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ENERGY EFFICIENCY BENEFITS IN CANADA: MAXIMIZING OPPORTUNITIES FOR A COMPETITIVE ECONOMY

Report of the Standing Committee on Natural Resources

James Maloney, Chair

**JUNE 2019
42nd PARLIAMENT, 1st SESSION**

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NOTICE TO READER

Reports from committee presented to the House of Commons

Presenting a report to the House is the way a committee makes public its findings and recommendations on a particular topic. Substantive reports on a subject-matter study usually contain a synopsis of the testimony heard, the recommendations made by the committee, as well as the reasons for those recommendations.

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THE STANDING COMMITTEE ON NATURAL RESOURCES

has the honour to present its

TWELFTH REPORT

Pursuant to its mandate under Standing Order 108(2), the Committee has studied energy efficiency and has agreed to report the following:

TABLE OF CONTENTS

SUMMARY.....	1
LIST OF RECOMMENDATIONS	3
ENERGY EFFICIENCY IN CANADA	5
Introduction.....	5
Benefits of Energy Efficiency: Major Findings.....	6
Maximizing Energy Efficiency Gains in Canada	11
APPENDIX A LIST OF WITNESSES	17
APPENDIX B LIST OF BRIEFS.....	21
REQUEST FOR GOVERNMENT RESPONSE	23
SUPPLEMENTARY OPINION OF THE NEW DEMOCRATIC PARTY OF CANADA	25

SUMMARY

Energy efficiency is an opportunity for public and private asset managers to leverage long term value for their stakeholders, and to provide other public good. Energy efficiency can provide economic, social and environmental benefits to communities, businesses and governments across Canada. It can contribute to economic and employment growth by improving business productivity and competitiveness, generating new opportunities for the energy efficiency industry, and creating new jobs of diverse grades and skill requirements. Energy efficiency also contributes to energy conservation for industry and households, while helping Canada meet its greenhouse gas reduction targets under the *Paris Agreement*. As with all change, the benefits arising from energy efficiency technologies and upgrades require capital investment. For those who adopt energy efficiency, the cost-benefit analysis compares the cost of capital and other opportunity costs against future cost savings, future benefits, government incentives and disincentives throughout the project life cycle.

Witnesses who participated in this study discussed several ways for Canada to maximize energy efficiency gains. They highlighted the following priorities:

- ensuring that government incentive and disincentive programs and prices are predictable and reliable over the long-term, and that they are effective in meeting stated policy goals;
- improving public knowledge of, and access to, energy efficiency resources and services;
- harmonizing energy efficiency programs and product standards across jurisdictions;
- ensuring Canada's tax system and regulatory environment are competitive with other jurisdictions;
- investing in skills training and workforce development;
- leveraging private sector capital to facilitate energy efficiency investments;
- scaling up deployment of market-ready technologies;

- improving building codes and energy performance programs for new buildings and building retrofits; and
- ensuring affordability is a priority when implementing building codes, energy performance programs for new buildings and building retrofits.

Considering that energy efficiency is an area of shared jurisdiction and responsibility in Canada, witnesses called on the federal government, among other things, to collaborate with provinces, territories and stakeholders to scale up Canada's actions on energy efficiency.

LIST OF RECOMMENDATIONS

As a result of their deliberations committees may make recommendations that they include in their reports for the consideration of the House of Commons or the Government. Recommendations related to this study are listed below.

Recommendation 1

That the Government of Canada, in collaboration with industry, research and training institutions, civil society, Indigenous governments and communities, and provincial, territorial and municipal governments, enable Canada's energy efficiency sector to reach its full potential by:

- **measuring the outcome of government programs and policies to ensure they are effective in achieving public policy goals, such as Canada's international commitment to reduce carbon emissions;**
- **ensuring that energy efficiency incentive programs are predictable and reliable over the long-term, taking into account the financial limitations of those implementing efficiency measures, including small and medium-sized enterprises;**
- **increasing public awareness of energy efficiency through targeted educational initiatives, taking into account the needs of different industries and communities;**
- **establishing a one-stop online platform to facilitate public access to energy efficiency information, resources and services;**
- **expanding professional development opportunities, as needed, to address skills and training gaps in the energy efficiency sector; and**
- **ensuring that energy performance codes and standards remain in line with available technologies and current best practices, including building codes for new buildings and building retrofits;**

- **ensuring Canada’s tax system and regulatory environment are competitive with other jurisdictions; and**
- **ensuring affordability is a priority when implementing building codes, energy performance programs for new buildings and building retrofits.**

Recommendation 2

That the Government of Canada consider targeted financial tools, through entities such as the Canada Infrastructure Bank and the Canada Mortgage and Housing Corporation, to facilitate public and private investments in energy efficiency.

Recommendation 3

That the Government of Canada build on programs, such as Natural Resources Canada’s Local Energy Efficiency Partnerships and Environment and Climate Change Canada’s Low-Carbon Economy Fund, to facilitate further deployment of market-ready energy efficiency technologies.

Recommendation 4

That the Government of Canada prioritize high energy performance buildings and equipment, as well as the issues of cost and affordability, in government procurement and asset management policies.



ENERGY EFFICIENCY IN CANADA

INTRODUCTION

Between October and December 2018, the House of Commons Standing Committee on Natural Resources (the committee) conducted a study on the economic opportunities for energy efficiency in Canada and its contributions to Canada’s climate change commitments under the [Paris Agreement](#). The committee heard from a wide range of experts about the impacts of energy efficiency on Canadian society, the economy and the environment. This report includes the study findings and recommendations to the Government of Canada.

