been finalized for many jurisdictions, considerations for future attribution agreements may be valuable in case of recapitalization.

Recommendation: Enable administrators to attribute full energy savings and co-benefits of federal funding in cost-effectiveness testing without including funds as program costs.

Emerging trends and flexibility justice

Equity and DSM present an emerging opportunity to improve equity outcomes in the energy transition by further reducing costs for underserved households, increasing autonomy, and contributing to lower emissions through the integration of renewable energy.

Demand-side flexibility is not without risks. Current programs available in Canada utilize both manual (behavioural) load shifting, as well as automatic practices through the use of connected/smart control systems. Participation in these programs is influenced by a household's flexibility capital, as outlined in the introduction, and/or access to smart technologies, which require high manual labour/behavioural shifts and/or upfront capital investments in connected technologies. These can pose unique barriers for lower-income households or other underserved households that may face lower flexibility capital.

At present, rate programs specifically appear to be designed for a general audience and favour early adopters of smart technologies and/or have the flexibility capital to engage in manual load-shifting behaviours. As an example, overnight time-of-day rates tend to favour electric vehicle owners. More so, residents of MURBs may face additional barriers given their limited control over home energy systems. This precludes a large percentage of renters who are already vulnerable to energy poverty and may otherwise benefit from demand flexibility measures to reduce overall household energy costs.

Without specific attention to these barriers, administrators may run the risk of developing programs that are exclusive of participants who may benefit most from the measures offered. For example, overnight time-of-use rates tend to favour households with smart appliances that can time their energy use (e.g., dishwashers, washing machines) and/or own electric vehicles, both of which may have higher upfront cost barriers.

Current equity-oriented programs are addressing this technology gap through the provision of smart thermostats and panel controls alongside connected technologies such as heat pumps and electric water heaters. Administrators caution, however, that without further deep retrofits such as building envelope upgrades, load-shifting activities are unlikely to deliver their full potential.

While deep retrofits and major upgrades continue to remain a key area of development for administrators, it is necessary to pay attention to the integration of flexibility-enabling technologies, distributed energy resources, and TVR that are emerging as major trends and are likely to be an increasing area of focus in the coming years.

To enable more accessible participation in demand response initiatives, a number of initial recommendations can be made based on the literature and conversations with administrators:

Recommendations

- **Monitor and collect data on potential impacts of time-varying rates** and demand-flexibility focused programs based on income level, primary heating source, and building type. Potential metrics include rate of adoption, level of satisfaction, total load reduction and total bill savings.[37]
- **Create low-stakes rate programs.** Ensure that time-variable rate programs have clear and easy processes to opt in and out of, including accepting multiple methods of opting out (e.g., physical letter, email, phone call).[38]
- **Develop rewards-based demand response programs:** Punitive programming creates higher risks for households with lower flexibility capital. Rewards-based programming that incentivizes load shifting without penalizing consumption is likely to be less risky for lower-income customers.
- **Provide accessible and clear information to customers on rate options and use of flexibility-enabling technologies.**
- **Explore and invest in community-level programs and distributed energy resources.** While this report primarily focuses on residential DSM programs, including demand response programs, it should be acknowledged that there is potential to enhance equity outcomes, particularly of demand flexibility, through community-level initiatives. Initiatives such as solar arrays, residential solar panels, and small-scale battery storage may contribute to local generating capacity and storage with dispatching capabilities to improve local resilience and increase flexibility. Examples of such initiatives

[37] Nova Scotia Power, "Time-Varying Pricing Pilot Program - Year Four (2024/25) Evaluation Report Appendix E Attachment 4."

[38] Low-Income Energy Network, "Implementing the Process for Enabling Customers to Opt Out of Time-of-Use Pricing."

include New York's Statewide Solar for All program, BC Hydro Solar & Battery rebates, New Relationship Trust's Community Energy Diesel Reduction program, and Nova Scotia's Community Solar Program.[39]

Demand flexibility in future DSM portfolios

As demand flexibility continues to emerge as a DSM portfolio, greater attention to the equity implications and opportunities created by these initiatives is needed. At minimum, attention should be paid to how demand flexibility as a portfolio is inclusive of equity-seeking groups, equitable program design within a demand flexibility portfolio, and the relationship between demand flexibility initiatives and existing equity-oriented programs. Some considerations include:

- How much of demand flexibility portfolios are spent on equity-deserving groups? What are the energy savings associated with this level of investment?
- What safeguards exist within program design to ensure equitable distribution of benefits? An example is limiting the extent to which a household needs to adjust indoor temperature to secure benefits to prevent incentivizing unsafe temperatures.
- What kinds of technologies are being incentivized, and who is most likely to benefit from them? Enabling technologies that impact indoor heating (e.g., smart thermostats, hot water heaters) are more universally accessible/applicable than more niche technologies that may have a higher upfront cost (e.g., electric vehicles, home energy storage systems).
- What are the potential rate implications of unequal or inequitably distributed flexibility capital? Are underserved households at risk of taking on a greater share of grid costs?

