



Building Value

Federal Policy Priorities for Advancing Energy Efficiency across Canada

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Addressing Barriers to Energy Efficiency

Energy-use in Canada's buildings sector has grown by 19% since 1990, and currently accounts for about 120 million tonnes of CO₂eq emissions annually.¹ According to the latest Evaluation Report (June 2015) of the Office of Energy Efficiency, building sector energy consumption is expected to continue increasing through 2020 and "there is an ongoing need to improve energy efficiency in Canada for environment and economic competitiveness reasons." Growing energy consumption places greater pressure on Canada's energy supply management infrastructure and makes individuals and businesses more vulnerable to rising energy prices. Energy efficiency, on the other hand, can reduce emissions while delivering a variety of other societal benefits.

Despite the benefits of energy efficiency, three primary barriers prevent the adoption and implementation of energy efficiency: (1) limited knowledge and information tools; (2) lack of financial resources; (3) lack of motivation (NRCAN, 2010). As a result, the federal government should use three general mechanisms to mitigate these barriers: capacity building, financial incentives, and regulation.

To understand how the federal government can make the most of these mechanisms, TAF conducted a high level survey on federal support for advancing energy efficiency² and distributed it to a wide range of stakeholders (see Appendix). Based on the responses collected, **energy efficiency codes and standards were identified as the most important mechanism the federal government could use, followed by financial incentives and capacity building, respectively.**

¹ Calculated using data from Natural Resources Canada's national energy use database.

² The purpose of the survey was to gain a high level sweep of what different sectors and stakeholders in the energy efficiency field believe needs to be prioritized to accelerate and advance energy efficiency nationally. The focus was on how the federal government should leverage its specific capabilities for energy efficiency.

This is consistent with global research on climate change mitigation and energy conservation, which finds that building codes and equipment standards “have been among the most environmentally and cost-effective instruments for emission reductions” (IPCC, 2014). The responses also provided valuable feedback in terms of the specific policies stakeholders believe the federal government should prioritize under each mechanism. The top policy priority within each mechanism is listed below:

Codes and standards	Strengthen the National Energy Code for Buildings by having a more frequent update cycle, a target date for reaching Net-Zero, and expanding support for provincial adoption
Financial Incentives	Revive the ecoENERGY for Homes program and redesign the Existing Buildings Initiative
Capacity building	Provide funding for research and commercialization related to energy efficiency technology and policy

Recommendations for Federal Action

Codes and Standards

Priority Recommendation: Strengthen the National Energy Code for Buildings (NECB) by having a more frequent update cycle, target date for NECB reaching Net-Zero, and expanding support for provincial adoption.

Policy uncertainty has been cited as a significant barrier to greater energy efficiency investments from business because of the significant upfront cost and long payoff timelines. Committing to a regular update schedule of every 3 years will allow the NECB to remain relevant and ambitious. In a survey conducted by the Canadian Energy Efficiency Alliance in 2014, 68% of businesses surveyed stated that they would support more stringent energy efficiency standards in building codes. However, what is needed from government is predictability and reliability in order for businesses to invest and plan accordingly. Consideration could also be given to incorporating renovation related requirements for existing buildings in future updates.

Strengthen, expand, and regularly update the Energy Efficiency Regulations (EER) with regards to Minimum Energy Performance Standards (MEPs)

Immediate gains can be realized through this policy recommendation. Amendments 13 and 14 were proposed, consulted on, and updated in 2011 and are ready to be implemented. Beyond this immediate recommendation, a regular and well-communicated update schedule would ease opposition to progressively stringent MEPs and assist with implementation if manufacturers can anticipate and prepare for the updates. The NRTEE in a 2009 report noted that improving energy efficiency through EER amendments are a cost-effective action because enforcement is limited to manufacturers rather than consumers. Finally, Canada must catch up with the US regulatory agenda in order to allow Canadian manufacturers to have access to the US market and remain competitive.

Financial Incentives

Priority Recommendation: Revive the ecoENERGY for Homes program and redesign the Existing Buildings Initiative.