Energy efficiency is part of the Government of Canada’s [strategy to transition to a low-carbon economy](#). It is included in the [Pan-Canadian Framework on Clean Growth and Climate Change](#) (the Pan-Canadian Framework), Canada’s national plan to meet its commitment under the *Paris Agreement* to reduce greenhouse gas (GHG) emissions by 30% from 2005 levels by 2030 and to strengthen the country’s resilience to climate change. Specific measures to improve energy efficiency under the Pan-Canadian Framework include: making new buildings more energy-efficient; retrofitting existing buildings; improving energy efficiency for appliances and equipment; supporting building codes and energy-efficient housing in Indigenous communities; and improving industrial energy efficiency.

According to [Natural Resources Canada](#) (NRCan), “Energy efficiency is a measure of how effectively energy is used for a given purpose and an important path towards decarbonisation.” The committee heard that investing in energy efficiency can have several economic, environmental and social benefits for communities, businesses and governments across Canada. In the words of [Francis Bradley](#) of the Canadian Electricity Association, “there are many benefits that energy efficiency delivers to Canadians ...[including] reduced energy expenditures, employment opportunities, increased economic competitiveness, improved energy security, and a cleaner environment through the reduction of GHG and air emissions across Canada.”

The purpose of this report is to provide policy guidance to the Government of Canada on how to further capitalize on the benefits of energy efficiency in Canada. The first section outlines the current benefits of energy efficiency for Canada, while the second section discusses ways in which these benefits can be maximized.



BENEFITS OF ENERGY EFFICIENCY: MAJOR FINDINGS

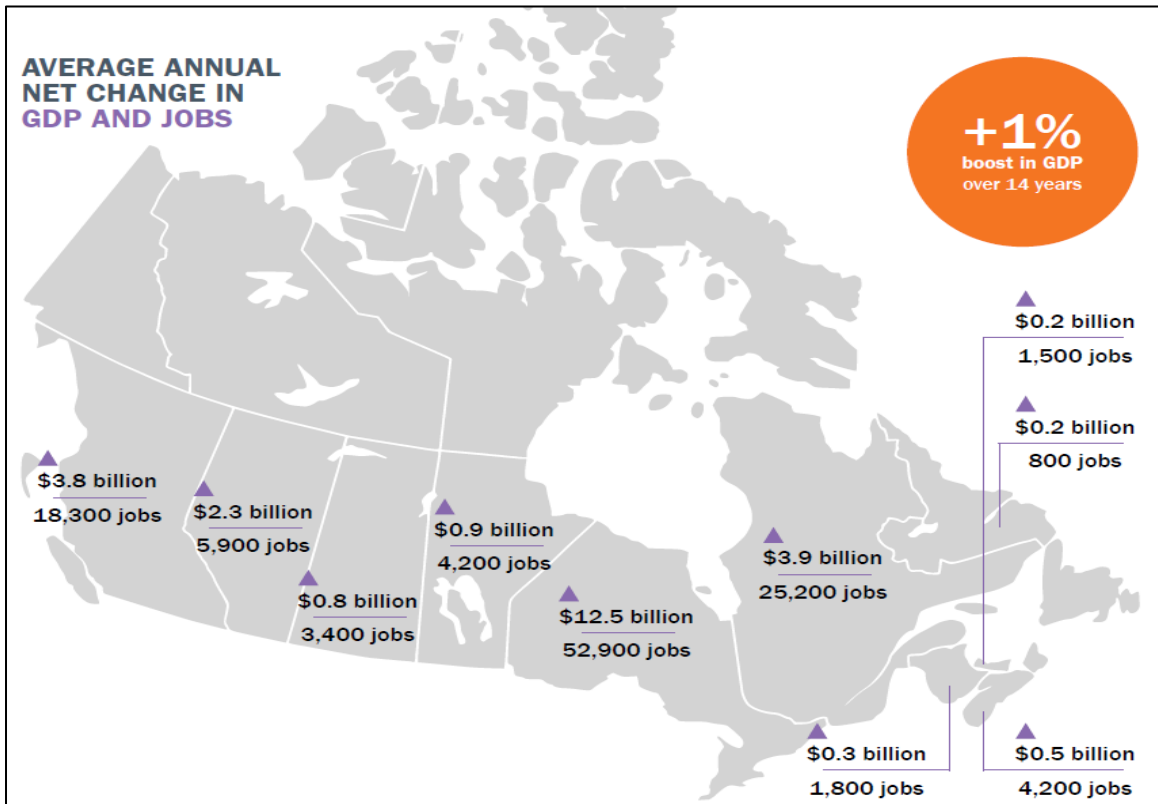
Energy efficiency can be a tool to stimulate economic growth.¹ The committee heard that \$1 spent on energy efficiency programs can generate \$7 of gross domestic product (GDP).² Furthermore, according to Clean Energy Canada and Efficiency Canada, energy efficiency measures included in the Pan-Canadian Framework would boost Canada's GDP by 1%, a net growth of \$355 billion over the 2017 to 2030 period (Figure 1). This projected growth comes from energy savings and spending on upgrades and considers the cost of energy efficiency programs, as well as the impacts of reduced utility sales, estimated at \$48 billion over the same period.³ According to [Stephen MacDonald](#) of EfficiencyOne, "energy efficiency's share of Nova Scotia's GDP is valued at over \$400 million [and] is expected to grow by 5% over the next five years, ... compared to forecasted growth of about 2% for the rest of the province's GDP."

