

Accelerating B.C.'s economic recovery through building retrofits

Submission to the Government of British Columbia

by Madi Kennedy, Tom-Pierre Frappé-Sénéclauze, and Ghazal Ebrahimi | July 2020

Introduction

The COVID-19 pandemic has had a profound effect on the economy, resulting in 13% of B.C. workers becoming unemployed, including 11% of the construction sector.¹ In response, the B.C. government has committed to invest \$1.5 billion to accelerate recovery and to maintain support for impacted industries in Budget 2021.² The preliminary plan states reconciliation and clean growth will be at the heart of the recovery effort.³ In this, B.C. is in good company; the “build back better” approach — aligning economic recovery with action on climate change — has been championed by public and private organizations around the world, including representatives of the United Nations and OECD.^{4,5}

Building retrofits can help us build back better by advancing multiple government objectives including housing affordability, climate mitigation and adaptation, poverty reduction, and public health. Retrofits are also an effective tool for economic recovery because they create a high number of jobs per dollar invested (8–27 jobs/\$ million⁶), employ a range of skilled labour, use mostly local materials, and create employment where people live.

¹ Government of British Columbia, *Building BC's Recovery, Together* (2020), 7. <https://engage.gov.bc.ca/app/uploads/sites/608/2020/06/Recovery-Discussion-Paper.pdf>

² *Building BC's Recovery, Together*, 9.

³ *Ibid.*, 9.

⁴ OECD, *Building Back Better: A Sustainable, Resilient Recovery after COVID-19* (2020), 2. <http://www.oecd.org/coronavirus/policy-responses/building-back-better-a-sustainable-resilient-recovery-after-covid-19-52b869f5/>

⁵ Ellen Macarthur Foundation, *A Solution to Build Back Better: Circular Economy* (2020). <https://www.ellenmacarthurfoundation.org/assets/downloads/emf-joint-statement.pdf>

⁶ Dunsky Energy Consulting, *The Economic Impact of Improved Energy Efficiency in Canada* (Clean Energy Canada, 2018). https://cleanenergycanada.org/wp-content/uploads/2018/05/TechnicalReport_EnergyEfficiency_20180403_FINAL.pdf; and Acadia Center, *Energy Efficiency: Engine of Economic Growth in Canada* (2014). <http://acadiacenter.org/document/energy-efficiency-engine-of-economic-growth-in-canada/>

The B.C. government is soliciting feedback on the \$1.5 billion Economic Recovery Fund. The following document outlines the Pembina Institute's recommendations for investing in building retrofits through the Economic Recovery Fund and Budget 2021.⁷

Challenges

There are some challenges in successfully delivering both rapid economic recovery and lasting social benefits through retrofits:

- Existing incentives and regulations focus primarily on energy efficiency and carbon reductions: interaction with resiliency and health objectives are often ignored at the planning and design stage or not implemented because they are not incentivized (see Figure 1 and 2).
- Public subsidies for retrofits can deepen inequity issues if mostly directed to those who own property.
- Many individual owners must be informed and understand the value of upgrading their property despite uncertain economic times.
- Access to trained contractors and high-performance equipment is limited, and creates a bottleneck.
- Short-term incentives can create a boom-bust cycle in the demand for retrofits and ultimately slow market transformation.⁸

⁷ The recommendations presented in this document were informed by discussions with experts from industry, public service organizations, and local government. The authors would like to thank these individuals for their insights: Jonathan Ho (Richmond School District No. 38), Thi Nguyen (Richmond School District No. 38), Kori Jones (Vancouver Coastal Health), Angie Woo (Fraser Health Authority), Alex Hutton (Providence Health Care), Chuck Morris (Greater Victoria School District No. 61), Warren Knowles (RDH Building Science), Ralph Wells (UBC), John Madden (UBC), Jennifer Sanguinetti (UBC), Dave Woodson (UBC), Julie Pett (UBC), Muneesh Sharma (Building Owners and Managers Association of BC), Robert Greenwald (Prism Engineering), Dale Littlejohn (Community Energy Association), Paul Shorthouse (GLOBE Group), Ian Cullis (BC Non-Profit Housing Association), David Hutniak (Landlord BC), Dave Ramslie (Concert Properties Ltd.), Peter Sundberg (City Green Solutions), Christine Gustafson (High Performance Stakeholder Council), Damian Stathonikos (Building Owners and Managers Association of BC), Christian Cianfrone (Zero Emissions Building Exchange), Fabian Navarro (BC Housing), Elyse Henderson (RDH Building Engineering Ltd.), Scott Sinclair (SES Consulting), Bill MacKinnon (BC Housing), Marika Albert (BC Non-Profit Housing Association), Susanne Ruhle, Michael Rodgers (Co-op Housing Federation of BC), Darren Kitchen (Community Land Trust), George Benson (Vancouver Economic Commission), and Mary McWilliam (British Columbia Institute of Technology).