Assessments of the ecoENERGY for Homes program demonstrate that it was a highly successful rebate program that synergized well with similar programs from leading provinces and utilities. The 2010 evaluation of the Office of Energy Efficiency's programs determined that ecoENERGY for Homes was directly responsible for 84% of the energy savings reported. Interviews with homeowners that participated in the program also showed that they were undertaking twice the amount of retrofits planned and were open to further energy efficiency investments beyond the program.

A mechanism is also still required to incentivize commercial and institutional building owners to invest in energy efficiency retrofits. With the rising price of energy, deep energy efficiency retrofits will be necessary in order for firms to lower operating costs and remain competitive. However, the initial upfront cost of retrofits has proven to be a prohibitive barrier to greater implementation of energy efficiency measures. A 2008 NRCAN management review of the Existing Buildings Initiative concluded that "there is a need for government financial support to promote energy efficiency in both new and existing commercial and institutional buildings" (NRCAN, 2010). Despite the fact that the program resulted in 521 audits and 650 retrofits, a 2010 evaluation of the program found that free-ridership was an issue in that some firms would have implemented retrofits regardless of the program. A thorough redesign of the program could significantly reduce free-ridership, for example by providing a larger incentive limited to projects targeting deep GHG reductions.

Modify federal tax policy to accelerate capital cost depreciation for energy retrofits.

If a rebate program similar to ecoENERGY is not possible, modifying tax policy may be an alternative option for incentivizing energy investments. Currently, energy efficiency retrofits can be written off at a rate of only 4-5% per year, resulting in a write-off period of 20-25 years. A faster write-off period with a higher rate could help incentivize greater energy efficiency investment because the pay back on the investment will be seen more immediately. However, a direct rebate would be preferable because of the indirect nature of a tax write-off, delayed payback period, and exclusion of segments of the real estate sector like condominiums, not-for-profit housing, and institution buildings.

Introduce credit enhancements.

Credit enhancements can encourage greater inflows of private capital into the energy efficiency market, leveraging major investments at marginal cost to the Government. Currently, the market for energy efficiency is relatively immature and uncertain and therefore viewed with greater risk. Credit enhancements (ex. Loan loss reserves, loan guarantees) can help to reduce investor exposure to customer defaults, thereby reducing some of the risk associated with a new market. They are flexible and can be designed to minimize a specific need within a specific market. For example, it can help negotiate financial products with better terms or expand customer access to private capital by relaxing underwriting criteria. However, when designing the financial product, particular attention must be paid to whether there is a demand within the market and whether a direct barrier exists that can be eased by a credit enhancement tool.

Provide direct low-cost federal financing for energy efficiency investments.

Direct low-cost federal financing in the form of green bonds is an option for unlocking private capital investment into the energy efficiency market. Energy efficiency projects, both for new construction and retrofits, comfortably fall within the purpose of a green bond. Moreover, recent evidence shows that green bonds are a high investment demand. In January 2014, Export Development Canada issued its first green bond for climate change mitigation and energy efficiency initiatives and sold out in 15 minutes with an oversubscription of \$200 million (Responsible Investment Association, 2014). The Ontario government also issued green bonds later that year for transit and sustainable infrastructure projects, receiving \$2.4 billion in orders for the \$500 million green bond offering (Responsible Investment Association, 2014).

Capacity Building***Priority Recommendation: Provide funding for research and commercialization related to energy efficiency technology and policy.***

Reinstating funding for national research groups like the National Round Table on the Environment and the Economy and encouraging greater collaboration will help to foster a general environment of open discussion, research and innovation needed to move towards the green economy. This policy aligns well with the federal government's commitment to invest \$200 million annually to collaboratively develop sector-specific strategies supporting innovation and clean technology. Another relatively cost-effective action would be to ensure that a portion of the \$100 million per year committed by the federal government for supporting clean technology development, especially through Sustainable Development Technology Canada, is dedicated to energy efficiency building technology.

Extend and expand support for energy management and benchmarking support programs like Portfolio Manager.

The 2010 Evaluation of the Office of Energy Efficiency programs found that, particularly for the industrial/commercial/institutional sector, benchmarking and reporting were very helpful in providing firms with the information and tools necessary to make energy efficiency decisions. As a result, work to incorporate automated data uploading capabilities from utilities into Portfolio Manager should be accelerated. The way in which multi-unit residential buildings (MURBs) can utilize Portfolio Manager should also be expanded to include the ENERGY STAR score so that MURBs can be benchmarked. More broadly, the federal government can take a leadership role in encouraging jurisdictions to implement mandatory energy reporting and benchmarking policies.

