Beyond the Meter

Harnessing demand-side management to power Alberta's energy future

October 2025

Kari Hyde, Ceileigh McAllister, Emma Caramazza

PEMBINA Institute

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The Pembina Institute recognizes that the work we steward and those we serve span the lands of many Indigenous Peoples. We respectfully acknowledge that our organization is headquartered in the traditional territories of Treaty 7, comprising the Blackfoot Confederacy (Siksika, Piikani and Kainai Nations); the Stoney Nakoda Nations (Goodstoney, Chiniki and Bearspaw First Nations); and the Tsuut'ina Nation. These lands are also home to the Otipemisiwak Métis Government (Districts 5 and 6).

These acknowledgements are part of the start of a journey of several generations. We share them in the spirit of truth, justice and reconciliation, and to contribute to a more equitable and inclusive future for all.

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Executive summary

Demand-side management (DSM) is a proven tool for reducing energy costs, improving efficiency and lowering peak demand, and creating high quality jobs that strengthen local economies. DSM is utility-led, meaning utilities use regulated ratepayer-funded investments for incentives, rebates and retrofit programs that support customer actions that lower costs for the utility. This approach helps lower upfront costs and reduce financial risk for building owners and creates ongoing savings for utilities and all customers. Despite the widespread success of DSM programs across Canada — backed by major investments including $10.9 billion in Ontario and $10 billion in Quebec —Alberta is the only province without utility-led DSM. This gap leaves households and businesses without access to the cost savings and market stability delivered elsewhere.

Retrofit-aligned DSM programs provide Alberta with a practical entry point. By enabling building upgrades today, and creating pathways for deeper retrofits tomorrow, utilities can help customers manage costs and ease pressure on the grid.

Stable, year-over-year investment gives contractors, building owners and retrofit service providers the confidence to hire, train and retain skilled workers for steady demand - predictability that the sector has long lacked in Alberta. DSM programs that are integrated into the utility service create a steady pipeline of projects. This reduces the boom-bust cycles that currently challenge construction and trades industries, giving businesses the confidence to scale services, invest in new technologies and build long-term client relationships. DSM programs would transform retrofits from sporadic projects into a reliable market that supports long-term local economic and workforce development.

For utility customers, DSM delivers lower costs, more choice, system reliability, local jobs and economic development. DSM programs can reduce energy expenses for homes, businesses and community facilities. Incentives and rebates help Albertans invest in efficient, comfortable and modern buildings. DSM optimizes existing utility assets and reduces the need for costly new infrastructure and generation, improving system reliability. Stable DSM funding creates steady demand for Alberta's contractors, trades, and manufacturers strengthening Alberta's economy and keep the province competitive with other regions.

Importantly, Alberta's unique deregulated electricity market is not a barrier to DSM investment — DSM programs operate successfully in both regulated and deregulated markets. In fact, deregulated markets can achieve more than double the energy savings from DSM compared to regulated ones.

This report illustrates successful retrofit-aligned programs from jurisdictions across North America that Alberta can learn from and incorporate into its market construct.

To ensure the benefits of DSM are realized by customers, the grid, and the retrofit industry in Alberta, we make the following recommendations:

- Establish a clear policy direction to recognize DSM as a resource
- Set a regulatory framework that rewards utilities for investment beyond infrastructure
- Create an efficient and accountable DSM delivery model
- Prioritize retrofit-aligned DSM programs

This report shows that DSM is not just an energy program — it is an investment in Alberta's competitiveness. By adopting DSM, Alberta can align with affordability requirements, ensure households and businesses benefit from lower costs and stronger resilience, and build the workforce capacity needed to support a modern, affordable energy system.

1. Introduction

Across North America, utilities are committing major resources to demand-side management (DSM). In 2023, approximately $1.59 billion was invested in energy efficiency programs (excluding demand response) nationwide.[1] Ontario has recently launched a $10.9 billion, 12-year DSM framework – a major investment in efficiency, demand response and distributed energy resources.[2] Similarly, Hydro-Québec has unveiled a $10 billion, 10-year energy efficiency plan.[3] These sustained investments are cutting energy waste, extending the life of grid infrastructure, reducing utility infrastructure costs and supporting thousands of skilled jobs. They illustrate how DSM has become a mainstream investment strategy for affordability, resilience, and economic development.

This report examines how DSM, when aligned with building retrofit needs, could unlock affordable and reliable energy for Albertans while fostering long-term growth in retrofit markets. Retrofit-aligned DSM programs not only deliver immediate efficiency gains but also act as a first step toward deeper building upgrades over time. We draw on lessons from Ontario, Nova Scotia and New York to highlight best practices and the tangible economic and energy system benefits of DSM programs. We also outline potential pathways for introducing retrofit-aligned DSM in Alberta that can complement existing municipal and federal initiatives, and support the retrofit industry.

1.1. What is demand-side management?

Demand-side management describes programs and actions that are used to control or decrease energy consumption; these bring benefits across the electricity system, including reducing peak demand, promoting cost savings, and enhancing system resilience.[4] Energy efficiency and demand response have long been the cornerstones of DSM. The rapid growth of smart devices,

[1] Efficiency Canada, *2024 Canadian Energy Efficiency Scorecard*, Appendix E, Table 78. https://scorecard.efficiencycanada.org/

[2] Independent Electricity System Operator (IESO), "2025–2036 Electricity Demand-Side Management Framework," https://www.ieso.ca/Sector-Participants/Energy-Efficiency/2025-2036-Electricity-Demand-Side-Management-Framework

[3] Hydro-Québec, *Action Plan 2035: Towards a Decarbonized and Prosperous Québec* (2035.) https://www.hydroquebec.com/about/publications-reports/action-plan-2035.html

Hydro-Québec, *Working Together to Use Energy Wisely*. https://www.hydroquebec.com/data/mieux-consommer/pdf/summary-energy-efficiency-pathway.pdf

[4] Peter Warren, "A review of demand side management policy in the UK," *Renewable and Sustainable Energy Reviews* 29 (2014). https://doi.org/10.1016/j.rser.2013.09.009

distributed generation, storage and electric vehicles is expanding DSM into new territory. (Figure 1):[5]

