CANADA

ENERGY EFFICIENCY GOALS

1. GOVERNMENT POLICY ON ENERGY EFFICIENCY

In Canada, the federal government collaborates with the 13 provincial and territorial governments, local governments, Indigenous Peoples, and public and private stakeholders to develop and deliver energy efficiency policies and programmes. The federal government draws its authority from the *Energy Efficiency Act* that allows the Minister of Natural Resources to regulate products that use energy and cross borders, promote energy efficiency and low carbon fuels, and collect data on energy use.

The Pan-Canadian Framework on Clean Growth and Climate Change: Canada's Plan to Address Climate Change and Grow the Economy (PCF) represents Canada's plan to reduce GHG emissions, create clean jobs and growth, and increase Canada's resiliency to the impacts of climate change. Energy efficiency measures account for one third of the emissions reductions in the PCF.

The Office of Energy Efficiency (OEE) within Natural Resources Canada (NRCan) is mandated to strengthen and expand Canada's commitment to energy efficiency and alternative fuels. OEE uses regulations, standards, certification, and information to help meet the Government's policy goals (e.g., delivering energy cost savings), to help achieve its climate change targets (e.g., reducing greenhouse gas emissions [GHGs] by 30% below 2005 levels by 2030), and to support clean innovation and green infrastructure.

Energy efficiency initiatives support several goals under the Federal Sustainable Development Strategy (FSDS) that provides development priorities, establishes goals and targets, and highlights government actions from 41 federal organisations over the next three years. The 2016–2019 FSDS was tabled in Parliament in October 2016. With 13 aspirational goals for a more sustainable Canada, the 2016–2019 FSDS demonstrates federal leadership on climate change, and includes the environment-related 2030 Sustainable Development Goals, measurable and ambitious targets, and the role that partners play. http://fsds-sfdd.ca/index.html#/en/goals/

2. ENERGY EFFICIENCY STRATEGY

The Pan-Canadian Framework on Clean Growth and Climate Change: Canada's Plan to Address Climate Change and Grow the Economy (PCF) was adopted in 2016 and affirmed the importance of ongoing federal, provincial and territorial collaboration to implement the Framework and track progress of reducing GHG emissions. As per the PCF, Canada's GHG emissions target is 523 megatonnes in 2030 – a reduction of 30% below 2005 levels.

The PCF has four main pillars: pricing carbon pollution; complementary measures to further reduce emissions across the economy; measures to adapt to the impacts of climate change and build resilience; and actions to accelerate innovation, support clean technology, and create jobs. The PCF includes aspirational commitments for energy efficiency in the buildings sector, the industrial sector, the transportation sector, as well as for federal operations (efficiency of government buildings and fleets).

To support commitments made as part of the PCF, the federal government develops minimum energy performance standards and model codes, supports provincial and territorial adoption of these standards and

codes, promotes energy efficiency through information and awareness initiatives, and regulates energy performance of energy using products that cross borders. (closely aligning product standards with those in the United States).

FUNDING

Federal activities under the PCF are funded chiefly through the federal budget. For example, Budget 2017 allocated CAD $21.9 billion in funding for green infrastructure to help support implementation of the PCF. This funding will flow through three distinct streams: bilateral agreements with provinces/territories, the Canada Infrastructure Bank, and a series of federally delivered programmes.

LINKS

Pan-Canadian Framework:

https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf

Budget 2017: http://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf

Energy Efficiency Act: http://laws-lois.justice.gc.ca/eng/acts/e-6.4/

Canada's Energy Efficiency Regulations: http://www.nrcan.gc.ca/energy/regulations-codes-standards/6845

Forward Regulatory Plan 2017-19: http://www.nrcan.gc.ca/energy/regulations-codes-standards/18318

3. ENERGY EFFICIENCY ACTION PLAN

The PCF acts as a guide for federal energy efficiency programmes, in partnership with provinces and territories. It details federal, provincial/territorial actions on energy efficiency in the buildings sector, industrial sector, transportation sector, and federal government operations (efficiency of government buildings and fleets.)