1 Standing Committee on Natural Resources (RNNR), *Evidence*, 1st Session, 42nd Parliament (*Evidence*): [Darryl Boyce](#) (President-Elect, American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE]); [Francis Bradley](#) (Chief Operating Officer, Canadian Electricity Association [CEA]); [Corey Diamond](#) (Executive Director, Efficiency Canada); [Gabriella Kalapos](#) (Executive Director, Clean Air Partnership); [Pierre Langlois](#) (President, Canadian Institute for Energy Training [CIET]); [Tonja Leach](#) (Executive Director, Quality Urban Energy Systems of Tomorrow [QUEST]); [Kaili Levesque](#) (Senior Director, Demand Policy and Analysis, Office of Energy Efficiency, Natural Resources Canada [NRCan]); [Martin Luymes](#) (Vice-President, Government and Stakeholder Relations, Heating, Refrigeration and Air Conditioning Institute of Canada [HRAI]); [Stephen MacDonald](#) (Chief Executive Officer, EfficiencyOne); [Fernando Melo](#) (Policy Advisor, Clean Energy Canada); and [Thomas Mueller](#) (President and Chief Executive Officer, Canada Green Building Council).

2 RNNR *Evidence*: [Diamond](#) (Efficiency Canada); [Leach](#) (QUEST); and [Melo](#) (Clean Energy Canada).

3 RNNR *Evidence*: [Diamond](#) (Efficiency Canada); [Melo](#) (Clean Energy Canada).

Figure 1—The Economic Impact of Energy Efficiency Measures Included in the Pan-Canadian Framework on Clean Growth and Climate Change, 2017 to 2030



Source: Clean Energy Canada and Efficiency Canada, *Less Is More*, May 2018.

Witnesses explained that energy efficiency investments can provide several benefits including improving business productivity and competitiveness (Figure 2). As indicated by [Andrew Noseworthy](#) of Innovation, Science and Economic Development Canada (ISED), energy represents one of the largest input costs for most companies and industries in Canada.⁴ For that reason, the implementation of energy efficiency measures can reduce energy costs for businesses—for example, it is estimated that energy efficiency measures included in the Pan-Canadian Framework will contribute to an average annual saving of \$3.2 billion for commercial/industrial entities.⁵ Similarly, [Corey Diamond](#) of Efficiency Canada argued that if businesses spent less on energy, it would allow them to invest in “more productive capital improvements and human

4 RNNR Evidence: [Jocelyn Bamford](#) (Vice-President of Automatic Coating Limited, Coalition of Concerned Manufacturers and Businesses of Canada).

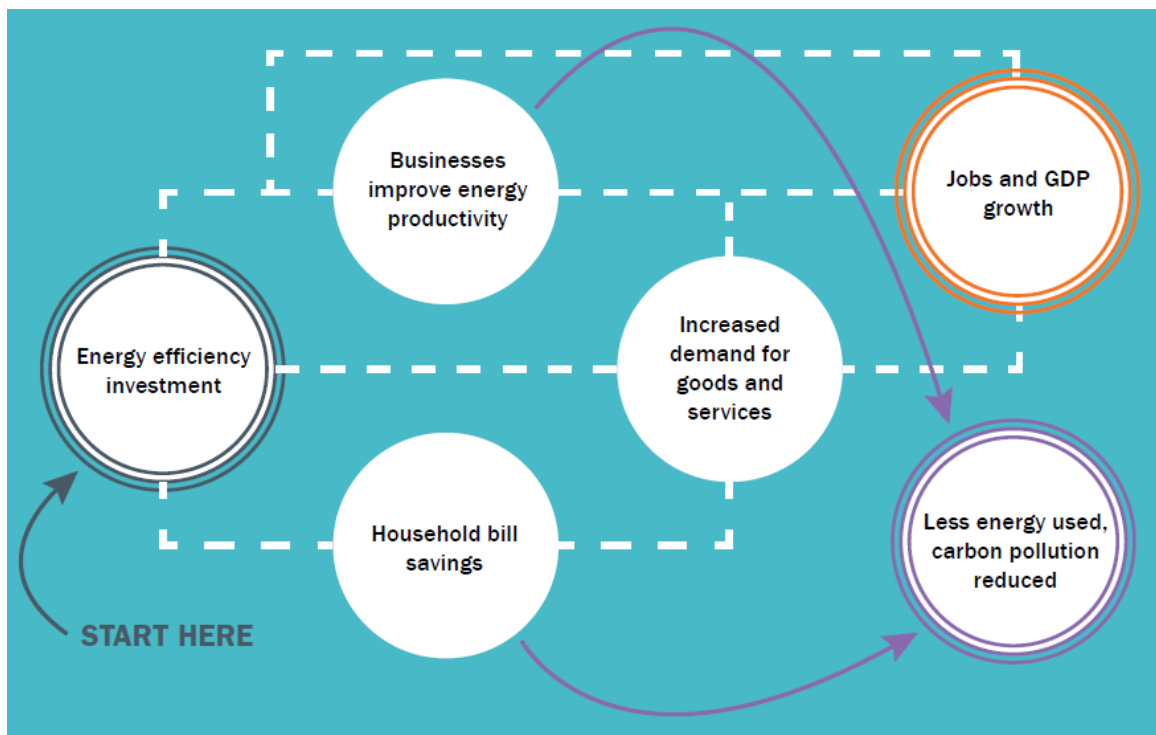
5 RNNR Evidence: [Diamond](#) (Efficiency Canada); and [Melo](#) (Clean Energy Canada).



resources.”⁶ The committee also heard of “co-benefits” or “non-energy benefits” associated with energy efficiency. Witnesses noted, for example, that better ventilated and designed buildings can improve employee satisfaction and performance.⁷

On the other hand, the committee heard that implementing new energy efficiency technology without a thorough cost-benefit analysis has the potential to negatively affect businesses. [Jocelyn Bamford](#) of the Coalition of Concerned Manufacturers and Businesses of Ontario indicated that “there’s no support for small and medium-sized businesses on what solutions are actually legitimate” and that some of her organizations’ member companies have “invested millions of dollars in the hopes of getting out of energy policy, only to have their energy pricing go up.”