⁸ In 2009-2012 the retrofit industry was in a boom after an influx of incentives (Home Renovation Tax Credit, EcoEnergy, LiveSmartBC) following the 2008 recession. When these incentives were cancelled or fully allocated the retrofit industry saw a sharp decline. The upcoming stimulus funding is an opportunity to rebuild the renovation sector sustainably by combining incentives and workforce development with regulatory measures to sustain the retrofit economy beyond this stimulus period.

Guiding principles

To address these challenges, we recommend that stimulus investments in the building sector be guided by the following five key principles.

- **Integrate public health and climate objectives for low-carbon resilience:** Ensure major retrofits capture opportunities to improve seismic resiliency, climate adaptation, and disease control alongside carbon reductions (Figure 1 and 2).
- **Target funding to increase equity:** Focus incentives on renters, low-income homeowners, and public assets serving the needs of communities: long-term care facilities, affordable housing, schools, and Indigenous housing.
- **Go deep, rather than wide:** Maximize opportunities for carbon and energy reductions at each site, rather than attempt to reach many sites with low-cost measures. This will help support the construction sector and grow upstream economic development in manufacturing of high-performance components and materials.
- **Build the workforce:** Partner with public and private organizations to deliver subsidized training programs, develop design guides, conduct integrated design sessions (charrettes), create data tools (e.g. remote energy audits), etc. Provide retraining support for impacted economic sectors to join the retrofit economy workforce.
- **Pair short-term incentives with policy measures to sustain long-term action:** Clarify the objectives of the 2024 retrofit code and accelerate consultation for its design, firm up timelines for performance standards for heating equipment, move forward with mandatory disclosure policies, and enact PACE-enabling legislation.

