

QUEST

Policy Brief

Enabling Meaningful Climate Action in the Building Sector Across Nova Scotia

Prepared by: QUEST, in consultation with the QUEST Nova Scotia Buildings Working Group

Presented to: Nova Scotia's Department of Energy and Mines and Department of Environment and Climate Change

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About the QUEST Nova Scotia Buildings Working Group

[QUEST](#) is a national non-government organization that works to accelerate the adoption of efficient and integrated community-scale energy systems in Canada by informing, inspiring, and connecting decision-makers.

The [QUEST Nova Scotia Buildings Working Group](#) is a province-wide network of provincial and municipal government staff, the real estate sector, developers, contractors, urban and rural planners, and non-profit organizations that are engaged in improving the energy and environmental performance of buildings while advancing integration with other systems such as transportation, land use planning, and renewable energy. As a Working Group, we are recommending provincial action and policy changes that will advance the energy and environmental performance of buildings in Nova Scotia. We appreciate the opportunity that the Department of Energy and Mines and Department of Environmental and Climate Change has provided to inform the development of the regulations under the Sustainable Development Goals Act and the Province's Climate Change Plan for Clean Growth.

Working Group Participants

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|---------------------------------|--------------------------------|-------------------------------------|
| + Clean Foundation | + Consultants | + Alto Solar |
| + Enbridge Gas | + Heritage Gas | + CMHC |
| + Ecology Action Centre | + NSCC | + Office of the Fire Marshall |
| + PACE Atlantic | + Efficiency Canada | + VanCity Community Investment Bank |
| + Halifax Water | + Armstrong Fluid Technologies | + Equilibrium Engineering |
| + Halifax Regional Municipality | + ReCover | + Thinkwell Shift |
| + Stantec | + KMKNO | + NS Department of Energy and Mines |

Methodology

The recommendations contained in this brief were developed by the members of the Buildings Working Group over the course of two meetings coordinated by QUEST in January and March 2021. QUEST developed five themes that captured a broad scope of building-energy related issues and opportunities to explore. Working Group members selected one of the themes to focus on and joined the appropriate breakout group to brainstorm ideas relating to the themes. Towards the end of the breakout session, each breakout group selected its top 2-4 recommendations and reported them back to the Working Group for consideration and further discussion. After the meetings, QUEST followed up with the breakout group leads to further clarify and refine recommendations before combining them into a draft document which was reviewed and approved at a subsequent meeting of the Working Group.

Recommendations

The Buildings Working Group has made recommendations in 5 categories:

- Data and tracking;
- Funding and financing;
- Education and training;
- Standards, codes, and quality assurance; and
- Workforce capacity.

Each category is distinct and addresses a particular area of need or opportunity to advance the energy and environmental performance of buildings in Nova Scotia. Many of the recommendations are also complementary, enhancing and supplementing one another.

The high-level recommendations provided in this brief are intended to start a deep and generative conversation. We invite representatives of the Province to a follow-up meeting with the Working Group to review, discuss, and explore the recommendations more thoroughly; and offer the Group as a resource and sounding board for the departments as they work through the prioritization, refinement, and implementation of related policies and programs.

Data and Tracking

Benchmarking

Without context, data is of limited use. Benchmarking building energy use enables owners to establish a baseline against which to track year-to-year energy performance, along with the progress and impact of energy-saving projects. For owners of a portfolio of properties, benchmarking identifies properties that are in greatest need of attention with respect to energy use and efficiency and would benefit the most from energy audits or retro-commissioning processes. In the context of an industry-wide practice, benchmarking also allows a comparison of building energy consumption against equivalent buildings, and to use that information to make informed decisions about energy performance and investments.

The province can encourage building owners and managers to benchmark building energy performance through:

- promoting education campaigns;
- encouraging the sharing of results and lessons learned;
- developing informational resources on accessing energy data;
- promoting the availability of and facilitating training on benchmarking tools for the transfer of energy data in a standardized format for use in databases (e.g. ENERGY STAR Portfolio Manager) to improve ease of access for aggregated data of multiple residence facilities, or the creation of a pool/database of benchmarked buildings for comparing and contrasting different building parameters; and
- making program eligibility, and access to financial incentives and rebates, contingent on the establishment of implementation of an energy benchmarking routine.