- **Energy efficiency:** Delivering the same service using less energy, for example, insulating a building to require less energy to reach and maintain a set temperature or installing high-efficient heating, ventilation, and air conditioning (HVAC) equipment.
- **Demand response**: Reducing or shifting energy consumption when the grid is experiencing high electricity demand, for example, Ontario's Save on Energy Peak Perks allows the utility, during periods of high cooling demand, to adjust the smart thermostat of customers who have opted into the program.[6]
- **Behind the meter distributed energy resources**: Integrating local energy generation or storage into the utility systems, for example, technologies such as rooftop solar, battery storage and electric vehicles and chargers can be connected to the grid, allowing energy to flow in both directions, between these small-scale technologies and the grid, as it is generated and stored.[7]

EXPANDED DSM

TRADITIONAL DSM

	Energy efficiency	Demand response	Distributed energy resources management
Description	Deliver the same service using less energy	Voluntary reduce consumption during tight supply periods	Integrate behind-the-meter local energy generation / storage into the utility system
Enabling technologies	Lighting HVAC Building envelope Energy efficient appliances	Local control switches Load management receivers Smart thermostats Smart meters	Distributed generation Energy storage Electric vehicles and chargers

Figure 1. Components of demand-side management areas

Adapted from: Guidehouse Canada Ltd.[8]

Managing demand is faster and more cost-effective than building new electricity supply, or building or upgrading traditional transmission and distribution infrastructure. Many

[5] Mutiu Shola Bakare, Abubakar Abdulkarim, Mohammad Zeeshan and Aliyu Nuhu Shuaibu, "A comprehensive overview on demand side energy management towards smart grids: challenges, solutions, and future direction," *Energy Informatics* 6, no. 4 (2023). https://energyinformatics.springeropen.com/articles/10.1186/s42162-023-00262-7

[6] Save on Energy, "Peak Perks." https://saveonenergy.ca/en/For-Your-Home/Peak-Perks

[7] International Energy Agency, *Unlocking the Potential of Distributed Energy Resources* (2022). https://www.iea.org/reports/unlocking-the-potential-of-distributed-energy-resources/executive-summary

[8] Guidehouse Canada Ltd., *Demand Side Management Opportunities for Alberta* (Alberta Energy Efficiency Alliance, 2022), 4. https://www.aeea.ca/wp-content/uploads/2025/03/DSM-Cost-Benefit-Report-for-Alberta.pdf

jurisdictions around the world use DSM programs to save money and maintain reliable energy access.[9] In North America, every $1 invested in DSM programs has returned up to $4 in savings to the utility system.[10] Research shows that in Canada, every $1 spent on energy efficiency could generate about $7 in GDP growth.[11] These savings include avoided energy costs for participants, reduced system costs for all ratepayers, and the economic activity generated when participants hire contractors, purchase equipment and invest in local services. By lowering both energy bills for participating customers and system costs for utilities (so all customers benefit), DSM delivers returns that extend well beyond the initial program investment.

Alberta is one of the few jurisdictions in North America without utility-led investment in DSM, meaning households, businesses and utilities are missing out on a proven, low-risk tool for strengthening Alberta's energy system and improving energy affordability.[12] As a deregulated electricity market, Alberta is well-positioned to implement DSM initiatives; on average, deregulated markets achieve more than double the electricity savings of regulated markets through the introduction of DSM programs.[13]

1.2. DSM in the context of retrofits

Utilities deliver retrofit-aligned DSM programs by providing incentives and rebates that lower costs for the building owner investing in the retrofit. By reducing these financial barriers, utilities help make retrofits more affordable and less risky to pursue. These programs typically target early-stage building upgrades that reduce energy use, while also making deeper retrofits more accessible over time. The incentives may include rebates on capital costs and or services such as building audits, engineering design and training.

These upgrades can range from quick, low-cost improvements like LED lighting and air sealing to more comprehensive measures such as heating system replacements or envelope upgrades. When designed for deeper retrofits over time, these programs reduce upfront costs, shorten payback periods and help building owners move from one-off upgrades to coordinated, bundled

[9] Brendan Haley, James Gaede, and Alyssa Nippard, *Breaking Fuel Silos in Demand Side Management* (Efficiency Canada, 2024). https://www.efficiencycanada.org/fuel-report/

[10] Maggie Molina, *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Program* (ACEEE, 2014), 24. https://www.aceee.org/research-report/u1402

[11] Clean Energy Canada & Efficiency Canada, *Less is More* (2018), 4. https://cleanenergycanada.org/report/less-is-more/

[12]Alyssa Nippard et al., *Energy efficiency in Alberta* (Efficiency Canada, 2024). https://scorecard.efficiencycanada.org/energy-efficiency-alberta/

[13] American Council for an Energy-Efficient Economy (ACEEE), *Frontiers of Energy Efficiency: Next Generation Programs Reach for High Energy Savings* (2013). https://www.aeea.ca/wp-content/uploads/2025/03/DSM-Cost-Benefit-Report-for-Alberta.pdf

improvements. For example, combining insulation, mechanical systems upgrades and controls can deliver greater energy savings and lower operating costs than isolated measures.

Retrofit-aligned DSM programs deliver benefits beyond energy savings. They improve affordability by lowering utility bills for households and businesses. By improving indoor environments, they support health, safety and climate resilience.

Improving energy use in buildings allows utilities to deploy those energy savings across the utility system (electricity generation, transmission and distribution). This delivers operating efficiency for the utility and can also contribute to reductions in greenhouse gas emissions and other pollutants.

And importantly, when implemented at scale, these programs deliver broader economic impacts. They provide year-round work for contractors, create new opportunities for manufacturers and technology providers, and generate local economic activity through the purchase of materials and services. This steady flow of projects gives businesses the confidence to invest in training, equipment and workforce expansion.

The full benefits of DSM programs to participating utility customers, the utility system and all ratepayers, and the province are outlined in Table 1.

