

Energy and Mines Ministers' Conference
Moving Forward on
Energy Efficiency in Canada:
Achieving Results to 2020 and Beyond

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Recycled paper

Energy and Mines Ministers' Conference

Moving Forward on Energy Efficiency in Canada: Achieving Results to 2020 and Beyond

The annual Energy and Mines Ministers' Conference (EMMC) is the primary forum for federal, provincial and territorial ministers to discuss shared challenges and priorities affecting the energy and mining sectors in Canada.

Moving Forward on Energy Efficiency in Canada: Achieving Results to 2020 and Beyond

I. INTRODUCTION

In 2007, the Energy and Mines Ministers' Conference (EMMC) released *Moving Forward on Energy Efficiency: A Foundation for Action*. This document highlighted the value of reducing energy waste, while recognizing the vital role that governments can play in advancing energy efficiency as investors in programs and as policy-makers and regulators who help shape the marketplace by reducing barriers to action.

At EMMC 2011, ministers approved a *Collaborative Approach to Energy* and its associated action plan. The focus on a balanced supply-demand approach to energy demonstrates the importance of energy efficiency within a broader suite of energy policies. More specifically, the action plan provided concrete examples of planned federal, provincial and territorial governmental collaboration:

PRIORITY AREA	WORK OBJECTIVE
Homeowners and consumers	<ul style="list-style-type: none">• Publish a more stringent model energy code for buildings and commit to a cycle of further improvements• Collaborate on a next generation home energy rating system to support labelling, codes and incentives• Improve the energy efficiency of energy-using products purchased by Canadians
Industry	<ul style="list-style-type: none">• Strengthen business capacity to finance energy efficiency projects in the built environment by providing tools• Advance the energy efficiency of freight transportation in Canada• Improve industrial energy performance by adopting the ISO 50001 international energy management standard
Communities	<ul style="list-style-type: none">• Collaborate with the goal of identifying and implementing new trends in integrated community energy planning

Continued improvements in energy efficiency are critical to the international competitiveness of the economy and the Canadian standard of living. However, Canada faces challenges related to its cold climate, vast geography, a widely dispersed population and an energy-intensive resource-based industrial sector.

In the face of these challenges, real gains have been made in slowing the demand for energy. Between 1990 and 2009, Canada's population increased 22 percent. During the same period, Canada's gross domestic product (GDP) increased 57 percent, but its energy use went up only 23 percent. This means that while Canada's economy is growing and producing more goods and services, the country is using much less energy per unit of GDP than it did two decades ago.

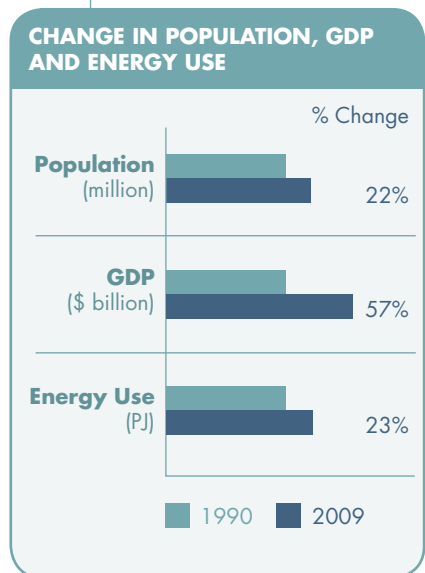
This reduction in energy use per unit of GDP pays huge dividends. In 2009 alone, energy efficiency gains translated into an annual saving of \$27 billion in energy costs for Canadians and an estimated 81 megatonnes of avoided greenhouse gas emissions. But more action needs to be taken to help Canadians reduce consumption and save money while decreasing the environmental impacts associated with energy use. By working together, governments will continue to make steady progress in developing and implementing tools that will help Canadians make significant gains in energy efficiency and conservation.

II. Context

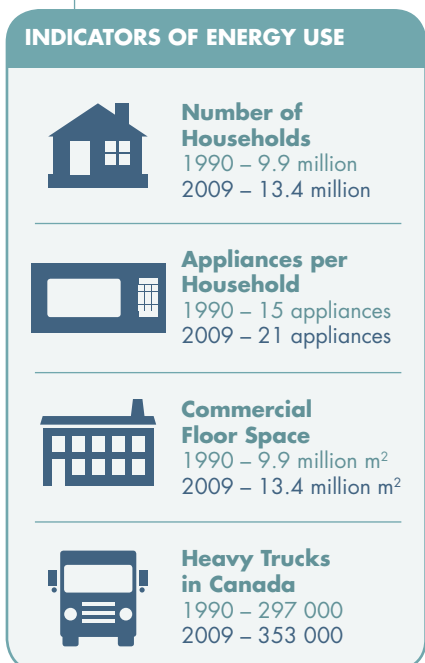
Energy efficiency is a low-cost way to help Canadians save money, increase productivity and competitiveness and contribute to energy security. Governments' energy efficiency objectives offer significant opportunities across all sectors of the Canadian economy – for homeowners and consumers, communities, business and industry – and across all regions.

Most jurisdictions have established economy-wide greenhouse gas reduction targets for 2020. Energy efficiency is an important contributor toward meeting those targets.

In recent years, several developments have affected energy use in Canada and abroad.



