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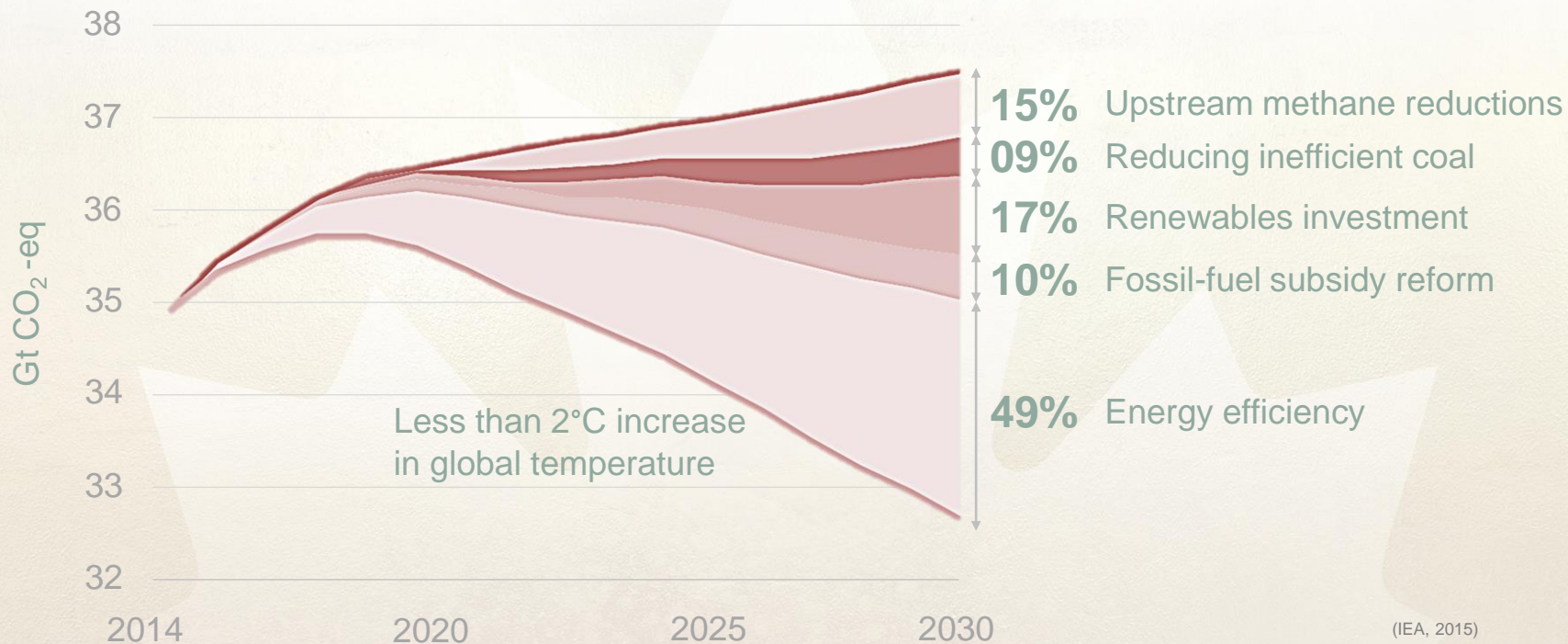
Energy Efficiency in the Buildings Sector

Presentation to the Senate Committee on Energy,
the Environment and Natural Resources

Sarah Stinson, Director
Buildings and Industry Division
Office of Energy Efficiency, Natural Resources Canada
September 19, 2017

ENERGY EFFICIENCY

A PILLAR IN CLIMATE CHANGE POLICIES



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ENERGY EFFICIENCY SAVINGS AND BENEFITS FOR CANADIANS

Canadians saved \$38.5 billion as a result 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

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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 $\frac{1}{4}$ of Canada's GHG emissions are from residential, commercial and institutional buildings

The illustration shows a stylized cityscape with two tall, grey buildings with yellow windows. In the foreground, there is a small red house with a white roof and a chimney, surrounded by a green lawn and a wooden fence. A single green tree stands to the left of the house. A large, light green thought bubble is positioned above the buildings, containing the text about GHG emissions. The background is a light beige color with a faint, large-scale pattern.

