

November 14, 2017

To the Standing Senate Committee on Energy, the Environment and Natural Resources, and Senator Neufeld.

From the Royal Architectural Institute of Canada (RAIC)

Response to a question about eliminating 219 megatonnes of greenhouse gas emissions by 2030

Senator Neufeld: When I look at government targets and numbers — they're not mine or this committee's — but by 2030, we're supposed to reduce by about 219 megatonnes. That's an awful lot. How do you think we can actually get that 219 megatonnes without destroying the economy that we presently have and the lifestyle that people in Canada have become accustomed to?

RAIC: Many studies show that designing and building for sustainability and resilience has a positive impact on economic development through new investments, job creation, revenues and cost savings.

Here's a sample:

Green Building in Canada: Assessing the Market Impacts and Opportunities (Attached)

According to a 2016 study by the Canada Green Building Council and Delphi Group, *Green Building in Canada: Assessing the Market Impacts and Opportunities*, the green building industry was estimated to have employed 297,890 direct full-time workers in Canada and generated approximately \$23.45 billion in GDP in 2014. "This represents more jobs than Canada's oil and gas extraction, mining, and forestry industries combined, which collectively employed approximately 270,450 workers in 2014."

The study notes that voluntary adoption by building owners and investors has played a major role in the market uptake of green building growth in the commercial sector. This adoption has been driven by a business case that demonstrates a positive return on investment over the life of green buildings.

Returns on Resilience: The Business Case

This 2015 report by the Urban Land Institute in the United States says that investing in sustainability and resilience (new infrastructure and technologies, innovative design and construction methods) protects properties and leads to financial returns.

"The case studies illustrate that sustainability efforts intended to minimize negative impacts on the natural environment and manage natural resources more efficiently complement resiliency planning," says Sarene Marshall, executive director of ULI's



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Center for Sustainability. “When resilience efforts are planned in tandem with sustainability measures, the results are likely to lead to success in better financing, faster and higher lease rates, more competitive insurance premiums, lower utility costs, and greater returns on investments.”

Such investments, says the report, also deliver value through business continuity and loss prevention during extreme weather events.

[Canada Green Building Trends: Benefits Driving the New and Retrofit Market](#)

This 2014 report, prepared by McGraw Hill Construction for the Canada Green Building Council, reported the following findings:

- “Like their counterparts in the U.S. and around the world, Canadian building owners, architects and contractors report that green buildings significantly decrease operating costs in the first year after construction, and that their impacts on operating costs continue to increase over five years. Operating cost savings are no doubt impacted by the energy and water savings reported.”
- “The Canadian respondents also report reasonable payback periods of eight years for new green building projects and seven years for green retrofits and renovations. They also find that their green retrofit/renovation efforts contribute to increased building values, with a median increased value of four percent.”
- “The consistency of the findings globally for new and renovated/retrofit green building projects, despite the wide disparity of the markets, demonstrates a compelling business case for building green.”
- “Other benefits beyond strict financial benefits are also considered important by Canadians. These include getting a higher quality building, tenant attraction and retention, recognized leadership, ability to influence the market by leading by example, health and productivity benefits, a healthy indoor environment and daylight.”

[World Green Building Trends 2016 Smart Market Report](#)

This report by Dodge Data & Analytics demonstrates the positive financial and business impacts of building green.

- New green buildings, on average, deliver 14 percent savings in operations costs over five years and 13 percent savings for retrofit and renovation projects;



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- The average green building — whether new or renovated — is worth seven percent more than its traditional counterpart;
- Market demand for green building is doubling every three years.

[Smart Growth and Economic Success: Benefits for Real Estate Developers, Investors, Businesses and Local Governments](#)

Smart growth is a development strategy that can minimize air and water pollution, reduce greenhouse gas emissions, encourage cleanup and reuse of contaminated properties, and preserve natural lands.

This 2012 report by the United States Environmental Protection Agency highlighted the economic benefits of smart growth.