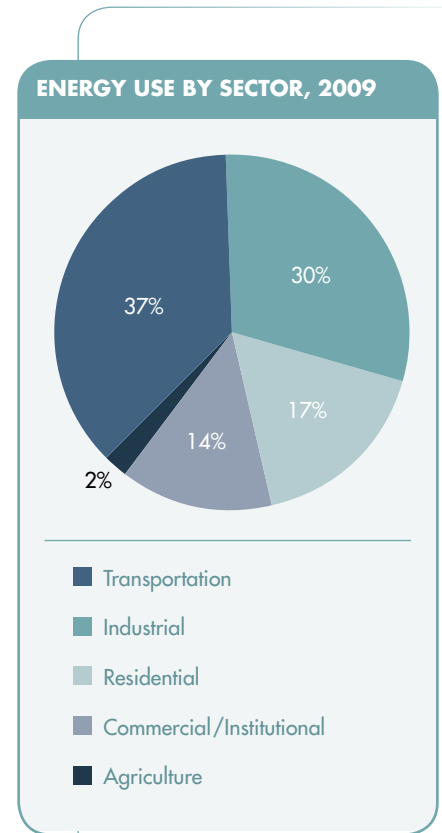
Source: Energy Efficiency Trends in Canada 1990-2009, Office of Energy Efficiency, Natural Resources Canada



Source: Energy Efficiency Trends in Canada 1990-2009, Office of Energy Efficiency, Natural Resources Canada

The combined impact of these and other developments represents a greater potential for energy efficiency. They include the following:

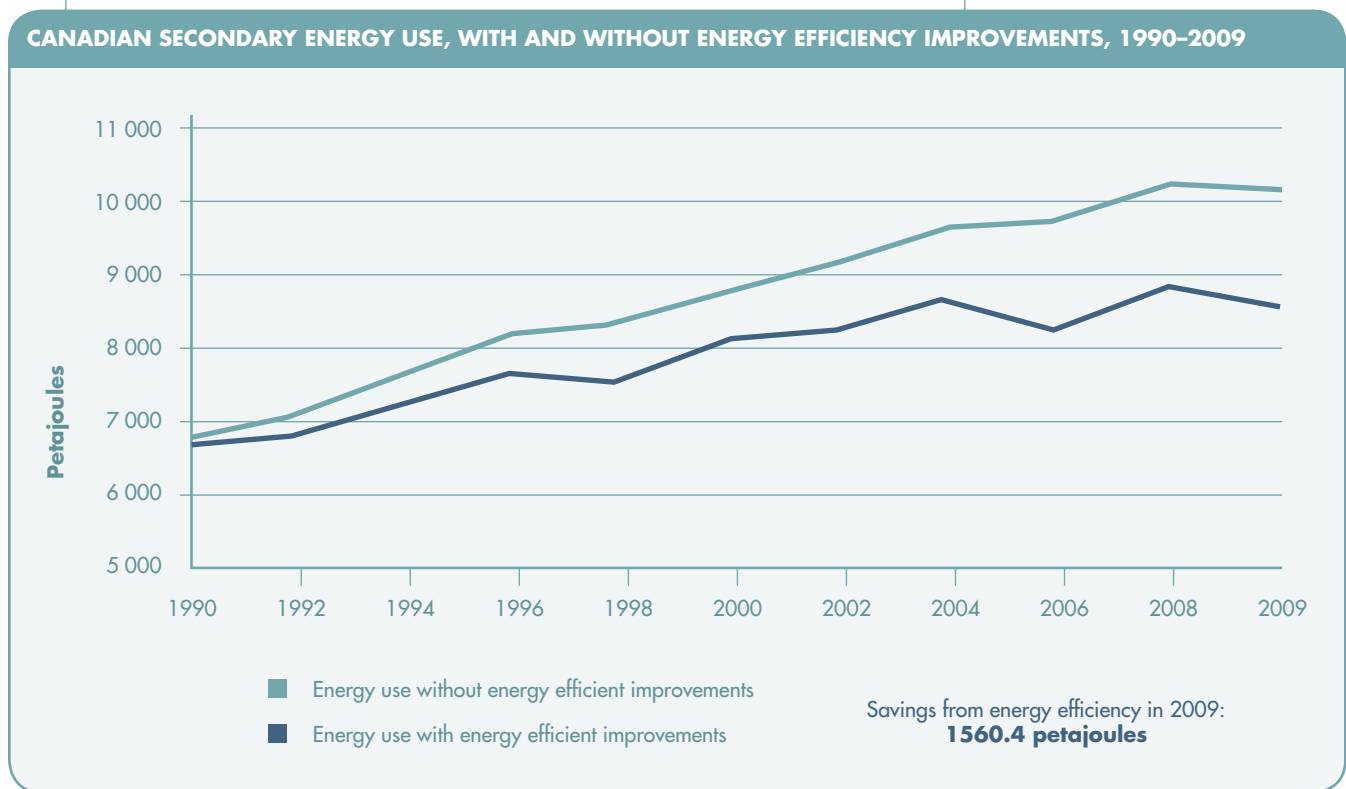
- **Recovery from worldwide economic recession** – While global real GDP fell in 2009, it was followed by a rebound of over 5 percent in 2010, and an estimated 3.8 percent in 2011. Global economic growth is expected to continue upward at a moderate rate of 3.1 percent in both 2012 and 2013. (Source: *Bank of Canada Monetary Policy Report Summary*, July 2012)
- **Rising domestic energy demand** – Overall, between 1990 and 2009, Canada’s energy use increased 23 percent. This growth in energy use was most notable in the freight transport sector, which increased 67 percent. Demand in the residential sector grew by 11 percent and passenger transport grew by 19 percent, with lifestyle changes involving the proliferation of energy-using products serving as key drivers of energy use.
- **Improved energy intensity** – Also between 1990 and 2009, economic growth increased 57 percent. As such, economic growth increased approximately 150 percent more than the overall increase in energy use, resulting in an improvement of energy intensity (the amount of energy required per unit of GDP) of 21 percent. Similarly, overall energy use per person rose by just 1 percent, even as each household increased the number of energy-consuming goods and services per capita in use compared with 1990.
- **Technological developments** – Recent technological advances have made many more measures cost-effective and able to be deployed to a wider range of consumers. At the same time, the economic benefits of energy efficiency can provide a much-needed boost to sectors seeking potential cost savings. For example, since 2007, the use of high-efficiency solid-state lighting has increased rapidly. Industrial innovation, combined with federal, provincial and territorial support, has accelerated the use of this technology, so it is the norm in many applications, such as exit signs and traffic lights. Solid-state street lighting has the potential to save 50 percent of the energy used by current street-lighting technologies.
- **Increased interest in energy efficiency measures** – Awareness and interest in energy efficiency has grown, evidenced in part by high-profile home retrofit programs and by the increased number and scope of programs offered by governments and utilities. The Canadian Council of Chief Executives recognized the impact of increased efficiency on productivity and competitiveness in its 2011 report entitled *Energy-Wise Canada: Building a Culture of Energy Conservation*.



