Deep Retrofit Accelerator Initiative (DRAI)

Code and Regulatory Environment Review Memo

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Executive Summary

This *Code and Regulatory Environment Review Memo* was developed by WSP Canada Inc. for the Southern Alberta Institute of Technology (SAIT) under the Deep Retrofit Accelerator Initiative (DRAI). It provides a review of Alberta's regulatory environment as it pertains to building retrofits, with a particular focus on deep energy retrofits. The review is intended to inform planning, permitting, and policy development by identifying key constraints and opportunities within the current regulatory landscape.

The review employed a mixed-methods approach, combining secondary research and primary interviews. Secondary research included analysis of publicly available studies, codes, policies, and guidelines relevant to building retrofits in Alberta and across Canada. Primary research consisted of interviews with municipal officials from Edmonton and Calgary, as well as internal WSP subject matter experts, to gather practical insights on regulatory challenges and permitting processes. Draft findings were circulated to internal experts for validation.

Key Findings

- **Regulatory Framework:** New construction and major renovations in Albera are governed primarily by the National Building Code – 2023 Alberta Edition (NBC(AE) 2023) and the National Energy Code for Buildings 2020 (NECB 2020), which set minimum standards for energy use for these significant projects. Alberta does not have a dedicated retrofit code to govern smaller projects, however. Compliance for retrofits is interpreted from these main codes, often resulting in case-by-case decisions by Authorities Having Jurisdiction (AHJs).
- **Enforcement and Flexibility:** Enforcement is managed through municipal permitting processes and inspections. Alberta's regulatory framework allows for variances and alternative solutions, providing flexibility for unique retrofit scenarios, but these processes can add complexity and uncertainty for project proponents.
- **Provincial Comparison:** Alberta lags behind leading provinces such as British Columbia and Quebec in regulatory ambition and implementation support for deep retrofits. Alberta currently enforces only the minimum energy performance tier (Tier 1), with higher tiers being voluntary. Alberta municipalities are restricted from mandating higher standards than those set by the province.
- **Permitting Processes:** The permitting and approval processes for retrofits vary between municipalities. Edmonton and Calgary have established, centralized systems, while smaller municipalities often rely on contracted AHJs and have less formalized procedures. Challenges include code ambiguity for older buildings, evolving documentation requirements, and knowledge gaps among permitting authorities.
- **Incentives:** Incentive programs are a primary mechanism for encouraging deep retrofits. Alberta's Clean Energy Improvement Program (CEIP) serves as a national leader in Property Assessed Clean Energy (PACE) financing. However, other incentives are inconsistent and skewed toward residential projects, with limited support for commercial retrofits.
- **Challenges and Opportunities:** Key barriers include lengthy and unpredictable permit review timelines, fragmented regulatory oversight, limited municipal authority, and lack of clarity in code interpretation for existing buildings. Opportunities exist to adopt the forthcoming Alterations to Existing Buildings (AEB)

code, expand municipal authority, strengthen incentive design, enhance code compliance infrastructure, and advance data-driven retrofit planning.

Alberta's regulatory environment for deep energy retrofits is evolving but faces significant challenges related to code clarity, enforcement consistency, and limited authority for municipalities to drive ambitious retrofit outcomes. Addressing these gaps through adoption of retrofit-specific codes, improved training and resources, expanded incentives, and enhanced municipal powers, will be critical to scale deep retrofits and align with national decarbonization goals.

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1 INTRODUCTION

This memo presents findings from WSP's review of Alberta's regulatory environment for building retrofits. It summarizes key code requirements and anticipated code changes, permitting responsibilities, policy frameworks, and regulatory barriers that affect retrofit implementation. The document is structured to support planning, permitting, and policy development by identifying constraints and opportunities within the current regulatory landscape.

- **Section 2: Methodology** outlines the research approach, including secondary document review and primary interviews with municipal officials and internal subject matter experts.
- **Section 3: Codes and Regulations** details Alberta's building and energy code requirements and how they are enforced, and compares the status of decarbonization regulations in Alberta to those of other Canadian provinces.
- **Section 4: Jurisdictional Responsibilities for Permitting and Approvals** maps permitting processes and approval authorities across Alberta municipalities, with a focus on Calgary and Edmonton.
- **Section 5: Incentives** evaluates policy financial and-non-financial incentives in Alberta to support the widespread adoption of deep energy retrofits.
- **Section 6: Retrofit Regulatory Challenges & Opportunities** summarizes key regulatory challenges that may delay or complicate project delivery as well as opportunities that exist to strengthen retrofit uptake, streamline permitting, and align with national decarbonization goals.

Findings will help the Southern Alberta Institute of Technology (SAIT) and Alberta Ecotrust Foundation understand the regulatory challenges in the deep energy retrofit market.

2 METHODOLOGY

This study incorporated both secondary and primary research methods, drawing from publicly available sources and targeted interviews.

In terms of **secondary research**, WSP reviewed:

- Publicly available studies, codes, policies, and guidelines sourced via Google Search, Google Scholar, industry websites, and government websites. No legal interpretations are provided. Key documents are listed in subsequent sections.
- Regulatory frameworks relevant to building retrofits, with a focus on deep energy retrofits and Alberta-specific contexts. Broader references are included where Alberta-specific information is unavailable.

In terms of **primary research**, WSP conducted a series of interviews to gather insights on regulatory challenges and practical experiences:

- Two 1-hour interviews with planning and permitting offices from the City of Edmonton and the City of Calgary (municipal interviewees) to explore themes such as permitting efficiency, inconsistencies in code interpretation, and the interplay between provincial and municipal requirements.
- Five 1-hour interviews with internal WSP Subject Matter Experts (SMEs) to provide technical insights, particularly regarding the National Building Code (NBC AE) and other relevant sections.

WSP also circulated relevant sections of the draft memo to internal SMEs for review.

3 CODES AND REGULATIONS

Regulations form the backbone of Alberta's approach to building safety, energy performance, and retrofit activity. They establish the minimum standards and legal requirements that govern how buildings are constructed, renovated, and upgraded, ensuring that public safety, occupant comfort, and environmental objectives are met. In the context of deep energy retrofits, well-designed regulations have the potential to play a key role by defining when and how energy efficiency improvements must be implemented, providing clarity for building owners, designers, and contractors, and supporting the province's broader climate and energy goals.

Understanding the regulatory environment is essential for identifying both the opportunities and barriers that influence the feasibility, cost, and uptake of deep energy retrofits across Alberta's diverse building stock. This section reviews the codes and regulatory mechanisms that shape retrofit activity, and examines their implications for advancing high-performance, low-carbon buildings in the province.

3.1 Alberta Building and Safety Code Requirements Overview

Alberta's regulatory environment for building retrofits is governed by two principal codes: the National Building Code – 2023 Alberta Edition (NBC(AE) 2023) and the National Energy Code for Buildings 2020 (NECB 2020). These codes establish minimum standards for energy use in both new construction and major renovations, and are enforced under the Safety Codes Act, administered by Alberta Municipal Affairs.

The NBC(AE) and NECB apply to retrofit projects when the scope of work extends beyond minor repairs or cosmetic upgrades. Specifically, code compliance is required for substantial upgrades to the building envelope (such as insulation and windows), replacement or major upgrade of HVAC/mechanical systems, changes of use or occupancy, and major expansions or additions. Minor renovations, such as painting, flooring, or kitchen/bathroom remodels, do not trigger code compliance.

Like most provinces, Alberta does not currently have a dedicated "retrofit code". Instead, requirements for retrofits are interpreted from the main codes, often resulting in case-by-case decisions by Authorities Having Jurisdiction (AHJs). STANDATA bulletins and interpretations provide additional guidance for specific retrofit scenarios, but there is no single document governing all retrofit activities. Canada is developing an Alterations to Existing Buildings (AEB) code (discussed in Section 3.2.4), which is expected to provide retrofit-specific requirements and triggers for compliance in the future. Until adoption, Alberta relies on NBC(AE) and NECB, interpreted for retrofit scenarios.

All buildings are classified under one of the following two categories:

- **Part 9 buildings**: Houses three storeys or less and with an area less than 600 m². These typically follow energy requirements set out in Part 9 of the NBC(AE).
- **Part 3 buildings**: Residential buildings exceeding three storeys or with an area greater than 600 m², as well as most commercial and institutional buildings. These typically follow energy requirements set out in the NECB.

The following sections highlight how Alberta's building codes, specifically the National Building Code 2023 Alberta Edition (NBC(AE) 2023) and the National Energy Code of Canada for Buildings 2020 (NECB 2020), apply to deep energy retrofits of existing buildings.

3.1.1 Code Requirements

Canada has made significant progress in harmonizing construction codes nationwide, aiming to address both climate change and the housing crisis through a unified regulatory framework. The National Research Council of Canada (NRC) leads this effort through the development of National Model Codes, which includes the National Building Code (NBC), National Fire Code, National Plumbing Code, and National Energy Code for Buildings (NECB). This has provided a consistent foundation for building safety, sustainability, and energy efficiency across Canada.[1]

The NBC 2023 and NECB 2020 have introduced Energy Performance Tiers as a pathway towards reducing operational GHG emissions across Canada to be zero or near-zero by 2050. The tiers represent stepped improvements in energy performance compared to an equivalent building built to minimum Code requirements. The performance targets for each tier for Part 9 and Part 3 buildings, respectively, are shown in Table 1 and Table 2 below.

Tier 1 is currently enforced as the minimum requirement for energy performance in Alberta for both new buildings and major retrofits. **Higher tiers (Tier 2–5)** are voluntary and not mandated by provincial regulation. They may be pursued for voluntary certification (e.g., CaGBC Zero Carbon Building), municipal incentive programs, or specific client goals.

Table 1: Part 9 Energy Performance Requirements – NBC(AE) 2023 (in reference to NBC 2020)

Energy Performance Metric	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Min. Energy Improvement[2]	≥ 0%	≥ 10%	≥ 20%	≥ 40%	≥ 70%
Min. Heat Loss Reduction[3]	≥ 0%	≥ 5%	≥ 10%	≥ 20%	≥ 40%
Max. Peak Cooling Load[4]	≤ 0%	≤ 0%	≤ 0%	≤ 0%	≤ 0%

Table 2: Part 3 Energy Performance Requirements – NECB 2020

Energy Performance Metric	Tier 1	Tier 2	Tier 3	Tier 4
Min. Energy Improvement	≥ 0%	≥ 25%	≥ 50%	≥ 60%

Compliance with the codes can generally be achieved with one of three alternative paths:

- **Prescriptive Path:** Follows specific requirements for materials and assemblies.

[1] Dentons - Regulatory trends to watch: Canada's legislative framework for building environmental performance

[2] The calculated Energy Improvement for Part 9 buildings differs from Part 3 buildings in that it includes only certain end-uses as defined in NBC(AE) 9.36.5.4.

[3] The calculated Heat Loss is similar to Total Energy Demand Intensity (TEDI), except that includes only certain loads, as defined in NBC(AD) 9.36.7.3.