The federal government is committed to improving energy efficiency standards while minimising regulatory burden, through harmonisation of requirements across Canada, as well as alignment with the U.S. and other jurisdictions, like Mexico. In support of this, Canada intends to update the Energy Efficiency Regulations to introduce new and updated standards for up to 50 product categories over the coming years.

FUNDING

As detailed above.

LINKS

Pan-Canadian Framework:

https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf

Energy Efficiency: http://www.nrcan.gc.ca/energy/efficiency

Forward Regulatory Plan 2017-19: http://www.nrcan.gc.ca/energy/regulations-codes-standards/18318

4. ENERGY EFFICIENCY, INTENSITY OR EMISSIONS REDUCTION TARGETS

Canada made a commitment at COP21 in Paris, December 2015, to reduce its GHG emissions by 30% below 2005 levels. This commitment was reaffirmed by federal, provincial/territorial governments at the Vancouver Declaration on Clean Growth and Climate Change in March 2016. Energy efficiency measures outlined in the PCF will contribute to the attainment of this target.

Canada has also made a commitment to reduce emissions from Government operations (including fleets and facilities) by 40% by 2030, with an aspirational goal of 2025.

Under the Department of Natural Resources' 2017-18 Departmental Plan, the expected result for energy efficiency is that energy consumers and producers adopt environmentally responsible products and practices related to energy use and production. The performance indicator to measure progress toward this result is Canada's total annual energy savings due to efficiency (difference between energy use without energy efficiency improvements and energy use with energy efficiency improvements) with a target of positive five-year trend in PJ saved.

LINKS

Pan-Canadian Framework:

https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf

Departmental Plan 2017-18: http://www.nrcan.gc.ca/plans-performance-reports/dp/2017-18/19238

5. SECTORAL ENERGY EFFICIENCY TARGETS

Not applicable.

LINKS

6. LEAD ENERGY EFFICIENCY INSTITUTIONS

INSTITUTIONAL SETTINGS AND RESPONSIBILITIES

The OEE, established in 1998, administers the Energy Efficiency Regulations and provides other programmes and information that promote energy efficiency in the major energy-using sectors of the economy (e.g., commercial and consumer products, residential, commercial and institutional buildings, industry, and transportation and alternative fuels).

The OEE plays a dynamic leadership role in helping Canadians save millions of dollars in energy bills each year, while contributing to a healthier environment.

The OEE provides practical energy conservation information and advice to consumers, businesses, and institutions and helps to inform key decision-makers in government, industry, and non-profit sectors.

The OEE also plays a regulatory role under the *Energy Efficiency Act*. The Act gives the Government of Canada the authority to develop and implement minimum energy performance standards for energy-using products or

products that affect energy use, which are either imported to Canada or manufactured in Canada and shipped across provincial or territorial borders. The regulations currently cover 50 products.

STAFF AND BUDGET

Planned Full Time Equivalent staff in 2017-18 is 252.

BUDGET USE

Funding is used to design and implement programming geared at addressing market barriers to the adoption of energy efficient practices and technology/products by Canadians, builders, and industry.

In the Government of Canada's 2017 Budget, the following amounts were allocated to energy efficiency programming at Natural Resources Canada. This funding is in addition to existing, ongoing funding used by Natural Resources Canada to deliver energy efficiency programmes:

- $67.5 million over four years to renew and continue existing energy efficiency programmes.
- $13.5 million over five years to provide expertise to other federal departments in the best approaches to implement energy efficiency and clean energy technologies, to retrofit federal buildings, and to reduce or eliminate emissions from vehicle fleets.
- $120 million to deploy infrastructure for electric vehicle charging and natural gas and hydrogen refuelling stations, as well as to support technology demonstration projects.
- $182 million to develop and implement new building codes to retrofit existing buildings and build new net-zero energy consumption buildings across Canada.