Source: *Energy Efficiency Trends in Canada 1990-2009*, Office of Energy Efficiency, Natural Resources Canada

In 2009, Canadians spent about \$152 billion on energy to heat and cool their homes and offices and to operate their appliances, vehicles, businesses and industrial processes. This represents almost 13 percent of the country's GDP. Yet Canadians would have spent \$27 billion more on energy had it not been for the contributions of energy efficiency measures undertaken since 1990.

In terms of energy, Canadians saved 1560 petajoules due to energy efficiency improvements, equivalent to the energy use of about 26 million light vehicles in 2009.



Source: Energy Efficiency Trends in Canada 1990-2009, Office of Energy Efficiency, Natural Resources Canada

These energy savings have delivered significant benefits to Canada and to Canadians: a healthier environment, improved productivity, new employment opportunities and reduced demand for new infrastructure.

In this context, the strong leadership from all levels of governments has provided the guidance and direction that consumers need to make informed decisions to capture these benefits.

III. Progress

Since 2007, there has been significant federal, provincial and territorial collaboration on energy efficiency activities across all jurisdictions. As a result of these and other initiatives, Canadians are seeing significant progress (Annexes A to F have additional details):

- More than 600 000 homes have been retrofitted through collaborative federal, provincial and territorial programs, saving participants more than \$400 million in energy costs per year. More than 1 million Canadian homeowners have obtained an evaluation using the EnerGuide Rating System (ERS) since 1998. The ERS is used in all jurisdictions, providing trained energy advisors, easy-to-read performance labels and other tools that allow Canadians to make informed home purchase and renovation decisions that minimize energy costs.
- Since 2007, jurisdictions have collaborated on a recognition framework for fuel-efficient heavy-truck tires and on the development and release of *On the Road to a Fuel-efficient Truck: A Guide for Purchasing Aerodynamics for Heavy-Duty Tractors and Trailers*. Programs in many jurisdiction have benefited from the latter collaboration over this period, including Alberta's Trucks of Tomorrow, Manitoba's GrEEEn Trucking Program, Nova Scotia's Class 8 Trucking Energy Efficiency Incentive Program, Transport Canada's ecoFREIGHT Program and Natural Resources Canada's SmartWay-Certified Technology Fund and, now, its SmartWay Transport Partnership.
- The *National Energy Code of Canada for Buildings* was published in 2011, and up to 11 jurisdictions have agreed to pursue a process to adopt it or create equivalent measures. Developed and approved through a consensus approach facilitated by the Government of Canada and involving provinces and territories, as well as industry, Code 2011 is 25 percent more stringent than the previous document and is the most energy-efficient building energy code document in North America. In addition, work is underway toward a new code for 2016 to allow for the continuous improvement of the energy performance of Canada's building stock as technology innovations and new preferences of occupants emerge. This work will address 80 percent of new buildings built every year, an important contribution to the reduction of energy costs for a sector that represents 14 percent of Canadian energy consumption.
- Since 2007, governments have advanced their use of performance standards to remove the least-efficient equipment from the marketplace. The federal government and six provinces now have standards in place that affect 47 products, including gas furnaces, clothes washers and general service lighting. The jurisdictions strive to align their performance standards and test procedures to make compliance easier for industry and to maximize energy savings for Canadians.
- In June 2011, through strong federal, provincial and territorial collaboration, Canada was the first country to adopt ISO 50001 Energy Management Systems Standard for voluntary use by Canadian organizations. The standard provides a structured framework to systematically manage energy use, which will make Canadian businesses more competitive and productive in the long run. The Canadian Council of Chief Executives has recognized that energy costs challenge both the productivity and international competitiveness of Canadian firms.

Success Stories

Newfoundland and Labrador: The Residential Energy Efficiency Program provides long-term energy savings to low-income households. The program supports approximately 1000 home retrofits each year, resulting in average energy savings of \$800 annually.