[4] The proposed house peak cooling load shall not be greater than the reference house peak cooling load.

- **Trade-Off Path:** Allows trade-offs between different building components.
- **Performance Path:** Demonstrates overall building performance meets code targets (often used for deep retrofits).

Unlike some provinces that mandate higher performance thresholds for major retrofits (discussed further in Section 3.3), Alberta does not require retrofitted buildings to achieve any energy savings beyond basic code compliance. Tier 1 represents the minimum standard and sets a relatively low bar for energy performance, meaning retrofits in Alberta are not obligated to deliver significant reductions in energy use or emissions. Voluntary pursuit of higher tiers is possible, but uptake is limited and often driven by market leaders or incentive programs such as those described in Section 5. No clear provincial roadmap exists for increasing minimum tier requirements over time, and municipalities in Alberta do not have the authority to mandate higher tiers due to provincial restrictions on local regulatory powers (detailed in Section 4.1).

3.2 Enforcement, Compliance and Regulatory Flexibility

3.2.1 Enforcement and Compliance Mechanisms

Enforcement of building code compliance is a foundational element of Alberta's regulatory environment for building retrofits. After permits are issued, Safety Codes Officers (SCOs) conduct inspections at key project milestones to verify that retrofit work aligns with approved plans and complies with the NBC(AE) and the NECB. Final occupancy or completion certificates are only granted after all required inspections are successfully completed.[5]

The introduction of administrative penalties under the Safety Codes Act, allowing for fines of up to $10,000 per day and a maximum cumulative penalty of $100,000, has strengthened the province's ability to address non-compliance and deter unsafe or substandard work.[6] These enforcement mechanisms are particularly relevant for deep energy retrofits, where the complexity of upgrades and integration of new technologies can increase the risk of code violations or performance shortfalls. Effective enforcement ensures that energy-saving measures are implemented as designed, protecting both building owners and the public interest. Conversely, inconsistent or under-resourced enforcement can undermine the effectiveness of the regulatory framework, allowing retrofits to fall short of intended energy and emissions outcomes.

There is limited publicly available data on compliance rates or enforcement outcomes for deep energy retrofits specifically, making it difficult to assess whether current practices are achieving their objectives. This lack of transparency can create uncertainty for project proponents and may reduce confidence in the regulatory environment.

3.2.2 Regulatory Flexibility: Variances, Alternative Solutions, and Appeals

Alberta's regulatory framework incorporates mechanisms for flexibility and innovation, which are particularly important for deep energy retrofits involving unique building types, heritage properties, or advanced technologies. Variances (also referred to as "alternative solutions") may be granted by a Safety Codes Officer, technical

[5] Safety Codes Council. Compliance & Enforcement Manual.

[6] Bennett Jones. Alberta Safety Codes Act Introduces New Administrative Penalty Framework

administrator, or the Safety Codes Council when strict compliance with the code is impractical or unnecessary, provided that the alternative approach achieves an equal or greater level of safety and performance.[7]

These mechanisms can enable innovation in deep energy retrofits, allowing project teams to propose creative solutions that achieve or exceed code objectives even when standard approaches are not feasible. For example, a variance may be approved for a heritage retrofit where standard insulation requirements would compromise historical features, as long as compensating measures are implemented. Alternative solutions also enable the adoption of new materials, systems, or methods not explicitly covered by the code, provided they meet the code's intent. Applicants who disagree with an AHJ decision regarding code interpretation, permit issuance, or enforcement actions may appeal to the Safety Codes Council. The appeal process is governed by the principles of administrative law and natural justice, ensuring that decisions are fair, transparent, and open to review.[8]

While these mechanisms provide important flexibility, they can also introduce complexity and uncertainty. The process for obtaining a variance or approval for an alternative solution can be time-consuming and may require additional documentation or expert input, potentially increasing project costs and timelines. If not managed transparently and efficiently, these mechanisms can become barriers rather than enablers for ambitious retrofit projects.

3.2.3 Role and Impact of STANDATA and Interpretive Bulletins

STANDATA are official bulletins, interpretations, and province-wide variances issued by Alberta Municipal Affairs to clarify, interpret, or provide flexibility in the application of the NBC(AE) and related codes. These documents play an important role in Alberta's regulatory environment, including for deep energy retrofits, as they fill gaps in the code, address ambiguities, and provide practical guidance for both building officials and industry practitioners.

For deep energy retrofits, STANDATA are particularly important. Existing buildings often present challenges that prescriptive code language does not fully anticipate. STANDATA provide consistent interpretations and alternative compliance paths, making retrofit projects more feasible.

Several STANDATA bulletins directly address energy-efficiency requirements for existing buildings. The table below summarizes those most relevant to retrofit projects.

Table 3: Key STANDATA for Energy Retrofits

STANDATA	Scope	Relevance
19-BCI-001 – Application of 9.36 Energy Efficiency Requirements to Existing Buildings[9]	A STANDATA under the National Building Code – 2019 Alberta Edition that interprets how Section 9.36 ("Energy Efficiency") applies to existing buildings during alterations, renovations, or retrofits.	Establishes whether retrofit projects must meet current energy code requirements, or if equivalency/performance-based methods apply.

[7] City of Calgary. Guide to Applying for an Alternative Solution

[8] Safety Codes Council. Appeals.

[9] STANDATA bulleted: 23-BCB-001

23-BCB-001 – Energy Efficiency Tier 1 of Section 9.36 (NBC 2023 AE)[10]	A STANDATA bulletin under the National Building Code – 2023 Alberta Edition outlining Tier 1 energy efficiency metrics as the baseline for building projects.	Sets Alberta's updated energy baseline (Tier 1). Even in retrofits, inspectors often reference this to determine compliance with minimum standards.
23-BCI-022 – Energy Efficiency Exemptions for Buildings[11]	Interprets Section 9.36 (NBC 2023 AE) and NECB 2020, outlining situations where parts of a building, such as equipment shelters or unconventionally used industrial spaces, can be exempt from energy efficiency standards.	Empowers exemption from energy-efficiency obligations in equipment-only or industrial spaces, providing clarity on documentation and AHJ approval. This can reduce retrofit planning in specialized spaces.

The use of STANDATA in retrofit permitting has several important implications:

- **Consistency:** By providing province-wide interpretations, STANDATA help ensure that retrofit projects are evaluated consistently, reducing the risk of conflicting decisions between municipalities.
- **Flexibility:** STANDATA can authorize alternative compliance paths or clarify when variances are appropriate, supporting innovation and the practical realities of retrofitting older buildings.
- **Feasibility:** Clear guidance on exemptions or alternative solutions can make deep retrofits more feasible, especially when strict code compliance would otherwise be cost-prohibitive or technically unworkable.

However, the reliance on STANDATA also introduces challenges. The need for frequent updates as codes evolve can create uncertainty, and not all retrofit scenarios are covered by existing bulletins. Moreover, the interpretation and application of STANDATA may still vary depending on the experience and judgment of local officials, which can affect project timelines and outcomes.[12]

In summary, STANDATA and interpretive bulletins are key tools for navigating the regulatory landscape of deep energy retrofits in Alberta. They provide clarity, flexibility, and consistency, but also highlight the ongoing need for clear, up-to-date guidance as building codes and retrofit practices continue to evolve.

3.2.4 NECB 2025 Adoption of the Alteration of Existing Buildings

During the 2020-2025 Code cycle a proposed Part for Alteration of Existing Buildings (AEB) was developed for adoption in Canada's National Building Code. Proposed changes to the Code were made available for public review in Fall 2023, followed by a published 2025 edition of the National Model Code in late 2025.[13] NECB 2025 has adopted Part 13 – Alteration of Existing Buildings, which establishes energy-efficiency requirements

[10] STANDATA bulleted: 23-BCB-001

[11] STANDATA interpretation 23-BCI-022

[12] Alberta faces retrofit roadblocks | Pembina Institute

[13] 2023_2-proposed-changes-to-nbc-necb-nfc-npc-combined-file-2023-10-20.pdf

specifically for alterations to existing buildings, closing a long-standing gap between new construction and existing buildings in Canadian energy Codes.

Part 13 – AEB's purpose is to:

- Provide harmonized, enforceable energy efficiency requirements for building retrofits across provinces and territories; and
- Ensure that building alterations contribute to lower energy use and reduced operational GHG emissions, aligning with NECB 2025's expanded environmental objective.

Part 13 is built on several years of technical work by the Joint Task Group on Alterations to Existing Buildings, including:

- Review of Canadian jurisdictions already using retrofit guidelines (e.g., Vancouver Building Bylaw);
- Analysis of uncertain and unsafe practices caused by the absence of national AEB code requirements;
- Development of triggers, decision points, and technical scope for how energy requirements should apply during an alteration.

The overarching principles for Part 13 are listed in NECB 2025, Note A-13.1.1.1-(1) as [14]:

- To maintain or increase the overall building performance level in a practical manner;
- To avoid negative or unintended consequences and unrealistic expectations;
- To ensure that the building is left in a safe state during the alteration, and;
- To encourage alterations without placing an undue burden on building owners.

Part 13 is built parallel to the existing NECB structure—meaning the building energy systems already regulated in new construction and additions (envelope, lighting, HVAC, service water heating and electrical power systems) are selectively applied based on the type and extent of the alteration. Part 13 compliance within each system requires achieving minimum NECB prescriptive requirements unless the alteration meets detailed exception pathways. The exception pathways effectively define the triggers as to when the alteration is deemed energy-significant under NECB. As an example, alterations for interior lighting components and systems shall comply with Part 4 (Lighting Prescriptive) **unless:**

- the total wattage of all new and existing luminaires <= 2,000 W

  AND

- the total wattage of the new and replaced luminaires <50% of the total wattage of the removed luminaires.

Repair and maintenance of building energy systems is universally excluded from compliance; maintaining heritage, structural integrity and overall safety are other considerations which offer exclusion from Part 13 compliance.

[14] **Government of Canada – National Energy Code of Canada for Buildings: 2025**

While the AEB has been published within NECB 2025, no province or territory has yet adopted NECB 2025. Once respective provincial/territorial building codes begin to adopt insight will be gained on the complexity and enforceability challenges. Due to the high variability of alteration scope and existing conditions enforcing Part 13 is anticipated to be on a case-by-case basis and involve subjectivity on whether exceptions apply.

3.3 Provincial Policy and Regulations Across Canada

The Canadian Net-Zero Emissions Accountability Act, enacted in June 2021, legally affirms Canada's commitment to achieving net-zero greenhouse gas emissions by 2050.[17] To accomplish this, the Pembina Institute states that Canada must retrofit 4% to 6% of its existing building stock annually to meet the 2050 net-zero target, a scale that demands coordinated policy across the country.[18] Code coordination is one such policy.

