



Building a sustainable future for Canada

Are we on track to meet net zero goals by 2050?

Tuesday, November 12, 2024

By Terry Bergen and Duncan Rowe

Canada has set a bold goal of reaching net zero emissions by 2050, yet many are questioning whether we're on track to meet these goals—especially within the engineering sectors. This is especially the case in British Columbia and Ontario, where developers grapple with the dual challenges of reducing emissions and meeting the demand for resilient infrastructure and affordable housing.

Competing Priorities in Construction

In B.C., the [CleanBC](#) plan outlines a clear path towards making new buildings net-zero energy-ready by 2030. This means the built environment constructed after 2030 will be efficient enough to meet most or all of its energy needs by renewable on-site energy generation if needed. However, these goals can sometimes clash with the urgent need for better infrastructure and affordable housing, especially if net-zero buildings are perceived as having higher upfront costs.

While energy-efficient buildings can be built at the same cost as traditional methods, developers face challenges that hinder cost-effective net-zero-ready construction. Achieving net-zero goals requires navigating various regulations and frameworks that are often misaligned, complicating the process. These challenges include municipal development requirements that increase costs, decrease operational efficiency, and raise embodied carbon levels. Additionally, customer preferences for certain styles and aesthetics may conflict with sustainable design principles.

Achieving Canada's 2050 goal is complicated by the fact that most existing buildings do not meet modern performance standards. To tackle this challenge, deep energy retrofits must become commonplace, reducing the greenhouse gas emissions of existing buildings by 80 per cent. These retrofits must achieve high-performance goals while often maintaining current building operations. This requires collaboration between owners, engineers, architects, and contractors to create innovative retrofit programs that include various system upgrades.

To achieve the goal Canada needs to retrofit roughly 1 to 3 per cent of our existing building stock each year to net zero while we are currently on track to do much less than 1 per cent. Should this scenario continue by 2050 we will have many new buildings that are net-zero while the larger majority of existing buildings remain poor energy performers.

Building for Resilience and Lower Carbon

Climate change isn't waiting for government bureaucracy to catch up. In recent years, Canada has been hit hard by climate-related disasters, from heat domes and forest fires to floods and hurricanes. This has heightened awareness of the need for resilient infrastructure that will let our buildings withstand catastrophic events.

The building envelope is crucial for resilience, with the team at RJC Engineers finding that well-designed pressure-equalized rain screens and exterior insulation meet most resiliency needs. Attention to tie-in details at windows, doors, and roofs further enhances resilience to climate change. Additionally, a building's carbon footprint is largely influenced by its structure. Structural engineers can create efficient, durable designs through careful planning and material selection, leading to Life Cycle Assessment (LCA) reporting requirements in some municipalities, as emphasized by initiatives like SE 2050.

However, achieving resilience shouldn't come at the cost of accessibility and affordability. Current building practices release approximately 90 million tonnes of greenhouse gases annually, and if we stick with business-as-usual, the 5.8 million new homes required by 2030 will add 18 million more tonnes to our carbon footprint.

The Path Forward

The solution lies in reimagining how, where, and what we build. We encourage concepts such as increased density along transit corridors, mid-rise housing using off-site fabrication, and reduce zoning requirements and development charges to drive our industry forward.

For example, regulations could be modified to prioritize buildings designed for large-scale production and manufacturing, reducing environmental impact. In contrast, single-family homes are less efficient than multi-unit development in already developed areas. Due to the efficiency

of multi-family units and condominiums, it may be possible to reduce their regulatory burden to help balance ecological and economic needs.

Another idea for consideration is off-site prefabricated construction and net-zero products, which are cost-competitive with traditional methods. Prefabricated products can be constructed efficiently by skilled workers already familiar with the process, eliminating the challenges of a learning curve.

B.C.'s Zero Carbon Step Code, effective May 2023, clears a path for progress by requiring a 20 per cent improvement in energy efficiency for most new builds. However, it adds complexity and time to the already intricate regulatory landscape for developers and project stakeholders. It also highlights inconsistencies in code adoption across Metro Vancouver municipalities. This variability can impede project advancement and requires developers to select partners who understand the unique requirements of each municipality.

A Call to Action

For Canada to genuinely be on track to meet its net zero goals by 2050, it requires coordinated action among all stakeholders—governments, developers, industry, and community leaders alike. This means crafting policies that harmonize the twin goals of environmental resilience and housing affordability and empower developers to innovate rather than stifle them under layers of regulation or prescriptive paths.

The notion that “the greenest building is the one already built” underscores the significance of our existing buildings. As a result, deep energy retrofits should become standard practice to enhance their sustainability. Building owners should receive incentives, like a “carbon tax credit,” for upgrading rather than demolishing buildings. An example of effective policy is New York’s Local Law 97. Recognizing the environmental value of “saved” carbon from upgraded buildings could incentivize responsible ownership.

This is a call to the real estate industry, business owners, and government officials in Canada to come together, share knowledge, and create a collaborative, unified strategy. Our shared future depends on it. Let’s ensure that when 2050 rolls around, we can look back and say, “We met the challenge, together.”

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