Table 1. Triple-bottom-line benefits of DSM programs

Benefits to participant	Benefits to electricity system and ratepayers	Benefits to society
Utility bill savings Improved indoor air quality Improved building energy performance Greater control over energy costs Enhanced comfort, health and safety Increased property value Reduced maintenance costs Long-term changes in awareness, attitudes, knowledge and behaviours toward energy usage	Avoided electricity generation capacity costs Avoided transmission and distribution costs and losses Avoided electricity wholesale costs Increased system capacity Increased system resiliency Reduced system risk Deferred infrastructure investment Improved system flexibility	Reduced air pollution Reduced water consumption Reduced greenhouse gas emissions Increased market competitiveness Risk mitigation (reduced insurable losses, health costs and community impacts) Improved energy security and independence High-quality jobs Increased innovation and technology adoption Increased social equity

2. Current landscape in Alberta

2.1. Alberta's DSM landscape

In Alberta, the absence of utility-led DSM programs stems from regulatory and policy decisions dating back more than a decade. In 2010, the Alberta Utilities Commission (AUC) denied a DSM proposal in ATCO's general rate application, stating that energy efficiency and DSM were not part of a distribution utility's role.[14]

Alberta's distribution utilities have continued to include requests to include DSM in their resource mix. Three of the four regulated distribution utilities applied for DSM program funding in their 2023 cost-of-service applications. Apart from a managed EV charging pilot requested by FortisAlberta, all DSM requests were denied. However, the AUC did remark in Decision 26615 that:

> *The Commission sees no reason why these utilities could not continue to work collaboratively among themselves and with the UCA [Utilities Consumer Advocate] to deliver coordinated DSM programming, particularly because the utilities have indicated that DSM programs are in the public interest and that they serve similar customer demographics.*[15]

Despite this acknowledgement, there remains no policy mandate or regulatory framework in Alberta that provides a business case for utilities to invest in demand side resources.[16] Without this change, utilities are limited to investing in traditional, capital-intensive infrastructure upgrades, even when lower-cost, demand-side solutions could meet a portion of system needs more efficiently and affordably.

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[14] Michal Moore, "Alberta Utilities Demand Side Management Decision," *Energy Regulation Quarterly* (2013). https://energyregulationquarterly.ca/case-comments/alberta-utilities-demand-side-management-decision#sthash.rTO1DHF7.dpbs

[15] Alberta Utilities Commission, *Decision 26615-D01-2022 ATCO Electric Ltd. FortisAlberta Inc.: 2023 Cost-of-Service Review* (2022), para 170. Available at https://www.auc.ab.ca/regulatory_documents/decisions/

[16] DSM programs are part of what are called non-wires alternatives (NWA): portfolios of energy resources (such as energy efficiency, demand response, energy storage, solar generation, microgrids and other DER technologies) that are deployed to defer or replace the need for traditional transmission and distribution infrastructure investments, provided they are cost-effective in meeting specific localized grid needs (e.g., relieving congestion). These can be both behind the meter, such as smart thermostats or front of the meter, such as community solar. For this report we focus exclusively on behind the meter NWA. National Grid, "What is an NWA." https://www.nationalgridus.com/Business-Partners/Non-Wires-Alternatives/What-is-an-NWA

2.1.1. Coordination with government programs

The Government of Alberta has, from time to time, made investments in energy efficiency programming in Alberta. Climate Change Central administered province-wide energy efficiency services from 2001 until its closure in 2014, following the end of provincial funding.[17] Energy Efficiency Alberta (EEA) launched in 2017 and delivered a suite of energy efficiency and distributed generation programs that generated $952 million in local economic growth and $806 million in lifetime energy savings.[18] EEA was funded primarily through Alberta's carbon levy. The agency was shut down in 2020, with some programs transferred to the Municipal Climate Change Action Centre and Emission Reductions Alberta.

In contrast to Alberta's approach, in 90% of North American jurisdictions, DSM is enabled and funded by distribution utility rates.[19] This approach provides stable, long-term investment while delivering substantial utility system and customer benefits. Utility-led DSM can target investments to meet customer needs, manage peak demand, and defer costly infrastructure upgrades, all while lowering total energy use and improving grid reliability. For Alberta, enabling utility DSM would align with proven practices across the continent and create a dependable foundation for energy affordability, clean technology adoption and retrofit market growth.

2.2. Economic potential of DSM in Alberta

In Alberta, DSM is an untapped resource for energy and cost savings. A DSM potential study prepared for Alberta utilities through the Alberta Energy Efficiency Alliance (AEEA) found that between 2019 and 2038, DSM could deliver a total resource cost benefit-cost ratio of 2.3, resulting in $11.1 billion in net benefits. Over this 20-year period alone, Alberta could have achieved 7,008 GWh of cumulative electricity savings and 27,892 TJ of natural gas. DSM could reduce winter peak demand by 919 MW by 2038 or 7% of projected provincial peak demand.[20]

The regulatory system is designed such that every investment to meet growing system needs is reflected on the utility bill. The economics of DSM in Alberta are highly favourable. The same AEEA-commissioned report found that a $150 million annual DSM investment would impact

[17] HuffPost Canada, "C3, Alberta Climate Change Non-Profit, Closes After Funding Pulled," June 3, 2014. https://alberta770.rssing.com/chan-24507228/article2009.html

[18] Energy Efficiency Alberta, *2019-2020 Annual Report* (2020). https://open.alberta.ca/dataset/24155306-2d3d-4fcc-ac2d-b20fdd7b88cd/resource/6b4c23d1-04b4-4a5d-b2b5-44fe7ff14bbb/download/aep-energy-efficiency-alberta-annual-report-2019-2020.pdf

[19] Consortium for Energy Efficiency, *2020 State of the Energy Efficiency Program Industry* (2021), 4. https://cee1.org/images/uploads/2020_AIR_Final.pdff

[20] *Demand Side Management Opportunities for Alberta,* 7, 14, 20.

average residential utility bills by $1.42 per month (less than 1% of total bills), while delivering more than $1 billion in direct annual savings, province-wide.[21] Figure 2 illustrates how DSM programs could look in the Alberta context.

