CANADA

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

The separation of powers between the federal and provincial/territorial levels of government is an important consideration in Canada. Canada has no federal energy efficiency improvement target. Federal programs have quantitative objectives. There are many examples of collaboration with provincial/territorial energy efficiency programs.

In July 2011 Canadaôs Energy Ministers agreed to a Collaborative Approach to Energy with a companion Action Plan. Work themes related to economic prosperity and responsible energy supply, efficient energy use, and knowledge and innovation, will all contribute to advancing common goals. Specific areas of interest include a more stringent model energy code for buildings, a next generation energy rating system for homes, project financing tools, transportation, product regulation, industrial energy management standards, and integrated community energy solutions. For more details, please see the following link: http://www.scics.gc.ca/english/conferences.asp?x=1&a=view&id=2611&y=&m=

Sub-federal governments have committed to achieving a 20% increase in energy efficiency by 2020 in their respective jurisdictions. These jurisdictions cover the entire economy. For more details, please see the following link: http://www.councilofthefederation.ca/pdfs/COMMUNIQUE_EN_climate_changeJuly13[1]clean.pdf

1.2. Sectoral Energy Efficiency Improvement Goals

Not available

1.3. Action Plans for Promoting Energy Efficiency

a) Name

ecoENERGY Efficiency and ecoENERGY Retrofit-Homes

b) Objectives

The ecoENERGY Efficiency initiative, operated through Natural Resources Canadaôs Office of Energy Efficiency, provides a broad framework of programs through which energy conservation and energy efficiency are promoted in every sector of the Canadian economy.

Components target market barriers to energy efficiency uptake, and are constructed around three pillars of action operating in the residential, commercial and institutional, industrial, and transportation sectors:

- Making the stock of housing, buildings, and energy-using products and products that affect energy use more efficient through regulation, codes and standards;
- Making energy performance more visible in all sectors through labelling and benchmarking, training and information sharing to affect behaviour change; and
- Making industrial, building, and vehicle operations more energy efficient.

A fourth pillar is addressed by the ecoENERGY Retrofit ï Homes program, of making energy efficiency more affordable for Canadians.

In addition to coordination of these programs, the Office of Energy Efficiency is mandated to strengthen and expand Canadaôs commitment to energy efficiency to further support the Government of Canadaôs policy objectives and programs.

c) Applicable sectors

Industry, transport, residential, commercial, equipment and consumer products

d) Outline

As of January 2012, the Government of Canada has announced funding of $195 million over five years to support the ecoENERGY Efficiency initiative. This funding is aimed at maintaining the Governmentôs momentum to improve energy use in Canada, contributing to a cleaner environment by reducing greenhouse gas emissions and saving Canadians money.

There are five elements under the ecoENERGY Efficiency initiative:

- *ecoENERGY Efficiency for Vehicles* aims to reduce energy use and emissions from transportation in Canada. For example, the program offers fuel efficient driver training; provides energy information to vehicle consumers, such as the Fuel Consumption Guide; and, through the introduction of the SMARTWAY Transportation Partnership in Canada, encourages freight companies to make their operations as energy efficient as possible.
- *ecoENERGY Efficiency for Housing* encourages the construction and retrofit of low-rise residential housing, making the new and existing stock more energy-efficient. For example, funding will support and refine the EnerGuide Rating System as a standard measure of the energy performance of new and existing homes used in home energy labelling.
- *ecoENERGY Efficiency for Buildings* provides information and benchmarking tools to improve the building energy performance of new and existing buildings. For example, actions have led to the National Energy Code for Buildings, establishing an overall 25% improvement in energy efficiency over the previous code and indicating minimum requirements for energy efficiency in new buildings.
- *ecoENERGY Efficiency for Equipment Standards and Labelling* introduces or raises energy efficiency standards for a wide range of products, and promotes energy-efficient products through the ENERGY STAR program. The program enhances labelling and promotion programs that have historically led to the introduction of new and more stringent standards that are closely aligned with U.S. developments.
- *ecoENERGY Efficiency for Industry* aids the adoption of a national energy management standard, accelerates energy-saving investments in factories and supports the exchange of best-practices information within Canadaôs industrial sector. For example, it supports the early implementation of the new ISO 50001 Energy Management System standard, as well as the Canadian Industry Program for Energy Conservation, which offers networking opportunities for industry to share information, identify common needs and best practices, and improve energy efficiency in more than 25 industrial sectors.