LINKS

Office of Energy Efficiency: http://www.nrcan.gc.ca/energy/offices-labs/office-energy-efficiency

Natural Resources Canada 2016-17:

https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/plansperformancereports/rpp/2016-2017/pdf/NRCan_RPP_2016-17-eng.pdf

NRCan Departmental Plan 2017-18: http://www.nrcan.gc.ca/plans-performance-reports/dp/2017-18/19238

7. OTHER ENERGY EFFICIENCY AGENCIES

Energy Efficiency is an area of shared jurisdiction in Canada. Sub-federal entities (provinces/territories) in Canada are active in the field of energy efficiency. Many energy utilities are also integral to provincial/territorial policy and programming. Information regarding provincial/territorial programmes is provided by the OEE Directory of Energy Efficiency and Alternative Energy Programmes in Canada (see link below).

Close collaboration and coordination among the federal and provincial/territorial governments is essential to operationalise commitments made as per the PCF. Collaboration occurs through annual meetings of the Energy and Mines Ministers Conference and regular meetings of the Steering Committee on Energy Efficiency, which includes representatives from all of Canada’s provinces and territories. These efforts aim to generate a complementary agenda for energy efficiency in which the ministers continue to develop real and sustainable

energy solutions in their own jurisdictions, as well as collaborate on crosscutting initiatives that require a more integrated approach.

LINKS

Directory of Energy Efficiency and Alternative Energy Programmes: http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm?attr=0

8. ENERGY EFFICIENCY INFORMATION DISSEMINATION

Information dissemination is the responsibility of individual programme departments, which cooperate with stakeholders in the government, industry, and civil society. Comprehensive information on OEE programmes and related energy efficiency issues is available on the OEE website.

NRCan also publishes the yearly Fuel Consumption Guide, which provides fuel consumption data for every vehicle model available in Canada. This information assists consumers in making fuel-efficient purchasing decisions.

In addition, the Minister of Natural Resources Canada issues an annual, public report to the Parliament of Canada on the results of OEE's programmes.

LINKS

Energy Efficiency: http://www.nrcan.gc.ca/energy/efficiency

Energy Efficiency Publications: http://www.nrcan.gc.ca/energy/publications/17756

Energy Efficiency Publications: http://www.nrcan.gc.ca/energy/products/reference/12527

Improving Energy Performance in Canada: http://oee.nrcan.gc.ca/publications/statistics/parliament/2015-2016/pdf/parliament15-16.pdf

9. ENERGY EFFICIENCY AWARENESS RAISING

The EnerGuide energy disclosure label for equipment rates and summarises the energy efficiency of major household 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 are certified to meet premium levels of energy efficiency, and make it easy for consumers to choose high efficiency products.

Increasingly, Natural Resources Canada is using digital tools and social media to inform and engage Canadians. For example, the department is working with partners and using a mobile app called Carrot Rewards to raise energy efficiency awareness and nudge people to take action.

LINKS

Not applicable.

10.GOVERNMENT SUPPORTED ENERGY EFFICIENCY TRAINING

FleetSmart is an energy efficiency programme that provides numerous educational opportunities to commercial and institutional fleets through free, practical training to reduce fuel consumption. Training opportunities include:

- Smart*Driver* training - Fleet energy management training to improve fuel efficiency.
- Fuel Management 101 - A one-day workshop for fleet managers to help develop and implement effective fuel management plants.
- Web-based training - FleetSmart online training.

Dollars to $ense Energy Management Workshops, run since 1997, are delivered through six key modules where industrial, commercial and institutional organisations can work to improve energy efficiency:

- Energy management information systems,
- Recommissioning,
- Energy management planning,
- Energy savings opportunities,
- Energy monitoring, and
- Energy efficiency financing.

As of 2016, Dollars to $ense is now being run by the Canadian Institute for Energy Training (see below).