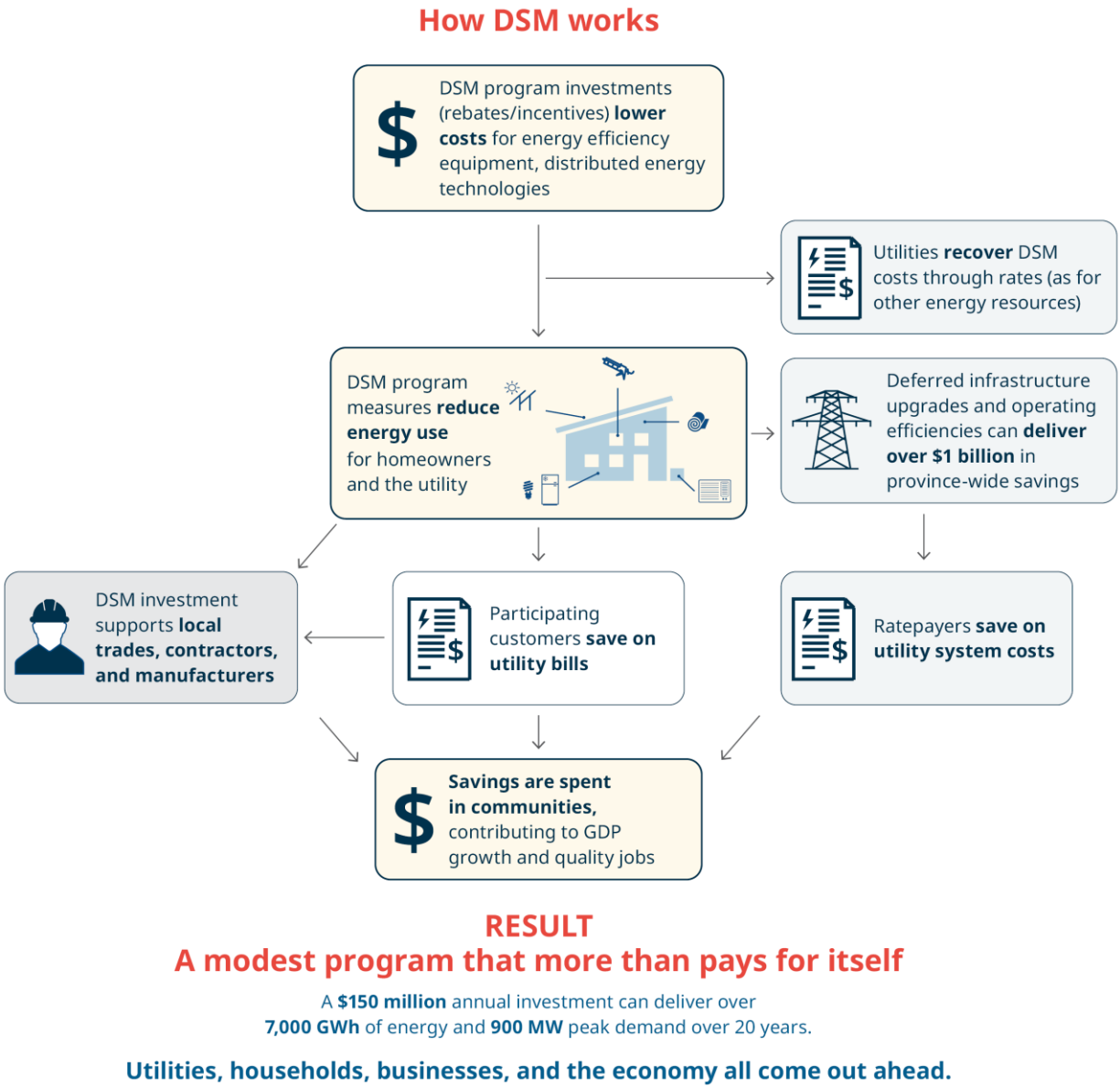

Figure 2. How DSM would work in Alberta

[21] *Demand Side Management Opportunities for Alberta*, 28-29.

2.3. Alberta's retrofit landscape

In Alberta, there are currently no retrofit-aligned utility DSM programs.

Municipalities, the federal government, and non-profits offer a patchwork of programs focused on financing or retrofit-sector capacity-building for homes and businesses (Table 2). While valuable, these programs are limited in scope. Most rely on large capital outlays and loan repayment by building owners, limiting the capacity to choose higher-efficiency equipment, and instead resulting in simply replacing "like-for-like".

These programs lack broad reach, substantive incentives, and year-over-year stability of utility-delivered programs. Without consistent, long-term investment, Alberta's retrofit market cannot achieve the sustained growth needed to support the industry or unlock deeper retrofits.

Table 2. Retrofit programs available in Alberta

Program Name	Eligible Buildings	Program Provider	Funding Mechanism
Clean Energy Improvement Program	Residential properties; commercial and multi-unit residential buildings eligible in some jurisdictions	Alberta Municipalities	Property assessed clean energy (PACE) program: funding repaid through property taxes (only available to property owners)
Building Retrofits Initiative	Large commercial, industrial, and multi-unit residential buildings (generally those over 25,000 square feet)	Canada Infrastructure Bank	Low-cost, long-term financing agreements with building owners
Alberta Ecotrust Retrofit Accelerator	Multi-unit residential buildings; municipalities, university, school and hospital (MUSH sector) buildings; part 3 commercial buildings	Alberta Ecotrust Foundation and NRCan	Provides technical assistance, audits, access to stacked incentive opportunities and coaching for building owners; does not directly finance, but guides building owners to financing options
Home Upgrades Program	Residential buildings owned by lower income households	Kambo Energy with the support of AB Ecotrust, municipalities, towns and utilities	Provides fully subsidized prescriptive upgrades to the resident based on home needs and improving affordability
Strategic Energy Management for Industry	Small and medium-sized industrial facilities in Alberta (energy – intensive trade-exposed	Emissions Reduction Alberta and NRCan	Cost-shared, non-repayable incentives for energy audits, energy management

	sectors, manufacturing, processing, etc.)		information systems, training and capital retrofits
Community Facility Energy Efficiency Program	Municipally owned facilities across Alberta (arenas, community centres, fire halls, admin offices, etc.)	Municipal Climate Change Action Centre	Grants cover a portion of retrofit project costs, including lighting, HVAC, insulation and other efficiency upgrades

These programs show that supports are available to Albertans to assist with retrofitting, but their eligibility criteria and funding mechanisms leave gaps — for example, CEIP is only available to property owners in select municipalities, and nearly all programs exclude rental housing. Most also operate on limited timelines or budgets, creating uncertainty for building owners and contractors. Utility-led, retrofit-aligned DSM programming can bridge these gaps by offering more inclusive access, stable year-round funding, and integration with existing initiatives, making it easier to plan and finance comprehensive upgrades that move buildings toward cost-effective high performance.

In the following section, we look at examples from other jurisdictions where utility-led DSM programs have been successfully aligned with retrofit goals, offering lessons that could inform a made-in-Alberta approach.

3. Retrofit-aligned DSM programs in other jurisdictions

Across North America, most utilities operate DSM programs designed to align with building retrofit goals. These programs go beyond short-term energy savings — they create conditions for deeper, staged upgrades by reducing upfront costs, providing technical support, and ensuring stable market demand for retrofit services.

