

**Submission to the
Nova Scotia
Environmental Goals and
Sustainable Prosperity Act
(EGSPA)
Consultation**





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INTRODUCTION

The Canada Green Building Council (CaGBC) supports the Province of Nova Scotia in its goals to protect the environment, reduce greenhouse gas (GHG) emissions and create economic opportunity. Green buildings are one of the most cost-effective ways to reduce GHG emissions as well as save money for Nova Scotia homeowners and businesses. Buildings represent significant potential for economic growth through innovation, investments and job creation. The Nova Scotia building industry continues to grow as demonstrated by their achievements, including the uptake of voluntary Leadership in Energy and Environmental Design® (LEED®) and Zero Carbon Building certifications.

We appreciate the opportunity to comment on the ongoing review of the Environmental Goals and Sustainable Prosperity Act (EGSPA) to provide constructive feedback on the discussions that relate to buildings on behalf of the green building industry in Nova Scotia and Canada. What follows are the CaGBC's recommendations related to the built environment with a focus on how buildings can lead the Province in emissions reductions. These recommendations address new but especially existing infrastructure.

Why green buildings? Nova Scotia's built environment is a significant contributor to GHG emissions at 13 per cent, the third largest emitting sector in Nova Scotia with electricity generation at 42 per cent of emissions being the largest. By constructing low-emission buildings and retrofitting Nova Scotia's existing building stock, the government will lower emissions, create new jobs, and scale-up investments and innovation. At the same time, these investments will ensure its building stock is more resilient to future climate conditions such as extreme weather, forest fires, flooding or droughts. Over 80 per cent of existing buildings will still be in operation in 2030 and 50 per cent in 2050, and therefore it is essential that existing buildings are addressed to meet GHG reduction targets for the building sector.

CaGBC has five key recommendations for the Nova Scotian government in two areas, **Cleaner Energy** and **Leadership in Sustainable Prosperity**. However, investing in greener buildings will also support the Climate Change Mitigation and Adaptation objective. These actions will also help the government foster a strong green building economy, helping generate economic growth and jobs for Nova Scotians. Driven by the CaGBC's Atlantic Chapter, these five high-priority focus actions will kick-start Nova Scotia's green building efforts.

Cleaner Energy

- **Recommendation 1:** Introduce mandatory Energy Benchmarking
- **Recommendation 2:** Accelerate to Zero Carbon Buildings
- **Recommendation 3:** Increase energy efficiency requirements through building codes

Leadership in Sustainable Prosperity

- **Recommendation 4:** Invest in workforce development and training in order to support Nova Scotia's low-carbon building industry
- **Recommendation 5:** Demonstrate government leadership by pursuing LEED® Gold, adjust financing of public buildings and invest in data platforms



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ABOUT CaGBC

The Canada Green Building Council (CaGBC) is a not-for-profit, national organization that has been working since 2002 to advance green building and sustainable community development practices in Canada through market-based solutions. We are an industry-led organization providing value-added solutions that benefit the environment, economy, and public health. Our in-depth market research and analysis, building certification programs (i.e. LEED®, Zero Carbon Building Standard), and capacity building efforts have accelerated the transformation to high-performing green buildings, homes, and communities throughout Canada. Our reach is enhanced by the work of eight provincial Chapters that provide regionally tailored market education and advocacy.



Recommendations for Cleaner Energy

Recommendation 1: Introduce Mandatory Energy Benchmarking

For Canada to achieve significant reductions in GHG emissions and energy use, and meet its overall reduction targets, it is crucial that significant improvements in the efficiency of its existing building stock are realized. For efficiency improvements to occur, further development and support of the country's energy efficiency retrofit economy are needed. Benchmarking is the process of data collection through which a building's resource use is monitored to assess performance and enable comparison with similar buildings. Typically, benchmarking programs require owners of buildings over a certain size to track and often also publicly report their resource use performance data (energy use, water use, and GHG emissions). Energy benchmarking is a foundational piece for a retrofit economy that can help improve the effectiveness of energy efficiency projects and support programs and policy for all building types.

Benchmarking enables policymakers and regulators to monitor how buildings across their jurisdiction are performing, help to determine the levels of performance that are achievable for different building types, identify effective ways to promote building performance improvements, and assess the impacts of energy and GHG emissions policies. Without accessible performance data available, the true value of policies and programs are often difficult to assess and make it more difficult to create the best government response needed to accelerate the pace and depth of energy efficiency improvements. Having access to building performance data also allows owners to assess how their buildings are performing and helps to drive improvements by identifying opportunities for energy and GHG reductions and allows prospective tenants and buyers to make more informed choices about where to buy or rent.

CaGBC believes that the government of Nova Scotia should enact an energy benchmarking regulation. [Our research lays out the steps](#) for implementing such a program and discusses the benefits of a phased approach starting with the largest buildings.