Prince Edward Island: In the two years following the opening of Prince Edward Island's Office of Energy Efficiency in 2008, homeowners participating in its Energy Efficiency Program reduced energy consumption by an average of 44.8 gigajoules (GJ) per year, saving households approximately \$1 200 per year. This energy reduction reduced carbon dioxide emissions by more than 4800 tonnes per year, equivalent to taking 875 passenger vehicles off the road.

Nova Scotia: The Residential Energy Savings Programs, funded by the Government of Nova Scotia, surpassed targets by achieving savings of 134 358 GJ in 2011, the first full year of operation. Administered through Efficiency Nova Scotia Corporation, the programs offer incentives for energy-efficient upgrades to existing homes and new home construction and free upgrades to low-income households. With this strong start to the three-year programs, the province expects to increase energy savings.

New Brunswick: Efficiency New Brunswick's continued success with all-fuels efficiency programs for the Residential, Commercial and Industrial sectors has resulted in 4200 terajoules (TJ) annual saved energy, a \$60-million annual savings for homeowners and businesses. As a result of the investments by the Agency and participants totalling \$366 million, 374 000 tonnes of annual greenhouse gas reductions have been achieved. The Large Industry Program has enrolled 86 percent of New Brunswick's largest industrial companies and driven energy reductions of 2451 TJ, a 4 percent reduction since 2009. Unique is the program's comprehensive support of Energy Management Information Systems (EMIS). Today 80 percent of large industry clients are involved in EMIS systems.

Quebec: Natural Resources Canada's Office of Energy Efficiency is a partner in Quebec's energy efficiency programs – such as Rénoclimat, Novoclimat, the Refrigeration Optimization Program (OPTER) and the heavy fuel consumption reduction program – by making available building simulation tools and sharing its expertise in energy efficiency. Tools and training about integrating processes in the heavy fuel reduction program, provided by CanmetENERGY-Varenes to industry and consultants, have generated appreciated leverage and are helping to transform the market.

Ontario: Ontarians have saved more than 1700 megawatts of energy since 2005 – the equivalent of taking more than 500 000 homes off the grid. Ontario also invested about \$1.7 billion in conservation programs from 2006 to 2010, which helped improve air quality and the efficiency of the energy system.

IV. MOVING FORWARD: RESULTS TO 2020

Together, federal, provincial and territorial collaborative efforts will have significant impacts on the future energy and environmental performance of the Canadian economy.

Canada has made progress in identifying potential results that will come from continuing along the path to progress as Canadians move forward collaboratively.

The following illustration indicates what the impacts of current collaboration could be in 2020. If the current federal, provincial and territorial measures continue to 2020, Canadians could save more than \$2 billion in energy costs in 2020, or more than \$12 billion from 2012 to 2020.

Success Stories

Manitoba: Manitoba enacted *The Energy Savings Act* in June 2012, to encourage energy and water efficiency upgrades in homes and buildings across the province. One key element is enabling Manitoba Hydro to implement an “on-meter financing” program beginning in fall 2012, linking upfront capital improvement costs to the power meter. Under this program, the financing agreement is transferrable to new building owners as a monthly charge on the utility bill, and the cost is recovered over time through energy and water savings.

Saskatchewan: Since introducing the Saskatchewan EnerGuide for Houses grant program in 2005, supported by the Natural Resources Canada EnerGuide Rating System, the province has issued more than \$57.3 million in grants to Saskatchewan homeowners, achieving a participation rate of more than 15.9 percent for pre-retrofit evaluations and more than 11.9 percent for post-retrofit evaluations. The program was enhanced in 2011 to encourage homeowners to upgrade to the most efficient equipment available and to undertake comprehensive renovations toward lowering energy bills. Saskatchewan’s greenhouse gas emissions have been reduced by more than an estimated 125 900 tonnes per year, equivalent to taking approximately 22 890 cars off the road.

Alberta: The three-year energy efficiency rebate program, which ended March 31, 2012, offered Albertans incentives to purchase energy-efficient items, including high-efficiency furnaces, domestic hot water systems, insulation, front-loading clothes washers, hybrid taxis, home energy audits and new homes that achieved an EnerGuide rating of at least 80. The program is expected to save 22.5 petajoules of natural gas, 355 gigawatt hours of electric energy, 3.75 megalitres of fuel and 1.65 megatonnes of greenhouse gas emissions over the lifetime of the equipment.

Across Canada, these energy efficiency actions can help Canadians save more than \$2 billion in energy costs in 2020, or the energy use of more than 1 million households.



THE SMARTWAY TRANSPORT PARTNERSHIP IMPROVES FUEL EFFICIENCY AND COMBATS RISING FUEL PRICES, SAVING \$70 MILLION PER YEAR.

Participating fleets reduce operating costs by 7 percent, improving their competitive advantage.

Fuel savings could move 20 000 transport trucks from coast to coast along the Trans-Canada Highway.



INDUSTRY SAVES \$80 MILLION PER YEAR THROUGH COMPLIANCE WITH ENERGY MANAGEMENT STANDARDS.

Companies can save 2 percent on their energy bills and meet global demand for certification.

Savings represent the energy required to produce enough cement to build the Confederation Bridge, connecting Prince Edward Island and New Brunswick.



CONSUMERS SAVE \$1 BILLION PER YEAR WITH ENERGY-EFFICIENT EQUIPMENT.

Savings represent the annual energy bill for close to 500 000 homes.

Energy savings could cook 8 billion one-kilogram lobsters.



CONTINUOUS BUILDING CODE IMPROVEMENTS SAVE \$350 MILLION IN ENERGY COSTS PER YEAR.