Extend and expand the ENERGY STAR label to include more commercial building equipment.

Currently, the ENERGY STAR label applies largely to new homes and household products. However, if paired with expanded energy reporting and benchmarking, the overall impact on informational gaps could be enhanced: benchmarking provides owners with knowledge of the opportunities available to lower operational costs and ENERGY STAR reduces the time and effort needed to realize those savings by ensuring a certain level of efficiency in the equipment purchased.

Diverse Benefits from Pursuing Energy Efficiency

Energy efficiency is among the cheapest and fastest options to reduce GHG emissions, generally being net profit positive (McKinsey, 2010). A high energy efficiency scenario has the potential to reduce Canada's annual emissions by 92 Mt CO₂eq by 2040 compared to business as usual (Acadia Centre, 2014). Not only is energy efficiency the most affordable mitigation option, it is also essential to meeting any ambitious long-term national decarbonization target. Reaching an 80% reduction target by 2050, for example, is expected to require reducing energy-use intensity in Canada's building sector by between 53 and 72 per cent (SDSN&IDDRI, 2015; p. 28).

The positive economic impact of energy efficiency is twofold: (1) the demand for energy efficient products and services creates jobs and economic growth; (2) energy savings can be spent by consumers and businesses elsewhere in the economy, generating wider economic growth and job creation. A recent economic modelling report commissioned by NRCan found that aggressive, sustained investment in energy efficiency across Canada would result in a net increase in Canada's GDP of \$47B and over three hundred thousand net new jobs by 2040 (Acadia Centre, 2014). Additional gains could be realized if energy efficiency investments are deployed strategically to reduce the need for more costly investments in new energy generation capacity or energy-related infrastructure.

A broader assessment of energy efficiency also shows that there are equally significant health and productivity benefits associated with energy efficiency. In Toronto alone, outdoor air pollution related to energy-use in buildings accounts for an estimated 190 premature deaths and 400 hospitalizations each and every year (Toronto Public Health, 2014). Equally significant are the potential gains from improving the living and working environment. Canadians spend 90% of their time indoors; as a result, indoor air quality and comfort has an enormous impact on health and productivity. Energy retrofits can substantially improve indoor air quality and thermal comfort. The IEA reports that "addressing indoor air quality through energy efficiency measures could, in a high energy efficiency scenario, save the European Union's economy as much as USD \$259 billion annually" (International Energy Agency, 2014). Pro-rated based on the relative size of our population, that would be CAD \$24.4B in annual savings potential.



Figure 1 - The Multiple benefits of energy efficiency

ABOUT TAF

Founded in 1991, TAF's mission is to invest in urban solutions to reduce greenhouse gas emissions and air pollution. To date, TAF has worked with hundreds of community collaborators, and invested more than \$60 million, helping the City of Toronto save more than \$55 million on its energy bills while reducing greenhouse gas emissions by 25% below 1990 levels – exceeding the 2012 Kyoto target. For more information about TAF's projects and partners, please visit taf.ca.

TAF's Building Value Initiative launched in June 2015 to engage and mobilize diverse Canadian stakeholders by sharing knowledge and best practices about the policy and financing support required to stimulate investment in energy efficiency in large buildings in Canadian cities. The Building Value Initiative is made possible thanks to a grant from the J.W. McConnell Foundation.