Figure 2 outlines the roles of different levels of government throughout the code development process. Model codes are developed by the federal government and are modified as necessary by provincial governments and other authorities having jurisdiction, eventually becoming enforceable building codes within those jurisdictions. Typically, there is a several-year delay between the release of a new version of the model code and the adoption of those revisions by AHJs.

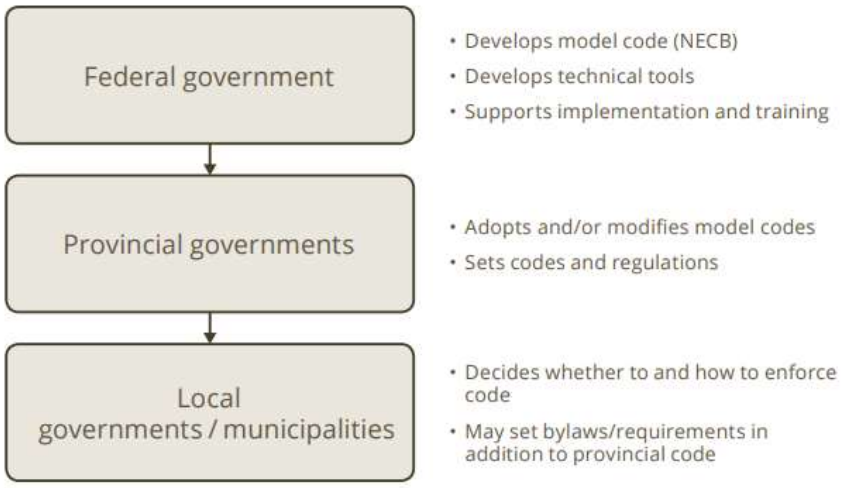

Figure 1:Roles of different levels of government in the development and enforcement of model codes, taken from Pembina Institute's Energy Regulations for Existing Buildings

WSP conducted a comparative review of several Canadian studies relating to the status of decarbonisation codes and regulations in various provinces. They include:

- *2024 Canadian Energy Efficiency Scorecard* by Efficiency Canada
- *Regulatory trends to watch: Canada's legislative framework for building environmental performance* by Dentons (February 2025)
- *2017 Energy Regulations for Existing Buildings* by Pembina Institute (August 2017)

This review aimed to assess the current policy frameworks and regulatory momentum across provinces, with a particular focus on deep retrofits and the decarbonization of existing buildings. Alberta was examined in contrast to leading provinces such as British Columbia, Quebec, and Ontario, to identify gaps and opportunities in its approach to improving building performance and climate alignment.

[17] Net-zero emissions by 2050 - Canada.ca

[18] Deep Retrofit Supply Chain Analysis.pdf

Efficiency Canada's 2024 Canadian Energy Efficiency Scorecard provides a comprehensive snapshot of provincial energy efficiency policies, highlighting significant disparities in regulatory ambition and implementation. British Columbia and Quebec emerge as leaders, with BC's Energy Step Code and Quebec's utility-integrated retrofit programs setting strong examples of regulatory alignment with net-zero goals. While BC leads in Efficiency Canada's buildings category, Ontario narrowly took the lead in the enabling policies category, driven largely by municipal initiatives and voluntary programs. Alberta ranks at last place, with points decreasing in most evaluation categories compared to the last scorecard in 2022. Figure 2 shows the ranking of each province in the 2024 Canadian Energy Efficiency Scorecard, which considers the following five policy categories: energy efficiency programs, enabling policies, buildings, transportation, and industry.

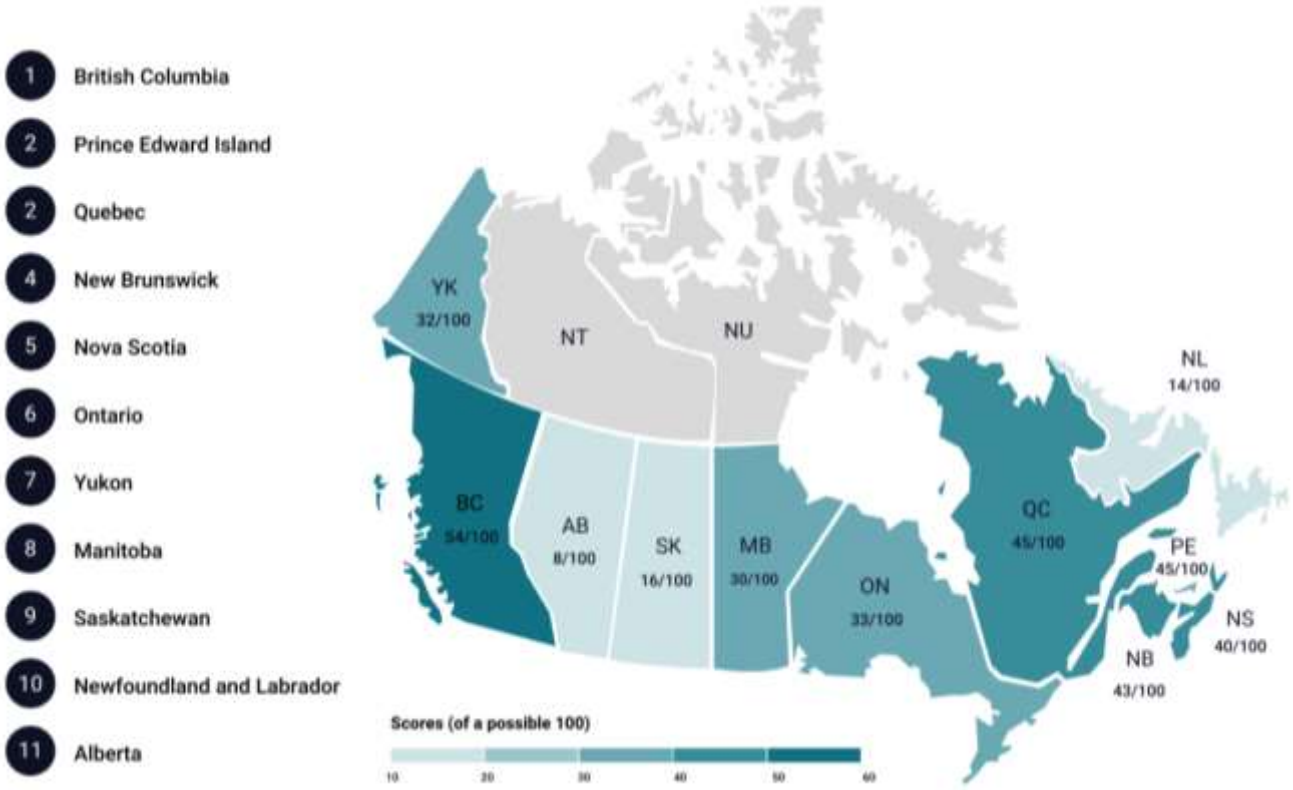

Figure 2: Overall results, taken from the 2024 Canadian Energy Efficiency Scorecard

Alberta's ranking may be attributed to the province's lack of a long-term retrofit strategy, mandatory upgrade policies, or benchmarking requirements for existing buildings. The Scorecard emphasizes Alberta's reliance on voluntary participation and inconsistent supports, which limits its ability to scale deep retrofits and meet climate targets. However, it identifies Alberta's strength in municipal energy efficiency and identifies opportunities for Alberta through undertaking demand-side management and pursing higher tier requirements for building codes.

Achieving Canada's net-zero target will require significant emissions reductions from existing buildings, not just new construction - a point emphasized throughout Pembina Institute's Energy Regulations for Existing Buildings report. Alberta, like most provinces, has historically lacked sector-specific emissions reduction targets for buildings, which limits the ability to guide retrofit activity at the scale needed to meet national emission reduction goals. The report stresses that deep emissions reductions are unlikely without a clear and ambitious regulatory pathway for existing buildings, supported by codes and standards.

While Alberta had adopted the 2011 version of the National Energy Code for Buildings (NECB) at the time of Pembina Institute's 2017 report, a notably older version of the NECB compared to versions adopted in other provinces at the time, Alberta has since updated to enforce NECB 2020. However, the delay in code adoption continues to reflect a broader trend in Alberta's regulatory posture: Alberta has not yet implemented a province-wide retrofit code or strategy for existing buildings (a gap shared by most provinces except British Columbia), nor does it require energy performance improvements at key potential trigger points such as renovation, equipment replacement, or property sale. These regulatory trigger points are identified in Pembina Institute's report as essential tools for driving retrofit activity and emissions reductions.

Finally, Pembina Institute's report recommends a whole-building approach to retrofit regulation, emphasizing the need for coordinated stakeholder engagement and comprehensive modelling of building stock emissions. Alberta has yet to adopt this approach, which is already underway in more proactive jurisdictions.

3.3.1 Building Code Requirements by Province

Building Code energy efficiency requirements in Canada are divided by small and large buildings. Small buildings ("Housing and Small Buildings"), defined as maximum 3-stories and a building area <600 m², fall under Volume 2, Division B, Part 9 of the National Building Code. Large buildings, those not defined as Housing and Small Buildings, fall under the National Energy Code of Canada for Buildings (NECB). As mentioned in Section 3.1, Alberta has adopted Tier 1 of both NBC 2020 (NBC (AE) 2023) and NECB 2020 as a minimum requirement for building energy efficiency since May 1, 2024.[19]. As of 2025, almost all provinces have adopted at least Tier 1 of NBC and NECB 2020 as their minimum requirement with some provinces raising minimum requirements to higher tiers.

Part 9 Housing and Small Buildings

Provincial tier requirements for Part 9 buildings are summarized in Table 4 below. The minimum percent energy improvements for each tier level, as per NBC 2020, are detailed in Table 1 of Section 3.1.1.