In July 2011, the Government of Canada announced a one-year extension of $400 million to the ecoENERGY Retrofit ï Homes program, to help homeowners make their homes more energy-efficient and reduce the burden of high energy costs.

These investments build on the success of the first suite of ecoENERGY Efficiency initiatives, which invested $960 million from 2007 to 2011 to deliver tangible improvements in energy efficiency in Canada.

For more information on all the ecoENERGY Efficiency initiatives, see: http://www.ecoaction.gc.ca.

e) Financial regulations and budget allocation

From fiscal year 2011/2012 to fiscal year 2015/2016, total allocations to the ecoENERGY Efficiency initiative and the ecoENERGY Retrofit ï Homes program will be

CDN 595 million.

f) Monitoring

Program departments are responsible for monitoring and reporting on their individual programs. Natural Resources Canadaôs efforts are compiled into the Report to Parliament under the *Energy Efficiency Act*, which is tabled annually in Parliament by the Government of Canada (http://oee.nrcan.gc.ca/publications/statistics/parliament09-10/index.cfm).

The Office of Energy Efficiency also produces a publicly available report on Energy Efficiency Trends in Canada (and its companion document, the Energy Use Data Handbook) (http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/publications.cfm?attr=0).

g) Expected results

Improvement in energy efficiency in Canada.

1.4. Institutional Structure

1.4.1. Office of Energy Efficiency, Natural Resources Canada

a) Status of organisation

Governmental organisation (policymaker and regulator)

b) Roles and responsibilities

The Office of Energy Efficiency (OEE), Canadaôs centre of excellence for energy conservation, energy efficiency, and alternative fuels information, plays a dynamic leadership role in helping Canadians save millions of dollars in energy costs while contributing to a healthier environment. One of the key tasks of the OEE is managing the Government of Canadaôs ecoENERGY Efficiency initiative, with its programs to reduce energy use in buildings and houses, industry, personal vehicles and fleets, equipment, and consumer products. Homeowners can also apply for grants and financial incentives for retrofits through the ecoENERGY Retrofit ï Homes program, also managed by the OEE.

The OEE provides practical energy conservation advice to consumers, businesses and institutions. Examples include:

- Promotion of the international ENERGY STAR symbol in Canada. Products that display the ENERGY STAR symbol have been found to meet or exceed higher energy efficiency levels without compromising performance;
- Mandatory and/or voluntary EnerGuide labelling for products including appliances, buildings, houses, heating and cooling equipment, and vehicles. EnerGuide is a Government of Canada initiative that rates the energy consumption and efficiency of these products; and
- Publication of a Fuel Consumption Guide, which provides estimated fuel consumption ratings for passenger cars and light-duty pickup trucks, vans and special purpose vehicles sold in Canada.

Informing key decision-makers in government, industry and the non-profit sector about Canadaôs energy conservation and energy efficiency efforts is a major focus of the OEE.

With the assistance of the National Advisory Council on Energy Efficiency, the OEE is also charged with identifying opportunities for new and heightened energy efficiency measures. As well, it keeps Canadians abreast of developments in technology that can conserve fossil fuels or support the transition to less carbon-intensive energy sources. The OEE also engages in dialogue and collaborative action on energy efficiency with Canadaôs provinces and territories.

The OEE also plays a regulatory role under the *Energy Efficiency Act* (see section 2.1.1, below). The Act gives the Government of Canada the authority to make and enforce standards for the performance of energy-using products, or products that affect energy use, that are imported to Canada or that are manufactured in Canada and shipped across provincial

or territorial borders. The first regulations came into effect February 3, 1995 and now cover 47 products. Several more products are expected to be covered by the second quarter of 2012.

c) Covered sectors

Industry, transport, residential, commercial, equipment and consumer products

d) Established date

April 1998

e) Number of staff members

Approximately 280

1.4.2. Regional and local institutions

Canada is a federation comprised of a federal government and 13 sub-federal entities. These sub-federal entities are active in the field of energy efficiency and have organisational structures of their own. Many energy utilities are also active in provincial/territorial policy and programming. Information on provincial/territorial incentives is provided by the OEE Directory of Energy Efficiency and Alternative Energy Programs in Canada, which is available at:
http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm?attr=0.

1.4.3. Coordination

In Canada, the separation of powers means that all levels of government exercise some jurisdiction in the area of energy use. As such, coordination is a key aspect of federal energy efficiency policy. Coordination among the federal level and sub-federal entities is ensured through annual meetings of the Council of Energy Ministers and regular meetings of the Steering Committee on Energy Efficiency, which has representatives from all Canadaôs provinces and territories. These efforts seek to generate a complementary agenda for energy efficiency in which Ministers continue to develop real and sustainable energy solutions in their own jurisdictions and collaborate on cross-cutting initiatives that require a more integrated approach.