Figure 2—Impact of Energy Efficiency Investment



Source: Clean Energy Canada and Efficiency Canada, [Less Is More](#), May 2018.

6 RNNR Evidence: [Jean-Pierre Finet](#) (Vice-President, Energy Services Association of Canada); [Langlois](#) (CIET); and [Daniel Rousse](#) (Professor, École de technologie supérieure, As an Individual).

7 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Michel Dumoulin](#) (Vice-President, Engineering, National Research Council Canada [NRC]); and [Brad White](#) (President, SES Consulting).

Witnesses indicated that energy efficiency can reduce households' energy bills and improve their disposable income.⁸ [Kaili Levesque](#) of NRCan informed the committee that energy efficiency measures led to savings of \$38.5 billion in energy costs in Canada between 1990 and 2014. Furthermore, Clean Energy Canada and Efficiency Canada estimated that energy efficiency measures included in the Pan-Canadian Framework can be expected to contribute to an average annual saving of \$1.4 billion across all Canadian households (approximately \$114 a year per household).⁹ According to [Yasmin Abraham](#) of Kambo Energy Group, energy savings can provide some relief to the “21% or more than 1.8 million Canadian families [that] struggle to pay their bills.”

On the other hand, some witnesses noted that household and business investments in energy efficiency may be hindered by the high up-front costs or long pay-back periods of some upgrades, especially in the case of small and medium-sized enterprises (SMEs).¹⁰ As pointed out by [Kevin Lee](#) from the Canadian Home Builders' Association, higher energy efficiency standards in the residential sector can raise the purchasing price for homes, potentially impacting housing affordability for Canadians. He also noted that the increased costs associated with higher energy efficiency standards may not be offset by the additional energy savings. It was suggested by the Canada Green Building Council, that at least in respect to the retrofit economy, regulators may incentivize (i) building recommissioning, (ii) retrofits, (iii) performance standards and (iv) renewable energy, and provide disincentives to (v) encourage switching from more polluting fuels.¹¹ Subsidies and prices on pollution affect the cost-benefit analysis on whether the capital cost for adopting increasingly energy efficient options achieves the appropriate balance between economic and environmental goals.

As for the energy efficiency industry, the committee was told that increased demand for new goods and services represents opportunities for businesses. [Mr. Noseworthy](#) indicated that there is a growing global demand for clean technologies that is expected to reach US \$2.5 trillion by 2025 and that, as estimated by the International Energy Agency, the global market for energy-efficiency products is about US \$231 billion which

8 RNNR Evidence: [Yasmin Abraham](#) (Kambo Energy Group); [Bradley](#) (CEA); [Diamond](#) (Efficiency Canada); [Dumoulin](#) (NRC); [Kalapos](#) (Clean Air Partnership); [Levesque](#) (NRCan); [MacDonald](#) (EfficiencyOne); and [Mueller](#) (Canada Green Building Council).

9 RNNR Evidence: [Diamond](#) (Efficiency Canada); and [Melo](#) (Clean Energy Canada).

10 RNNR Evidence: [Yasmin Abraham](#) (Director, Kambo Energy Group); [Bamford](#) (Coalition of Concerned Manufacturers and Businesses of Ontario); [Finet](#) (ESAC); [Emilie Hayes](#) (Policy Analyst, National and Legislative Affairs, Canadian Federation of Independent Business [CFIB]); [Kalapos](#) (Clean Air Partnership); [MacDonald](#) (EfficiencyOne); [Amelia Warren](#) (Director, Customer Experience and Partnerships, Efficiency One) and [White](#) (SES Consulting).

11 RNNR Evidence: [Mueller](#) (Canada Green Building Council).



represents 10% of this amount.¹² [Mr. Diamond](#) thinks there is “an opportunity to grow Canadian clean-tech companies, with specializations in areas such as integrated building design, data analytics and smart devices to sell to the global energy efficiency market.”

Several witnesses also pointed out that energy efficiency can create jobs of diverse grades and skill requirements across a variety of industries.¹³ [Pierre Langlois](#) from the Canadian Institute for Energy Training indicated that investments in energy efficiency in Alberta have contributed \$475 million to the province’s economy and created more than 2,300 new jobs. Furthermore, according to Clean Energy Canada and Efficiency Canada, energy efficiency measures included in the Pan-Canadian Framework could add approximately 118,000 jobs annually to the Canadian economy.¹⁴

The committee also heard that using less energy through energy efficiency could help reduce Canadian GHG emissions.¹⁵ [Ms. Levesque](#) explained to the committee that energy efficiency alone prevented 90.5 megatonnes of GHG emissions in Canada between 1990 and 2014. In addition, she highlighted that more than a third of GHG emission reductions by 2030, as planned in the *Pan-Canadian Framework*, are expected to come from energy efficiency measures.

Finally, witnesses pointed out that investments in energy efficiency can help offset the demand from new electricity infrastructure development.¹⁶ [Terry Young](#) from the Independent Electricity System Operator estimates that every dollar invested in energy

12 RNNR Evidence: [Levesque](#) (NRCan).

13 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Allan Fogwill](#) (President and Chief Executive Officer, Canadian Energy Research Institute); [Kalapos](#) (Clean Air Partnership); [Langlois](#) (CIET); [Levesque](#) (NRCan); [Luymes](#) (HRAI); [MacDonald](#) (EfficiencyOne); [Melo](#) (Clean Energy Canada); [Mueller](#) (Canada Green Building Council); [Mark Schembri](#) (Vice-President, National Maintenance, Loblaw Companies Limited); and [White](#) (SES Consulting).

14 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Luymes](#) (HRAI); and [Melo](#) (Clean Energy Canada).