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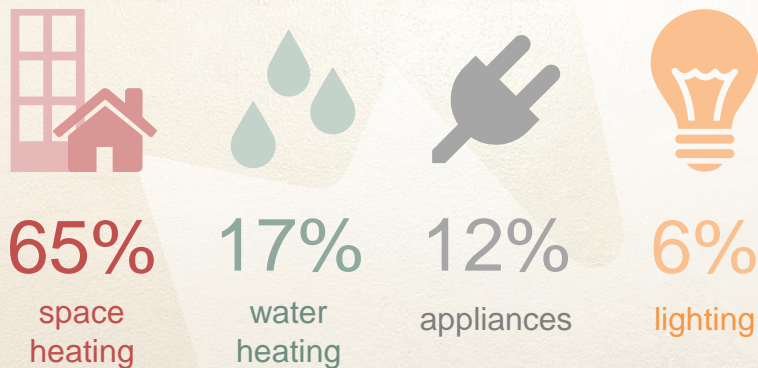
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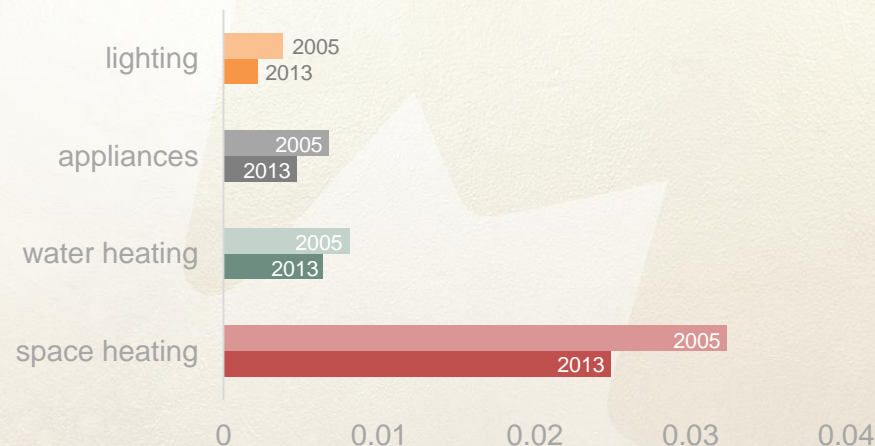
HOW CANADA'S BUILDINGS USE ENERGY

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

2013 buildings sector GHG emissions



GHG intensity (tonne/m²)



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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

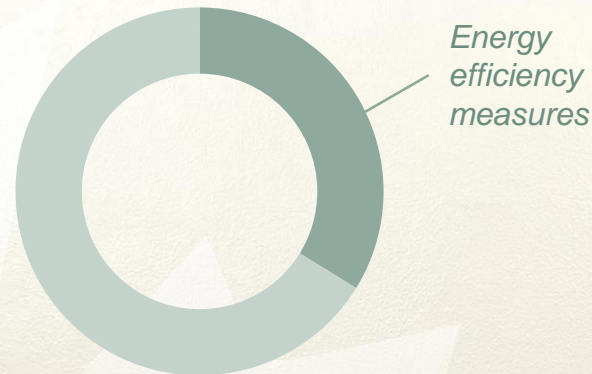
Retrofitting existing buildings

- 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

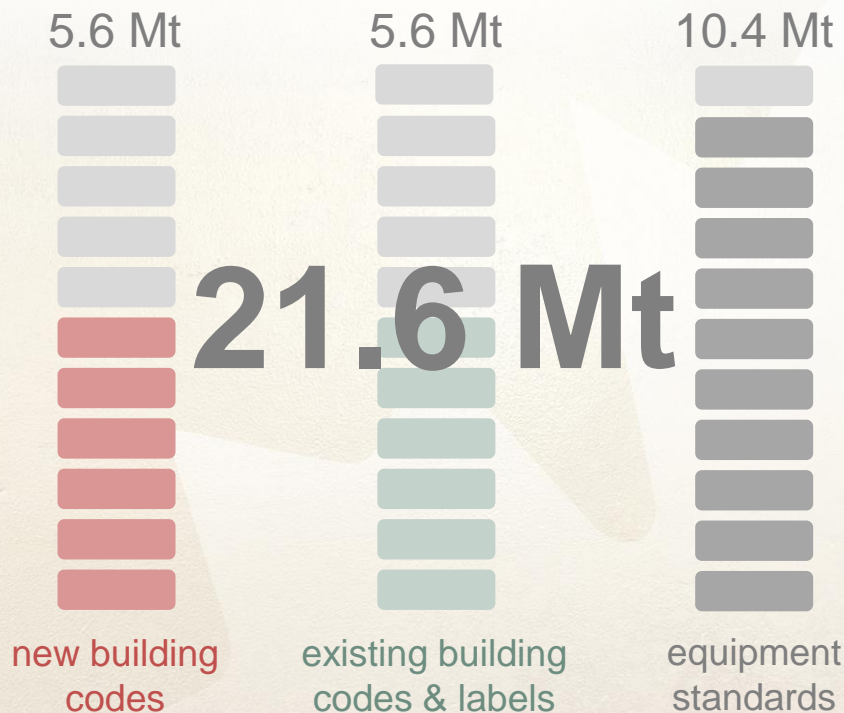
- Next generation, low carbon technologies