In July 2011, Canadaôs Energy Ministers agreed to the Collaboration Approach on Energy and an accompanying Action Plan, which includes work on energy efficiency in the areas of a more stringent model energy code for buildings, a next generation energy rating system for homes, project financing tools, transportation, product regulation, industrial energy management standards, and integrated community energy solutions. For more details, please see the following link:
http://www.scics.gc.ca/english/conferences.asp?x=1&a=view&id=2611&y=&m=

1.5. Information Dissemination, Awareness-raising and Capacity-building

a) Information collection and dissemination

Information dissemination is the responsibility of individual program departments, which cooperate with stakeholders in government, industry, and civil society. Comprehensive information on OEE programs and related energy efficiency issues is available on the OEE website at http://oee.nrcan.gc.ca/english/index.cfm?attr=0.

b) Awareness-raising

Specific awareness-raising elements are incorporated in the ecoENERGY Efficiency initiative, including:

- ecoENERGY Efficiency for Equipment Standards and Labelling supports the energy labelling of a wide range of products:

  - EnerGuide labels rate and summarise the energy efficiency of major household electrical appliances as well as heating, ventilating and air-conditioning (HVAC) equipment. The EnerGuide label shows how much energy major appliances use so that consumers can easily compare models of the same size and class.
  - The ENERGY STAR® symbol identifies the most energy-efficient products in their class. Products that carry the ENERGY STAR® symbol meet premium levels of energy efficiencyð most are 10% to 50% more efficient than the minimum regulated standard.
- ecoENERGY Efficiency for Vehicles provides Canadian motorists with helpful tips on buying, driving and maintaining their vehicles to reduce fuel consumption and greenhouse gas emissions. Freight companies are encouraged to make their operations as energy efficient as possible through the introduction of the SMARTWAY Transportation Partnership in Canada.
- ecoENERGY Efficiency for Buildings provides information and benchmarking tools to improve the energy performance of new and existing buildings.
- ecoENERGY Efficiency for Industry supports the implementation of the Canadian Industry Program for Energy Conservation, which offers opportunities for industry to share information, and identify common needs and best practices.
- ecoENERGY Efficiency for Housing includes the ENERGY STAR for New Homes initiative, which promotes energy efficiency guidelines that enable new homes to be more energy efficient than those built to minimum provincial building codes.

Beyond the ecoENERGY programs, improving the energy information available to Canadians was identified as a key priority for Canadaôs Energy Ministers at their July 2011 Conference. On this issue, federal, provincial and territorial governments will collaborate to look at gaps in the current energy information available across Canada and provide recommendations on how our information systems can be improved and how fact-based information could be communicated more effectively to Canadians.

c) Capacity-building

The ecoENERGY Efficiency for Housing program includes a focus on providing home builders with the specific energy efficiency training required to certify an R-2000 home, information on ENERGY STAR for New Homes, and information on affixing an EnerGuide rating label. The R-2000 Standard includes requirements related to energy efficiency, indoor air quality, and the use of environmentally responsible products and materials. It does not specify exactly how a house must be built, but rather, sets criteria for building performance that allow designers and builders to choose the most effective and economical way to build in their given context.

Through its ecoENERGY Efficiency for Industry and ecoENERGY Efficiency for Buildings programs, the OEE offers a range of energy efficiency workshops to representatives from industrial, commercial and institutional organisations from across Canada. The *Dollars to $ense* workshops are designed to educate participants on how to lower operating and production costs, improve competitiveness, reduce greenhouse gas emissions, increase operational efficiency and create a better work environment.

The ecoENERGY Efficiency for Vehicles program offers fuel-efficient driver training through a series of initiatives. Auto$mart targets novice light-duty vehicle drivers and driving educators to promote fuel-efficient and safe driving practices. A number of driving schools throughout Canada are registered to deliver the óAuto$martôdriver education program. FleetSmart introduces fleets to energy-efficient practices that can reduce fuel consumption and emissions, offering free practical advice on how energy-efficient vehicles and business

practices can reduce fleet operating costs, improve productivity and increase competitiveness. A major component of FleetSmart is the SmartDriver training program, which is targeted at drivers in the commercial and institutional fleet sector.