[19] Building codes and standards | Alberta.ca

Table 4: Minimum building code tiers for Part 9 buildings as of December 2025

	NBC 2015 (or equivalent)	NBC 2020 (or equivalent)		
Province	**No tier**	**Tier 1**	**Tier 2**	**Tier 3**
AB		X		
BC				Equivalent (BC ESC: Step 3)
MB		X		
NB			X	
NL				
NS		X		
ON			Equivalent (OBC 2024: SB12)	
PE		X		
QC	Equivalent (QCC)			
SK		X		
YT		X		

According to Efficiency Canada's research for the 2024 Canadian Energy Efficiency Scorecard, BC's Energy Step Code (ESC) Step 3 is functionally equivalent to NBC 2020 Tier 3, while Ontario's current building code (OBC) and supplemental SB12 is functionally equivalent to between Tiers 2 and 3 of NBC 2020. At the time of the 2024 Canadian Energy Efficiency Scorecard, New Brunswick, Nova Scotia, and Quebec had requirements based on NBC 2015. Nova Scotia[20] and New Brunswick[21] now require Tier 1 and Tier 2 minimum (respectively) based on NBC 2020. Although Saskatchewan required a Tier 2 minimum at the time of the 2024 Canadian Energy Efficiency Scorecard, the province has since redacted the requirement and now allows Tier 1.[22]

Nova Scotia will be adopting Tier 2 of the NBC 2020 in April 2026 and Tier 3 in April 2027.[23] Newfoundland & Labrador do not have a standalone provincial building code, however the Towns and Local Service Districts Act (which replaced the Municipalities Act)[24] requires municipalities to adopt the National Building Code of Canada and any amendments, meaning the most recent version of the NBC is automatically in effect. There is no indication that the tiered energy performance system had been formally adopted or enforced. Québec is also not adopting the tiered energy performance framework. This decision reflects the province's recent updates to its own building code and a recognition of the need to allow the construction industry sufficient time to adapt to those changes. Québec continues to reference the NBC 2015 with amendments for energy efficiency.[25]

British Columbia, Prince Edward Island, New Brunswick, and Yukon have committed to net zero energy ready (NZER) building codes in place by a specific date. British Columbia is the only province to have set a target for reaching net zero emissions, to have released a Zero Carbon Step Code (in May 2023), and to have set interim timelines for all tiers in their climate action plan.[26]

[20] Nova Scotia Building Code Regulations - Building Code Act (Nova Scotia)

[21] Building code - gnb.ca

[22] Making Home Construction More Affordable in Saskatchewan | News and Media | Government of Saskatchewan

[23] Province to Adopt 2020 National Building Codes | Government of Nova Scotia News Releases

[24] Proclamation of Towns and Local Service Districts Act - News Releases

[25] 2024-Scorecard-Report.pdf

[26] 2024-Scorecard-Report.pdf

Part 3 Large Buildings

Provincial tier requirements for Part 3 buildings (commercial and institutional buildings, and residential >3 storeys or >600 m²) are summarized in Table 5. According to Efficiency Canada's research, BC's Energy Step Code (ESC) Step 2 for large buildings is functionally equivalent to between Tiers 1 and 2 NECB. Ontario's Supplementary Standard SB10 references the NECB 2015, but its prescriptive tables are aligned with NECB 2017. The Québec Construction Code references the NECB 2020 but has no prescriptive requirements.[27]

At the time of the 2024 Canadian Energy Efficiency Scorecard, New Brunswick had requirements based on NECB 2011. More recently, New Brunswick has updated its requirements to Tier 2 of the NECB 2020.[28] Similarly, Nova Scotia's requirements were previous based on NECB 2017, but have recently been updated to Tier 1 of the NECB 2020. Nova Scotia plans to implement Tier 2 of the NECB in 2027 and Tier 3 in 2029.[29] Newfoundland and Yukon do not have provincial tier requirements for the NECB. However, the City of Whitehorse, of which a large portion of Yukon's population resides in, has a requirement for NECB 2020 Tier 1.[30]

The minimum percent energy improvements for each tier level, as per NECB 2020, are detailed in Table 2 of Section 3.1.1.

Table 5: Minimum building code tiers for Part 3 buildings as of December 2025

	NEBC 2015 (or equivalent)	NECB 2017 (or equivalent)	NECB 2020 (or equivalent)		
Province	**No tier**	**No tier**	**No tier**	**Tier 1**	**Tier 2**
AB				X	
BC				Equivalent (BC ESC: Step 2)	
MB				X	
NB					
NL					
NS				X	
ON	Equivalent (OBC 2024: SB10)				
PE				X	
QC			Equivalent (QCC)		
SK				X	
YT					

Achieving the national building codes' goal of guiding provinces and territories towards net zero energy-ready buildings by 2030 requires that provincial governments formally recognize the tiered framework when adopting the codes – even if they begin with the lowest tier – and establish a timeline for progressing to higher tiers. The effectiveness of tiered codes is further enhanced when local governments, which are typically responsible for

[27] Construction Code - Régie du bâtiment du Québec

[28] Building code - gnb.ca

[29] Province to Adopt 2020 National Building Codes | Government of Nova Scotia News Releases

[30] 2024-Scorecard-Report.pdf

enforcing building codes, are granted the authority to apply higher tiers within their jurisdictions. Granting this authority and allowing this flexibility does not undermine harmonization, as consistency is maintained within each tier; jurisdictions adopting the same tier can rely on a shared set of compliance solutions. Whether local governments are permitted to exceed provincial standards depends on enabling provisions typically within Construction Codes or Municipal Acts. For instance, Manitoba and Nova Scotia restrict municipalities from implementing requirements beyond the provincial code, while Saskatchewan explicitly allows municipalities to adopt higher standards through its Construction Codes Act. Similarly, Newfoundland and Labrador, Yukon, and British Columbia provide municipalities with the authority to develop bylaws that promote more energy-efficient building practices through their respective provincial Municipal Acts.[31] In Alberta, municipal authority to exceed provincial building code requirements is limited, with the province retaining control over energy efficiency standards and not currently enabling municipalities to adopt higher tiers independently.

3.3.2 Code Compliance, Enforcement, and Training

Building energy codes will only lead to reduced energy consumption in existing buildings if builders comply and building officials enforce their requirements. Establishing a robust policy framework for code compliance can also help to build capacity for more stringent energy codes in the future. For example, provinces (and utilities) can play a key role by conducting compliance studies to identify implementation gaps, developing tools and resources for builders and building officials, and convening stakeholder groups to foster collaboration and knowledge sharing.[32]

Provincial governments and utilities must dedicate resources, such as funding, to support these activities. As an example, in response to recommendations from Efficiency Canada and others, the federal government launched the Codes Acceleration Fund (CAF) in 2023 to help provinces, municipalities, and other organizations improve code compliance and accelerate the adoption of higher building tiers. The Canada Green Building Strategy (CGBS),[33] released in July 2024, includes the acceleration of existing buildings retrofits as one of its leading objectives. The CGBS outlines a range of initiatives supported under CAF, many of which are led by municipalities. Notably, as per the 2024 Canadian Energy Efficiency Scorecard, Yukon and New Brunswick were the only provinces or territories to receive direct funding, while St. John's, Newfoundland also received funding to accelerate the adoption of higher-tier codes.[34] Although codes acceleration is not currently a priority of Alberta's provincial leadership, CAF funding has been received in Alberta to support programs such as ENBIX's Building Retrofit Accelerator.

Unlike several other provinces, Alberta does not currently offer centralized or publicly accessible training resources to support code compliance with NBC(AE) 2023 or NECB 2020, particularly for energy performance tiers. While the Safety Codes Council provides certification and continuing education for Safety Codes Officers, including general code interpretation and enforcement, there is currently no dedicated training focused on energy performance or tiered energy code compliance. Energy-related requirements are addressed only within broader building code courses, highlighting a possible gap in specialized training for deep energy retrofits. In contrast, British Columbia maintains an active website dedicated to Energy Step Code compliance, offering builders access to checklists, video training, and guidance on the Zero Carbon Step Code. New Brunswick rolled out code training resources in 2024 using funding from CAF, while Saskatchewan has hosted information sessions to support

[31] 2024-Scorecard-Report.pdf

[32] 2024-Scorecard-Report.pdf

[33] Government of Canada's New Canada Green Buildings Strategy: A Plan to Help Canadians Save Money on Their Energy Bills - Canada.ca

[34] 2024-Scorecard-Report.pdf

understanding of NBC 2020 and NECB 2020 tiered requirements. Prince Edward Island has expanded its building official workforce and partnered with Holland College to deliver a dedicated building and energy code training course. These examples highlight a gap in Alberta's current approach, where no province-led training infrastructure or compliance support tools are regularly available to assist builders, designers, or inspectors in navigating tiered energy codes or retrofit-specific requirements.[35] At the time of this report, Ecotrust and SAIT are partnering to offer training to fill this gap. This training will launch in March 2026 and is supported by CAF funding.

3.3.3 Building Performance Requirements

Ontario remains the only province with a mandatory energy performance rating and disclosure regulation, requiring large buildings to report their annual energy and water use under Ontario Regulation 506/18. Buildings are anonymized in a public database and integrated into an interactive dashboard. Québec has taken steps toward similar mandates through Bill 41, which enables the province to require performance reporting and maintain a public registry. In contrast, Alberta does not currently mandate energy performance ratings, benchmarking, or disclosure for existing buildings, which limits Alberta's ability to track and improve building performance across its existing stock.[36]

While no province has introduced mandatory whole-building performance standards for existing buildings, municipalities such as Vancouver, Montreal, and Toronto have enacted or are advancing local bylaws to regulate emissions and energy use. Québec and Yukon are the only jurisdictions that explicitly allow municipalities to pass mandatory building performance bylaws.[37] Alberta municipalities, including Edmonton and Calgary, do not have this authority, as per the 2023 amendments to the City Charters, which removed municipal powers to regulate energy consumption and heat retention, preventing local governments from enforcing building performance standards beyond provincial code requirements (discussed further in Section 4.1). However, voluntary benchmarking programs are available both in Edmonton and Calgary. Edmonton's Building Energy Benchmarking (BEB) program[38] and Calgary's BenchmarkYYC[39] support building owners in tracking and improving energy performance using ENERGY STAR Portfolio Manager. Both programs offer technical support, performance reports, and access to retrofit incentives, helping municipalities advance emission reduction goals through data-driven building improvements.

Emerging building efficiency regulations across Canada are expected to introduce new reporting obligations and energy performance standards that will significantly affect commercial properties. These changes may alter the responsibilities of both landlords and tenants under commercial lease agreements, particularly in relation to energy reporting and compliance requirements. As retrofits become more closely tied to environmental performance certifications and regulatory benchmarks, property owners may face substantial capital investments to meet the new energy performance requirements. In Québec, regulatory frameworks such as the Act Respecting the Environmental Performance of Buildings already require landlords to report building-level energy consumption. In some cases, tenants must also provide data on their individual utility use when separately metered. Similar mechanisms may emerge in other provinces as retrofit regulations evolve. These obligations can

[35] 2024-Scorecard-Report.pdf

[36] 2024-Scorecard-Report.pdf

[37] 2024-Scorecard-Report.pdf

[38] Building Energy Benchmarking Program | City of Edmonton

[39] BenchmarkYYC

influence lease negotiations, especially regarding the apportionment of costs for energy audits, system upgrades, and compliance-related renovations.[40]

At the system level, Canada's Energy Efficiency Act grants the federal government authority to set mandatory efficiency requirements for building-related products. Amendments to the Energy Efficiency Regulations introduced in June 2024 strengthened minimum performance thresholds for HVAC equipment, lighting, and insulation. These updates align with NECB and aim to harmonize Canadian standards with those of the United States – reducing trade barriers and enhancing regulatory consistency. Provinces that integrate these federal standards into broader decarbonization strategies, such as Québec's Act Respecting the Environmental Performance of Buildings and the Ontario Building Code, are better positioned to meet Canada's net-zero emissions target by 2050, while Alberta's current approach remains more reactive and less integrated.[41]

Most provinces have harmonized water and space heating equipment standards with federal regulations. British Columbia is leading with its proposed Highest Efficiency Equipment Standards (HEES), which would mandate 100% efficiency for space and water heating equipment. Québec has banned oil-fired heating systems in new and existing buildings since 2023, and New Brunswick is exploring a phase-out strategy.[42] Alberta follows federal appliance efficiency standards[43] but has not introduced any province-specific regulations for space or water heating equipment.