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



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

	Products	Homes & Buildings
Set Minimum Standards	Regulations under the <i>Energy Efficiency Act</i>	Model codes developed with NRC for adoption by provinces and territories
Support National Labels and Benchmarking Tools	 (regulated and voluntary)	 
Drive innovation with Premium Standards		 

2/3 of provincial/territorial spending on incentive programs using NRCan tools (EnerGuide and ENERGY STAR)

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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 Energy Code for Buildings 2011 and 2015
- 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

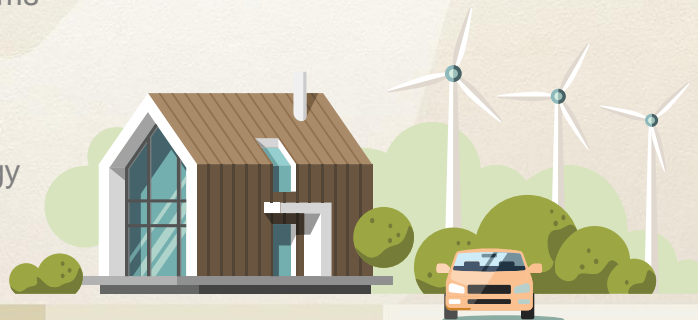


- Used for more than 22% of Canadian floor space
- Expansion in 2017 to support improved energy use data and new programs
- New ENERGY STAR Certification to recognize top performers

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



The **ENERGUIDE** System provides the baseline for building codes and voluntary programs

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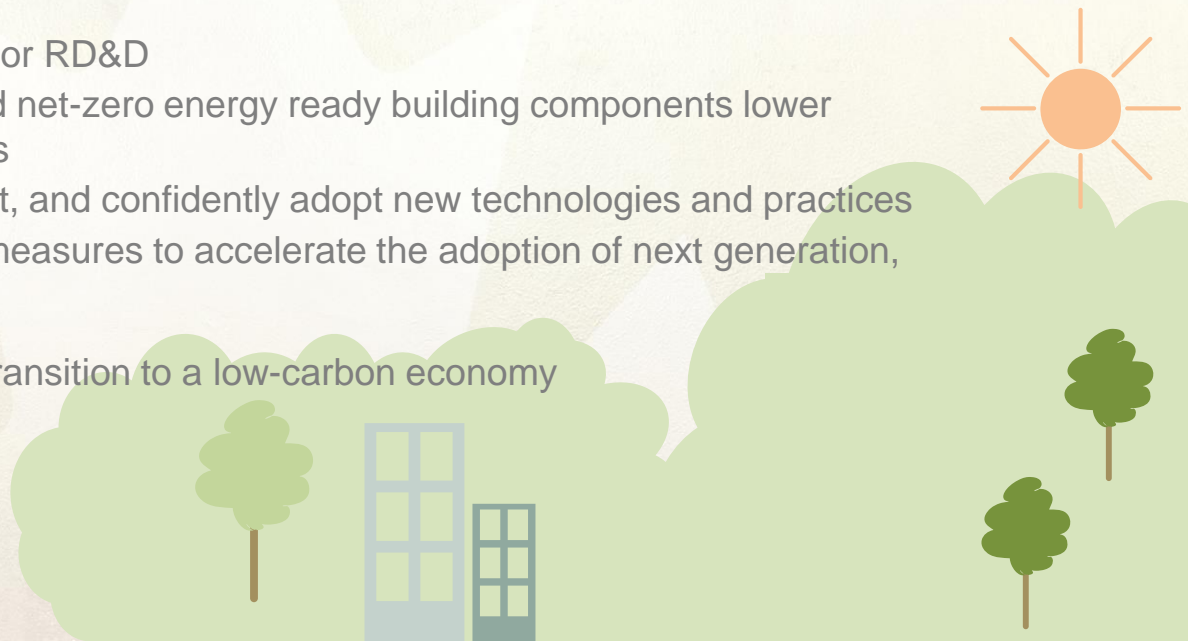
ACHIEVING SUCCESS BY 2030 AND BEYOND

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



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Thank you

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