15 RNNR Evidence: [Karim Abraham](#) (Chief Executive Officer, Kambo Energy Group); [Yasmin Abraham](#) (Kambo Energy Group); [Bradley](#) (CEA); [Paul Cheliak](#) (Vice-President, Public and Regulatory Affairs, Canadian Gas Association); [Diamond](#) (Efficiency Canada); [Dumoulin](#) (NRC); [Fogwill](#) (Canadian Energy Research Institute); [Cynthia Handler](#) (Director, Office of Energy Research and Development, Energy End-Use, NRCan); [Sheila Hayter](#) (President, ASHRAE); [Matt Jones](#) (Assistant Deputy Minister, Pan-Canadian Framework Implementation Office, Environment and Climate Change Canada [ECCC]); [Kalapos](#) (Clean Air Partnership); [Leach](#) (QUEST); [Kevin Lee](#) (Chief Executive Officer, Canadian Home Builders’ Association [CHBA]); [Levesque](#) (NRCan); [Luymes](#) (HRAI); [MacDonald](#) (Efficiency One); [Anna Murray](#) (Vice-president of sustainability, Bentall Kennedy); [Mueller](#) (Canada Green Building Council); [Andrew Noseworthy](#) (Assistant Deputy Minister, Clean Technology, Department of Industry); [Helen Ryan](#) (Associate Deputy Minister, Environmental Branch, Environment and Climate Change Canada [ECCC]); [Schembri](#) (Loblaw Companies Limited); and [White](#) (SES Consulting).

16 RNNR Evidence: [Bradley](#) (CEA); [Kalapos](#) (Clean Air Partnership); [Langlois](#) (CIET); and [Terry Young](#) (Vice-President, Policy, Engagement and Innovation, Independent Electricity System Operator).

efficiency avoids three dollars in investments in new transmission and distribution infrastructure.

MAXIMIZING ENERGY EFFICIENCY GAINS IN CANADA

Energy efficiency is an area of shared jurisdiction and responsibility in Canada. At the federal level, NRCan’s Office of Energy Efficiency administers the [Energy Efficiency Act](#) and the associated energy efficiency regulations. It supports several energy efficiency initiatives for industrial and residential buildings and products, as well as the transportation sector. NRCan hosts CanmetENERGY laboratories, which is responsible for clean energy research and technology development and demonstration; manages several funding, grant and incentive programs, such as the [Energy Innovation Program](#) and the [Green Infrastructure programs](#); and offers support to federal organizations engaged in reducing their energy use through its [Greening Government Services](#) as part of the overall Greening Government Strategy. The department also supports Canada’s commitment to [Mission Innovation](#), a global initiative of 23 countries as well as the European Union, dedicated to accelerating breakthroughs in clean energy technology.

Other federal, provincial or territorial initiatives that support energy efficiency as well as the research, development and commercialization of energy efficiency technologies include the intergovernmental’s [Build Smart — Canada’s Buildings Strategy](#); provincial organizations such as Nova Scotia’s [EfficiencyOne](#) and [Energy Efficiency Alberta](#); and the Government of Canada’s [Clean Growth Hub](#), [Economic Strategy—Clean Technology Table](#), [Industrial Research Assistance Program](#), and [Canadian Centre for Housing Technology](#).

The committee heard that energy efficiency has reduced the rate of growth in energy use in Canada. As indicated by [Ms. Levesque](#), while energy use in Canada increased by 31% between 1990 and 2014, it would have grown by 55% without energy efficiency improvements. Despite these improvements, [Mr. Diamond](#) indicated that the potential benefits of energy efficiency have been realized only partially, pointing out that Canada uses “more energy to produce a unit of GDP than the United States, the United Kingdom, France, Mexico or South Korea.” Witnesses discussed opportunities to further improve energy efficiency in Canada, including the following suggestions:

- **Ensuring that government incentive programs are predictable and reliable over the long term.** The committee heard that the business plans of energy efficiency service providers often rely on government



programs.¹⁷ [Karim Abraham](#) of Kambo Energy Group pointed out that unpredictable public funding “has been detrimental to Canadian energy efficiency businesses and their ability to invest and plan for the future.” [Mr. Lee](#) indicated that programs sustained over the long term can be beneficial to households as energy efficiency improvement projects, such as home energy retrofits, may take several years to complete. [Brad White](#) of SES Consulting suggested that “it may be desirable to also consider other forms of support that may be more durable – through the tax code, for example.”¹⁸

- **Improving public knowledge of, and access to, energy efficiency resources and services.**¹⁹ Witnesses indicated that households and businesses are often not fully aware of the benefits of energy efficiency and the programs available to them.²⁰ Furthermore, [Ms. Abraham](#) pointed out that some Canadians, especially seniors, Indigenous people and new immigrants, may have less access to energy efficiency programs due to language, cultural or accessibility barriers. She believes that programs should be designed to address these barriers. [Emilie Hayes](#) from the Canadian Federation of Independent Business suggested that an online one-stop shop for energy efficiency would make existing resources and services more accessible.
- **Harmonizing energy efficiency programs across jurisdictions.** According to [Allan Fogwill](#) of the Canadian Energy Research Institute, there is a “fragmentation of effort” among different levels of government, utilities and associations with regard to energy efficiency programs. He suggested that a common set of initiatives, with a single delivery and branding strategy, would help users understand the benefits and the processes of energy efficiency. Some witnesses indicated that further collaboration between jurisdictions would be needed to ensure greater harmonization of programs, taking into account regional specificities.²¹

17 RNNR Evidence: [Fogwill](#) (Canadian Energy Research Institute); [Lee](#) (CHBA) and; [White](#) (SES Consulting).

18 RNNR Evidence: [Lee](#) (CHBA).

19 RNNR Evidence: [Cheliak](#) (Canadian Gas Association); [Hayes](#) (CFIB); [MacDonald](#) (EfficiencyOne); and [Ryan](#) (ECCC).