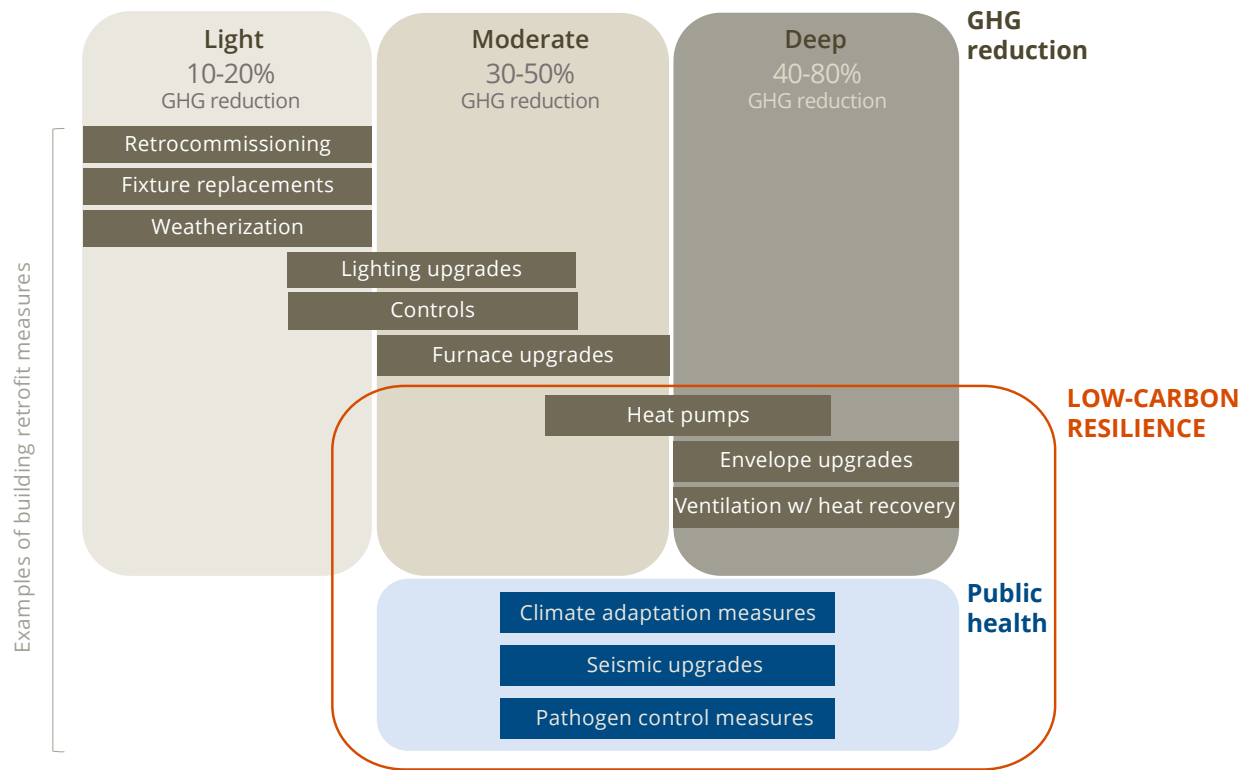


Figure 1: Low-carbon resilience

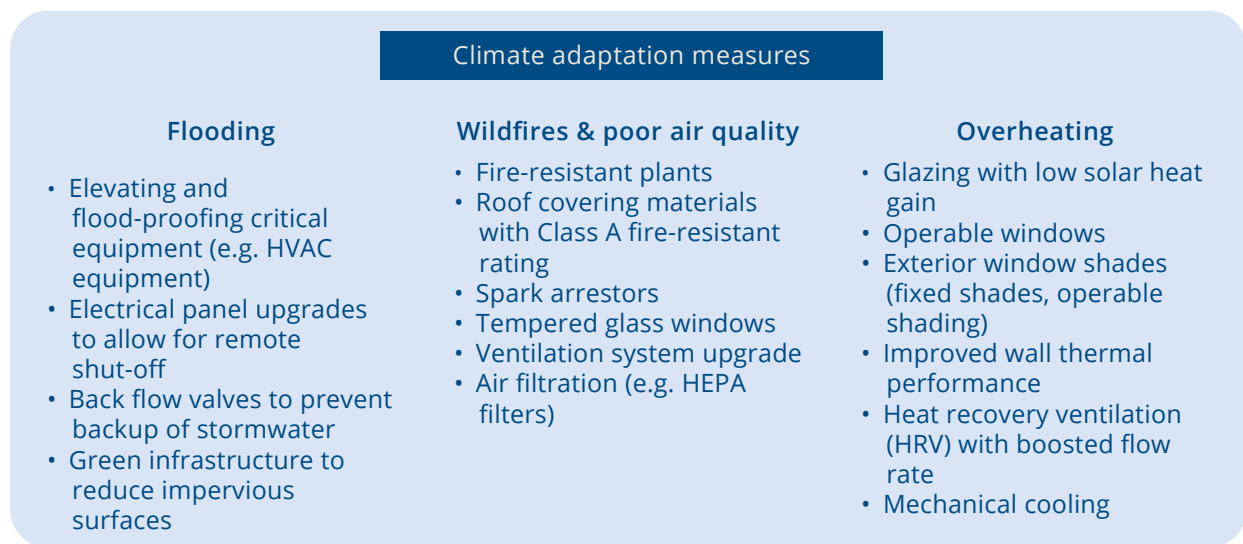


Figure 2: Climate adaptation measures

Recommendation 1: Boost CleanBC incentives for deep retrofits in homes and buildings

Additional investments for retrofits can be channelled through CleanBC incentive programs with specific measures to target community-serving buildings, and COVID-impacted sectors. Incentives should focus on future-proofing sites by minimizing energy waste, fuel switching, and improving their resilience to extreme weather, earthquakes, and infectious disease. We recommend that program requirements and incentives be adjusted to encourage deeper retrofits to accelerate uptake and maximize associated social and economic benefit for each participating site. Deeper retrofits will also direct more investment toward high performance materials and low-carbon technologies supporting the growth of B.C.'s clean tech sector and value-added resource industry (advanced wood products, low-carbon cement, etc.).