Voluntary Auditing, Measurement, and Verification Protocols

To report and benchmark building energy use and emissions, property owners and managers must first accurately measure and track energy performance at the individual building level. In addition to code-based energy performance requirements, retrofit projects increasingly rely on standardized auditing and verification procedures to assess feasibility, quantify savings, and support financial decision-making for potential retrofit measures. Unlike new construction, retrofit analysis typically uses the existing building's performance as the baseline, since many aspects such as the building envelope may not align with current code requirements. Although energy auditing is not part of the NBC or NECB, the practice is widely adopted across the industry and often mandated by funding agencies.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) auditing procedures are a standard protocol that, although voluntary, are widely adopted throughout the industry. The ASHRAE audit framework is formally defined in *ASHRAE Standard 211-2018: Standard for Commercial Building Energy Audits*. ASHRAE Standard 211 outlines three levels of energy audits commonly used in retrofit planning:

- **Level 1**: A high-level audit that analyzes utility bills and site conditions to identify obvious energy-saving opportunities.
- **Level 2**: A more detailed audit involving engineering calculations and financial analysis of proposed energy efficiency measures.

[40] Dentons - Regulatory trends to watch: Canada's legislative framework for building environmental performance

[41] Dentons - Regulatory trends to watch: Canada's legislative framework for building environmental performance

[42] 2024-Scorecard-Report.pdf

[43] Guide to Canada's Energy Efficiency Regulations - Natural Resources Canada

- **Level 3**: A comprehensive audit requiring full building energy modeling to evaluate interactive effects of multiple retrofit measures as well as detailed financial projections.

According to WSP's SME, these ASHRAE audit levels are frequently referenced in request for proposals (RFPs) for retrofit projects to set expectations for the depth of analysis and reporting.

To verify energy savings post-retrofit, practitioners often use the International Performance Measurement and Verification Protocol (IPMVP) and ASHRAE Guideline 14. IPMVP provides standardized procedures for calculating savings from individual or whole-building retrofits. ASHRAE's verification guidance is formally defined in ASHRAE *Guideline 14-2014: Measurement of Energy, Demand, and Water Savings*. This guideline offers technical methods for error and uncertainty analysis, as well as calibration of energy models. The standardized protocols and guidelines ensure data is measured accurately and adjusted appropriately, such in the context of variables like weather changes or occupancy shifts that can affect energy use and savings.

Although these documents are guidelines rather than enforceable codes, both are widely used to support feasibility analysis, payback calculations, and risk assessments. They are often required by grants and funding agencies to ensure transparency and accountability, particularly in scenarios where retrofit contractors finance projects and are repaid from the resulting savings, or when guaranteed savings are part of the contract.

While not directly aligned with ASHRAE standards, Audette Analytics Inc. has developed a Desktop Retrofit Planning Tool, with support from Alberta Ecotrust, that offers a free, early-stage planning mechanism for large buildings primarily in Calgary and Edmonton. This tool provides a streamlined approach for identifying potential retrofit measures and estimating energy savings during the conceptual phase, making it particularly useful for owners seeking preliminary insights before committing to detailed audits. Alberta Ecotrust has supported the process of adding buildings to the platform, positioning this tool as a first step into Retrofit Accelerator Program coaching services.[44] Data from Edmonton's Building Energy Benchmarking (BEB) program and Calgary's BenchmarkYYC can also be integrated into the tool. Leveraging these local datasets can enhance the accuracy of early retrofit strategies and support informed decision-making for the first stages of deep energy upgrades.

Provinces such as British Columbia, Québec, and Nova Scotia are exploring or implementing regulatory mechanisms to support deeper building decarbonization, though none currently require mandatory energy audits. British Columbia does, however, mandate Electrical Planning Reports (EPRs) for strata buildings under the BC Energy Step Code and associated regulations, intended to help owners plan for future electrical capacity needs such as EV charging, cooling, and electrification of heating systems.

The Canada Green Building Council (CaGBC) has also reported a growing number of retrofit projects seeking Zero Carbon Building (ZCB) certification, reflecting strong market demand for low-emission, high-performance upgrades.[45]

[44] Retrofit Accelerator - Alberta Ecotrust Foundation

[45] Dentons - Regulatory trends to watch: Canada's legislative framework for building environmental performance

3.3.4 Future Legislative and Regulatory Requirements

Canada's building codes are designed to continuously improve, with each edition introducing higher energy efficiency standards to align with Canada's long-term sustainability objectives. As previously noted in Section 3.2.4, Alberta has not indicated any plans to adopt the Alterations of Existing Building code or develop a retrofit-specific code and currently relies on general provisions within NBC(AE) 2023 and NECB 2020. When asking respondents to indicate if they have or are currently developing energy efficiency requirements for alterations to existing buildings, Efficiency Canada found that British Columbia was the only province to have taken concrete steps toward creating its own "retrofit" code.[46]

As proposed changes to the national codes undergo public review, feedback emphasizes the integration of climate resilience measures, including mandatory flood-proofing, fire-resistant materials, and wind-resistant design features. In addition, indoor air quality has emerged as a priority in future code revisions, with recommendations to include the adoption of mechanical heat recovery ventilation systems and support alignment with *ASHRAE Standard 241: Control of Infectious Aerosols*. Through the public review, organizations such as Engineers Canada and Blue House Energy advocated for a phased transition away from fossil fuel-based heating systems, recommending the adoption of high-efficiency heat pumps and electrification mandates for new construction. Their proposals also supported the integration of renewable energy technologies, such as on-site solar generation and net metering incentives.[47] However, while there is strong advocacy for advancing standards in new construction, there appears to be comparatively limited emphasis on retrofitting existing buildings, despite their significant role in achieving national climate goals.

As we wait for future regulatory updates, Natural Resources Canada's **Deep Retrofit Accelerator Initiative (DRAI)** helps fill the current gap towards progressing deep energy retrofits. The DRAI aims to address barriers to deep energy retrofits through funding and capacity-building support for organizations (i.e., "retrofit accelerators" such as Alberta Ecotrust) operating in the commercial, institutional, and mid- to high-rise multi-unit residential sectors. Launched in March 2022 as a component of Canada's 2030 Emissions Reduction Plan, the DRAI received approximately $8 million over two years (2025–2027) to support retrofit accelerators and capacity-building activities, including the development of financing tools, workforce training, and business-case development resources. By convening stakeholders, streamlining pre-development processes, and empowering retrofit project teams, the DRAI seeks to overcome the persistent complexity of deep retrofits and catalyze the transformation of the building sector to meet Canada's climate targets.

4 JURISDICTIONAL RESPONSIBILITIES FOR PERMITTING AND APPROVALS

This section provides an overview of the permitting and approval processes that govern deep energy retrofits across Alberta's municipalities. It outlines the roles and responsibilities of provincial and municipal authorities, with a particular focus on procedural differences between the City of Calgary and the City of Edmonton. The section describes the steps required to obtain development, building, and trade permits for retrofit projects, highlights the regulatory framework established by the Safety Codes Act, and discusses how local implementation may vary depending on project scope and location. Additionally, it examines the limitations on municipal authority to enforce energy performance standards beyond provincial codes, and identifies common challenges encountered in the permitting process for deep energy retrofits.

[46] 2024-Scorecard-Report.pdf

[47] Dentons - Regulatory trends to watch: Canada's legislative framework for building environmental performance

4.1 Overview of Municipal Jurisdictional Responsibilities

The National Building Code – 2023 Alberta Edition (NBC(AE)) and the National Energy Code of Canada for Buildings 2020 (NECB), both declared in force on May 1, 2024, are the foundational standards for building safety and energy performance in Alberta. These codes directly shape municipal permitting processes by defining the minimum requirements for construction, renovation, and retrofit projects.[48]

Municipalities are responsible for enforcing these codes through their permitting systems, which are administered under the Safety Codes Act. This includes:

- Reviewing permit applications for code compliance
- Conducting inspections at various stages of construction
- Issuing occupancy certificates only after verifying full compliance

The permitting process ensures that retrofit projects comply with applicable building codes, zoning bylaws, and energy performance standards. While specific procedures may vary by municipality, the typical process includes the following steps:

1. **Permit Identification** – Determine required permits, which may include:[49,50]
    - **Development Permit**: For changes to land use, building footprint, or exterior appearance.
    - **Building Permit**: For structural, electrical, or plumbing modifications or energy system upgrades.
    - **Trade Permits**: For electrical, plumbing, HVAC, and gas work.
2. **Application Submission** – Submit plans and documentation through the municipality's online portal.
3. **Review and Circulation** – Municipal staff review submissions for compliance with codes and bylaws; some applications may be circulated to internal departments or community stakeholders.
4. **Approval and Inspections** – Upon approval, work may commence. Inspections are conducted at key stages to verify compliance.
5. **Final Sign-Off** – After successful inspections, final approval or occupancy certification is issued.

Some Canadian municipalities, such as the City of Toronto, have the authority to enforce green standards in addition to the typical building permitting. The Toronto Green Standard (TGS), for example, is a mandatory set of sustainable design and performance requirements applied to all new developments in Toronto. Version 4, which came into effect May 1, 2022, establishes various tiers of performance, with Tier 1 being the mandatory minimum and must be applied throughout the planning approval process. Financial incentives are available for eligible and verified Tier 2, 3 or 4, high performance, low emissions projects. This framework allows the City of Toronto to mandate energy efficiency, emissions reductions, and climate resilience measures as part of its development approvals.[51]

[48] Energy Code Requirements | City of Edmonton

[49] Changes to Existing Buildings and Sites | City of Edmonton

[50] Property projects and permit information

[51] Toronto Green Standard – City of Toronto

In contrast, Alberta municipalities do not have the legislative authority to enforce green building standards beyond what is prescribed in provincial building codes. On December 18, 2023, the Government of Alberta announced updates to the City Charters for Edmonton and Calgary. These changes included removing municipal authority to create bylaws regulating energy consumption and heat retention in buildings. This change was made to ensure uniform building code standards across the province, effectively preventing municipalities like Edmonton and Calgary from enforcing their own green building standards.[52]

In 2023, the City Charters for Edmonton and Calgary removed the municipal authority to create bylaws regulating energy consumption and heat retention in buildings.

This regulatory ceiling means Alberta municipalities must rely on voluntary programs and incentives rather than mandatory standards to advance building decarbonization. Municipalities may encourage green building practices through voluntary programs, incentives, or internal policies for civic buildings (e.g., Edmonton's Climate Resilient Policy or Calgary's Sustainable Building Policy[53]), but they do not have the legislative authority to enforce these standards beyond provincial Code on private developments. Alberta municipalities can still influence building performance by:

- Leading by example through high performance municipal buildings;
- Providing incentives including financial support or streamlined permitting for high performance retrofits;
- Guiding local action through climate mitigation and adaptation plans;
- Establishing zoning and other bylaws which influence density and building form, indirectly impacting energy use.