[39] New York State, "Statewide Solar for All"; BC Hydro, "Rebates for solar panels and battery storage"; New Relationship Trust, "Community Energy Diesel Reduction (CEDR)"; Government of Nova Scotia, "Community Solar Program."

- What education and training is available to households on demand flexibility and through what channels? Information disseminated solely through demand flexible programs may have a more limited reach than if rate and program options were also included in information disseminated through other DSM programs, including equity-oriented programs. This may also serve as an opportunity for administrators to advise on the potential impact/suitability of different demand-flexibility initiatives for underserved households.
- What is the role of government programs (e.g., CGHAP) in preparing households and communities for participation in demand flexibility initiatives and/or increasing participation in existing demand flexibility initiatives?

Summary of recommendations

- **Utilities should participate in government advocacy for strong renter protections** at municipal and provincial levels.
- The federal government should **recapitalize and secure CGHAP — and the relationships built with program administrators and implementors — through predictable, multi-year program frameworks.** Doing so will help to reinforce certainty and reduce boom-and-bust cycles in equity-focused DSM programming.
- Governments and program administrators should **incorporate long-term workforce and market-capacity planning into equity-oriented DSM programs,** including support for local skills development, appropriate trade qualifications, installation quality, commissioning, maintenance and ongoing service capacity.
- Administrators should **budget for contributions to CEEP as a part of enabling strategies,** particularly for DSM programs for NRI communities, if existing contribution agreements or programs are not already offered.

- **Establish a national strategy to end energy poverty** that includes a focus on improving housing quality and energy efficiency as a pathway to achieving strategy goals. The strategy should support programming that multi-solves for the heterogeneous needs and priorities of customers.
- **Enable administrators to attribute full energy savings and co-benefits of federal funding in cost-effectiveness testing** without including funds as program costs.
- **Monitor and collect data on potential impacts of time-varying rates** and demand-flexibility focused programs based on income level, primary heating source, and building type. Potential metrics include rate of adoption, level of satisfaction, total load reduction, and total bill savings.
- **Create low-stakes rate programs.** Ensure that time variable rate programs have clear and easy processes to opt in and out of, including accepting multiple methods of opting out (e.g., physical letter, email, phone call).
- **Develop rewards-based demand response programs:** Punitive programming creates higher risks for households with lower flexibility capital. Rewards-based programming that incentivizes load shifting without penalizing consumption is likely to be less risky for lower-income customers.
- **Provide accessible and clear information to customers on rate options and use of flexibility-enabling technologies.**
- **Explore and invest in community-level programs and distributed energy resources.**

Conclusion

Equity-oriented energy efficiency programs are actively being challenged to deliver energy savings while providing more comprehensive programming that meets the unique needs of their customer bases. This is further complicated by pressures to develop a decarbonized and more flexible energy system.

Through conversations with DSM administrators, paired with an updated jurisdictional scan of available equity-oriented programming, this report finds that program offers are deepening through the provision of major upgrades such as heat pumps and are aided by external investment from provincial, territorial, and federal governments. However, a number of barriers still exist for DSM programs to deliver on increased energy savings as well as other policy, community and household priorities.

Our research identifies a number of potential actions that may assist in surmounting these barriers and securing greater energy and non-energy benefits for underserved households. These require involvement from administrators, utilities and various levels of government. Potential recommendations for program administrators include integrating CEEP into offers, partnering with community-led organizations, and advocating for increased renter protections. To address regulatory hurdles, utility regulators could look to count the full benefits of braided funding streams in cost-effectiveness testing.

A larger and more consistent call is for flexible funding to support a wider range of enabling strategies, local labor and capacity solutions, and deeper program offers. We found this could be addressed in part by the recapitalization of federal programs like CGHAP that are delivered through predictable, multi-year program frameworks. These programs should be guided by a national strategy to end

energy poverty that ties together the goals of energy efficiency with improved housing quality, health and safety remediation, and energy sovereignty.

The emerging pressures of creating a more flexible, decarbonized grid have important implications for equity-oriented programs. This includes the potential to secure greater non-energy benefits for households, such as more affordable energy costs. Without the equitable introduction of demand flexibility to energy systems, utilities run the risk of perpetuating and exacerbating existing harms. Administrators of equity-oriented programs suggest that efforts to secure deeper, more comprehensive retrofits for underserved communities are an effective precursor to flexibility-enabling programs and technologies. Additional highlights and considerations explored in this report include data collection and monitoring of TVR, creating lower-stakes, rewards-based demand response programs, and investment in community-level programs and DERs in addition to household-level initiatives.

Overall, this work offers a perspective that is primarily informed by the experiences of equity-oriented program administrators and the primary researchers. Therefore, this research is best considered within a larger, complementary body of work that also centres the unique perspectives of program implementors, contractors, and most importantly, the lived experiences of the households and communities impacted by equity-oriented programs.

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