LINKS

Fleetsmart training: http://www.nrcan.gc.ca/energy/efficiency/transportation/commercial-vehicles/fleetsmart/training/16946

Dollars to $ense Energy Management Workshops: http://www.nrcan.gc.ca/energy/efficiency/industry/training-awareness/5461

11. PRIVATELY OPERATED TRAINING

The Canadian Institute for Energy Training (CIET) is an energy training centre founded in 1996 that focuses on sustainable energy training programmes, including energy efficiency training. Examples of courses include Efficient Building Envelope (EBE), Efficient Lighting, Energy Efficiency for Managers, Energy Efficiency for Programme Design and Implementation, and Energy Efficiency Programme Evaluation.

LINKS

CIET sustainable energy training: http://cietcanada.com/energy-efficiency-training-programs/

12. GOVERNMENT SUPPORTED RESEARCH & DEVELOPMENT

Natural Resources Canada (NRCan) is the federal government's primary funder and performer of energy research and development activities. Through the Office of Energy Research and Development (OERD), NRCan delivers a number of programmes to support and accelerate innovative clean energy technologies, including those that improve energy efficiency. Programmes include:

- Energy Innovation Programme: Budget 2017 announced $229M over four years to support clean energy innovation, including improving efficiency in sectors such as transportation, industry, and the built environment.
- Electric Vehicle Infrastructure Demonstration: Budget 2016 committed $46.1M to support the demonstration of next generation electric vehicle charging infrastructure.
- Next Generation Clean Energy Infrastructure: Budget 2017 announced a number of national programmes to deliver investments that support Canada's transition to a clean economy. These include $79M to support the research, development and demonstration of technologies that improve energy use in buildings and next generation charging infrastructure for electric vehicles.
- Programme for Energy Research and Development: funds core 'public good' research and development activities at 13 federal departments and agencies to ensure a sustainable energy future for Canada.

NRCan's CanmetENERGY and CanmetMATERIALS national laboratories act as important regional hubs for innovation. Canmet laboratories perform early stage research and development, in addition to related science activities (RSA), to support codes and standards and advance energy efficient technologies in a number of sectors, such as:

- Buildings and Communities: Net-zero houses, buildings, and communities; modelling and simulation software tools; advanced heating, ventilation, air- conditioning, and refrigeration technologies; and intelligent buildings.
- Industrial: Iron and steel production; pulp and paper sector including bio-refineries; industrial heat management and waste heat recovery; cogeneration; and tools for industrial system optimisation.
- Transport: Includes advanced fuels, hybrid and electric vehicles, advanced materials, and emissions control technologies.

The Clean Energy Science and Technology sub-programme (NRCan Plans and Priorities), which funds initiatives such as the Energy Innovation Programme mentioned above, was budgeted CAD $103 million in 2016-17 with planned spending of CAD $96 million in 2017-18. Part of this budget will be directed at supporting 11 external RD&D projects across the industry and buildings sectors to improve energy efficiency and reduce GHG emissions.

LINKS

Clean Energy Innovation: http://www.nrcan.gc.ca/energy/science/programs-funding/18876

CanmetENERGY: http://www.nrcan.gc.ca/energy/offices-labs/canmet/5715

ENERGY EFFICIENCY MEASURES

13. COLLECTION AND MONITORING OF ENERGY EFFICIENCY OUTCOMES

The primary source of energy use statistics is the National Energy Use Database (NEUD). The statistics are compiled from multiple sources, including Statistics Canada and NRCan's own in-house models (link is below). NRCan is the primary federal ministry responsible for monitoring and analysing energy efficiency data.

LEGAL POWERS

Programme departments are responsible for monitoring and reporting on their individual programmes. The efforts of Natural Resources Canada are compiled into the Report to Parliament under the *Energy Efficiency Act*, which is tabled annually in Parliament by the Government of Canada.

LINKS

National Energy Use Database: http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/sources.cfm

Energy Efficiency Act: http://laws-lois.justice.gc.ca/eng/acts/e-6.4/

14. EVALUATION OF ENERGY EFFICIENCY PROGRESS OR POTENTIAL

The OEE produces a publicly available report on Energy Efficiency Trends in Canada as well as its companion document, the Energy Use Data Handbook.