Although building retrofit permitting processes across Alberta follow a consistent framework rooted in the Safety Codes Act, implementation and administrative details vary by municipality. To illustrate how these processes function in practice, the following sections examine the permitting systems in Edmonton and Calgary in particular, representing Alberta's two largest cities.

4.2 City of Edmonton

The City of Edmonton's permitting and approvals process is designed to ensure that all retrofit projects – whether residential, commercial, or mixed-use – comply with provincial building codes, municipal bylaws, and applicable safety standards. Edmonton's system is centralized and streamlined, with a focus on supporting the unique requirements and complexities of retrofitting existing buildings. The process is shaped by the regulatory framework established by the Safety Codes Act and the NBC(AE).

Edmonton's permitting system is rooted in provincial code requirements, but the City is also advancing broader strategies that support deep energy retrofits. Initiatives such as the Climate Resilience Planning and Development Action Plan[54] – approved by Council with implementation targeted for 2026 – include an action to streamline permitting for climate-resilient development to prioritize high-performance, energy-efficient buildings. While specific program designs are still under development, these efforts signal Edmonton's commitment to reducing administrative barriers for projects that align with climate goals. Complementary measures, including leadership through municipal building retrofits, financing programs like the Clean Energy Improvement Program, and

[52] Report_Policy-Tools-for-Buildings-in-Edmonton_v6.pdf

[53] DT Series Current.indd

[54] Climate Resilience Planning and Development Action Plan

education initiatives such as the Building Energy Benchmarking Program, complement Edmonton's leadership commitments under the Community Energy Transition Strategy and Climate Resilience Policy. Together, these strategies create an ecosystem of support that, while not mandated through permitting, helps foster market readiness and community engagement for deep energy upgrades.

There are other ways that the City works to advise and support industry stakeholders. The Emission Neutral Buildings Industry Advisory Group includes industry and utility representatives who can advise the City of Edmonton on items related to emission neutral buildings. The City considers this feedback when developing incentive programs and municipal policy. In addition, the City provides input to the Canadian Board for Harmonized Construction Codes during public consultations to help shape changes to the National Model Codes.

4.2.1 Process Steps for Deep Energy Retrofits

Figure 3: Overview of Process for Changes to Existing Buildings and Sites[55]

Figure 3 highlights the overall permitting process for interior and exterior alterations, renovations, additions, tenant space improvements, selective or partial demolitions, changes to business activities (change of use) and/or site changes to non-residential buildings. This also applies to changes to large-scale residential (apartments, row houses with five or more units), and mixed-use (mix of residential and non-residential) buildings. All projects require a development permit review, however there is no charge if City staff determine that a development permit is not required. Application for development and building permits may be done simultaneously or sequentially but building permit review will not begin until after the development permit review is complete.[56] Figure 4 below outlines the detailed steps required for changes to commercial buildings in Edmonton.

[55] Changes to Existing Buildings and Sites | City of Edmonton

[56] Changes to Existing Buildings and Sites | City of Edmonton

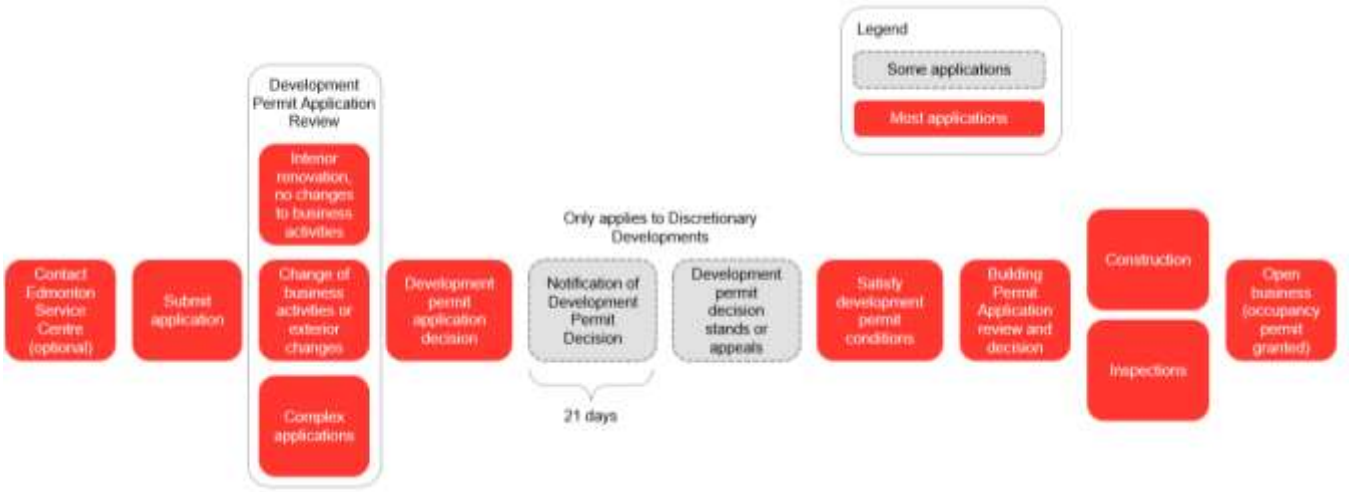

Figure 4: Typical project process for changes to commercial buildings, adapted from the City of Edmonton[57]

With a centralized permitting system, the City of Edmonton offers a streamlined process for both residential and commercial projects. All applications are submitted through a single online portal via Edmonton.ca. Energy Code Documents are required for exterior alterations and additions if the original building permit was issued after October 31, 2016. Alterations/additions are subject to NBC(AE) Section 9.36 (any size) or NECB, as applicable.[58]

For complex or innovative retrofit projects, such as deep energy retrofits, the City of Edmonton offers a Client Liaison Unit. This team serves as a single point of contact for project management support to improve overall project predictability and permitting timelines.[59]

Permit Processing Timelines and Performance

Timely processing is critical for retrofit projects, which often have tight timelines to minimize disruption to building occupants. Edmonton tracks and reports on permit processing times for retrofit projects as part of its commitment to predictable, transparent service levels. For April–June 2025:

- Simple home improvement retrofits (e.g., insulation, window replacement, basement renovations) averaged 12 days (85% within target).
- Regular retrofit projects (e.g., home additions, secondary suites, envelope upgrades) averaged 43 days (69% within target).
- Renewable energy system retrofits (e.g., solar PV, geoexchange) averaged 3 days (95% within target).
- Commercial alteration and change of use retrofits averaged 37 days (62% within target).

The City of Edmonton stresses the importance of submitting a complete permit application, as missing information adds to the length of time needed to complete the review.[60]

[57] Changes to Commercial Buildings - Project Process

[58] Changes to Existing Buildings and Sites | City of Edmonton

[59] Client Liaison Unit | City of Edmonton

[60] Development and Construction Application Processing Times | City of Edmonton

4.2.2 Lessons Learned and Recommendations

This section summarizes insights gathered from an interview with a City of Edmonton staff member, focusing on challenges and opportunities within the permitting and retrofit process. The lessons learned highlight gaps in guidance, training, and coordination that affect project timelines and predictability, as well as opportunities to strengthen market capacity and streamline compliance pathways. While these recommendations focus on improving outcomes for Edmonton and other municipalities in Alberta, they also point to broader actions – such as policy adjustments and programmatic support – that could be advanced at the provincial level or through organizations such as Alberta Ecotrust.

- **Lack of Internal Guidance & Training for Retrofits**: There are currently no internal guidance documents or training programs to ensure consistent code interpretation for retrofit projects, especially for deep energy retrofits. This gap increases variability in permitting decisions and creates uncertainty for applicants. Creating standardized guidance documents and staff training modules can increase consistent interpretation of energy code requirements.
- **Municipal Authority Limitations**: The 2023 City Charter updates significantly reduced municipal authority to regulate energy consumption, limiting municipalities to education and incentive-based approaches rather than enacting bylaws or requirements.
- **Benchmarking Program Insights**: The City of Edmonton's voluntary Building Energy Benchmarking (BEB) program (discussed in Section 3.3.3) has proven effective in promoting education and fostering healthy competition among building owners. However, confidentiality requirements around utility data remain a barrier to broader stakeholder coordination. As such, the City of Edmonton continues to work with utilities and regulators to improve data accessibility for program participants. The City's current benchmarking objectives focus on awareness and reporting. At the moment, there are no plans to use data for regulatory enforcement. However, there is opportunity to expand the program objectives to support performance-based incentives.
- **District Energy System Development:** The City of Edmonton's first district energy project, the Blatchford renewable energy system – which supplies geothermal energy to buildings in a new development – may serve as an innovative model for future citywide expansion. There is ongoing evaluation of business models for future expansion, including potential partnerships with private companies. This may create opportunity to connect existing buildings in Edmonton to more district energy systems, ultimately reducing building energy consumption and GHG emissions in a larger stock of buildings.
- **Heritage Retrofit Complexity**: Past retrofit of heritage buildings have highlighted the need for lessons learned documentation to inform future projects and streamline compliance pathways.
- **Systemic Barriers**: Funding limitations, operational challenges during retrofits (i.e., impacting services during building closure), and gaps in stakeholder education remain significant obstacles to scaling deep energy retrofits. Through further education – such as developing targeted education campaigns for building owners, contractors, and municipal staff to increase awareness and acceptance of deep energy retrofits – the City may be able to advocate for increased provincial and federal funding streams to support municipal retrofit programs and address capital constraints.

4.3 City of Calgary

Calgary's permit system is structured around distinct permit types, including development, building, and trade permits, each with its own review pathway. While the process is not centralized like Edmonton's, Calgary offers a range of online platforms and resources to support applicants.

4.3.1 Process Steps for Deep Energy Retrofits

Development permits, building permits, and trade permits each have a distinct review process by the City of Calgary. Development permits are required when a project deviates from the Land Use Bylaw (LUB)[61] or involves changes to use, site layout, or building exterior.[62] These applications are circulated to internal departments and external stakeholders, including community associations and ENMAX, depending on project scope. Figure 5 outlines the steps undertaken to obtain a development permit.

Figure 5: City of Calgary's development permit process[63]

For deep energy retrofits, building permits are typically required when upgrades to the building envelope (e.g., insulation, windows), replacement of HVAC systems, or installation of renewable energy technologies such as solar PV or geoexchange systems are included in the project scope. These changes trigger compliance with NBC(AE) or NECB requirements and may require the submittal of Energy Code Documents demonstrating code compliance.