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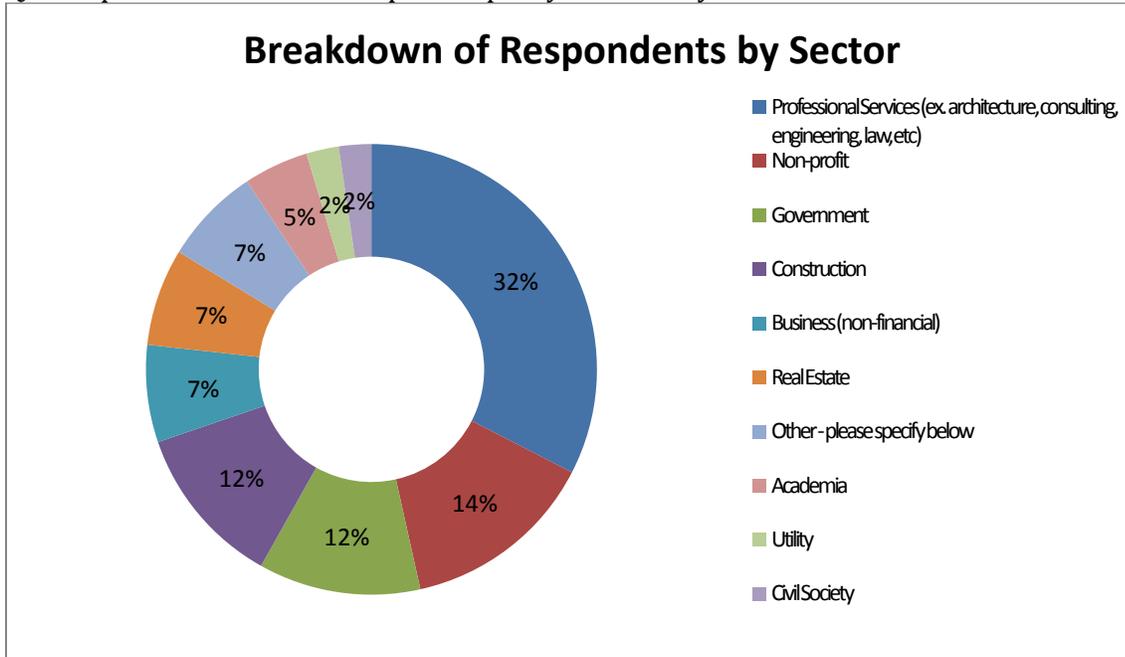
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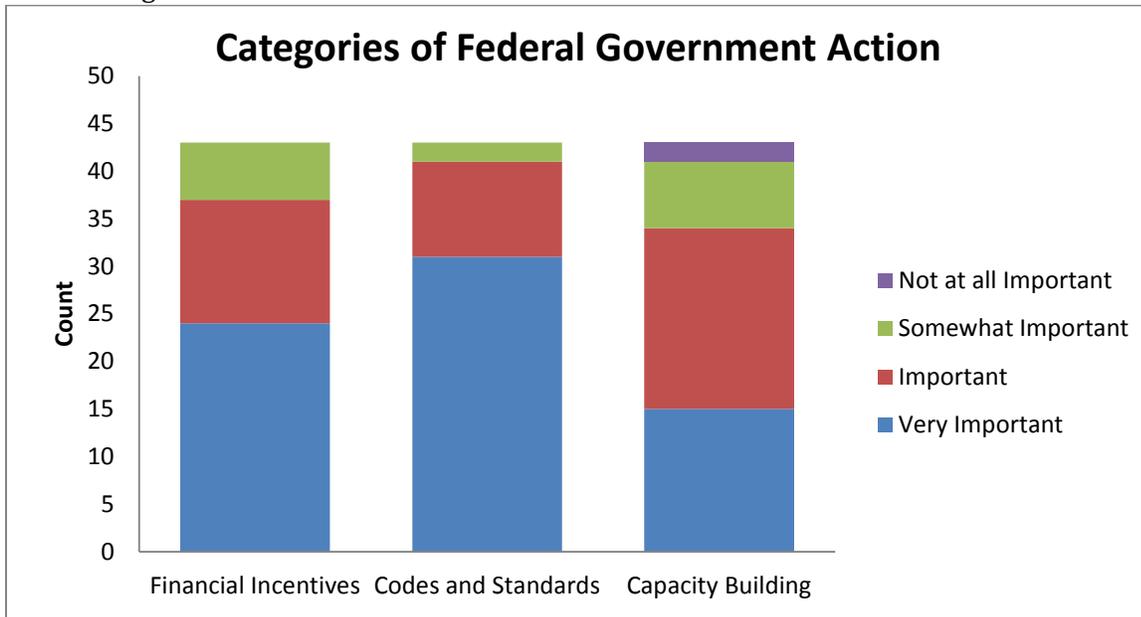
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Appendix – TAF Survey Results