“Compact, diverse, and walkable development can increase property values and property tax revenues, encourage job creation, reduce housing and transportation costs, and create amenities and places that improve residents’ quality of life,” says the report.

As just one example, modeling research shows that a doubling of population density increases economic productivity by two to four percent. “This increased productivity is thought to be due to reduced costs of transporting products between businesses, the higher degree of specialization possible in areas with more people, and a faster flow of ideas,” says the report.

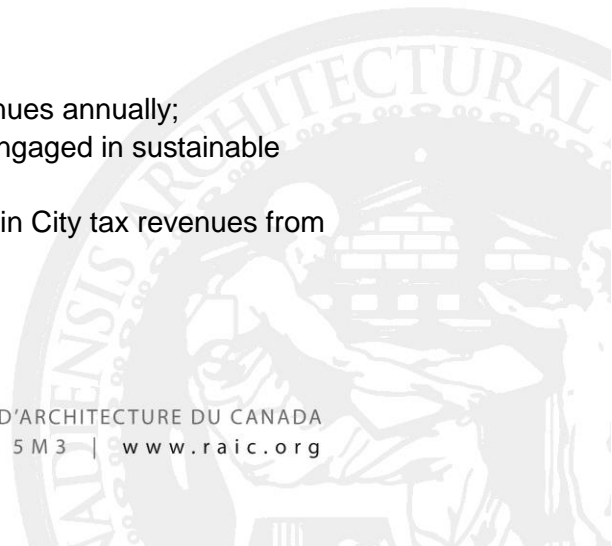
“Real estate developers and investors, businesses, and local governments can use smart growth development as a strategy to maximize their economic advantages while improving the quality of life and creating attractive, healthy communities that help protect the environment.”

[Sustainable Building Cluster Study](#)

In 1999, the City of Seattle in Washington established LEED Silver as the performance standard for municipal buildings. A 2005 economic development study by the Seattle Office of Sustainability and Environment and the Office of Economic Development found that the green building industry had become one of the city's strategic economic "clusters."

Green building activity was estimated to generate:

- between US \$316.8 million and \$1 billion in revenues annually;
- provide between 1,370 and 4,160 jobs, directly engaged in sustainable building;
- generate US \$1.6 million to \$5.0 million annually in City tax revenues from these two sources.



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Notes from other sources:

Cost of green building

Experiences in cities such as Seattle, Washington have demonstrated that there is a learning curve for designers and builders when energy and environmental requirements are introduced. Costs increase at first, but industry maturation, professional experience and more affordable sustainable materials and systems have resulted in declining investment requirements needed to achieve ever-higher levels of green building.

The director of sustainable design at HOK, a global architecture, engineering, and planning firm working toward a carbon-neutral design portfolio by 2030, says it is no longer true that sustainable buildings have to be more expensive.

“We have delivered many deep green projects that came in below cost or at similar price points to what those same buildings would have cost without sustainable design elements,” says [Anica Landreneau](#). “We did this by focusing on three tactics for improving sustainability: leveraging integrated design, employing energy modeling and programming for efficiencies.”

Innovation

The Canada Green Building Council observes that many Canadian companies are now developing advanced green building materials and energy efficient technologies that are being exported internationally.

These include heating technologies (such as heat exchangers and heat/energy recovery ventilation systems, heat pumps, high-efficiency boilers, and drain water heat recovery), renewable energy systems (including geothermal and solar), energy management and building controls, and high-performance windows and building envelope technologies.

Conclusion

The RAIC puts forward that there is sufficient evidence of positive financial benefits of building green to drive economic growth including; reduced operating costs, rising market demand, and increased building values. Not to adapt to this inevitable trend suggests possible negative impacts to the economy and Canadian living standards.

Improving energy and environmental requirements for the buildings and communities will improve air quality, living and working conditions and in this way will improve the lifestyle of Canadians.