Key strategies

CleanBC Better Buildings

1. Increase incentive limits under CleanBC Better Buildings custom programs to cover incremental cost of multi-objective energy studies⁹ and deep retrofits.¹⁰
2. Provide incentives for electrical service upgrades and work with BC Hydro to minimize connection delays and internalize the cost.¹¹
3. Review the Better Buildings custom-lite program to capture smaller equipment replacement projects, and to allow a simplified and expedited approach to energy studies.¹²
4. Top up energy study funding to engage subject matter experts and key stakeholders in planning and early stages of design to identify carbon emissions reduction opportunities (i.e. pre-design charrettes) and cover the cost of completing resilience risk assessments (e.g. extreme weather, earthquakes, and infectious disease outbreaks).

⁹ Minimizing the risk of spreading infectious diseases, energy efficiency, fuel switching, reducing operational costs, minimizing embodied carbon, and enhancing climate adaptation and seismic resilience.

¹⁰ The \$200,000 per site maximum is small compared to the cost of a deep retrofit (~\$50,000 to \$100,000 per unit) or a comprehensive fuel switch (in millions, depending on size).

¹¹ Electrical service upgrade is a major barrier to electrification at many sites: it adds hundreds of thousands of dollars of costs (easily double or triple the cost of equipment installed) and creates delays as proponents require BC Hydro service and municipal approvals.

¹² This allows failing assets replacement projects to consider utilizing climate-friendly and energy efficient equipment instead of like-for-like replacement.

CleanBC Better Homes

1. Restructure and increase incentives under CleanBC Better Homes to encourage maximum GHG reductions achieved per retrofit.
 - a. Replace or complement the ‘multiple measure’ bonus with an outcome-based program that ramps up incentives significantly for deeper GHG reductions.
 - b. Provide incentive top-ups for low- and medium-income households to increase equity and reduce free ridership.
 - c. Provide incentives top-ups for climate adaptation measures to address risks of flooding, overheating, or poor air quality.
2. Consider how the CleanBC Indigenous Community Energy Coach program and CleanBC Indigenous Community Heat Pump Incentive program could be supplemented or supported to accelerate roll-out.

Recommendation 2: Accelerate retrofits and construction of social housing

Access to stable and affordable housing is a key determinant of health, and social housing is home to many of our most vulnerable community members. Investing in retrofitting the existing social housing stock will not only create more efficient, resilient, and low-carbon homes, but also play an important role in improving the health, wellbeing and comfort of tenants. Increasing support for social housing retrofits is aligned with provincial objectives including CleanBC and the 30-Point Plan for Housing Affordability.

Key strategies

1. Accelerate the roll-out of Capital Renewal Fund allocations for 2020 and 2021 and provide additional funding to deepen retrofits and include resilience measures.¹⁵ To

¹⁵ The pace of retrofits in non-profit housing is primarily constrained by the annual Capital Renewal Fund (CRF) envelope (\$1.1 billion over 10 years or around \$110 million / year), by staffing capacity at BC Housing and BC NPHA, and capacity in smaller non-profit housing societies. The funding envelope for the CRF is based on the BC Rental Housing Coalition recommendations. The BC Rental Housing Coalition based that estimate on the building condition assessments database of the BC NPHA but included only basic measures bring it to a ‘good’ state of repair (i.e. 50% of the estimates provided in building condition assessment, which are to bring it back to a ‘like new’ level.) Therefore, this funding is not expected to be sufficient to include meaningful energy upgrade or climate adaptation measures. (reference: BC Rental Housing Coalition, *An Affordable Housing Plan for BC* (Housing Central, 2019). 11. https://housingcentral.ca/SITES/HousingCentral/Advocacy/BC_s_Affordable_Housing_Plan/HousingCentral/Affordable_Rental_Housing_Plan.aspx?hkey=e2b2a8fc-486b-4a61-bd71-513f23c2990c).

ensure these renovations put the sector on a low-carbon trajectory, funding should require at least a 50% reduction in GHG emissions.¹⁴