Savings are five times the energy use of all Tim Hortons in Canada.

Savings equal the energy used by all schools, hotels and restaurants across the Atlantic provinces.



HOME OWNERS SAVE \$810 MILLION PER YEAR IN ENERGY COSTS.

Labelling helps more than 500 000 homeowners make informed energy decisions.

Savings represent \$50 a year on every Canadian household's energy bill.

Image courtesy of the City of Charlottetown, Prince Edward Island

Pan-Canadian approach to energy efficiency saves money, reduces waste and benefits all Canadians.

Success Stories

British Columbia: Since 2008, federal regulations have paved the way for new British Columbia efficiency standards for residential gas furnaces, light bulbs and standby power loss for televisions and compact audio and video products. A partnership with the Government of Canada and utilities has also supported market transformation in the province for energy-using appliances and equipment. This federal-provincial collaboration on energy efficiency standards has helped British Columbia families save money on energy bills while reducing greenhouse gas emissions.

Northwest Territories: With high electricity prices and high oil transportation costs to remote northern communities, the Northwest Territories is motivated to improve energy conservation and efficiency. Success is recognized through the annual Energy Action Awards presented by the Arctic Energy Alliance, a government-funded organization that helps improve energy conservation and efficiency. One award winner installed a wood pellet furnace that reduced individual fuel costs by 40 percent; another replaced refrigeration cases with high-efficiency ones with 100 percent LED lighting and ultra-high efficiency motors, reducing electricity use for refrigeration by 83 percent.

Yukon: More than 1000 Yukon families took advantage of Good Energy rebates during 2010/11. The ENERGY STAR® qualified household and heating appliances purchased through this program represent total savings of approximately \$100 000 per year and, over the lifespan of the appliances, represent reductions of more than 2.5 million litres of fuel and 7000 tonnes of greenhouse gases. These savings mean real money staying in the pockets of program participants.

Nunavut: Nunavut's Energy Strategy in 2007 established a 20 percent utility reduction target for all public buildings. To achieve this target, Nunavut began by retrofitting all publically owned buildings in Iqaluit, representing approximately 14 percent of the territory's building stock. Initial results indicate that Nunavut will reduce energy consumption by more than 20 percent in its pilot project buildings, and a further 2 percent reduction will come from newly completed buildings and additions built to current efficiency standards.

Government of Canada: Natural Resources Canada piloted FleetSmart's new Web-based highway trucking training with Chrysler Corporation. This program helps freight carriers optimize operations to reduce fuel consumption. The training has been so successful that Chrysler wants to use it for all of its 800+ drivers and mechanics in North America.

Two Canadian companies, 3M and St Marys Cement, are now certified under the new ISO 50001 Energy Management Systems Standard, which Canada adopted in June 2011. This voluntary standard gives organizations a structured framework to manage energy to increase energy efficiency, reduce costs, increase international competitiveness and improve energy performance. It also allows them to demonstrate corporate environmental responsibility in the global marketplace.

V. CONCLUSION

This report demonstrates the importance of continued federal, provincial and territorial collaboration in implementing energy efficiency measures that deliver real and meaningful impacts to Canadians while achieving shared energy policy objectives. The significant achievements since the release of *Moving Forward on Energy Efficiency: A Foundation for Action* shows what can be achieved when federal, provincial and territorial jurisdictions work together toward a common goal.

This level of collaboration is important as governments look ahead. Although the country is making progress in some sectors, other sectors with fast-growing energy demand will require further action. Ever-evolving consumer behavior and the growth of energy-using personal and business products will require constant vigilance of energy demand trends. While a sector-by-sector approach has been effective in getting early results, more integrated approaches will be needed as Canadians chase after increasingly difficult-to-achieve energy savings.

Moving forward, inspiration can be drawn from the work involved with integrated community energy solutions (ICES), which offer the promise of capitalizing on synergies available at the community level to achieve improvements in energy performance across multiple sectors. By taking advantage of opportunities to improve energy efficiency beyond individual buildings and houses to encompass whole communities, ICES consider energy supply and use in all sectors, including transportation, land-use planning, industry, and water and waste management. This example emphasizes the positive impact of federal, provincial and territorial governments' collaborative approach to energy that achieves savings beyond those possible by approaching each sector independently, as Canada looks forward to challenges ahead.

The key to material energy savings – and associated environmental and productivity benefits – is the widespread and sustained implementation of the tools described here and elsewhere. Robust implementation across all sectors and all jurisdictions will maximize the benefits of energy efficiency for all Canadians.

ANNEX A: CONTINUOUS IMPROVEMENT IN ENERGY CODES FOR BUILDINGS

Energy codes are one of the most cost-effective tools to drive efficiency, as evidenced by the European Union, Asia and the United States.

What is the collaborative activity?

- Development, promotion and adoption of the *National Energy Code of Canada for Buildings 2011*, which establishes a minimum energy performance level for buildings above three storeys and incorporates the latest standards and practices, such as natural lighting and enhanced ventilation.
- Code 2011 was published in November 2011 and represents a 25 percent improvement over the previous code.
- Code 2011 is now the most stringent energy code in North America.
- Code 2011's performance level was proven both financially and technically feasible through 12 years of program delivery in 1500 buildings.

Why does the Code matter to Canadians?