1.6. Research and Development in Energy Efficiency and Conservation

1.6.1. Policy: CanmetENERGY

a) Level

Economy-wide (federal)

b) Responsible department

CanmetENERGY, Natural Resources Canada

c) Applicable sectors

Buildings and communities, industry, transportation

d) Outline

Natural Resources Canadaôs energy efficiency technology activities are guided by CanmetENERGY. CanmetENERGY manages science and technology programs and services, supports the development of energy policy, codes and regulations, acts as a window to federal financing, and works with partners to develop more energy efficient and cleaner technologies in areas such as buildings and communities, clean fossil fuels, bioenergy, renewables, industrial processes, oil sands, and transportation. Its goal is to ensure that Canada is at the leading edge of clean energy technologies to reduce air and greenhouse gas emissions, and provide a sustainable energy future. (See the CanmetENERGY website at http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/index.html.)

Efforts at CanmetENERGY include research, development and demonstration of energy efficient technologies in buildings and communities, industry and transportation.

1) Buildings and Communities - Net zero houses, buildings and communities, modelling and simulation software tools, advanced heating, ventilation, air conditioning and refrigeration technologies. For more information, see the website: http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/buildings_communities.html.
2) Industry - Includes knowledge and new technological tools for industrial energy systems and industrial systems optimisation. For more information, see the website: http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/industrial_processes.html.
3) Transportation - Includes advanced fuels, hybrid and electric vehicles, hydrogen and fuel cells. For more information, see the website: http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/transportation.html.

e) Financial resources and budget allocation

Energy efficiency science and technology (S&T) expenditures were CDN 85.7 million for the 2010ï 11 fiscal year. For more information on S&T expenditures, see the annual Report to Parliament under the *Energy Efficiency Act*.

1.6.2. Program: ecoENERGY Innovation Initiative

a) Level

Economy-wide (federal)

b) Responsible department

Natural Resources Canadaôs Office of Energy Research and Development (OERD) is the Government of Canadaôs coordinator of energy research and development activities. OERD is responsible for the ecoENERGY Innovation Initiative, which supports energy technology innovation.

c) Objectives and period

The ecoENERGY Innovation Initiative is a CDN 97 million investment over 2 years by the Government of Canada to support energy technology innovation to produce and use energy in a more clean and efficient way. Activities funded under the Initiative will be in five strategic priority areas:

- Energy Efficiency
- Clean Electricity and Renewables
- Bioenergy
- Electrification of Transportation
- Unconventional Oil and Gas

d) Applicable sectors

Industry, transport, residential and commercial

e) Financial resources and budget allocation

CDN 97 million

f) Expected results

The ecoENERGY Innovation Initiative will help in the search for long-term solutions to reducing and eliminating air pollutants from energy production and use.

1.6.3. Program: Clean Energy Fund

a) Level

Economy-wide (federal)

b) Responsible department

Natural Resources Canadaôs Office of Energy Research and Development (OERD) is the Government of Canadaôs coordinator of energy research and development activities. OERD is also responsible for the Clean Energy Fund.

c) Objectives and period

The Clean Energy Fund is providing nearly CDN 795 million over five years under Canadaôs Economic Action Plan to advance Canadian leadership in clean energy technologies. In fall 2009, three carbon capture and storage projects in Alberta were announced, totalling CDN 466 million from the Fund. Up to CDN 146 million will also be invested over five years to support renewable, clean energy and smart grid demonstrations in all regions of the country. Energy efficiency projects relate to integrated community energy systems. The program has allocated all of its funding to existing projects and no further calls for proposals are planned at this time. For a list of projects see: http://www.nrcan.gc.ca/eneene/science/renren-eng.php.

d) Applicable sectors

Industry, residential and commercial

d) Financial resources and budget allocation

CDN 795 million

e) Expected results

Projects for renewable and clean energy systems will demonstrate numerous technologies, including marine energy, smart grid, wind, energy storage, bioenergy, geothermal energy in the North, and community energy systems (the principal energy efficiency element).