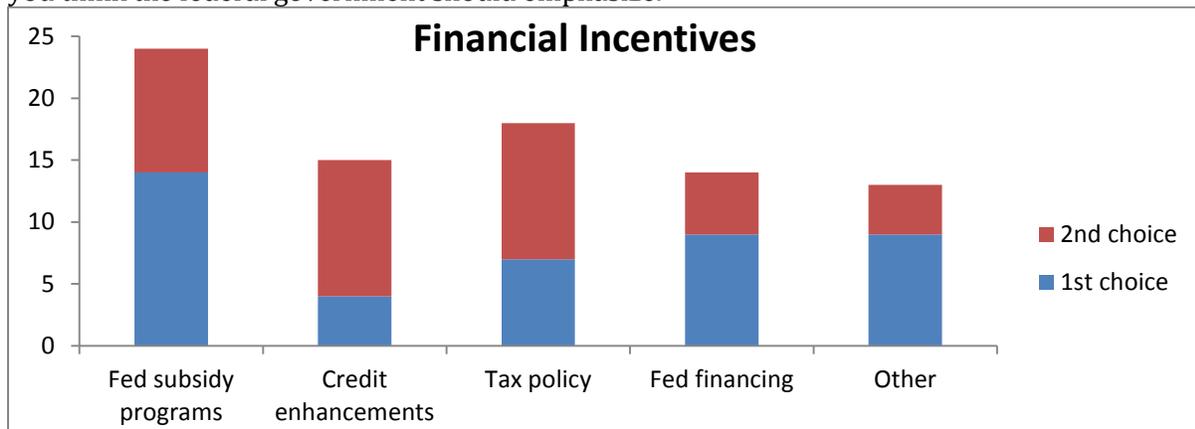
Q1: Respondent information – please specify the sector your work in.



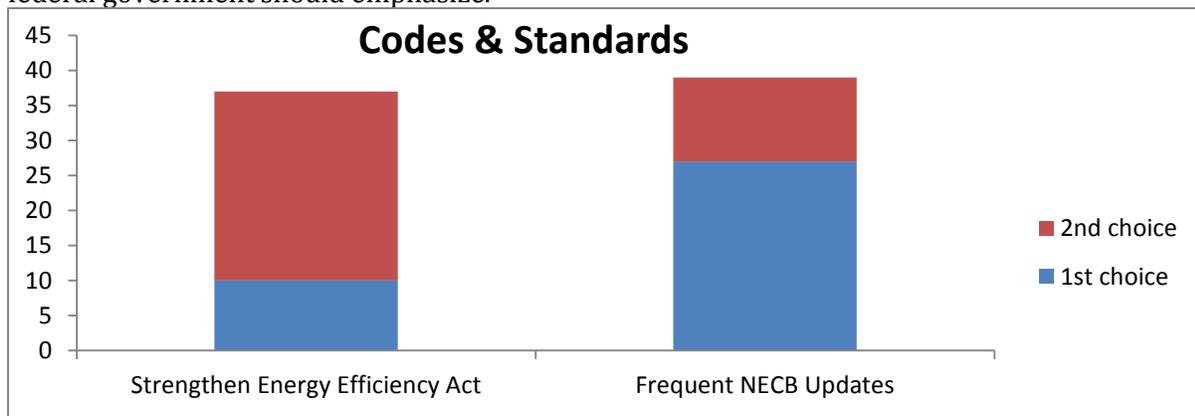
Q2: Listed below are three main categories of action (financial incentives, codes and standards, capacity building) that the federal government can undertake work in. Please provide your opinion on the level of importance of these three categories with respect to improving energy efficiency in the buildings sector.



Q3: Listed below are possible actions the federal government could undertake to provide financial incentives for energy efficiency activity. Please rank each of the following policies in order of what you think the federal government should emphasize.



Q4: Listed below are possible actions the federal government could undertake to strengthen energy efficiency standards. Please rank each of the following policies in order of what you think the federal government should emphasize.



Q5: Listed below are possible actions the federal government could undertake to build capacity for energy efficiency. Please rank each of the following policies in order of what you think the federal government should emphasize.