For most cases of residential projects in Calgary, a building permit, homeowner electrical/plumbing permit, or contractor trade permit is sufficient. However, if a project does not comply with the Land Use Bylaw – such as when a structure is built too close to a property line – a development permit may also be necessary. Additionally, if the Land Use Bylaw does not currently allow the proposed development on a given property, a land use re-designation may be required (e.g., adding a secondary suite to a residential property).[64]

Building safety approvals (i.e., building permits) ensure projects meet the minimum NBC(AE) requirements and are required for most residential construction, including additions, renovations, basement developments, and

[61] Development permit process

[62] Changes to existing buildings

[63] Development permit process

[64] Understanding permits and the review process

demolitions. The City offers a Residential ePermit system for single and semi-detached dwellings, which streamlines the application and review process.[65]

The City of Calgary uses multiple online platforms for application submissions, depending on the project type. These include:[66]

- **Apply.calgary.ca** for alterations and additions to existing buildings, demolitions, revisions, resubmissions, signs and antennas, and condominium applications
- **ePermit** for residential projects (single/semi-detached), as described above
- **VISTA** for contractors tracking permit progress
- **OneDrive** for land use amendments and large document submissions

Unlike Edmonton, Calgary does not currently offer a centralized liaison unit for complex projects. However, the City provides extensive online resources, including guides, fee calculators, and checklists, to support applicants through the permitting process.

Permit Processing Timelines and Performance

The City of Calgary tracks and reports on permit processing times for retrofit projects, with timelines varying by project type. As examples, for July–September 2025: [67]

- Single, semi-detached, and duplex dwellings in developed areas had an average development permit processing time of 86 days, with 67% completed within the 90-day target.
- Multi-disciplinary development permits averaged 124 days, with 64% completed within the 120-day target.
- For residential safety approvals (ensures alignment with NBC(AE) and The Safety Codes Act), low-complexity improvements averaged 10 days (69% within the 7-day target), while high-complexity improvements averaged 17 days (84% within the 21-day target).
- For commercial/non-residential safety approvals, low-complexity improvements averaged 28 days (80% within the 30-day target), while high-complexity improvements averaged 32 days (72% within the 35-day target).

Inspection timelines are tracked separately to align with the City of Calgary's target of allowing clients to book their inspections withing two business days at least 80% of the time. For commercial and residential improvement projects, inspections are typically booked within 1 business day, meeting the City's target 100% of the time from July-September 2025. However, inspections for trade permits vary from Calgary's target of two business days. While electrical inspections met this target 98% of the time and plumbing & gas 74% of the time, HVAC/mechanical inspections met the target only 22% of the time, with an average wait of six business days.[68]

[65] Residential ePermit for home builders & contractors

[66] New to the application process

[67] Development approvals timelines

[68] Inspections timelines

4.3.2 Lessons Learned and Recommendations

Insights from the interview with a City of Calgary representative highlight a unique set of priorities and constraints compared to Edmonton, shaped by the City's focus on incentives, process improvements, and advocacy within the limits of provincial authority. The following lessons learned reflect the City of Calgary's experience implementing programs such as the Downtown Retrofit Challenge and navigating regulatory barriers in deep energy retrofits. Recommendations build on these observations to identify practical steps for improving permitting efficiency, strengthening guidance, and expanding market capacity, while also pointing to actions that require provincial support or collaboration with organizations like Alberta Ecotrust.

- **Use of Financial Incentives to Enable Deep Retrofits**: Calgary has demonstrated that financial incentives can be a powerful driver for deep energy retrofits. Programs such as the Downtown Retrofit Challenge have successfully encouraged projects exceeding code minimums (e.g., the Dominion Centre office-to-residential conversion). The City of Calgary should continue leveraging financial incentives as a core strategy for advancing deep retrofits and explore opportunities to scale these programs by integrating them with other municipal tools – such as expedited permitting streams or recognition programs – and consider expanding eligibility to include a wider range of building types and retrofit scopes.
- **Educational Support:** The City of Calgary actively promotes educational resources for retrofits and partners with external organizations (such as Alberta Ecotrust and ENBIX). The City's climate team is also working on developing a guide to assist stakeholders, signaling positive municipal engagement in knowledge-sharing. The launch of the City's retrofit guide, paired with proactive outreach and integration of external resources into the City's website, can create a one-stop reference for applicants.
- **Permitting Pathways Lack Retrofit-Specific Streams**: While the Green Building Priority Stream offers expedited review for new builds, its application to retrofits is still under consideration. Current processes for deep energy retrofits rely on standard permit queues, which can result in long timelines for complex projects. Permitting approval timelines for retrofits can be expedited if the City can expand the Green Building Priority Stream to allocate dedicated review resources to include retrofit projects.
- **Inconsistent Code Interpretation**: There is no single guidance document or direction for retrofits, and decisions rest with individual Safety Codes Officers upon their review. This variability creates uncertainty for applicants and can lead to inconsistent enforcement of NBC(AE) and NECB requirements. Developing internal guidance documents and training modules for Safety Codes Officers can increase consistent interpretation of NBC(AE) and NECB requirements for retrofits, including innovative technologies and heritage projects.
- **Loss of Municipal Authority Limits Ambition**: The 2023 City Charters removal of the municipality's authority to regulate energy consumption restricts the City of Calgary to provincial minimums, shifting its focus to incentives and advocacy rather than enforceable standards. The City of Calgary should continue to advocate for legislative changes to restore municipal authority to adopt higher energy tiers or performance-based standards for retrofits. In the interim, the City can continue to work towards strengthening voluntary programs and incentives to drive market transformation.
- **Heritage and Change-of-Use Project Challenges**: Retrofits involving heritage buildings or occupancy changes face significant compliance hurdles (e.g., exiting and staircase requirements). Documenting lessons learned from past heritage and change-of-use retrofits and developing a specialized compliance pathway – including pre-approved variance templates and design guidelines – can help streamline approvals for deep energy retrofits for these building types.

4.4 Differences in Permitting Processes Between Large and Small Municipalities in Alberta

While Edmonton and Calgary have established, centralized permitting systems with dedicated resources and specialized staff, the permitting processes in smaller and rural Alberta municipalities differs. Smaller municipalities may be unaccredited for Safety Code and therefore do not issue their own permits; instead, they effectively contract these services to the Alberta Safey Codes Authority (ASCA), which acts as the Authority Having Jurisdiction (AHJ). The ASCA then contracts specialized accredited agencies to issue permits and perform inspections on its behalf. Some examples of unaccredited Albertan municipalities include:

- Town of Castor
- Town of Edson
- Lacombe Country
- Town of Vulcan

This approach for unaccredited municipalities can lack multidisciplinary expertise, according to a WSP SME, making permitting more complex compared to larger cities with dedicated inspectors. Smaller municipalities often have limited administrative capacity and may rely on generalist staff or contracted building inspectors to process permit applications. As a result, applicants may encounter less formalized procedures, fewer online resources, and less detailed guidance materials compared to those available in larger cities.

For deep energy retrofits, these differences can present unique challenges. Smaller municipalities may have less experience with advanced energy retrofit projects and may be less familiar with the technical requirements of the NBC(AE) and the (NECB) as they pertain to energy performance upgrades. This can lead to longer review times, greater variability in code interpretation, and increased reliance on applicants to provide comprehensive documentation or external expertise to demonstrate compliance.

Additionally, smaller municipalities may not have access to specialized support services, such as Edmonton's Client Liaison Unit, which can assist with complex or innovative retrofit projects. Instead, project proponents in smaller communities often depend on direct communication with municipal staff to clarify requirements and navigate the permitting process. In some cases, this can result in a more flexible, case-by-case approach, but it may also introduce uncertainty and inconsistency for applicants pursuing deep energy retrofits.

These disparities highlight the importance of targeted training, resource sharing, and provincial support to build permitting capacity and technical expertise in smaller municipalities. Addressing these gaps will be essential to ensuring that deep energy retrofits can be effectively implemented across Alberta, regardless of community size.

4.5 Municipal Challenges and Opportunities for Deep Retrofits

Despite many municipalities pursuing streamlined permitting systems, deep energy retrofits can face challenges such as:

- **Navigating Code Ambiguity for Older or Mixed-Use Buildings:** Many existing buildings in Alberta, especially those constructed before the adoption of modern energy codes, present unique conditions that do not always align with prescriptive requirements in the NBC(AE) or NECB. For example, older buildings may have non-standard construction assemblies, legacy mechanical systems, or mixed-use occupancies that complicate the application of current energy performance standards. This ambiguity can lead to uncertainty for both applicants and permitting staff regarding which code provisions apply, what constitutes a "substantial

alteration," and how to demonstrate compliance for partial upgrades. In practice, this may result in longer review times, requests for additional documentation, or the need for variances and alternative solutions.

- **Meeting Evolving Documentation Requirements:** Deep retrofits often involve multiple upgrades, such as envelope improvements, HVAC replacements, and renewable energy installations, each with their own documentation and compliance requirements. As codes and standards evolve, so too do the expectations for energy modeling, product certifications, and as-built documentation. Applicants may struggle to keep up with these requirements, especially when retrofitting older buildings with incomplete records. Incomplete or unclear applications can significantly delay the permitting process.
- **Coordinating Between City Departments and Provincial Authorities:** Complex retrofit projects often require input from multiple city departments (e.g., planning, fire, accessibility, environmental services) and sometimes coordination with provincial authorities for code interpretation or variances. This interdepartmental coordination is essential to ensure that all aspects of the retrofit (energy, safety, accessibility, and heritage) are addressed in an integrated manner. However, it can also introduce delays or conflicting requirements, particularly when departments have different priorities or interpretations of the code.
- **AHJ Knowledge Gaps and Training:** Authorities Having Jurisdiction in Alberta face significant knowledge gaps in understanding non-standard building assemblies, energy efficiency strategies, and emerging technologies. While AHJs receive bulletins from Alberta Municipal Affairs and attend conferences or learning sessions, there are no universal requirement for ongoing education. This inconsistency leads to variability in code interpretation and enforcement across municipalities. As an example, a WSP SME suggested that AHJs often struggle with complex building assemblies such as air barrier systems, which differ widely between projects, and suggested that clearer training frameworks and defined responsibilities for staying current with code updates are needed. These gaps highlight the importance of capacity-building initiatives to ensure consistent application of energy codes during retrofit projects.
- **Limits on Mandating Higher Energy Performance Standards:** Under current provincial legislation, Alberta municipalities cannot require energy performance standards for retrofits that exceed the minimums set by the NBC(AE) and NECB. This limits their ability to drive ambitious retrofit outcomes through regulation alone, even if there is strong local support for climate action. As a result, municipalities must rely on voluntary programs, incentives, and education to encourage deeper energy upgrades.

5 INCENTIVES

While codes and regulations establish the minimum requirements for building retrofits, incentives represent a primary mechanism for encouraging deeper energy upgrades and accelerating market transformation. This section briefly explores the landscape of financial and non-financial incentives available in Alberta, highlighting how these programs can help overcome economic barriers, drive innovation, and support the widespread adoption of deep energy retrofits where regulatory requirements alone may not be sufficient.