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2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, Acts

2.1.1. Energy Efficiency Act

a) Level

Economy-wide (federal)

b) Purpose

The goal of the *Energy Efficiency Act* is to improve the efficiency of energy-using products and promote the use of alternative energy sources. The *Energy Efficiency Act* includes and enforces regulations on performance and labelling requirements for energy-using products and products that affect energy use that are imported into Canada or shipped across provincial borders for the purpose of sale or lease.

c) Applicable sectors

All sectors of the economy

d) Outline

Canadaôs *Energy Efficiency Act* came into force in 1992, giving the Government of Canada the authority to make and enforce standards for the performance of energy-using products and products that affect energy use, that are imported to Canada or that are manufactured in Canada and shipped across provincial or territorial borders. The Act also gives the federal government the authority to set labelling requirements for these products so consumers can compare the energy efficiency of various models of the same product. The first set of regulations came into effect in 1995. These regulations applied to a variety of products, primarily major appliances such as dishwashers, water heaters, refrigerators, freezers and clothes washers and dryers. Since then, the Act and Regulations have been amended twelve times for several purposes: to include more products in the regulations, to tighten the standards as energy-efficiency technologies improve, and to adjust labelling requirements. The regulations will continue to be updated on an ongoing basis.

2.1.2. Canadian Environmental Protection Act

a) Level

Economy-wide (federal)

b) Purpose

Pollution prevention

c) Applicable sectors

All sectors

d) Outline

The *Canadian Environmental Protection Act* (CEPA) came into force in 2000. CEPA is an important part of Canadaôs federal environmental legislation that makes pollution prevention the cornerstone of efforts to reduce toxic substances in the environment. The Government of Canada has developed new regulations under CEPA to reduce greenhouse gas emissions from

light-duty vehicles. These regulations came into force for model year 2011 and are aligned with those of the United States. The Government of Canada is currently developing regulations under CEPA to reduce greenhouse gas emissions from heavy-duty vehicles, which would be implemented in model year 2012 in alignment with the United States.

2.2. Regulatory Measures

2.2.1. Minimum Energy Performance Standards and Labelling

a) Level

Economy-wide (federal)

b) Purpose

To improve the energy efficiency of energy-using products

c) Applicable sectors

All sectors of the economy

d) Outline

Regulations under the *Energy Efficiency Act* set minimum energy-performance levels for 47 energy-using products such as appliances, lighting, and heating and air-conditioning. It is expected that as of January 2013 products accounting for 80% of the energy used in homes and businesses will be regulated. An additional set of new regulations will implement further new and revised standards for 16 products. Stricter regulations mean that, over time, inefficient products will disappear from the market, leaving only the best-performing items. For more information, go to http://oee.nrcan.gc.ca/regulations/11239.

Amendments will also improve product labelling so consumers have the latest information on the most energy-efficient products on the market. Canadaôs EnerGuide label is used to indicate the energy performance of a wide array of products, from residential appliances, to vehicles and entire houses. The EnerGuide label is mandatory for eight major household appliances and a recent amendment to the Energy Efficiency Regulations (December 2008) extends the labelling provisions to cover lightbulbs. The label for lightbulbs is expected to be revised in 2014 to complement new standards, and a new label for televisions will be introduced.

Canada works with the US and Canadian stakeholders to implement performance and labelling requirements and the associated compliance activities.

e) Financial resources and budget allocation

Funding for this initiative is provided through the ecoENERGY Efficiency for Equipment Standards and Labelling element of the ecoENERGY Efficiency initiative (CDN 195 million over five years).

Expected results

Improvements in the performance of energy-using products in Canada

2.2.2. National Energy Codes for Houses and Buildings

a) Level

Economy-wide (federal)

b) Purpose

The National Building Code of Canada (NBC) is a model for provincial/territorial building codes and provides a minimum baseline for new building design. Growing concern over energy use in the housing/building sector has recently led to the development of additional requirements specifically aiming to promote energy efficient design and construction.

c) Applicable sectors

Commercial, industrial and residential

d) Outline

In Canada, building regulation is a provincial and territorial responsibility. The provinces and territories have recognised, however, that an economy-wide ómodelôbuilding code adapted to particular provincial or territorial circumstances is a better approach than a series of unrelated codes. The National Building Code of Canada (NBC) was originally established in 1941 to serve as a basis for provincial/territorial building codes and to provide a baseline for new building design. It should be noted that the NBC distinguishes between two distinct sub-sectors: i) larger buildings of all types and ii) houses and small buildings. Distinct requirements are provided for each of these sectors.

Growing concern over energy use through the 1990s led to the addition of energy requirements, with distinct paths followed for each of the above sectors. The larger building sector was first addressed in 1997 with publication of the Model National Energy Code for Buildings (MNECB). The MNECB complemented the existing NBC with a set of cost-effective minimum energy efficiency criteria for new building design. The MNECB was then updated in 2011 and is now referred to as the National Energy Code for Buildings (NECB 2011). For more information see http://www.nationalcodes.ca/eng/necb/index.shtml.