20 RNNR Evidence: [Abraham](#) (Kambo Energy Group); [Bamford](#) (Coalition of Concerned Manufacturers and Businesses of Ontario); [Hayes](#) (CFIB); [Luymes](#) (HRAI); [Moreau](#) (CFIB); [White](#) (SES Consulting).

21 RNNR Evidence: [Fogwill](#) (Canadian Energy Research Institute); [Langlois](#) (CIET); and [Luymes](#) (HRAI).

- **Ensuring a competitive tax and regulatory environment for attracting and maintaining businesses and investment.** The committee heard that a competitive business environment in Canada retains investment and prevents capital from moving to places with lower environmental standards than Canada, which would result in raising GHG emissions globally.²²
- **Investing in skills training and workforce development.** The energy efficiency industry includes a wide range of technologies and services that require a skilled workforce in a variety of sectors and disciplines.²³ According to [Thomas Mueller](#) of the Canada Green Building Council and [Mr. Lee](#), Canada is facing a shortage in skilled trades that is hindering progress in energy efficiency. Witnesses called for further investment in workforce capacity building—namely, with the aim of identifying skills gaps, developing more targeted curricula, and delivering training more consistently and cost-effectively across Canada.²⁴
- **Leveraging private sector capital to facilitate energy efficiency investments.** The committee heard that private sector investment, in conjunction with government and utilities rebates and incentives, would be useful to alleviate high up-front costs of some energy efficiency improvements. For example, in the building sector, according to [Ms. Levesque](#), “federal investment and interventions are not enough on their own to meet [Canada’s] energy efficiency goals [and there is a] need to leverage the untapped private sector capital potential and further cultivate Canada’s retrofit economy.” Several witnesses indicated that a national institution, such as the [Canada Infrastructure Bank](#) or the [Canada Mortgage and Housing Corporation](#), could be used to attract private sector capital for improving the energy efficiency of Canada’s building infrastructure.²⁵ Having such support could increase investors’ confidence and reduce risks, for example, by consolidating small energy

22 RNNR Evidence: [Bamford](#) (Coalition of Concerned Manufacturers and Businesses of Ontario).

23 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Fogwill](#) (Canadian Energy Research Institute); [Kalapos](#) (Clean Air Partnership); [Langlois](#) (CIET); [Levesque](#) (NRCan); [Jim Lord](#) (Founding Principal, Ecovert Corporation); [Luymes](#) (HRAI); [MacDonald](#) (EfficiencyOne); [Melo](#) (Clean Energy Canada); [Mueller](#) (Canada Green Building Council); and [Schembri](#) (Loblaw Companies Limited).

24 RNNR Evidence: [Langlois](#) (CIET); [Lord](#) (Ecovert Corporation); [MacDonald](#) (EfficiencyOne); and [Mueller](#) (Canada Green Building Council).

25 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Brendan Haley](#) (Policy Director, Efficiency Canada); [Kalapos](#) (Clean Air Partnership); [MacDonald](#) (EfficiencyOne); and [Mueller](#) (Canada Green Building Council).



efficiency projects under a single, larger financial instrument, standardizing transactions, such as contracts, and guaranteeing loans.²⁶

- **Scaling up deployment of market-ready technologies.** The committee heard that some commercially available energy efficiency technologies face market barriers, such as high capital cost, that hinder their widescale deployment in Canada.²⁷ NRCan’s [Local Energy Efficiency Partnerships \(LEEP\)](#) was identified as a program that enables groups of builders to work together, on a regional basis, to reduce time and risks in finding and trying new energy efficiency technologies.²⁸ [Paul Cheliak](#) of the Canadian Gas Association suggested extending LEEP beyond the residential sector to commercial buildings. [Ms. Bamford](#) indicated that revisiting the [Scientific Research and Experimental Development Tax Incentive Program](#) and accelerating depreciation for new capital could allow businesses to reinvest in new technology.
- **Accelerating energy efficiency improvements in existing buildings through energy performance disclosure and energy codes for building retrofits.** According to [Ms. Levesque](#), “given that 75% of Canada’s current stock of homes and buildings will be standing in 2030, deep building retrofits will be crucial to achieving ... GHG emissions reductions targets and facilitating Canada’s transition to a low-carbon economy.” The committee heard that while current building codes are limited in their application to existing buildings to improve energy efficiency, programs requiring the evaluation and disclosure of building performance can be effective tools to move the industry forward.²⁹ [Mr. White](#) referred to Australia’s voluntary national labelling program for buildings ([NABERS](#)) that, through state and local legislation, requires mandatory disclosure of building energy performance. The program has contributed to a reduction of over 800,000 tonnes of GHG emissions in approximately 10 years. [Mr. Mueller](#) supported Canada’s plan to publish model energy requirements/codes for existing homes and buildings in 2022.

26 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Haley](#) (Efficiency Canada); and [Kalapos](#) (Clean Air Partnership).

27 RNNR Evidence: [Finet](#) (ESAC); [Hayes](#) (CFIB); [Len Horvath](#) (Past President, British Columbia Advanced Conservation and Efficiency Association); [Lee](#) (CHBA); and [Luymes](#) (HRAI).