The following examples from Ontario, Nova Scotia and New York illustrate different approaches to retrofit-aligned DSM. Each program is designed for multi-unit residential or commercial buildings, which are often excluded from other programming, and offer both prescriptive options — standardized, pre-approved measures — and custom or comprehensive upgrades tailored to specific building needs. These programs deliver measurable outcomes in energy savings, peak demand reduction, and local job creation.

Retrofits are a one-time investment, but they offer persistent savings. Once installed, measures continue to reduce energy use over their entire useful life, not just in the year they are installed. For example, replacing an old boiler with a high-efficiency system might save a building 200 MWh in the first year. If that boiler operates for 20 years, the total realized savings amount to 4,000 MWh — twenty times the first-year figure. This persistence of savings is what makes retrofit-aligned DSM programs so valuable: the incentives and investments made today deliver returns year after year, multiplying the benefits for customers, utilities, and the economy.

3.1. Ontario: IESO Retrofit Program

In Ontario, the Independent Electricity System Operator (IESO) Retrofit program is funded through ratepayer dollars collected via the Global Adjustment (GA) on electricity bills.[22] These funds are pooled centrally and administered by the IESO, rather than Ontario's 50+ Local Distribution Companies (LDC's).[23] Centralizing program administration ensures consistent incentives across the province, avoids duplication among LDC's and allows building owners to access the same suite of programs no matter which utility serves them. The program is open to

[22] IESO, "Price Overview." https://www.ieso.ca/power-data/price-overview/global-adjustment

[23] Government of Ontario, "2025–2036 Electricity Energy Efficiency Framework." https://ero.ontario.ca/notice/019-9235

owners and lessees of a range of commercial, institutional, and multi-unit residential buildings.[24] The program offers:

- A **prescriptive stream** for targeted, off-the-shelf efficiency measures such as lighting, HVAC, motors and smart controls, covering up to 50% of eligible project costs.
- A **custom stream** that supports broader and deeper retrofits through more complex efficiency upgrades not in the preset list, with incentives based on savings and capped at 50% of project costs.

By providing both targeted and custom upgrade pathways, the program helps participants implement immediate upgrades while laying the groundwork for deeper, staged retrofits. Non-repayable incentives offset part of the upfront capital cost of retrofit projects. Incentives are paid directly to participants once projects are completed and verified.

From 2021-2023, Ontario's program delivered 1,203,000 MWh in total energy savings and reduced peak demand by 180.1 MW.[25] Evaluations of this program show it returns up to $3.66 in utility system benefits for every $1 invested, demonstrating strong value for both ratepayers and the electricity system. Additionally, up to 82 jobs are created for every $1 million invested in this program in key industries across Canada, like construction, manufacturing, waste management and retail trade, mostly in Ontario.[26]

Table 3. IESO Retrofit Program results

Total energy savings (2021-2023)	1,203,000 MWh
Total peak demand savings (2021-2023)	180.1 MW
Maximum net benefits ratio (PAC test)	$3.66 for every $1 invested
Maximum jobs created	82 per $1 million invested

[24] Save on Energy, "Retrofit Program." https://saveonenergy.ca/en/For-Business-and-Industry/Programs-and-incentives/Retrofit-Program

[25] As per IESO, these savings represent actual net verified and actual non-verified, as well as committed savings to the end of 2023. IESO, *Making a Difference: Energy Efficiency in Ontario – 2023 Conservation and Demand Management Results* (2024), 22. https://www.ieso.ca/en/Sector-Participants/IESO-News/2024/11/2023-Conservation-and-Demand-Management-Results

[26] NMR Group & Resource Innovations, *2021-2024 CDM Framework Retrofit PY2023 Evaluation Results* (IESO, 2024), 34, 52.

3.2. Nova Scotia: Affordable Multifamily Housing Program

In Nova Scotia, DSM programs, including the Affordable Multifamily Housing (AMH) program, are funded through ratepayer dollars collected via an efficiency charge on electricity bills. These funds are administered by EfficiencyOne, an independent non-profit, rather than the utility itself. This arms-length model, overseen by the Nova Scotia Energy Board[27], ensures transparent use of ratepayer funds and provides province-wide access to consistent retrofit incentives and programs. The AMH program provides incentives to improve tenant comfort and reduce energy costs in for-profit and non-profit affordable housing. AMH participants can either follow a prescriptive or comprehensive pathway to reduce building energy use.[28] Funding is delivered as grants and rebates covering a portion of retrofit project costs.

Between 2018-2023, AMH precipitated 3,988 MWh in total energy savings and 1.725 MW in peak demand savings.[29] The program exceeded targeted reductions for total energy savings as well as peak demand savings. In 2023, actual peak demand savings were more than double the targeted savings.[30] Every dollar invested in DSM by EfficiencyOne returns an average of $3.12 in utility bill saving for ratepayers.[31] In addition to cost savings for families, AMH and other DSM programs run by EfficiencyOne contributed to local economic growth. From 2023-2025, DSM programs supported 5,300 jobs in Nova Scotia.[32]

Table 4. Efficiency One Affordable Multifamily Program results

Total energy savings (2018-2023)	3,988 MWh
Total peak demand savings (2018-2023)	1.725 MW
Utility bill savings ratio (All DSM programs)	$3.12 for every $1 invested
Jobs supported (All DSM programs)	5,300 across the portfolio

[27] Nova Scotia Energy and Regulatory Boards Tribunal, *Electricity Mandate – Demand Side Management (Energy Efficiency)*. https://nserbt.ca/sites/default/files/dsm_faq_0.pdf

[28] Efficiency Nova Scotia, "Affordable Multifamily Housing Program." https://www.efficiencyns.ca/programs-rebates/affordable-housing-energy-programs

[29] Narrative Research and Econoler, *Existing Residential Program, DSM Evaluation Report* (Efficiency One, 2024), 128.

[30] *Existing Residential Program, DSM Evaluation Report*, 135.

[31] Efficiency One, "2023-2025 Demand Side Management Plan." https://www.efficiencyone.ca/2023-2025-demand-side-management-plan/https://www.efficiencyone.ca/2023-2025-demand-side-management-plan/

[32] "2023-2025 Demand Side Management Plan."