2. Accelerate retrofits of cooperative housing by providing low-interest long-amortization loans alongside the CleanBC grants.¹⁵ These should also be made available for acquisitions to increase the number of units.¹⁶
 - a. Make access to lending conditional on meeting greenhouse gas intensity (GHGI) and resiliency targets.
 - b. Consider offering similar loan and grant packages to purpose-built rental building owners conditional on certain rent affordability guarantees.
3. Accelerate construction of new social housing by increasing the Community Housing Fund, Indigenous Housing Fund, Supportive Housing Fund, and Women's Transitions Housing Fund.¹⁷
 - a. Future-proof new social housing by providing funding top-ups for development projects that meet carbon reduction and resilience goals beyond targets set in the BC Housing construction guidelines, and establish GHGI target set in these guidelines.¹⁸

¹⁴ Currently, social housing renovations funded by BC Housing's CRF do not have to achieve any minimum carbon reductions or address future climate risks. Most renovations include basic energy efficiency upgrades, but these are very limited in their carbon reduction potential.

¹⁵ About 20% of non-profit buildings do not have operating agreements and are not eligible for Capital Renewal Funding or CMHC's co-investment fund. We estimate unaddressed capital renewal needs in co-ops and other non-CRF-eligible housing societies at \$25-30 million per year. These societies typically borrow from commercial lenders to cover major replacement and limit upgrades to code minimum in absence of grants, and tend to postpone investment until advantageous government programs are available. Federal funding is available to the sector through CMHC co-investment fund, CMHC preservation funding (for co-ops), and FCM's sustainable affordable housing fund; however, misalignment between funding requirements makes stacking provincial and federal funding very challenging. Lease renewal for co-ops on city-owned land can also be a barrier.

¹⁶ Many private rental properties in B.C. are rapidly being purchased by real estate investment trusts (REITs), which are fiduciarily bound to maximize revenues and increase rents by the maximum amount permissible. These market rental buildings could remain affordable if they were taken over by the non-profit sector. Advantageous lending could be made available to housing societies, the Community Land Trust, or a new province-wide land trust organization for the purchase (and upgrade) of market rental properties put for sale.

¹⁷ The Community Housing Fund's first call (2018) was fully allocated; the second call is just about to open. Significant progress has been made towards the 12,000 new units per year target in the 30-point plan but the target has not yet been reached. Securing land and building permits is the main bottlenecks. Land values, labour costs, and interest rates have all decreased recently, which provides an ideal context to accelerate the pace towards reaching this target. A number of municipalities have also signaled their willingness to consider waiving public hearings and fast-tracking projects that offer high community amenity and/or high affordability.

¹⁸ The BC Housing Design Guidelines require a high level of efficiency (BC Energy Step Code 3 or 4). Since December 2019, they also include a carbon intensity target which should ensure space heating at least is low-carbon. However, these guidelines are not requirements so they can be overturned. They also do not include climate adaptation measures, nor do they track embedded carbon.

- b. Expand the Social Housing Retrofit Support Program to new construction, to provide funding for societies to hire development consultants to support them through the development and construction process.¹⁹

Recommendation 3: Deepen renovations of public sector buildings

Public buildings, including seniors' homes, long-term care facilities, schools, universities, and community centres, can increase the resilience of communities and support COVID-19 recovery by providing refuge space with enhanced indoor air quality and by providing critical social services that help people get back to work: childcare, healthcare, training. Supplementing public service organization (PSO) funding for the maintenance of these facilities protects these community assets and facilitates the return of users by enhancing indoor environmental quality (for example by upgrading ventilation and air filtration systems).

Key strategies

1. The Carbon Neutral Capital Program provides grants to PSOs to invest in capital projects that reduce energy costs and lower carbon emissions. Increase available funding to PSOs under this program for capital projects to enable low-carbon resilient retrofits (see Figure 1).
2. Increase CleanBC Building Innovation funding²⁰ for PSOs to show leadership by supporting demonstration projects and adoption of innovative technologies and novel design and construction practices.