In the near term, the Province can encourage building owners to participate in Efficiency Nova Scotia's [Energy Benchmarking Pilot](#), and enroll its own buildings in the project to set an example, and increase demand and capacity.

Utility Data Aggregation

Access to energy use data is the foundation of every plan or action to reduce GHG emissions, whether by an owner benchmarking their building to support energy efficiency investment decisions, or by a municipality developing a community energy or emissions reduction plan. Natural Resources Canada is implementing protocols for the analysis of Home Energy Assessments and NS Power is implementing the Green Button Standard for energy data collection and analysis. The province can facilitate access to, and aggregation and reporting of, energy use data by encouraging the Green Button Standard to be used by other energy providers. The Province can also advance the work outlined in the QUEST [Atlantic Canada Energy Data Roadmap](#) by exploring ways to incorporate specifics of building type, location, multiple-residence facilities, whole-building energy data, etc. — that protect privacy while allowing for benchmarking of buildings and development of GHG emissions inventories.

Funding and Financing

Targeting Programs

Success happens when preparation meets opportunity. The province's building energy programs can help all home and building owners improve building performance and reduce energy consumption. The Province can take a strategic and targeted approach to developing, promoting, and expanding both opportunities to participate in and the types of buildings that qualify for those programs in order to increase uptake and realize greater energy savings and emissions reductions.

For example, when a furnace or water heater fails, most homeowners look for the fastest and simplest replacement option available. Programs that help homeowners identify HVAC equipment that is approaching its end of life, or provide temporary replacements through an energy-as-a-service model, can, when paired with rebate and incentives to encourage building owners to invest in efficient equipment or switch to low-carbon fuel sources, turn such failures into opportunities to improve energy efficiency and switch to low-carbon fuel sources.

Similarly, incorporating building-envelope improvements that the building owner may either not consider, or be feasible within their project budget, into a planned renovation can further improve the ROI of the resulting energy savings. Engaging local building officials and contractors to promote targeted stimulation (e.g. rebates and incentives) and financing (e.g. PACE) programs appropriately can increase the likelihood that these improvements are included in planned renovations by increasing awareness of the opportunities, highlighting the availability of rebates and incentives, and reducing capacity gaps.

Finally, while programs that address building energy performance can achieve a broad range of policy objectives, ensuring that they are designed to maximize GHG emissions reduction as a primary goal will give Nova Scotia the best chance to meet its ambitious GHG emission reduction targets while also realizing many important co-benefits. This means targeting homes and buildings with the most carbon-intensive heating systems and designing programs to generate long-term, meaningful reductions, rather than facilitating investment that locks in emissions-intensive or bridge-fuel technologies.

Coordinating Funding Programs

The province supports several funding programs that enable and incentivize building owners to invest in energy efficiency. While offering diverse and targeted programs can address multiple policy objectives, the Province can improve coordination among them by creating a single point of entry into a suite of programs that streamlines the process of finding and accessing programs for which the building owner is eligible. Further, the province can schedule regular reviews of funding programs and work with delivery partners and administrators to solicit input and feedback from program audiences and applicants to improve programs, processes, and outcomes.

Total Cost of Ownership / Lifecycle Costing

Traditional return-on-investment (ROI) calculations that pit energy savings against project costs only capture part of the beneficial impacts of energy efficiency, and discourage deep energy retrofits. The province can help inform decision-makers and drive investment by evolving financial metrics to include total cost of ownership and lifecycle costing. The inclusion of additional energy efficiency impacts in financial models and decisions will make it easier to illustrate the full lifecycle benefits to building owners when they are making energy efficiency project decisions

Education and Training

Integrated Design and Construction

Clear communication between designers, builders, and tradespeople during the early stages of a project is necessary to identify and implement efficient and cost-effective low-carbon solutions. Project teams made up of a diverse design/contractor group, working with a dedicated energy advisor, are key to achieving cost-effective and affordable low carbon buildings — yet such integrated project teams are rare in Nova Scotia, resulting in less efficient buildings that are more expensive to operate. Additionally, low-carbon design and construction require all parties in the building chain, purchasers, designers, contractors, operators, etc., to understand the fundamentals of low-carbon construction principles so that they know what they're asking for in green building and infrastructure projects and can eliminate disconnects between project partners. The Province can encourage integrated design by taking a leadership role, both setting an example and building experience and capacity in Nova Scotia, by requiring the involvement of an integrated design team for all buildings over a set square-footage threshold that the Province builds or provides funding to.