3.3. New York: State retrofit programs

In New York, DSM and retrofit programs are funded through a System Benefits Charge (SBC) applied to all customer electricity bills. These ratepayer funds flow to the New York State Energy Research and Development Authority (NYSERDA), which designs and delivers programs in partnership with state utilities.[33] For multi-unit residential buildings, this funding supports initiatives like the Affordable Multifamily Energy Efficiency Program (AMEEP), where utilities provide incentives that cover a portion of retrofit project costs.[34] This structure ensures that all electricity customers contribute to and benefit from DSM investments, while targeting support to priority sectors such as affordable housing.

AMEEP uses a points-based system to determine whether projects qualify for the comprehensive or the non-comprehensive pathway.[35]

- **Comprehensive projects** typically involve whole-building upgrades and receive per-unit incentives.
  Non-comprehensive projects focus on specific upgrades and are incentivized based on either estimated energy savings or the types of equipment installed.

AMEEP is part of the Existing Affordable Multifamily Buildings portfolio, which targets New York's low- and moderate-income customers living in multi-family buildings. Introduced in 2020, the portfolio has already reached 426,247 participants and realized 858,518 MWh in lifetime electricity savings and 29,710,402 MMBtu in lifetime gas savings.[36] To build local capacity, NYSERDA has also trained nearly 30,000 workers through its Workforce Development program, strengthening the retrofit supply chain and supporting local employment.[37]

Within this broader portfolio, AMEEP plays a central role in enabling retrofits for affordable multifamily housing. In 2024 alone, AMEEP delivered 13,129 MWh and 540,271 MMBtu in

[33] New York State Department of Public Service, "System Benefits Charge." https://dps.ny.gov/system-benefits-charge

[34] NYSERDA, "New York State Affordable Multifamily Energy Efficiency Program." https://www.nyserda.ny.gov/All-Programs/Residential-and-Property-Owner-Income-Eligible-Programs/LMI-Stakeholder-Resources-New-Efficiency-New-York/NYS-Affordable-Multifamily-Energy-Efficiency-Program

[35] "New York State Affordable Multifamily Energy Efficiency Program."

[36] The Brooklyn Union Gas Company, National Grid NY, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., KeySpan Gas East Corporation, National Grid, National Fuel Gas Distribution Corporation., NMPC Power Corporation, National Grid, New York State Electric & Gas Corporation, New York State Energy Research and Development Authority, Orange and Rockland Utilities, Inc. and Rochester Gas and Electric Corporation, *Statewide Low- and Moderate-Income Portfolio 2024 Annual Report* (2025), 24. https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/LMI/2024-LMI-Statewide-Portfilio-Annual-Report.pdf

[37] Industrial Economics, *Workforce Development Program Evaluation Case Study* (NYSERDA, 2024), 1.

annual savings.[38] The program unlocks substantial savings for both customers and utilities, while improving housing quality and affordability.

Table 5. New York combined retrofit portfolio results

Lifetime electricity savings (2020-2023)	838,518 MWh
Lifetime natural gas savings (2020-2023)	29,710,402 MMBtu
Workers trained	29,646 workers

3.4. Summary of outcomes

Across Ontario, Nova Scotia and New York, retrofit-aligned DSM programs consistently delivered:

- Lower costs for households and building owners with high returns on investment (up to $3 in utility bill savings per $1 invested).
- Measurable grid benefits, including reduced peak demand and system-wide energy savings.
- Job creation and economic growth, providing stable employment across construction, manufacturing and trade ally industries.
- Market stability for retrofit projects with programs structured to support both prescriptive and comprehensive retrofits.

Together, these outcomes show how DSM can function both as an affordability tool and a market enabler — lessons directly applicable to Alberta's economy.

These results also reflect the triple bottom-line value of DSM programs more broadly (Figure 2): direct savings and comfort improvements for participants, efficiency and reliability benefits for the electricity system and societal gains such as reduced emissions, improved public health and long-term economic growth.

[38] *Statewide Low- and Moderate-Income Portfolio 2024 Annual Report*, 17.

4. Lessons from other jurisdictions applied to Alberta

The results from Ontario, Nova Scotia, and New York show that retrofit-aligned DSM programs can deliver measurable benefits for buildings, the electricity system, and local economies. Translating these lessons to Alberta means designing programs that reflect the province's unique building stock, electricity grid and regulatory environment, and workforce needs.

Buildings: Flexible program design with an equity focus

Nova Scotia's AMH Program shows how DSM can be targeted to improve comfort and reduce costs in older rental housing, expanding benefits to low-income households and overcoming landlord-tenant split incentives. Landlord-tenant split incentives describe the misalignment that limits owners' ability to retrofit rentals, as landlords are responsible for the upfront capital investment in upgrades, but tenants realize most of the short-term benefits like reduced energy bills and increased comfort. This can create unfavourable investment conditions for owners to retrofit buildings, unless mechanisms are in place to realign costs and benefits, such as DSM programs that reduce upfront capital investment.

A dual-stream design such as Ontario's — offering prescriptive measures for quick savings and custom pathways for deeper retrofits — would serve the full spectrum of Alberta's building stock, from single-family homes to multi-unit residential, commercial and institutional buildings.

Combining these approaches could allow Alberta to offer programs that are both flexible in design and inclusive in access, supporting housing, climate and affordability objectives.

Grid and regulatory environment: Targeted demand reductions

Alberta's distribution utilities are currently required by regulation to rely on capital-intensive infrastructure upgrades to manage rising demand from electrification and population growth. Building retrofit programs directly reduce electricity demand by improving building efficiency. The deeper the retrofit, the greater the sustained reduction in both total energy use and peak load, as noted in all three jurisdictions examined. These cumulative demand reductions can defer or avoid the need for costly utility infrastructure expansions, improve system efficiency, and optimize the use of existing grid assets — benefits that are especially valuable in Alberta's deregulated electricity market.

Workforce: Integrated workforce development and market stability

Alberta's retrofit workforce is hurt by program stop-start cycles, which discourage long-term hiring and training. New York's approach, which has trained over 29,000 retrofit workers, demonstrates how embedding workforce development into DSM design could ensure Alberta has the skilled labour to deliver upgrades at the scale needed, while also supporting economic diversification. A construction and contractor industry that understands the realities of Alberta's climate and buildings is essential to ensuring that the measures installed are durable, high-performing and suited to local conditions, from heat pumps that can be installed as a back-up to gas heating and provide cooling in extreme summer heat, to envelope upgrades that address the province's mix of building vintages and materials. Embedding workforce development in DSM program delivery would help Alberta leverage its existing trades expertise, create predictable, year-round demand for retrofit services and build a pipeline of skilled workers capable of delivering high-quality retrofits.

