Energy Efficiency in the Buildings Sector
Presentation to the Senate Committee on Energy, the Environment and Natural Resources

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ENERGY EFFICIENCY
A PILLAR IN CLIMATE CHANGE POLICIES

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Less than 2°C increase in global temperature

15% Upstream methane reductions
09% Reducing inefficient coal
17% Renewables investment
10% Fossil-fuel subsidy reform
49% Energy efficiency

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Canadians saved $38.5 billion as a result of energy efficiency improvements in 2014.

Natural Resources Canada’s energy efficiency suite of programs (2011–2012 to 2015–2016) achieved $1 billion in cost savings for Canadian consumers and industry.

Energy efficiency programs support job creation.

In 2014, energy efficiency improvements avoided 90.5 MT of GHG emissions.
BUILDINGS ARE A KEY AREA OF OPPORTUNITY

Need to address new and existing buildings
- 75% of buildings in 2030 are already standing
- 25% of floor space will be built between now and 2030

Canada has a relatively high energy intensity due to climate and standard of living

Nearly 1/4 of Canada’s GHG emissions are from residential, commercial and institutional buildings
HOW CANADA’S BUILDINGS USE ENERGY

Heating is our biggest challenge and GHG performance is improving, but more needs to be done.

2013 buildings sector GHG emissions

- 65% space heating
- 17% water heating
- 12% appliances
- 6% lighting

GHG intensity (tonne/m²)

- 65% space heating
- 17% water heating
- 12% appliances
- 6% lighting

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PAN-CANADIAN FRAMEWORK ON CLEAN ENERGY & CLIMATE CHANGE (PCF)

MEASURES FOR THE BUILDINGS SECTOR

Making new buildings more energy efficient
• Net-Zero Energy Ready Codes adopted by 2030

Retrofitting existing buildings
• Codes developed by 2022 and Labelling/ Disclosure as early as 2019
• Low Carbon Economy Fund can support provincial and territorial retrofit programs

Setting new standards for high-efficiency equipment and appliances
• Next generation, low carbon technologies

Supporting building codes and energy efficient housing in Indigenous communities

More than a third of estimated GHG emissions reductions in the PCF are from energy efficiency measures
POTENTIAL IMPACTS FROM BUILDINGS PROGRAMS BY 2030

5.6 Mt

new building codes

5.6 Mt

existing building codes & labels

10.4 Mt

equipment standards

21.6 Mt

Associated benefits:
• Job creation
• Reducing energy costs for Canadians
• Supporting innovation and competitiveness
• Healthier indoor environments
• Enabling long-term decarbonisation

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## Office of Energy Efficiency Programs for Buildings

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<td>Set Minimum Standards</td>
<td>Regulations under the <em>Energy Efficiency Act</em></td>
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<td>Support National Labels and Benchmarking Tools</td>
<td><img src="image" alt="ENERGIguide" /> (regulated and voluntary)</td>
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<tr>
<td>Drive innovation with Premium Standards</td>
<td><img src="image" alt="ENERGY STAR" /> <img src="image" alt="R-2000" /></td>
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2/3 of provincial/territorial spending on incentive programs using NRCan tools (EnerGuide and ENERGY STAR)
MINIMUM STANDARDS

Regulations under the *Energy Efficiency Act* for products and equipment
- Set minimum standards that remove the least efficient appliances and equipment from the market

Model energy codes for new buildings
- National Building Code for Homes
- New Net-Zero Energy Ready Code
- RD&D projects lower costs and improve performance of new generation technologies

Model energy codes for existing buildings
- New minimum energy performance requirements at major building lifecycle events (e.g., at renovation, sale, change of occupancy etc.)
LABELS AND BENCHMARKING

ENERGUIDE

- More than 1 million homes rated for energy performance
- More than 800,000 retrofits of homes
- More than 60 programs and regulations are delivered using ENERGUIDE
- Also applies to household appliances and heating equipment

ENERGY STAR Portfolio Manager

- Used for more than 22% of Canadian floor space
- Expansion in 2017 to support improved energy use data and new programs
- New ENERGY STAR Certification to recognize top performers

National Online Platform

- Developing a new national online platform for labelling and sharing energy data by 2019 to support regional rating and disclosure programs

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**PREMIUM STANDARDS**

**ENERGY STAR Program Certification**
- Equipment: almost 600 Canadian manufacturers build to ENERGY STAR specifications across 70 product types
- Homes: 74,000 certified; 700 participating builders
- New commercial and institutional buildings: certification to launch in 2018

**R-2000**
- Market transformation: credited with 22% of residential energy efficiency improvements since 1980
- An R-2000 home built in 2005 is now a typical home today

A typical new house in Canada
An ENERGY STAR house is 20% more efficient
An R-2000 house is 50% more efficient
A net-zero house: energy purchased and energy generated through renewable sources is equal

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ACHIEVING SUCCESS BY 2030 AND BEYOND

Working with PTs to support adoption and implementation of measures for the buildings sector

Developing an ecosystem approach for RD&D

• Projects on high performance and net-zero energy ready building components lower construction and technology costs
• Enables industry to identify, select, and confidently adopt new technologies and practices
• Supports market transformation measures to accelerate the adoption of next generation, low-carbon technologies

Considering long-term measures to transition to a low-carbon economy
Thank you