LINKS

NEUD Publications: http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/publications.cfm?attr=0

NEUD Tables: http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/databases.cfm?attr=0

15. SELF-EVALUATION OF ENERGY EFFICIENCY PROGRAMMES

The Minister of Natural Resources Canada tables an annual report to the Parliament of Canada on the results of OEE's programmes.

Improving Energy Performance in Canada: http://oee.nrcan.gc.ca/publications/statistics/parliament/2015-2016/pdf/parliament15-16.pdf

NRCan describes expected results, performance indicators, targets and dates, if applicable, for each of its planning priorities each year. The following link is to NRCan's Departmental Plan for 2017-18: http://publications.gc.ca/collections/collection_2017/rncan-nrcan/M2-13-2017-eng.pdf

NRCan's annual Departmental Report programme outlines the results of the previous fiscal year. The following link is to NRCan's 2015-16 Departmental Performance Report:

https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/plansperformancereports/dpr/2015-16/NRCan-DPR2015-16_e.pdf

Reporting on the progress of energy efficiency initiatives will form part of Pan-Canadian Framework reporting as well as Federal Sustainable Development Strategy reporting.

16. CROSS-SECTOR ENERGY EFFICIENCY INITIATIVES

The Pan-Canadian Framework on Clean Growth and Climate Change (PCF)

OBJECTIVE

The PCF is Canada's collective plan to grow its economy while reducing emissions and building resilience to adapt to the effects of climate change. It is Canada's plan to meet the commitment made at COP21 in Paris, December 2015, and reaffirmed by federal, provincial/territorial governments through the Vancouver Declaration, to reduce its GHG emissions by 30% below 2005 levels.

OUTLINE

The PCF includes Energy Efficiency initiatives in the buildings sector, industrial sector, transportation sector, and government leadership (government buildings and fleets.)

LINKS

Pan-Canadian Framework:

https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf

17. INDUSTRY ENERGY EFFICIENCY INITIATIVES

Canadian Industry Programme for Energy Conservation (CIPEC)

OBJECTIVE

ENERGY STAR® for Industry provides a basic approach for developing a systematic energy management programme, relying on industry best practices and benchmarking tools. As the organisation develops its ENERGY STAR® programme, it will learn about the benefits that a comprehensive energy management system brings and may decide to implement ISO 50001 as the next step in the development of its energy efficiency culture.

OUTLINE

The ENERGY STAR® for Industry programme was launched in Canada in August 2017. It is comprised of two components, the ENERGY STAR® for Industry Certification, which became available upon the August 2017 launch, and the ENERGY STAR® for Industry Challenge, which was announced in the fall of 2017.

LINKS

Not applicable.

ISO 50001 Energy Management Systems standard

OBJECTIVE

ISO 50001 is an internationally recognised standard that provides the framework for an organisation to develop its energy management system.

OUTLINE

Natural Resources Canada's Office of Energy Efficiency supports implementation of the ISO 50001 standard through cost-shared assistance for pilot projects. Canada is also leading, in partnership with UNIDO, the Energy Management Working Group under the Clean Energy Ministerial, which aims to increase the global uptake of ISO 50001 in industrial facilities and commercial buildings.

LINKS

ISO 50001 Energy Management Systems Standard:

http://www.nrcan.gc.ca/energy/efficiency/industry/cipec/5379

18. TRANSPORT ENERGY EFFICIENCY INITIATIVES

Electric Vehicle and Alternative Fuel Infrastructure Initiative

OBJECTIVE

The purpose of this initiative is to address barriers to the deployment of electric or alternative fuelled vehicles, through the deployment of market ready EV chargers, and alternative fuel (e.g. natural gas and hydrogen) refuelling stations along key passenger and freight corridors.