These jurisdictional lessons point to clear opportunities for Alberta: expand access to retrofit programs across all building types, integrate DSM into grid management to optimize infrastructure investment, and build workforce capacity in tandem with market growth. Together they form the foundation for a made-in-Alberta DSM framework, aligned with retrofit industry requirements, that delivers affordability, reliability and economic development.

5. Recommendations

To ensure the benefits of DSM are realized by customers, the grid, and the retrofit industry, we make the following recommendations, which are explored more fully below.

Establish a clear policy direction to recognize DSM as a resource

We recommend that the Government of Alberta establish a clear policy direction to the Alberta Utilities Commission that recognizes DSM as a distributed energy resource.

Set a regulatory framework that rewards utilities for investment beyond infrastructure

We recommend that the Alberta Utilities Commission, in collaboration with industry partners and utilities, explore regulatory approaches that allow utilities to earn a fair return for investments in DSM and other non-wires alternatives, not just for building new infrastructure.

Create an efficient and accountable DSM delivery model

We recommend the Government of Alberta appoint an independent entity to set up a centralized administrator model with rigorous accountability measures to ensure DSM is delivered efficiently across the province.

Prioritize retrofit-aligned DSM programs

We recommend that retrofit-aligned DSM programs be prioritized among the DSM initiatives administered by utilities. We also encourage the provincial government and Alberta municipalities to work with local utilities to coordinate with related programs available across the province.

Taken together, these elements — clear policy direction, regulatory alignment, efficient delivery model, and a first focus on retrofits — illustrate how DSM can be embedded as a stable, long-term resource in Alberta. Adopting these proven approaches would provide utilities with the tools to invest confidently, ensure customers see real savings, optimize utility assets, and support the growth of a robust retrofit market.

5.1. Policy direction

A first step toward achieving the benefits of DSM in Alberta would be a clear policy signal from the government that positions DSM as a distributed energy resource, on par with supply-side investments. In Ontario, this signal came through ministerial directives that instructed the Ontario Energy Board to require utilities to deliver DSM programs.[39] In response, the board established a multi-year DSM framework – currently a 12-year, $10.9 billion plan delivered in rolling three-year cycles. This approach provides stability for utilities, customers and the construction, trade ally and supply chain industries, while ensuring DSM is treated as a reliable resource in energy planning. A similar policy direction in Alberta could unlock sustained investment, reduce political risk, and create a dependable resource for affordability and grid management.

5.2. Regulatory framework

Alberta's current performance-based regulation uses a price-cap model that links utility revenues to the volume of electricity delivered. While this framework has succeeded in keeping operational costs down, it creates a disincentive for utilities to pursue DSM, since reduced energy sales directly reduce revenues. While the AUC suggests that Alberta utilities should look at DSM and other non-wires alternatives prior to investing in infrastructure, there is no guaranteed cost-recovery in the current framework and no mechanism for a fair rate of return. By contrast, many jurisdictions have introduced reforms that decouple transmission and distribution utility revenues from electricity throughput and reward utilities for meeting broader customer and system objectives.[40] A modern framework includes revenue decoupling, multi-year rate plans, performance metrics, and performance incentive mechanisms (Figure 3).

Performance incentive mechanisms (PIMs) tie utility earnings to specific outcomes such as peak demand reduction, avoided infrastructure costs, or energy affordability. These can be particularly effective in supporting DSM efforts. For example, regulators in Massachusetts and Minnesota use PIMs to reward utilities for exceeding energy efficiency savings targets,[41] while Nova Scotia's EfficiencyOne operates under a framework that allows for cost recovery and incentive earnings when DSM targets are achieved. Applying similar mechanisms in Alberta

[39] James Gaede, "Ontario's new electricity DSM plan: How does it stack up?" *Efficiency Canada,* January 14, 2025. https://www.efficiencycanada.org/ontarios-new-dsm-plan/

[40] Rocky Mountain Institute, *The Nuts and Bolts of Performance-Based Regulations* (2024), 17. https://rmi.org/wp-content/uploads/dlm_uploads/2024/07/PBR_Deck_final.pdf

[41] Mariko Yatsuhashi and Elizabeth Batsaikhan, "Shaping utility efficiency programs with multifactor performance incentive mechanisms," *Center for Energy and Environment*, March 12, 2025. https://www.mncee.org/shaping-utility-efficiency-programs-multi-factor-performance-incentive-mechanisms

would allow distribution utilities to earn returns not only from building new infrastructure, but also from delivering DSM programs that defer costly grid upgrades. This shift would create a balanced regulatory environment where efficiency, demand response, and retrofits are valued alongside traditional utility capital projects.

This multi-part framework aligns utility incentives with DSM outcomes such as energy affordability, reliability, grid resilience and economic growth. This type of reform ensures utilities are not penalized for meeting system requirements by lowering consumption through lower-cost alternatives including energy efficiency or shifting demand through demand response. Instead, it positions DSM as an additional resource on par with supply-side investments.