Code requirements for the housing and small buildings sector are being addressed through inclusion of minimum energy requirements directly into the relevant part of the NBC. The revised NBC is scheduled for release at the end of 2012.

In all cases, development of model national energy requirements is the responsibility of the Canadian Commission on Building and Fire Codes, which collaborates with the National Research Council, Natural Resources Canada, provincial, territorial and municipal governments, the construction industry and the general public.

e) Financial resources and budget allocation

Funding for this initiative is provided through the ecoENERGY Efficiency for Buildings and the ecoENERGY for Housing elements of the ecoENERGY Efficiency initiative (CDN 195 million over five years).

f) Expected results

A significant increase in the energy efficiency of new houses and buildings. For example, larger buildings designed and built in compliance with NECB 2011 should, on average, be 25% more energy efficient than those designed in accordance with the previous (1997) MNECB.

2.2.3. Building Energy Benchmarking

a) Level
Economy-wide (federal)

b) Purpose

To develop and to promote participation in a national system for benchmarking of building energy consumption.

c) Applicable sector
Commercial

d) Outline
Natural Resources Canada and the U.S. Environmental Protection Agency (EPA) have agreed to collaborate on the adaptation of EPAôs Portfolio Manager benchmarking tool to Canada. This common platform for measuring and assessing the energy performance of commercial and institutional buildings allows comparison of a building to other similar facilities in its region or in Canada. Natural Resources Canada has been working to develop this system under the guidance of participating provinces, territories and other key stakeholders. Natural Resources Canada is aiming to harmonise this system with existing, non-governmental building certification programs, such as LEED® of the Canada Green Buildings Council and BOMA Best of the Building Owners and Managers Association. For more information go to: http://oee.nrcan.gc.ca/commercial/regulations-standards/labelling.cfm?attr=20.

e) Financial resources and budget allocation
Funding for this initiative is provided through the ecoENERGY Efficiency for Buildings element of the ecoENERGY Efficiency initiative (CDN 195 million over five years).

f) Expected results
Greater awareness and understanding of energy use will promote further implementation of efficient technologies and practices in buildings.

2.2.4. Greenhouse Gas Emission Regulations

a) Level

Economy-wide (federal)

b) Purpose

To reduce greenhouse gas emissions and fuel consumption of motor vehicles

c) Applicable sectors

Transportation

d) Outline

In October 2010, the Government of Canada released the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*, which are aligned with the United States and establish progressively tighter emissions standards for cars and light trucks over the 2011-16 model years. As a result of the regulations, it is projected that the average greenhouse gas emission performance of new vehicles for the 2016 model year will be about 25% lower than the vehicles that were sold in Canada in 2008.

The Government of Canada is currently developing regulations to limit greenhouse gas emissions from new on-road heavy-duty vehicles. Canada and the United States are taking a common North American approach and Canada intends to implement these regulations with the 2014 model year in alignment with the United States. The proposed regulations would seek to reduce emissions and improve the fuel efficiency of the whole range of new on-road heavy-duty vehicles from full-size pick-up trucks to tractor-trailers, and include a wide variety of vocational vehicles such as freight, delivery, service, cement, garbage and dump

trucks, as well as buses. The proposed regulations would also seek to promote advanced technology vehicles such as hybrid and electric vehicles.

e) Financial resources and budget allocation

Funding for these initiatives is provided through the Canadaôs Clean Air Agenda (Budget 2011 funding for the Clean Air Agenda is almost CDN 870 million over two years).

f) Expected results

Reduced greenhouse gas emissions and fuel consumption from on-road motor vehicles.

2.3. Voluntary Measures

2.3.1. Canadian Industry Program for Energy Conservation (CIPEC)

a) Level

Economy-wide (federal)

b) Purpose

The Canadian Industry Program for Energy Conservation (CIPEC) represents a collaboration between government and private industry to improve Canadaôs industrial energy efficiency.

c) Applicable sectors

Industry

d) Outline

CIPEC is a voluntary partnership between the Government of Canada and industry that brings together industry associations and companies. Since 1975, CIPEC has been helping companies cut costs and increase profits by providing information, training, financial support and tools to improve energy efficiency. Current activities include:

- Financial contributions for *CAN/CSA-ISO 50001-Energy Management Systems* standard implementation pilots and industrial energy assessments (studies)
- *Dollars to $ense* energy management workshops and technical webinars
- Bi-annual national Energy Conference on industrial energy efficiency, complete with awards for industrial energy efficiency projects
- Information on financing sources and accelerated capital cost allowances for energy efficient and alternative energy systems and upgrades
- On-line publications such as energy benchmarking and case studies, technical guides, and the CIPEC Annual Report
- Twice-monthly electronic newsletter *Heads Up CIPEC* distributed to 10,000 subscribers
- On-line tools such as the *Boiler Efficiency Calculator* and the *Energy Management Information Systems* toolkit