OUTLINE

Phase 1 provided $67.5M over 2 years to support the deployment of EV chargers along Canada's highways, and alternative fuel (e.g. natural gas, hydrogen) stations along freight corridors and established markets. By March 2018, all Phase 1 deployment projects will be completed, resulting in over 100 new EV fast chargers, seven natural gas and three hydrogen stations built.

Phase 2 will provide a total of $120M over 4 years for the following initiatives:

- Deployment of EV fast chargers, and alternative fuel (e.g. natural gas and hydrogen) refuelling infrastructure.
- Demonstration of next generation charging technologies.
- Development and revision of codes and standards for EV and Alternative Fuelled vehicles and charging/refuelling infrastructure.

LINKS

Electric Vehicle Deployment: http://www.nrcan.gc.ca/energy/alternative-fuels/fuel-facts/ecoenergy/18352

SmartWay

OBJECTIVE

The SmartWay Transport Partnership is a collaboration with the freight industry designed to help businesses reduce fuel costs while transporting goods in the cleanest most energy efficient way possible. Originally launched by the United States Environmental Protection Agency (EPA) in 2004, SmartWay has been administered in Canada by Natural Resources Canada (NRCan) since 2012.

OUTLINE

SmartWay allows carriers to benchmark their energy efficiency and emissions against industry peers with similar operations while tracking year-over-year performance. The programme offers tools to collect and track partner operations data and provides a benchmarking report, a toolkit, and other resources that help improve fuel efficiency. In April 2018, the programme will launch additional activities to accelerate the adoption of energy management best practice in fleets and supply chains through fleet energy audits, and supporting innovative best practices in supply chain and logistics efficiency.

LINKS

SmartWay Homepage: http://www.nrcan.gc.ca/energy/efficiency/transportation/commercial-vehicles/smartway/7615

Partner List: http://oee.nrcan.gc.ca/smartway/index.cfm?pg=1

Consumer Awareness

OBJECTIVE

NRCan promotes and delivers information and awareness materials to consumers and commercial fleet managers with a focus on informing their vehicle purchasing decisions, encouraging fuel switching and promoting fuel-efficient driving behaviour.

OUTLINE

NRCan has developed a suite of materials and tools, meant to influence consumer behaviour, including:

- Working with the U.S Department of Energy on the development of an electric vehicle and alternative fuel station location map.
- Developing customised apps which, based on individual driving behaviour, can recommend low carbon vehicle purchasing options.
- Developing and implementing a series of social innovation initiatives, analysing the consumer vehicle buying process, and developing a social initiative that will reward efficient driving behaviour.
- Maintaining the Vehicle Fuel Consumption Guide & EnerGuide labels, which provide consumers with the fuel consumption information for new vehicle purchase.
- Developing materials related to fuel-efficient driver training for both consumers and commercial fleets.

- Supporting industry in the development of a suite of information materials (e.g. website, workshops, economic analysis, best practices, and permitting guides) which outline the barriers and benefits of switching from diesel to natural gas in medium and heavy duty trucks.

LINKS

2017 Fuel Consumption Guide: http://www.nrcan.gc.ca/energy/efficiency/transportation/cars-light-trucks/buying/7487

19. BUILDING ENERGY EFFICIENCY INITIATIVES

Buildings Initiatives

OBJECTIVE

The Federal Buildings Initiative

The Federal Buildings Initiative (FBI) supports the Government's target to reduce greenhouse gas emissions from federal operations by at least 40 per cent below 2005 levels by 2030 (this goal is also supported through Greening Government Fleets, summarised in the transportation tab.)

Premium Housing Standards

NRCan delivers two premium, voluntary home labelling programmes for new home construction: ENERGY STAR® for New Homes, and R-2000. Both programmes are designed to encourage the construction of homes that are more energy efficient than provincial building codes, in order to improve the energy efficiency of the residential housing stock and reduce GHG emissions.