- **Energy savings** – Over a building's typical 40- to 60-year life, building owners will reap energy cost savings when buildings are built to Code 2011, instead of previous energy code levels for buildings.
 - A hotel similar to the Delta Prince Edward, in Charlottetown, Prince Edward Island, would save an estimated \$35,000 per year in energy costs – \$2 million over the building's expected lifespan.
 - Collectively, buildings built to Code 2011 in provinces that adopt it are expected to save 17 petajoules per year, or \$350 million per year in energy costs in 2020.
- **Environmental savings** – Reductions of more than one megatonne are expected in 2020 from buildings built to Code 2011, representing 2 percent of the sector's 2009 energy-related emissions.
- **Productivity improvements** – Efficient green buildings' daylighting and improved air quality help reduce sick days and increase productivity for building occupants.
- **Business advantage** – Building owners differentiate their offerings and reap premium rents and selling prices compared with otherwise identical buildings. Major corporations and institutions in Canada are demanding some form of "green" in their leases.

What collaboration has taken place?

- Energy and Mines Ministers' Conference ministers called for a revised code in 2007.
- Federal, provincial and territorial governments worked with National Research Council (NRC's) Canadian Code Centre and various consultative fora with industry and the public to develop Code 2011.
- Natural Resources Canada provided funding and the NRC provided technical expertise.

What are the next steps?

- 2012 – publish compliance software and adaptation guides for provinces and territories
- 2013 – FY 2014/15 – up to 11 provinces and territories implement the processes to adopt or adapt Code 2011:
 - British Columbia: continue public consultation in 2012; decision expected by spring 2013
 - Alberta: anticipate public consultation process anticipated for FY 2012/13
 - Saskatchewan: consult stakeholders in FY 2012/13
 - Manitoba: begin public consultation process in FY 2012/13
 - Ontario: implement effective requirements equivalent to Code 2011
 - Quebec: consider adoption of the Code 2011
 - New Brunswick: consider adoption of the Code 2011 by FY 2014/15
 - Nova Scotia: plan to adopt into law in FY 2012/13
 - Prince Edward Island: consult stakeholders in 2012/13
 - Newfoundland and Labrador: committed in provincial *Moving Forward: Energy Efficiency Action Plan 2011* to explore adoption of Code 2011, in consultation with communities and industry
 - Yukon: consider adoption by FY 2014/15
- 2016 – publish retrofit guidelines to improve the efficiency of existing buildings, because 80 percent of year 2020 buildings already exist and will not be affected by Code 2011
- 2016 – publish Code 2016 to ensure advances in construction technologies and practices become part of baseline practices and to ensure continuous improvement in Canada's building performance

ANNEX B: NEXT GENERATION ENERGUIDE RATING SYSTEM TO SUPPORT HOME ENERGY LABELLING, CODES AND INCENTIVES

The EnerGuide Rating System (ERS) provides an easy-to-use method to compare the energy performance of any new or existing home.

What is the collaborative activity?

- The ERS provides homebuyers and homeowners with an easy-to-read label that indicates the typical energy consumption of the house and is used by premium brands like R-2000 (an official mark of Natural Resources Canada) and ENERGY STAR®. Canadians can then make informed home purchase and renovation decisions to minimize energy costs.
- This common platform creates a market to motivate sellers and developers to make homes efficient in order to reduce operating costs and reap greater selling prices. With the ERS, builders have a tool that shows them how efficient their product will be and helps them market high-performance homes.
- The collaborative activity for federal, provincial and territorial governments ensures that the next generation of the ERS augments information provided to best inform energy decisions and reflects new energy-saving technologies and practices as they emerge in the market. It also ensures that the ERS is useful to the four provincial jurisdictions that already reference the ERS as part of their building codes, including the *National Building Code of Canada 2010* that made use of the ERS to establish its performance levels.
- The collaborative work involves the development of highly accessible, on-line decision-making tools for homeowners. Construction and renovation professionals benefit from a series of technical procedures and certification tools that contribute to a credible, results-based industry. The usefulness of the ERS is demonstrated by the fact that building codes and energy efficiency incentives in most provinces and territories use the system.

Why does the next generation EnerGuide Rating System matter to Canadians?

- **Energy savings** – As a result of the approximately 750 000 homes expected to be built to codes dependent on the revised ERS by 2020, as well as from the purchase and renovation choices supported and encouraged by the ERS, Canadian homeowners will save \$810 million a year on their energy bills in 2020.
 - By 2020, 40 000 of these homes will meet the most rigorous R-2000 and ENERGY STAR® standards.
- **Energy literacy** – To support decision making, Canadians will have improved knowledge of home energy costs, a major element of personal expenditures.
- **Environmental savings** – The use of the revised ERS is expected to reduce greenhouse gas emissions by three megatonnes in 2020, representing 4 percent of the 2009 residential sector's energy-related greenhouse gas emissions.

What collaboration has taken place?

- Federal, provincial and territorial governments have worked with industry and public stakeholders from coast to coast to develop a draft next generation ERS.
- A public review took place in May 2012.

What are the next steps?

- Fall 2012 – publish final recommendations for the next generation ERS
- 2013 – develop the tools, field trials, training and certification to support ERS implementation
- January 2014 – launch the next generation ERS

ANNEX C: SMARTWAY CANADA – ADVANCING THE ENERGY EFFICIENCY OF FREIGHT TRANSPORTATION IN CANADA

The SmartWay Transport Partnership improves fuel efficiency and reduces greenhouse gases and air pollution from freight transportation by benchmarking the operations of registered participants, helping them to track fuel consumption and improve performance annually.