Thousands of registered CIPEC Leader companies have voluntarily met and exceeded annual targets to reduce their energy intensity (that is, energy use per unit of output). Year over year trends in energy intensities per industrial sector are disseminated in the CIPEC Annual Report. See www.cipec.ca for more details.

e) Financial resources and budget allocation

Funding for this initiative is provided through the ecoENERGY Efficiency for Industry element of the ecoENERGY Efficiency initiative (CDN 195 million over five years).

f) Expected results

Improvements to energy efficiency in the industrial sector

2.3.2. Houses and Building Certification

a) Level

Economy-wide (federal)

b) Purpose

To promote energy efficient technologies and building practices

c) Applicable sectors

Residential and commercial

d) Outline

The R-2000 Standard represents a joint effort between OEE and the Canadian building industry. The R-2000 Standard sets out a series of house performance requirements that are in addition to those required by building codes. It does not, however, specify how a house must be built. To receive R-2000 certification, homes must meet an energy consumption standard and incorporate certain energy efficient technologies. Builders can be trained and licensed to build to the R-2000 standard. R-2000 homes are expected to reduce energy costs and provide greater occupant comfort (see http://oee.nrcan.gc.ca/residential/personal/new-homes/r-2000/standard/standard.cfm?attr=0). ecoENERGY Efficiency for Housing includes the ENERGY STAR for New Homes initiative, which promotes energy efficiency guidelines that enable new homes to be more energy efficient than those built to minimum provincial building codes. The Canadian Mortgage Housing Corporation also offers mortgage assistance to buyers of R-2000 and other energy efficient certified homes (see http://www.cmhc-schl.gc.ca/en/co/moloin/moloin_008.cfm).

NRCan and the U.S. Environmental Protection Agency (EPA) have agreed to collaborate on the adaptation of EPAôs Portfolio Manager benchmarking tool to Canada. This common platform for measuring and assessing the energy performance of commercial and institutional buildings allows comparison of a building to other similar facilities in its region or across Canada. NRCan has been working under the guidance of participating provinces, territories and other key stakeholders to develop this system. NRCan is aiming to harmonise this system with existing, non-governmental building certification programs, such as LEED® of the Canada Green Buildings Council and BOMA Best of the Building Owners and Managers Association. For more information go to: http://oee.nrcan.gc.ca/commercial/regulations-standards/labelling.cfm?attr=20.

e) Financial resources and budget allocation

Funding for these initiatives is provided through the ecoENERGY Efficiency for Houses and ecoENERGY Efficiency for Buildings elements of the ecoENERGY Efficiency initiative (CDN 195 million over five years).

f) Expected results

Greater use of energy efficient technologies and practices in new homes and buildings.

2.4. Financial Measures Taken by the Government

2.4.1. Tax Scheme

Accelerated Capital Cost Allowance for Clean Energy Generation

a) Level

Economy-wide (federal)

b) Purpose

Encouraging investment in energy efficient and alternative energy technologies, in order to contribute to reductions in greenhouse gas emissions, improvements in air quality and diversification of the energy supply

c) Application sectors

Industry

d) Outline

A 50% accelerated capital cost allowance (CCA) is provided under Class 43.2 of Schedule II to the Income Tax Regulations for specified clean energy generation equipment. Class 43.2 includes the following categories of systems or equipment:

- Cogeneration and/or Specified-Waste Fuelled Electricity Generation Systems
- Active Solar Equipment and Ground Source Heat Pump Systems
- Small-Scale Hydroelectric Installations
- Heat Recovery Equipment
- Wind Energy Conversion Systems
- Photovoltaic Electrical Generation Equipment
- Geothermal Electrical Generation Equipment
- Landfill Gas and Digester Gas Collection Equipment
- Specified-Waste Fuelled Heat Production Equipment
- Expansion Engine Systems
- Systems to Convert Biomass into Bio-Oil
- Fixed Location Fuel Cell Equipment
- Systems to Produce Biogas by Anaerobic Digestion
- District Energy Systems/Equipment
- Wave or Tidal Energy Equipment

Specified-waste fuels include biogas, bio-oil, digester gas, landfill gas, municipal waste, pulp and paper waste and wood waste.