OUTLINE

Federal Buildings Initiative

The FBI is an NRCan initiative designed to assist federal departments and agencies in reducing their energy consumption, by providing expertise to other federal departments in the best approaches to implement energy efficiency and clean energy technologies, and to retrofit federal buildings. Introduced in 1991, the programme facilitates access to tools and services to undertake energy efficiency retrofit projects in buildings owned or managed by the Government of Canada. More specifically, it helps federal organisations enter into third-party performance contracts that allow major retrofits to be self-financing, thus addressing barriers to retrofitting such as the lack of capital and resources.

Premium Housing Standards

ENERGY STAR® for New Homes and R-2000 are voluntary home labelling programmes designed to promote low-rise home construction that is approximately 20% and 50% more energy efficient, respectively, than provincial building codes. ENERGY STAR® is unique in that it offers builders two flexible paths to meeting the standard, and thus appeals to a wide range of builders and house types. R-2000-certified new homes are best-in-class energy-efficient homes that include high levels of insulation, clean air features and measures to help protect the environment, save energy, and increase home comfort. (The ENERGY STAR® programme was

developed by the U.S. EPA and is used in Canada under agreement.) As of 2017, over 70,000 homes have been labelled to these standards across Canada.

LINKS

Federal Building Energy Efficiency: http://www.nrcan.gc.ca/energy/efficiency/buildings/eefb/3705

Energy Efficiency Housing Initiatives: http://www.nrcan.gc.ca/energy/efficiency/housing/new-homes/18767

Building codes

OBJECTIVE

The National Energy Code for Buildings (NECB) and the National Building Code of Canada (NBC) establish minimum energy performance for new buildings and energy efficiency requirements for houses and low-rise buildings, respectively.

Under the Pan-Canadian Framework for Clean Growth and Climate Change, federal, provincial, and territorial governments will collaborate to develop and adopt increasingly stringent model building codes, starting in 2020, with the goal that provinces and territories adopt optimal 'net-zero energy ready' model building codes by 2030. Additionally, governments will work to develop a model code for existing buildings by 2022, with the goal that provinces and territories adopt the code.

Budget 2017 allocated funding to develop and implement new building codes to retrofit existing buildings and build new net-zero energy consumption buildings across Canada.

OUTLINE

The NECB was introduced in 1997 and has been periodically updated to ensure high-energy efficiency in new buildings, where it is most cost-effective to achieve energy savings. The NECB focuses on five key building elements affecting energy efficiency that are typically considered during the design phase: building envelope, lighting, heating, ventilating and air conditioning systems (HVAC), service water heating, and electrical power systems and motors. The NBC introduced energy efficiency requirements for houses in 2012. Under Canada's constitution, provinces and territories regulate the design and construction of new houses and buildings and, therefore, adoption and enforcement of the code is the responsibility of the provincial and territorial authorities having jurisdiction. As of 2016-17, 12 provinces and territories adopted, committed to adopt, or indicated they would consider adopting the NECB or its equivalent and 9 provinces had adopted housing energy efficiency requirements for new construction as part of their building codes (NBC section 9.36 or equivalent).

LINKS

Canada's Energy Code: http://www.nrcan.gc.ca/energy/efficiency/buildings/eenb/codes/4037

Energy benchmarking and labelling

OBJECTIVE

ENERGY STAR® Portfolio Manager provides an apples-to-apples comparison of buildings' energy performance while at the same time adjusting for regional differences like weather.

The EnerGuide Rating System provides an unbiased, credible way to estimate home energy use and encourage reductions. An EnerGuide home energy rating estimates the energy performance of both existing homes and in the planning phase for new construction.

OUTLINE

Currently, more than one fifth of commercial floor space in Canada is being tracked using ENERGY STAR® Portfolio Manager. This tool provides an apples-to-apples comparison of buildings' energy performance while at the same time adjusting for regional differences like weather. The ENERGY STAR® programme was developed by the U.S. EPA in 1992 in order to encourage energy efficiency by identifying and promoting energy saving products. Canada has used the ENERGY STAR® symbol since 2001.