In Fall of 2019, Nova Scotia is embarking on a three-year pilot project managed by CaGBC and Efficiency Nova Scotia designed to enroll commercial and institutional buildings over 50,000 sq. ft in a voluntary benchmarking program using NRCan's Portfolio Manager. Benchmarking provides the Province of Nova Scotia with critical data on the performance of its buildings helping to identify building sectors with the greatest opportunity for improvement and GHG reductions.

We recommend that provincially owned and operated buildings begin mandatory benchmarking as soon as possible with the phased rollout to large commercial buildings beginning as soon as the three-year pilot is completed.



Recommendation 2: Accelerate to Zero Carbon Buildings

A “zero-carbon” building is characterized by four key components: demonstrating a zero-carbon balance in its operations; incorporating a design that prioritizes reducing energy demand and meeting energy needs efficiently; using renewable energy onsite; and evaluating the level of carbon in the manufacturing of structural and envelope materials as part of the design.

[CaGBC research](#) demonstrates that zero-carbon buildings are not only technologically feasible using readily available technologies and practices; they are also financially viable. On average in Canada, zero-carbon buildings can achieve a positive financial return of one per cent over a 25-year lifecycle, inclusive of carbon pricing. In Nova Scotia, this number rises to an impressive four per cent, the highest of all Canadian provinces. Zero-carbon buildings can be built today with operating cost savings covering upfront investments. Zero Carbon buildings also save owners money with low operational energy costs that future proof the building against uncertain energy costs. Our research shows that owners can save approximately 36 per cent annual operating costs. The outcomes for Halifax are strongest due to the high carbon intensity of the of the Nova Scotia electricity grid and the relatively low cost of electricity relative to natural gas (2:1 compared to almost 5:1 in Ontario). These factors make fuel switching for heating and hot water more financially advantageous.

While the construction of new zero carbon buildings will be an important pillar, national targets can only be reached by also reducing the emissions of the millions of square feet of existing buildings. There are many options to reduce carbon emissions in existing buildings, for example by fuel-switching to low-carbon sources or recommissioning—optimizing the performance and operation of an existing building. How a building is controlled, operated and maintained influences how much energy it uses.

The cost of not adopting a zero-carbon approach increases with each passing day. Every building not designed or recommissioned to low-/zero-carbon will contribute to increased carbon emissions—and will inevitably require major investments in mechanical equipment, ventilation systems, and building envelopes to meet future GHG reduction targets.

We recommend Nova Scotia set a clear goal of zero carbon for new construction by 2030, which CaGBC’s research shows is financially and technically viable for the industry. This would provide clarity to developers, designers, and builders about future performance expectations and help them assemble the expertise, processes, and investments needed to be successful.



Recommendation 3: Increase Energy Efficiency Requirements Through Building Codes

Building code amendments can help drive market transformation towards higher performing buildings and houses by establishing progressive energy performance targets toward zero carbon buildings that leverage the success of established, high-performing building standards such as LEED®.

Building code amendments can also activate retrofits in the existing building stock by triggering energy efficiency upgrades in buildings undertaking substantive renovations. Energy conservation and efficiency are critical components of a strategy to reduce GHG emissions from buildings. However, there is also a need for mechanisms that direct the building industry towards low- and zero-carbon energy choices and building designs.

The majority of carbon pollution reductions in the building sector need to come from existing buildings. Building code changes tackling energy efficiency will not be sufficient to reach the required GHG emissions reductions in the building sector. Energy efficiency will generally, but not always, lead to reduced GHG emissions. Without a greenhouse gas intensity emission metric (GHGI), reductions in carbon from buildings are likely to be incremental.

To achieve the large reductions in GHG emissions required from building design and retrofit decisions, the Government of Nova Scotia should consider including a GHGI metric in addition to energy efficiency performance metrics where possible. Using a GHGI metric with other measures that encourage high energy performance and sustainable building design will help drive choices about the types of energy that are used in buildings and promote decarbonization through electrification to leverage on-site renewable energy generation in buildings.

Energy codes must move aggressively towards 2030 targets. Resources will be needed to help educate, review and enforce the codes, as well as to ensure the targets are being met. Future versions of the Nova Scotia Building Code must align performance with GHG targets, including net zero by 2030.

Developing incentives for new and existing commercial buildings to pursue zero carbon targets would help to demonstrate feasibility in the market in advance of the codes. Leadership should also come in the form of commitment from the provincially owned buildings to pursue zero carbon targets.

Commissioning by a certified commissioning authority is one of the most effective ways to encourage high-quality installations, to detect and correct errors early, and to ensure a smooth transition between builders and building operators. For this reason, commissioning has been a requirement for building certification programs such as LEED® for many years and is becoming common practice across the industry. Requiring commissioning and re-commissioning would support code compliance, protect owners, and help close the gap between as-designed and as-operated performance.

CaGBC recommends that to achieve the large reductions in GHG emissions required from building design and retrofit decisions, the Government of Nova Scotia should adopt the National Energy Code of Canada for Buildings 2017 and all future editions as the code moves buildings towards Net Zero, and also consider adopting a Retrofit Code.