Recommendation 4: Increase workforce and supply chain development

The construction slowdown caused by COVID offers a unique opportunity to upskill the renovation and construction industry to deliver deep retrofits and net-zero-energy ready construction. It can also serve as an opportunity to recruit new workers to address the labor shortages expected in the industry, including contractors, trades, operators, architects, engineers, building officials and building managers.

¹⁹ Some of the new construction projects being built are not performing as they should as a result of improper design; housing societies do not have the knowledge to recognize these issues early in the process.

²⁰ Public sector projects that receive support through CBBI Funding programs should follow a public procurement process (for hiring suppliers, consultants, designers, and contractors) that embraces innovation by including in the evaluation criteria both the innovation significance of the proposed solution (product and/or service), and the innovation expertise/background of the proponent.

Support can also be provided to B.C. manufacturers to develop high-performance building components to meet local and export demand, to B.C. suppliers to become regional distributors of imported technologies, and to the resource industry to provide value-added products such as cross-laminated timber, structural insulated panels, and wood fibre insulation.

Key strategies

Workforce development

1. Provide incentives and wage subsidies for upskilling or retraining. Training institutions, industry associations, professional bodies, and trade unions can provide remote training and hands-on training compliant with social/physical distancing measures.
2. Expand training program offerings for rural, remote, and Indigenous communities. This could include working with regional training institutions to expand the use of mobile trades training labs.
3. Expand the incentives for small and medium businesses in targeted clean economy sectors to take on apprentices or provide tradesperson work experience.
4. Offer incentives in the form of wage subsidies and for contractors to be listed as Program Registered Contractors on the CleanBC Better Buildings website.
5. Support local government permitting and enforcement.

Supply chain development

1. Increase funding for the CleanBC Building Innovation Fund (CBBI) allocation in F2020/21 to support research, commercialization, and demonstration projects. Consider increasing funding maximum in each stream and invite the approximately \$12 million of unfunded proposals submitted to the first call to resubmit.^{21,22}
 - Add “climate adaptation potential increase” to the list of the evaluation criteria²³ in the Clean BC Building Innovation Fund and promote addressing GHG emissions reduction and climate adaptation simultaneously.

²¹ According to the Climate Accountability report, in its first intake the CBBI program drew 49 applications representing \$13.8 million in funding requests, yet only \$1.8 million were allocated. There are therefore \$12 million of shovel-ready projects for which the province already has applications, many of which could be funded as a means to accelerate innovation and provide rapid economic stimulus.

²² The maximum amount of funding available to demonstration projects or programs through the CBBI Fund is \$500,000.

²³ The evaluation criteria used by the selection committee to score the funding proposals under CBBI's Demonstration Programs streams include: market transformation (20/35 possible points), GHG emissions reduction (10/35 possible points), and organizational capacity (5/35 possible points).

- Prioritize demonstration projects that have opportunity to scale and encourage the formation of demonstration project clusters to accelerate innovation and cross-validation of learnings.
- 2. Expand the Ministry of Energy, Mines and Petroleum Resources' High Performance Window Certification Program (for windows and doors certification and product development) to other product types.

Supportive measures

To meet climate targets and maintain workforce, it is paramount that demand for retrofit services be sustained beyond this period of increased public subsidies. The boom and bust that followed the introduction, and removal, of incentive programs after the 2008 recession has been detrimental to the establishment of a stable retrofit industry. For companies and individuals to invest in new skills or new supply chains, they must trust that the demand will be there in the long term. To this end, these subsidies must be combined with clear messaging on the province's intention to implement a retrofit code, to phase out inefficient heating systems, and to put in place disclosure policies and financing mechanisms to drive private investments.

It is recommended that the following actions are paired with stimulus and recovery investment to ensure a stable retrofit economy is established in B.C.:

1. Accelerate consultations for the development of code requirements for existing buildings, new efficiency regulations, and disclosure policies.
2. Integrate GHGI metric in the BC Energy Step Code to accelerate uptake of heat pumps in new construction projects.
3. Enact PACE-enabling legislation for a province-wide PACE program.
4. Develop or commission a remote energy assessment tool for homes to support a mandatory energy labelling and disclosure program.
5. Provide resources to public service organizations to integrate climate risk assessment and mitigation strategies into business planning stages, so these factors can be incorporated in budgeting and integrated in the design of facility upgrades.