What is the collaborative activity?

- SmartWay provides “brand recognition” for the most energy-efficient shippers and carriers. Clients of freight transportation, such as retailers, can demonstrate corporate sustainability through the use of SmartWay carriers and shippers. This will help to “pull” the market toward the most efficient operators.
- Building on the momentum of the SmartWay program in the United States, Canada’s participation will help to reduce energy intensity and emissions in the highly integrated North American supply chain.
- Freight shippers
 - choose the most fuel-efficient carriers to move their freight
 - reduce their carbon footprint
 - earn recognition as SmartWay partners
- Freight carriers
 - improve fuel efficiency and reduce operating costs
 - earn recognition as SmartWay carriers
 - attract business from SmartWay shippers

Why does SmartWay matter to Canadians?

- **Energy savings** – Urgent action is needed to reduce energy use in the freight transportation sector. Between 1990 and 2009, energy use increased 67 percent, the greatest increase of all sectors. Over the same period, there was a 173 percent increase in the freight carried and distance travelled by heavy trucks. In 2020, participating fleets are estimated to reduce their fuel consumption by 4 percent, saving \$70 million per year.
- **Environmental savings** – Participating Canadian fleets could save approximately 2000–3000 litres of fuel per truck per year, resulting in an overall savings of up to 60 million litres of diesel fuel in 2020. This is expected to mitigate 0.2 megatonnes in greenhouse gas emissions, representing 0.4 percent of 2009 heavy-truck greenhouse gas emissions.
- **Enhanced competitiveness** – Saving fuel improves productivity and helps the bottom line of Canadian freight carriers, reducing overall operating costs by an average of 7 percent for participating fleets.

What collaboration has taken place?

- In 2008, federal, provincial and territorial governments identified on-road freight transportation as a priority for fuel efficiency improvements.
- In 2009, governments released *On the Road to a Fuel-efficient Truck: A Guide for Purchasing Aerodynamics for Heavy-Duty Tractors and Trailers*, now used in four jurisdictions.
- In 2011, provinces identified possible roles in support of SmartWay that would involve acquiring the SmartWay Affiliate status to connect shippers and carriers in their jurisdictions directly to the program and examining potential regional barriers to participation affecting small and medium-sized carriers.

What are the next steps?

- 2012 – launch SmartWay Transport Partnership in Canada for truck carriers, logistics companies and shippers
- 2013 – make SmartWay available for rail and multimodal carriers to join
- 2014–2016 – make SmartWay available for air and domestic marine carriers to join

ANNEX D: IMPROVE INDUSTRIAL ENERGY PERFORMANCE BY ADOPTING THE ISO 50001 ENERGY MANAGEMENT SYSTEMS STANDARD

The ISO 50001 Energy Management Systems Standard will allow industry to systematically reduce energy consumption through the implementation of energy management programs.

What is the collaborative activity?

- An energy management standard provides organizations with a structured framework to manage energy in order to increase energy efficiency and reduce costs.
- According to international experience, industries typically save between 10 percent and 20 percent of their annual energy use within the first five years of implementing an energy management standard.
- In June 2011, Canada was the first country in the world to adopt ISO 50001 as its national standard.
- The standard is now available for voluntary implementation by organizations across Canada.

Why does ISO 50001 matter to Canadians?

- **Energy savings** – There is an estimated \$80 million in energy savings from companies that implement ISO 50001 by 2020.
- **Enhanced competitiveness** – Sustained and continuous energy performance improvements will enhance the productivity and competitiveness of Canadian industry in global markets. Due to the highly integrated nature of the two economies, Canada is working with the United States through the Global Superior Energy Performance Partnership to ensure cross-border consistency for industry.
 - o Initial indications are that supply chains will drive energy management practices. If buyers help cut the energy costs of their suppliers by introducing mandatory energy management practices, costs across the supply chain are reduced, benefiting retailers and suppliers. This would follow the pattern witnessed in the implementation of ISO 9001 Quality Management Systems, driven by the supply chain's efforts to meet retailer demands for quality assurance.

- **Business opportunities** – There are global supply chain and trade advantages from certification, with Canadian industries eligible to provide goods and services to clients who insist on compliance with ISO 50001 as evidence of corporate social responsibility. With its “plan, do, check, act” approach, ISO 50001 also provides a framework for large Canadian buildings and campuses to implement energy management programs.

What collaboration has taken place?

- Federal, provincial and territorial governments and utilities and industry worked together to identify essential elements that Canadian industry wants to see in a standard. Through the Canadian Advisory Committee, they provided comprehensive input at each stage of development of ISO 50001.
- Federal, provincial and territorial energy ministers endorsed the implementation of ISO 50001 in 2011.
- Canada developed a national committee to provide input to the ISO to ensure federal, provincial and territorial government input to the development of ISO guidance documents to support the standard's implementation.

What are the next steps?

- 2012–2017 – complete an ISO 50001 pilot program that will provide valuable lessons for provinces and utilities that are considering their own initiatives to support the ISO 50001 implementation
- 2012–2013 – complete a joint Canada-United States pilot certification that will provide lessons for firms with cross-border operations

ANNEX E: INNOVATIVE FINANCING IN THE BUILT ENVIRONMENT

Innovative financing offers the potential to leverage private capital to encourage the retrofit of homes and buildings.

What is the collaborative activity?