Class 43.2 was introduced in 2005 and is currently available for assets acquired on or after 23 February 2005 and before 2020. For assets acquired before 23 February 2005, accelerated CCA is provided under Class 43.1 (30%). The eligibility criteria for these classes are generally the same except that cogeneration systems that use fossil fuels must meet a higher efficiency standard for Class 43.2 than that for Class 43.1. Systems that only meet the lower efficiency standard of Class 43.1 continue to be eligible for Class 43.1.

Budget 2011 expanded Class 43.2 to include equipment that is used by the taxpayer, or by a lessee of the taxpayer, to generate electrical energy in a process in which all or substantially all of the energy input is from thermal waste.

e) Expected results

Improvements to energy efficiency in the industrial sector

2.4.2. Low-Interest Loans

a) Level

Sub-federal (provinces/territories)

b) Purpose

To support energy efficiency investment

c) Applicable sectors

Industry (including agriculture), transport, residential, commercial, power and public sectors

d) Outline

Examples include Manitobaôs PowerSmart Residential Loan program (see www.hydro.mb.ca/your_home/residential_loan.shtml)

e) Expected results
Improved energy efficiency in the residential sector.

2.4.3. Subsidies and Budgetary Measures

ecoENERGY Retrofit ï Homes

a) Level

Federal and sub-federal (provincial/territorial)

b) Purpose

In July 2011, the Government of Canada announced a one-year extension of CDN 400 million to the ecoENERGY Retrofit ï Homes program, which provides financial support to homeowners to help them implement energy-saving retrofits that result in more comfortable living spaces and a cleaner environment. Many of Canadaôs provinces and territories have complementary incentive programs.

c) Applicable sectors

Residential

d) Outline

For more information, see http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/retrofithomes-renovationmaisons-eng.cfm.

e) Financial resources and budget allocation

CDN 400 million in addition to provincial/territorial funds

f) Expected results
Homeowners that participate in the ecoENERGY Retrofit ï Homes program are expected to save an average of 20% on their energy bills.

2.4.4. Other Incentives

Provinces and territories offer a variety of incentives in their respective jurisdictions.

a) Level

Sub-federal level (provinces and territories)

b) Applicable sectors

All sectors

c) Outline

A range of program incentives are offered by federal, provincial and territorial governments and utilities. For more information on provincial/territorial incentives, consult the OEE Directory of Energy Efficiency and Alternative Energy Programs in Canada at http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm.

d) Expected results

Increase in energy efficiency and reduction in greenhouse gas emissions

2.5. Energy Pricing

Market-based

2.6. Other Efforts for Energy Efficiency Improvements

2.6.1. Cooperation with Non-Government Organisations

OEE programs cooperate with numerous interested partners, including non-governmental organizations.

2.6.2. Cooperation through Bilateral, Regional and Multilateral Schemes

Canada continues to work with the United States and Mexico to promote the harmonisation of energy efficiency test methods, mutual recognition of conformity assessment systems for energy efficiency standards, and cooperation on trilateral energy efficiency labelling programs. Energy efficiency collaboration is also an element of the bilateral Canada-US Clean Energy Dialogue, as well as the multilateral Clean Energy Ministerial process.

Canada is a member of the International Energy Agency, supporting its activities and participating in its Energy Efficiency Working Party. Canada is also a member of the International Partnership for Energy Efficiency Cooperation.

2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvements

Public-private partnerships are commonly used to support a broad range of energy efficiency investments, especially in the public sector. The Federal Buildings Initiative (FBI), operated through Natural Resources Canada's Office of Energy Efficiency, facilitates access to tools and services to undertake energy efficiency retrofit projects in buildings owned or managed by the Government of Canada. Specifically, the FBI helps federal organizations enter into third party performance contracts that allow major retrofits to be self financing, addressing barriers such as lack of capital and resources to undertake project. Using the FBI approach removes much of the risk of implementing a retrofit project. The program also coordinates a Community of Practice among federal government real property managers and provides information on other related building energy matters (efficient operations, commissioning, etc.)

Section 2.2.1 (above) discusses collaboration on equipment standards, but the Office of Energy Efficiency has also cooperated with the Canadian Standards Association on the development of whole-building standards, such as Building Commissioning and the Operation and Maintenance of Health Care Facilities.

Partnerships are also used extensively during the technology development and demonstration process, such as through Canadian Mortgage and Housing Corporation (CMHC) initiatives. Regular cooperation occurs through the partnerships and demonstration projects between CMHC and financial institutions.