28 RNNR Evidence: [Cheliak](#) (Canadian Gas Association); and [Lee](#) (CHBA).

29 RNNR Evidence: [Mueller](#) (Canada Green Building Council); and [White](#) (SES Consulting).

- **Supporting the broader use of high energy performance standards for new buildings.** The committee heard that the adoption of more stringent high-performance standards for new buildings, such as [Net Zero Energy](#), the [Leadership in Energy and Environmental Design](#) (LEED), [BOMA BEST](#), the [Toronto Green Standard](#), the [BC Energy Step Code](#), and [Zero Carbon](#), can drive increased energy efficiency.³⁰ [Mr. Mueller](#) pointed to an opportunity for the federal government, as the largest building owner in Canada, to help support high energy performance voluntary standards through research, development and procurement policy.
- **Harmonizing product standards across jurisdictions.** [Bruce Rebel](#) from the Association of Home Appliance Manufacturers Canada indicated that harmonization and alignment of product standards and test procedures between jurisdictions within Canada and with the United States, Canada’s largest trading partner, are essential to sustaining a competitive industry and maintaining the affordability of products. Witnesses were encouraged by the work under way for greater product harmonization under the auspices of the *Canadian Free Trade Agreement* and the Regulatory Cooperation Council Stakeholder Forum.³¹ [Mr. Rebel](#) indicated his support for the implementation of a ministerial authority provided for in Budget Implementation Act, 2017 as a necessary requirement to facilitate regulatory changes and to update efficiency standards while maintaining harmonization with other jurisdictions.

In order to take advantage of opportunities to further improve energy efficiency in Canada, witnesses called on the federal government to scale up action, in collaboration with governments and stakeholders across jurisdictions, to maximize energy efficiency gains for Canadian businesses and households. As [Ms. Levesque](#) put it, “we have to shift from seeing energy efficiency only in terms of reducing our demand for energy, and wake up to its potential to deliver concrete economic and social benefits.” Furthermore, [Mr. Diamond](#) asserted that “treating energy efficiency as the ‘first fuel’ can show that this resource is one of Canada’s most plentiful energy resources, helping to drive significant employment and GDP growth and making us more competitive on a global scale. It can also help us reduce our carbon emissions.”

30 RNNR Evidence: [Diamond](#) (Efficiency Canada); [Lord](#) (Ecovert Corporation); [MacDonald](#) (EfficiencyOne); [Mueller](#) (Canada Green Building Council); [Murray](#) (Bentall Kennedy); and [White](#) (SES Consulting).

31 RNNR Evidence: [Luymes](#) (HRAI); and [Bruce Rebel](#) (Vice-President and General Manager, Association of Home Appliance Manufacturers Canada [HVAC]).

APPENDIX A LIST OF WITNESSES

The following table lists the witnesses who appeared before the Committee at its meetings related to this report. Transcripts of all public meetings related to this report are available on the Committee's [webpage for this study](#).

Organizations and Individuals	Date	Meeting
Canadian Home Builders' Association Kevin Lee, Chief Executive Officer	2018/10/23	114
Efficiency Canada Corey Diamond, Executive Director Brendan Haley, Policy Director	2018/10/23	114
Department of Natural Resources Cynthia Handler, Director Office of Energy Research and Development, Energy End-Use Kaili Levesque, Senior Director Office of Energy Efficiency, Demand Policy and Analysis	2018/10/30	115
Department of the Environment Matt Jones, Assistant Deputy Minister Pan-Canadian Framework Implementation Office Judy Meltzer, Director General Carbon Pricing Bureau Helen Ryan, Associate Assistant Deputy Minister Environmental Protection Branch	2018/10/30	115
National Research Council of Canada Michel Dumoulin, Vice-President Engineering Trevor Nightingale, Principal Research Officer Construction Research Centre	2018/10/30	115
Canada Green Building Council Thomas Mueller, President and Chief Executive Officer	2018/11/01	116

Organizations and Individuals	Date	Meeting
Canadian Electricity Association Francis Bradley, Chief Operating Officer Sarah Nolan, Manager Government Relations	2018/11/01	116
Quality Urban Energy Systems of Tomorrow Tonja Leach, Executive Director Ericka Wicks, Director Projects and Advisory Services	2018/11/01	116
Association of Home Appliance Manufacturers Canada Bruce Rebel, Vice-President and General Manager	2018/11/06	117
Clean Air Partnership Gabriella Kalapos, Executive Director	2018/11/06	117
Clean Energy Canada Fernando Melo, Policy Advisor	2018/11/06	117
Department of Industry Gemma LeGresley, Acting Director Clean Growth Hub Andrew Noseworthy, Assistant Deputy Minister Clean Technology	2018/11/08	118
Efficiency One Stephen MacDonald, Chief Executive Officer Amelia Warren, Director Customer Experience and Partnerships	2018/11/08	118
Energy Services Association of Canada Jean-Pierre Finet, Vice-President	2018/11/08	118
Loblaw Companies Limited Mark Schembri, Vice-President National Maintenance	2018/11/08	118
American Society of Heating, Refrigerating and Air-Conditioning Engineers Darryl Boyce, President Elect Sheila Hayter, President	2018/11/20	119

Organizations and Individuals	Date	Meeting
Canadian Gas Association Paul Cheliak, Vice-President Government and Regulatory Affairs	2018/11/20	119
Clean Air Partnership Gabriella Kalapos, Executive Director	2018/11/20	119
Coalition of Concerned Manufacturers and Businesses of Ontario Jocelyn Bamford, Founder Vice-President of Automatic Coating Limited	2018/11/20	119
As an individual Daniel Rousse, Professor École de technologie supérieure	2018/11/27	120
Canadian Energy Research Institute Allan Fogwill, President and Chief Executive Officer	2018/11/27	120
Canadian Institute for Energy Training Olivier Cappon, Senior Manager Business Development and Government Relations Pierre Langlois, President	2018/11/27	120
Heating, Refrigeration and Air Conditioning Institute of Canada Martin Luymes, Vice-President Government and Stakeholder Relations	2018/11/27	120
Association of Home Appliance Manufacturers Canada Bruce Rebel, Vice-President and General Manager	2018/11/29	121
Independent Electricity System Operator Nik Schruder, Director Energy Efficiency Terry Young, Vice-President Policy, Engagement and Innovation	2018/11/29	121
SES Consulting Brad White, President	2018/11/29	121