Recommendations for Leadership in Sustainable Prosperity

Recommendation 4: Invest in Workforce Development and Training to Support the Building Industry

Today's complex and changing labour market requires workers to adapt, retrain, or upskill to be successful. As building products, mechanical systems and the buildings themselves are increasingly affected by green-building innovation, so too are the skills needed to effectively plan, design, construct, operate and maintain them. Shifting building and workforce requirements often put workers at a disadvantage and in need of new skills to respond to these ongoing changes. As Nova Scotia transitions to a low-carbon economy, it needs to develop a robust construction workforce with the capacity to develop, construct, and manage to retrofit existing buildings and new homes to make them greener and healthier to live in. The construction trades are not the only profession in the building industry that needs to adapt. Building officials, engineers, architects, designers, project managers, energy modellers, and building operators will also need to upgrade their skills to deliver on highly innovative and smart green buildings. With higher standards for more efficient and climate resilient buildings becoming the new normal, the need for green-building skills will continue to increase at a rapid rate.

CaGBC [research](#) identifies the range of skills and capabilities required by key professions and trades, as well as identifies the barriers that need to be addressed to scale up high-performing buildings and retrofits to their full potential.

To meet Nova Scotia's target of a net-zero energy model by 2030, it is essential that the building industry have the skills needed to adapt effectively in an ever-changing building and construction world, including the move towards green-building innovation and a low-carbon economy. It is imperative that the green building workforce keep up with this growing need. Conversely, there is a distinct gap in the educational upgrading opportunities currently available that could assist the green building workforce in meeting the need for green-building skills. Nova Scotia should identify gaps in existing training resources and determine the capacity of its building industry personnel to deliver efficient and healthy homes.

CaGBC recommends analysing the skills gap and capacity of the construction workforce in Nova Scotia including an inventory of available training, training gaps and training resources. This would enable Nova Scotia to assess training availability and potential and determine investment in additional training and capacity resources to empower its construction workforce for the jobs of the future.



Recommendation 5 – Demonstrate Government Leadership by Pursuing LEED® Gold, Adjust Financing of Public Buildings, and Invest in Data Platforms

We applaud the Nova Scotia government’s leadership in adopting high-performance building best practices and encourage them to continue to demonstrate that leadership. Currently there are 170 LEED® certified buildings in Nova Scotia, with 378 more registered to certify. CaGBC recommends three areas where the Nova Scotia government could maintain its leadership role:

1. Standards and Certification

The CaGBC recommends that the government of Nova Scotia continues to design new public sector buildings and renovate existing ones to a high environmental standard for GHG emissions reductions, energy and water efficiency, recycling and material choices, health and wellbeing. It is recommended to strengthen the mandate for government buildings to pursue LEED® Gold certification for both new and existing buildings and where feasible consider the Zero Carbon Performance Standard for new and existing buildings. LEED® is the most widely recognized and rigorous third-party certification in Canada and globally. LEED® certification will provide transparency to taxpayers that the government is delivering on its environmental commitments and, at the same time, produce year-over-year operating savings. LEED® for Operations and Maintenance (O+M) offers existing buildings an opportunity to measure operations, upgrades and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. Along with the economic and environmental benefits, LEED’s requirements increase occupant comfort and satisfaction by delivering healthier buildings with more daylight, better air quality, and improved temperature control. Pursuing the Zero Carbon Performance Standard will demonstrate to the market that low-carbon buildings are technically feasible and an effective strategy to drive down real emissions from buildings.

2. Lifecycle Cost Lens

Currently, uptake of high-performance buildings in the public sector is hindered by rigid formulas that only consider first cost of construction. This often does not allow a project to fund investments in energy efficiency that generate enhanced lifecycle cost savings. Ensuring that all publicly funded developments and retrofit projects are evaluated based on total life-cycle costs including both capital expenditures and operating expenses will safeguard that public funds are spent to achieve the best outcomes possible.

3. Data Platforms

Innovation and risk management in the building sector is greatly supported by public data that is most efficiently collected at the Provincial level. CaGBC recommends that the Province support the development of data platforms that help inform private sector investment in building energy conservation, sustainability and resilience. These data tools include:

- The Energy and Water Reporting and Benchmarking program to drive energy efficiency in existing buildings;
- Climate change risk mapping to inform development and design decision making that mitigates financial and safety risks;
- Tools to help developers and building owners navigate regional conservation programs and funding opportunities.



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Demonstrating government leadership will drive change, inform policy development and enable job creation and GDP growth in Nova Scotia by strengthening the capabilities of the regional green building sector, informing investment and export opportunities.

Conclusion

CaGBC recommends five actions in two areas, **Cleaner Energy** and **Leadership in Sustainable Prosperity**. However, investing in greener buildings will also help with Climate Change Mitigation and Adaptation:

Cleaner Energy

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These actions are just a starting point for dialogue about buildings as part of the new EGSPA legislation. The CaGBC Atlantic Chapter will continue our work with the provincial government to advance Nova Scotia's green building standards for zero carbon requirements for new construction, and to renew and strengthen their commitment to green certifications such as LEED® in all government-owned and funded buildings.