The EnerGuide Rating System is managed by NRCan and has been applied to over 1 million homes across Canada. It supports energy efficiency programming at a federal, provincial, territorial or municipal level, including for regulations, building codes and incentive programmes; currently it is in use in 50 programmes or regulations economy-wide. It also forms the foundation for Natural Resources Canada's premium new housing standards (ENERGY STAR® and R-2000).

Under the Pan-Canadian Framework for Clean Growth and Climate Change, federal, provincial, and territorial governments will work together with the aim of requiring labelling of building energy use by as early as 2019.

LINKS

Energy Benchmarking: http://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3691

EnerGuide Home Evaluation: http://www.nrcan.gc.ca/energy/efficiency/housing/home-improvements/5005

20.ENERGY EFFICIENCY COOPERATION

COOPERATION AGREEMENTS WITH OTHER ECONOMIES OR ORGANISATIONS

Canada cooperates with other APEC economies and external organisations through a number of mechanisms including via formal memorandum of understandings, letter of agreements and joint strategies on energy efficiency.

The North American Energy Strategy, a joint agreement between Canada, the United States and Mexico, provides a strategic framework for energy related cooperation. This strategy identifies specific commitments on aligning energy efficiency standards, reducing energy use and increasing competitiveness in the industrial and commercial sectors, as well as how to pilot programmes with major industry partners for adoption by small to medium-sized enterprises. These joint commitments serve to achieve common objectives in improving the applications of energy efficiency in the North American economy.

In addition to the high-level joint strategy on energy, Canada also has various agreements with the U.S. (Department of Energy and the Environmental Protection Agency) on specific energy efficiency programmes for cooperation such as on Energy Star®, Smartway, ISO50001 and other programmes aim to increase the uptake energy efficiency in various sectors (building, transportation, industry, and commercial). Canada and the United States also collaborate on energy efficiency standards and test method alignment through the Regulatory Cooperation Council.

While Canada has extensive bilateral activities with the United States, there are also some less active arrangements with other APEC economies such as Mexico (Canada-Mexico Partnership), China (Canada-China Energy Working Group) and Russia (Canada-Russia Intergovernmental Economic Commission).

BILATERAL, REGIONAL OR MULTILATERAL COOPERATION AGREEMENTS

In addition to the arrangements listed above, Canada participates in a number of international fora that advance energy efficiency policy, including: the International Partnership for Energy Efficiency (IPEEC), the International Energy Agency (IEA), the Clean Energy Ministerial (CEM), Asia Pacific Economic Cooperation (APEC), the G20, the G7, the International Standards Organisation and the Organisation for Economic Cooperation and Development (OECD). Participation may include contribution to various committees that support/manage these fora as well as sub-working groups on joint initiatives on energy efficiency. For example, Canada contributes to the Policy Committee, Executive Committee, the Building Energy Efficiency Task group, the Energy Efficiency Financing Task Group, the Networked Devices Task Group and others under the umbrella of the IPEEC.

LINKS

Regulatory co-operation: http://www.nrcan.gc.ca/energy/regulations/17308

Encouraging Market Transformation:

http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/emmc/pdf/Encouraging%20Market%20Transformation_access_eng.pdf

Pan-Canadian Framework:

https://www.canada.ca/content/dam/themes/environment/documents/weather1/20161209-1-en.pdf

Energy Efficiency Standards: https://energy.gov/sites/prod/files/2016/07/f33/2016-17%20Energy%20Efficiency%20Work%20Plan_0.pdf

International Energy Cooperation: https://www.nrcan.gc.ca/energy/resources/17924

21. OTHER ENERGY EFFICIENCY EFFORTS

Canada has a federal system of government, where both the federal government as well as provincial and territorial governments administer and promote energy efficiency programmes. The following is a list of provincial or territorial resources for general energy efficiency information and existing policies.

LINKS

- BC: http://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/energy-efficiency-conservation
- AB: https://www.efficiencyalberta.ca/
- SK: http://www.publications.gov.sk.ca/details.cfm?p=8000
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