Central Certification Body/Standards

The Province can identify a single host organization to administer all training and certification for those working in the low-carbon building sector. A single certification body would reduce market-confusion regarding the training standards or certifications that define a low-carbon builder, and streamline the certification process for each trade and contractor field. An entity with research capacity, industry ties, and an educational mandate, such as Nova Scotia Community College, can perform the necessary research, consultation, and coordination to determine appropriate standards for each trade, and then administer the training and certification process, supporting and accrediting 3rd parties to deliver training and courses that meet the standard.

Leveraging of Existing Support Programs

Capacity building for the green economy is required to ensure all builders and trades are up to speed on efficiency and sustainable building standards/practices. Provincial funding programs such as WIPSI already exist to help businesses become more competitive, productive, and innovative. These programs can be leveraged and expanded upon to better support the green economy, and more specifically the small and medium-sized contractors who do not have resources to invest in skills-training.

The Province can maintain investment in WIPSI (and similar programs), advise that these programs can be used to support this type of capacity-building training as part of the transition to a green economy, and dedicate additional funding for the express purpose of ensuring a just transition by building workforce capacity towards a low carbon future.

Standards, Codes, and Quality Assurance

Maintain Leadership on Model Code Adoption

Progressive model building and energy codes raise energy efficiency performance standards, reducing energy use and related emissions. A step code sets a clear direction for the market to move towards higher energy efficiency standards, and a performance based code provides flexibility in how energy savings are achieved, drives innovation within the sector, and encourages accountability. The Province can maintain its position as a national leader through early adoption of the 2020 model codes, and by committing to and developing a plan for adopting the net-zero energy ready model code for new buildings by 2030.

Coordinated Build Code Implementation

The Province can improve the impact of the building code, and smooth the transition to future steps, by creating an inclusive support structure that will help actors in the building sector learn what is involved in Net Zero Energy ready (NZEr) model codes, how to build to this standard, how to do quality assurance, and how to enforce the code. Additionally, the Province can provide training to relevant parties and provide networking/knowledge sharing opportunities on NZEr. This important stepping-stone should be succeeded by effective enforcement to ensure compliance and reduce building emissions.

Adopt the Model Retrofit Code in a Timely Fashion

The province should adopt the in-development model retrofit code for energy efficiency standards by 2025. The sooner the code is adopted, the more and more quickly renovations of existing buildings will include measures to ensure compliance with minimum performance standards, reducing energy use and emissions from one of Nova Scotia's largest sources of GHG emissions.

Workforce Capacity

Drive Investment and Demand

To effectively build workforce capacity in the green building sector, all relevant stakeholders within the provincial government must commit to collective, coordinated action. That means committing to progressive building and energy codes that set the bar and investing in training and educational opportunities to increase supply, as outlined in previous sections, and making procurement commitments to send market signals and generate demand for low-carbon skills and practices.

The Province can incorporate low carbon design, materials, and construction requirements into tenders for all buildings over a set square-footage threshold that it builds or for which it provides funding support. Providing clear guidance and standards to design, procurement, and build teams on low-carbon solutions, and incorporating sustainable practice requirements into government tender documents and evaluation, will increase capacity within the market and ensure companies are scored competitively.

Such requirements will generate more affordable and complete construction outcomes, and increase the rate of adoption of low-carbon design solutions across the sector. Additionally, the Province can work with successful proponents and project teams to capture and communicate best practices and success stories, to be shared industry-wide.

Transition Roadmap

To ensure Nova Scotia's construction and building industries progress and remain competitive, the Province can develop a low-carbon economy transition strategy, with a specific focus on training and green jobs. The building sector needs a plan that provides direction, certainty, and support for investment and innovation in training, hiring, practice, procurement, and technology. In the near term, the Province should continue to support the NZER 2030 Building Code Workforce Coalition, which focuses on training, capacity building, and demand for net-zero energy ready buildings, along with their recommendations.