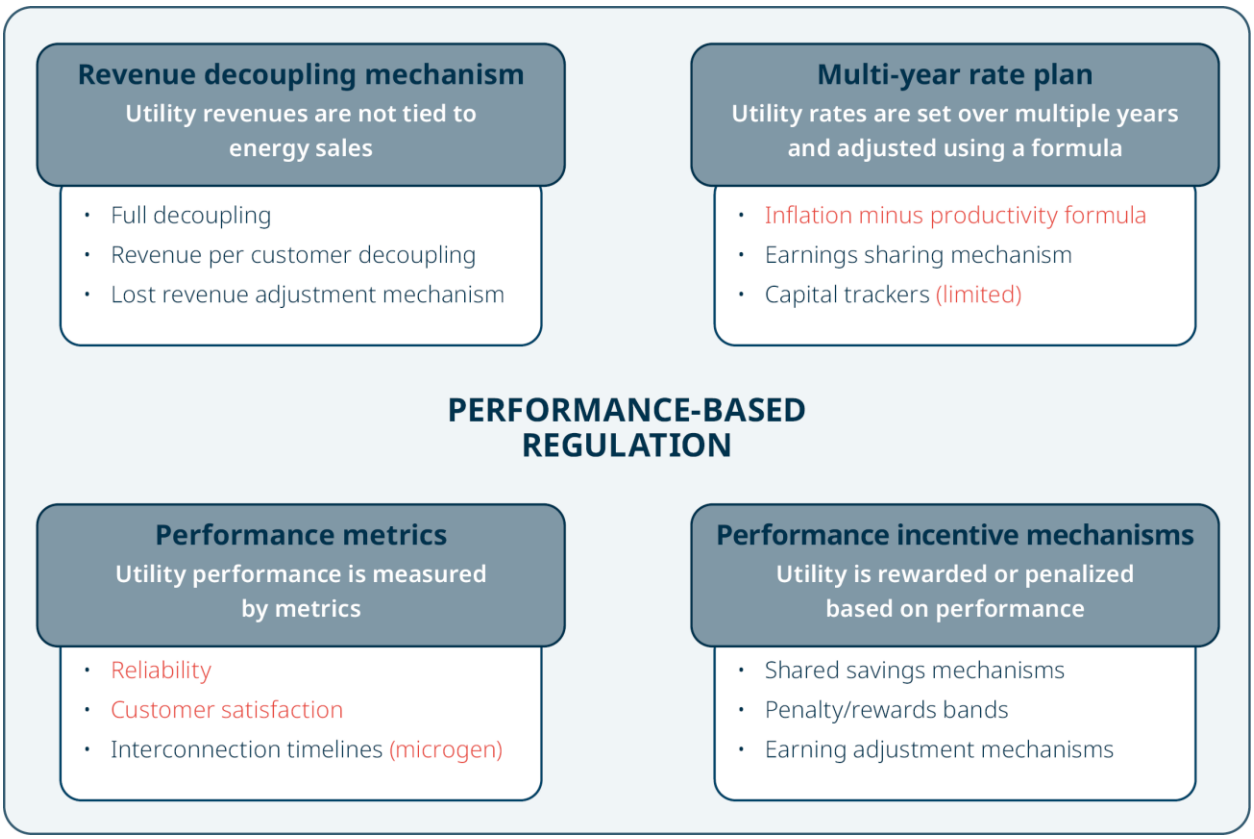

Figure 3. Components of a modern performance-based regulation framework.

Elements that Alberta's system currently has are highlighted in red.

Source: Pembina Institute

5.3. Delivery model

The Efficiency Nova Scotia Corporation Act (2010) established DSM as a utility-funded resource and created an independent DSM entity to administer common programming province-wide. Under this policy, DSM costs are recovered through electricity rates, ensuring stable and

predictable funding. The Nova Scotia Energy Board provides oversight by reviewing EfficiencyOne's DSM plans, budgets, and performance metrics. EfficiencyOne, as the designated administrator, delivers programs on behalf of Nova Scotia Power and other utilities, centralizing DSM delivery to avoid redundancy and capture economies of scale. This model demonstrates how a clear policy mandate paired with a robust regulatory framework can enable consistent, province-wide DSM programs. For Alberta — where multiple investor-owned and municipally-owned utilities serve customers — a similar centralized administrator model could ensure DSM is delivered efficiently while still allowing utilities to invest in and benefit from demand-side resources. Like Nova Scotia, representation from utilities, customers, industry, civil society, the regulator and government would be involved in the initial development.

At the same time, not all DSM programs are best suited to centralized administration. Demand response programs, for instance, often need to be targeted at specific feeders, substations or communities where local constraints exist. In these cases, regulatory models can enable utilities to design and deliver localized interventions while still reporting into a centralized framework for oversight and evaluation. This hybrid approach allows Alberta to capture the efficiency and stability benefits of centralized DSM administration, while preserving the flexibility needed for utilities to address distribution-level reliability challenges through location-specific demand response programs.

An effective DSM model also needs robust evaluation, measurement, and verification processes to independently verify savings, demand reductions and program impacts. This builds trust among policymakers, regulators, utilities, and customers. In most North American jurisdictions, DSM programs are evaluated to ensure they deliver planned outcomes and to guide continuous improvement by identifying the most cost-effective measures and market approaches as market conditions and technologies evolve.

For example, Ontario requires utilities to report against performance metrics that are individually evaluated by the Ontario Energy Board, while Nova Scotia's EfficiencyOne is subject to review by the Nova Scotia Energy Board to ensure its DSM portfolio meets legislated targets. By adopting a similar process in Alberta, DSM programs could demonstrate tangible benefits for households, the grid, and the retrofit industry, while providing regulators and policymakers with confidence that investments are delivering value at scale.

5.4. Program design

To capture the benefits of DSM, utilities should integrate the following design considerations into the delivery of their retrofit programs:

1. **Scaffolded retrofit actions**: Programs should start with accessible upgrades (e.g., lighting, air sealing, HVAC controls) that deliver immediate savings and lay the foundation for deeper retrofits such as envelope improvements and heating system replacements.
2. **Funding stacked with other sources:** Retrofit-aligned DSM funding should be designed to stack with municipal, federal, and non-profit programs — such as the Alberta Municipalities Clean Energy Improvement Program and the Alberta Ecotrust Retrofit Accelerator — to maximize funding opportunities and encourage bundled upgrades.
3. **Stable, long-term funding**: To avoid the boom-and-bust cycles that undermine Alberta's retrofit workforce, retrofit-aligned DSM programs should provide consistent, multi-year investment. Stable funding gives contractors, trade allies, building owners and supply chain vendors the confidence to invest in training, equipment, and capacity, ensuring the workforce is ready to meet retrofit demand at scale.
4. **Accessibility**: Retrofit-aligned DSM should include pathways for participation by low-income households, renters and other groups traditionally excluded from retrofit programs and financing. Inclusive program design will ensure benefits are shared widely, while supporting broader affordability and housing objectives.
5. **Flexibility in program pathways:** A dual-stream approach — offering prescriptive measures for quick savings and custom pathways for comprehensive retrofits — can serve a wide range of building types, including single-family homes, and multifamily residential, commercial, and institutional buildings. Programs should allow staged upgrades over time, enabling building owners to move toward deep retrofits at their own pace.
6. **Integration with grid planning:** DSM program design should be informed by utility distribution system planning to ensure the program approach delivers the resources for managing peak demand and optimizing existing grid assets.
7. **Workforce development:** Stable DSM investment should be paired with workforce training initiatives to ensure that Alberta's retrofit sector has the skilled labour required to meet demand. Partnering with trade associations, training institutions, and unions can help build capacity in key areas such as building envelope improvements, heat pump installations or other new and emerging technology installation and controls integration.

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