5.1 Existing Research

In 2025, RFS Energy and ASK for a Better World (ASK) developed a research narrative to characterize market incentive patterns, assess their impact on the deep energy retrofit market, and identify gaps in both incentives and educational marketplace. Conducted under the Deep Retrofit Accelerator Initiative, the results were summarized in the first submissions of the *Narrative on Market Incentives and Training & Skills Development*.

Through their research, RFS identified 55 market incentives available in Alberta since 2014, with more than half still active as of early 2025. Of the total identified incentive programs, 80% (i.e., 44) were funded by government entities.

RFS identified financial transparency as a key challenge, with 30% of the incentive programs not reporting maximum possible award values and almost 60% lacking public-facing details on fund disbursement.

Commercial buildings were eligible for only 36% of identified incentives, compared to the 62% which were available for residential properties. Although the overall number of deep energy retrofit incentives has grown annually by 14.5%, commercial representation has declined year over year.

Further research is needed to evaluate the effectiveness of current incentive programs and identify successful approaches and best practices from other jurisdictions. Priority actions include enhancing program transparency, expanding support for commercial retrofits, and developing recommendations to improve financial accessibility for building owners. Ongoing tracking of market trends and incentive trends will be essential to shaping Alberta's long-term strategy for deep energy retrofits and guiding future investment decisions.

5.2 Using Property Taxes to Fund Energy Upgrades

Local Improvement Charges (LICs) and Property Assessed Clean Energy (PACE) financing are mechanisms that enable municipalities to support energy retrofits by linking repayment to property taxes. Under these models, the cost of improvements (such as deep energy retrofits) is amortized over time and repaid through the property tax bill, rather than through traditional loan structures. A key feature of LIC/PACE financing is that the repayment obligation is tied to the property itself, not the individual owner, making it transferable upon sale. PACE programs are typically categorized as either residential (R-PACE) or commercial (C-PACE). While these financing tools are administered at the municipal level, provincial governments play an important enabling role. Legislative amendments, often to Municipal Acts, are required to authorize municipalities to use property tax mechanisms for private property improvements. In many cases, municipalities have accessed capital through the Federation of Canadian Municipalities' Community Efficiency Financing (CEF) program, but provinces can also contribute funding and provide support in developing bylaws, designing programs, and in some instances, administering them directly.

Alberta and Yukon scored the highest in the 2024 Canadian Energy Efficiency Scorecard for the "Enabling and support for PACE programs" category. Alberta is in the lead with its Clean Energy Improvement Program (CEIP), which continues to grow the number of municipalities offering PACE loans. The CEIP is described further in the

following section. As of 2024, Alberta has 22 municipalities with active programs and 28 communities with bylaws (two of which are C-PACE). Yukon's Better Buildings program, launched in 2022, has eight municipalities signed on to offer loans to both residents and businesses for up to 25% of the property value.[69]

5.3 Case Study: Clean Energy Improvement Program

In the absence of regulatory guidance, incentives can help encourage deep retrofit implementation. CEIP has helped to fund hundreds of residential energy upgrades through local R-PACE programs across Alberta. Backed by $82 million from the Federation of Canadian Municipalities' Community Efficiency Financing (CEF) initiative, CEIP enables homeowners to install efficient windows, insulation, HVAC systems, lighting, and renewable energy technologies, with repayment integrated into their property taxes. This model reduces upfront costs and monthly energy bills, making retrofits more accessible and financially viable.

Administered by Alberta Municipalities (ABMunis) in collaboration with local governments, CEIP uses a hybrid delivery model that streamlines planning, funding applications, and program development, which is especially beneficial for smaller communities. The program has also built a robust contractor network, with over 550 members as of mid-2025, ensuring quality installations and supporting local economies. With growing demand, municipalities are exploring ways to sustain retrofit financing beyond CEF support and expand into commercial PACE programs. Notably, Calgary has extended its CEIP and introduced a free Home Upgrades Program (HUP) for income-qualified residents as part of its Energy Equity Strategy. Launched in 2023, HUP received high demand with over 700 households applying for the initial 200 spots. As of July 2024, 60 homes had completed energy improvements under the program with another 45 homes receiving assessments or upgrades. The program met its initial goal of upgrading 105 lower-income homes and has since reached capacity, maintaining a waitlist as planning is underway for future funding.

[69] 2024-Scorecard-Report.pdf

6 SUMMARY OF RETROFIT REGULATORY CHALLENGES & OPPORTUNITIES

As outlined in previous sections, retrofitting existing buildings in Alberta presents several regulatory challenges that can delay or complicate project delivery. These challenges are particularly relevant for deep energy retrofits, which require coordination across multiple systems, stakeholders, and regulatory frameworks. Table 5 below summarizes key barriers noted during the research process, as well as opportunities to strengthen retrofit uptake, streamline permitting, and align with national decarbonization goals. These opportunities are informed by comparative provincial analysis, municipal interviews, and WSP SME insights and are presented on the right side of Table 5 below.

Table 6: Challenges and Opportunities for Deep Energy Retrofits in Alberta

CHALLENGES	OPPORTUNITIES
Lack of Clarity in Code Interpretation for Existing Buildings **Current building codes are primarily designed for new construction, leaving retrofit projects in a grey area. The absence of a dedicated retrofit code has led to inconsistent interpretation of requirements. Since the *Alterations to Existing Buildings (AEB)* code is under development, it** has not yet been a**dopted, and its voluntary nature limits its effectiveness.**	**Adopt and Operationalize the AEB Code** The forthcoming *Alterations to Existing Buildings (AEB)* code will aid in clarifying retrofit triggers and streamlining compliance pathways. Alberta can: • Pilot AEB provisions through voluntary municipal programs. • Develop guidance documents and training modules for AHJs and industry. • Engage stakeholders in shaping Alberta-specific interpretations of AEB.
Limited Municipal Authority to Mandate Retrofits Municipalities in Alberta and across Canada have limited authority to mandate retrofits in existing buildings. Their jurisdiction is primarily constrained to land use planning and enforcement of provincial building codes. As a result, municipalities must rely on voluntary programs, incentives, and education to encourage retrofits, rather than enforce them through regulation. This reliance on influence rather than mandate slows the pace of retrofit adoption, particularly in the absence of strong provincial or federal directives.	**Expand Municipal Authority for Retrofit Standards** Alberta's restriction on municipal energy bylaws limits local innovation. Legislative amendments to the *City Charters* could: • Enable municipalities to adopt higher energy tiers for retrofits. • Support local benchmarking, disclosure, and performance standards. • Align municipal climate plans with enforceable retrofit requirements.
Permitting and Code Challenges for Retrofit Technologies **Retrofit technologies such as geoexchange systems, air source heat pumps, and solar PV introduce unique permitting and regulatory**	**Enhance Code Compliance Infrastructure, Education, and Training** Alberta lacks centralized resources for code training and enforcement. Opportunities include:

challenges in Alberta. A WSP SME explained that while commercial-scale geoexchange projects typically proceed smoothly under development permits and mechanical engineer sign-off, residential projects face greater hurdles due to unfamiliarity with engineered drawings. Solar PV projects require microgeneration permits and documentation of expected production, but provincial rules and market changes can add further unpredictability. These issues underscore the need for clearer guidance and streamlined processes for advanced retrofit technologies.	• Establishing a provincial Energy Code Resource Hub. • Leveraging the federal *Codes Acceleration Fund (CAF)* to develop builder and inspector training. • Conducting compliance studies to identify gaps and improve enforcement consistency. • Developing an education plan to ensure AHJs and relevant stakeholders stay current with codes and standards.
Fragmented Regulatory Oversight and Jurisdictional Overlap **Retrofit projects often require compliance with multiple layers of regulation – municipal bylaws, provincial safety codes, and federal climate targets. The lack of clear code requirements for existing buildings results in a patchwork approach towards dealing with alterations across Canada, leading to confusion over which standards apply.[70] Without harmonization between jurisdictions, administrative burden increases and slows project timelines.**	**Harmonized Retrofit Framework and Coordinated Governance** Opportunities include: • Develop a harmonized retrofit framework by leveraging the forthcoming Alterations to Existing Buildings (AEB) code. • Clarify triggers, documentation requirements, and performance expectations across jurisdictions. • Establish intergovernmental coordination mechanisms (e.g., provincial-municipal working groups). • Align permitting processes, code interpretations, and enforcement practices to reduce duplication and administrative burden.
Lengthy and Unpredictable Permit Review Timelines **Permit review timelines for retrofit projects, especially non-residential and complex residential retrofits, can be lengthy and inconsistent. Calgary's own data shows that only 64% of multi-residential, commercial, and industrial development permits were processed within the 120-day target, with average timelines exceeding four months.[71]** D**elay**ed permitting **can disrupt construction schedules and funding eligibility windows.**	**Implement Expedited Review Streams for Deep Retrofits** Opportunities include: • Implement expedited review streams for deep retrofits through dedicated "green permitting" or priority tracks. • Define clear eligibility criteria for projects meeting energy performance standards. • Invest in digital permitting platforms to streamline application and review processes. • Provide targeted training for AHJs to improve review efficiency and predictability.

[70] Final report - Alterations to existing buildings - National Research Council Canada

[71] Development approvals timelines

	• Leverage automation for document checks and integrate energy compliance tools to shorten timelines.
Minimal Incentives Available for Commercial Retrofits **Existing incentives** in Alberta **are fragmented and skewed toward residential retrofits.** This gap creates a significant barrier for large-scale retrofits, which often require substantial upfront investment and longer payback periods. Without well-designed, transparent, and accessible incentives for commercial buildings, project proponents face difficulty securing funding, reducing the likelihood of deep energy upgrades in this sector.	**Strengthening Retrofit Incentive & Financing Mechanisms** Alberta can: • Expand commercial retrofit incentives and streamline application processes. • Improve transparency in incentive disbursement and eligibility. • Integrate incentives with code compliance milestones (e.g., Tier 2 upgrades). Alberta's CEIP program is a national leader in PACE financing. Opportunities include: • Scaling all CEIP to include commercial retrofits (C-PACE). • Creating a provincial retrofit loan guarantee program. • Partnering with utilities to offer on-bill financing for energy upgrades.
Limited Provincial Scale for Benchmarking and Disclosure While Edmonton and Calgary have established voluntary benchmarking programs that provide valuable insights into building energy performance, these efforts remain localized and optional. Without province-wide adoption or mandatory disclosure requirements, Alberta lacks a consistent data foundation to guide retrofit planning and policy development. In contrast, jurisdictions such as Ontario and Quebec have introduced mandatory energy reporting frameworks for large buildings, enabling comprehensive performance tracking and informed decision-making. Alberta's reliance on voluntary participation leaves significant gaps in data coverage, limiting the ability to prioritize high-impact retrofits and measure progress toward decarbonization goals.	**Advance Data-Driven Retrofit Planning** Benchmarking programs in Edmonton and Calgary offer a foundation for broader data initiatives. Alberta can: • Mandate energy disclosure for large buildings. • Develop a provincial retrofit registry to track upgrades and outcomes. • Use building-level data to prioritize retrofit investments and policy interventions.

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