Organizations and Individuals	Date	Meeting
Bentall Kennedy Anna Murray, Vice-President Sustainability	2018/12/04	122
British Columbia Advanced Conservation and Efficiency Association David Craig, Vice-President Secretary-Treasurer Len Horvath, Past President	2018/12/04	122
Canadian Federation of Independent Business Emilie Hayes, Policy Analyst National Affairs Monique Moreau, Vice-President National Affairs	2018/12/04	122
Empower Me Yasmin Abraham, Director Kambo Energy Group Karim Abraham, Chief Executive Officer Kambo Energy Group	2018/12/04	122
Ecovert Corporation Ragui Barsoum, Principal Ecovert Cx Corporation Jim Lord, Founding Principal	2018/12/06	123

APPENDIX B LIST OF BRIEFS

The following is an alphabetical list of organizations and individuals who submitted briefs to the Committee related to this report. For more information, please consult the Committee's [webpage for this study](#).

Association of Home Appliance Manufacturers Canada

Canadian Federation of Independent Business

Efficiency Canada

International Ground Source Heat Pump Association

REQUEST FOR GOVERNMENT RESPONSE

Pursuant to Standing Order 109, the Committee requests that the government table a comprehensive response to this Report.

A copy of the relevant *Minutes of Proceedings* ([Meetings Nos. 114 to 123, 133, 137 and 138](#)) is tabled.

Respectfully submitted,

James Maloney
Chair

Supplementary Opinion of the New Democratic Party

While the New Democratic Party of Canada (NDP) largely agrees with the committee's report, we feel there is a need for much more robust and active involvement from the federal government in supporting increased energy efficiency. The NDP particularly feels there needs to be greater action to support average Canadians lower their home energy usage.

Improving energy efficiency of Canadian homes is vital to reducing Canada's greenhouse gas emissions. It will also create a large number of jobs. Martin Luymes (Vice-President, Government and Stakeholder Relations, Heating, Refrigeration and Air Conditioning Institute of Canada) testified that:

“According to Efficiency Canada's analysis, an average of 118,000 jobs would be created every year between now and 2030 due to economic activity associated with energy efficiency investment. Many of these jobs will be in the HVACR sector as a result of retrofits on mechanical systems in homes and buildings. In saying that, I would also add that these are for the most part highly skilled and well-paid jobs in all parts of the country where Canadians live, work and play.”ⁱ

Mr. Luymes added:

“According to Natural Resources Canada, space heating is the single largest source of energy consumption in Canada's building sector. It accounts for 64% of energy consumed in homes and 56% of energy consumed in commercial buildings. According to their analysis, if today's best technologies were deployed more broadly, total home energy use could be reduced by 30% and greenhouse gas emissions could be lowered by 18 megatonnes per year. Meanwhile, water heating represents between 8% and 19% of energy use in homes and buildings. Again, if today's best technology were deployed, total home energy use would be reduced by 5% and greenhouse gas emissions lowered by more than three megatonnes.”ⁱⁱ

On April 1, 2010 the then Conservative government ceased taking new applications for the ecoEnergy Retrofit program and completely ended the program in March 2012. This successful program provided grants up to \$5,000 to help homeowners make their homes more energy-efficient and reduce the burden of high energy costs. Among other eligibility criteria, participants needed to obtain a pre-retrofit evaluation by a certified energy advisor using the EnerGuide Rating System before starting work and a post-retrofit evaluation within program deadlines. The current government has not reinstated the program nor has it replaced it with a similar program.

The cancellation of programs like these have a negative impact on the Canadian economy as companies align their operations based on government priorities. Brad White (President SES Consulting) testified:

“In the past, government efficiency programs have often fallen victim to changing political whims. Companies like ours invest a lot in aligning our services to help our clients take advantage of these programs, and it is hugely disruptive when they are suddenly cancelled, often with no warning. This perception of unreliability also makes it more difficult to plan for expansion and to have the confidence to invest in growing our business when we are uncertain as to what kind of support there will be.”ⁱⁱⁱ

Mr. White added: “...it's often cheaper to buy energy efficiency through incentives than it is to put up a new power plant, or, as in our case in B.C., a new dam.”^{iv}

The NDP recommends:

Government should provide financial assistance for home owners to improve the energy efficiency of their homes including financial support for energy audits.

The issue of trained energy auditors should also be addressed. Energy audits are vital as they provide baseline information on a home’s current energy use and provide areas where to target for the greatest energy savings. SES Consulting is one of the largest energy efficiency consulting firms in Canada, but employs only 30 people. As Mr. White said, “There’s a limit to how many buildings even we can audit.”^v

The NDP recommends:

The Government should provide financial assistance both to post-secondary institutions and to average Canadians to train more energy auditors.

ⁱStanding Committee on Natural Resources (RNNR), *Evidence*, 1st Session, 42nd Parliament (*Evidence*): Martin Luymes (Vice-President, Government and Stakeholder Relations, Heating, Refrigeration and Air Conditioning Institute of Canada).

ⁱⁱ RNNR *Evidence*: Luymes (Heating, Refrigeration and Air Conditioning Institute of Canada).

ⁱⁱⁱ RNNR *Evidence*: Brad White (President SES Consulting).

^{iv} RNNR *Evidence*: Brad White (President SES Consulting).

^v RNNR *Evidence*: Brad White (President SES Consulting).