- Innovative financing offers a possible next step to continue the momentum of residential and commercial programs that governments have delivered over the last five years. It involves different means of leveraging private capital to help Canadians find the upfront capital necessary to retrofit homes and buildings and to help the Canadian economy realize its full efficiency potential.
- Innovative financing in the residential sector is being pursued in 27 American states and in national programs in the United Kingdom and Germany. Many governments at the federal and sub-federal level across North America use innovative financing to show leadership in retrofitting their own facilities.
- Federal, provincial and territorial collaboration is necessary to communicate the energy efficiency value proposition, remove regulatory barriers, develop analytical tools and, where appropriate, leverage municipalities and utilities to deliver on-bill financing programs.

Why do new financing approaches matter to Canadians?

- **Access to financing** – New financing approaches mitigate the need for governments to provide direct financial assistance to homeowners and others to fund the capital cost of energy upgrades. In the residential sector, such approaches will allow homeowners to pass on the loan charges to the next homeowner should they move, allowing for larger retrofit projects.
- **Energy savings** – By tapping private sector capital, Canadians realize energy savings, estimated at 20 percent for homes, on average, and between 15 percent and 40 percent for buildings.
- **Enhanced property values** – Energy-efficient buildings are easier to sell at premium prices because they have better indoor air quality and comfort and reduce owners' exposure to rising energy prices. An ENERGY STAR® qualified building retails at 28 percent above the average sale price of a regular commercial building, while a Leadership in Energy and Environmental Design (LEED®) building retails at 90 percent above the average sale price of a regular building.

- **Informed decision making** – By making informed decisions, businesses and homeowners can address key challenges to retrofitting, including the absence of a strong business case to mobilize lenders or trigger business investment decisions, the lack of proper evaluation of the sustainability characteristics of homes and buildings, and the perceived risk of energy efficiency investment due to loan defaults.

What collaboration has taken place?

- In 2010, federal, provincial and territorial governments shared information on and discussed financing activities that strengthen business capacity to finance energy efficiency projects in homes and buildings.
- The Government of Canada and the Government of British Columbia are collaborating on tools that will enable utilities to offer financing to British Columbia homeowners for energy efficiency upgrades.
- Nova Scotia, Manitoba and British Columbia have shared their approaches to innovative financing.

What are the next steps?

- 2012–2016 – Governments will continue to share information on innovative financing activities to support the dissemination of lessons learned from early actions, including the following:
 - support the EnerGuide Rating System and resulting statistics to allow assessment of innovative financing programs, and working with utilities to facilitate projects
 - explore the ways that jurisdictions can create an enabling environment for innovative financing and collaborate on developing pilots that lead to successful programs

ANNEX F: STANDARDS AND LABELLING PROGRAMS FOR ENERGY-USING PRODUCTS

Energy efficiency standards remove least efficient products, and energy efficiency labels provide important information to assist Canadians.

What is the collaborative activity?

- Federal and provincial officials regularly collaborate on and coordinate activities to improve the efficiency of energy-using products through the use of standards, labels and promotional activities.
- Federal standards pertain to imported products or those shipped inter-provincially, while the standards of the six provincial governments who have them pertain to provincial markets.
- Canada supports the ENERGY STAR® Initiative in Canada to promote the most efficient products available through the development of national specifications and consumer awareness efforts. Provincial utilities and governments use these tools in procurement and promotional activities in their markets.

Why do standards and labels matter to Canadians?

- **Energy and environmental savings** – Federal and provincial minimum energy performance standards have resulted in the following:
 - Minimum energy performance standards published to 2010 have reduced aggregate annual greenhouse gas emissions by 26 megatonnes (Mt).
 - In 2016, it is estimated that standards will be in place for products that use 80 percent of the energy used in the residential and commercial/institutional sectors.
 - Planned federal amendments for an additional 16 products will save Canada an estimated 22 petajoules and avoid 3 Mt of greenhouse gas emissions in 2020. These emissions represent 4 percent of the 2009 energy-related emissions in the residential sector.
 - Beyond regulated products, voluntary measures such as ENERGY STAR® qualified equipment will result in significant energy savings of \$340 million and a reduction of more than 1 Mt of annual greenhouse gas emissions in 2020.

- **Ease of decision making** – The ENERGY STAR® Initiative in Canada and associated information encourages Canadians to buy the most efficient product on the market. Surveys of recent purchasers of home heating and cooling products and appliances indicate that two thirds chose ENERGY STAR® qualified products, and 85 percent of them indicated that ENERGY STAR® qualification was important in their decision to purchase them.

What collaboration has taken place?

- Federal, provincial and territorial governments have collaborated on the development and implementation of standards for many products, including water heaters, light bulbs and standby power for certain electronics.
- Federal, provincial and territorial governments have participated in piloting a residential electricity-use monitoring tool that will enable householders to identify and reduce wasteful electricity consumption in the home.

What are the next steps?

- 2012–2016 – continue to collaborate on implementing 16 new standards for such products as televisions, refrigerators, dishwashers, clothes washers and commercial boilers
- Ongoing – continue to coordinate activities with provincial utilities and agencies to promote the uptake of high-efficiency equipment, such as high-efficiency water heaters and solid state lighting
- Starting in 2012 – provide the national tools to enable full implementation of the residential electricity-audit tool by 2016 to allow homeowners to monitor and assess their electricity consumption patterns
- Starting in 2012 – build on the existing effort to influence markets through the use of energy efficiency procurement programs that use nationally developed criteria and tools. This will allow purchasing decision-makers to select the most efficient products, driving demand and hence the market toward greater efficiency.



