A National Energy Efficiency Strategy for Canada
Supplement: Model National Initiatives
August, 2010

This supplement summarizes the results of discussions on national energy efficiency programs among energy efficiency industries, non-government organizations, and academics working on energy efficiency.

Solutions to improve energy efficiency in Canada have been identified by many stakeholders.[i] We recommend that the federal government support the following national initiatives in the period 2011-2015:

1. A national Green Homes program with the objectives of retrofitting at least 40% of homes across Canada , and all low income housing, over the next 10 years, and raising the efficiency of new homes to net zero energy by 2020.
2. A national Green Buildings program with the objectives of improving the technical and operational efficiency of all buildings across Canada by 50% over the next 10 years and all new buildings net zero by 2020.
3. A national Community Efficiency program of financing, capacity building, and financial assistance for municipalities for energy efficiency policies, projects, and smart land use planning.
4. A national industrial energy management program helping Canadian industry to adopt international energy management standards and improve energy productivity.
5. A national transport efficiency program of increasing standards for all types of vehicle and support for modal shifting, driver training, and logistical efficiency.

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1. A National Green Homes Program

A national Green Homes program with the objectives of retrofitting at least 40% of homes across Canada, and all low income housing, over the next 10 years, and raising the efficiency of new homes to net zero energy by 2020.

Over the past 10 years, the EcoEnergy Retrofit Program and its predecessor the EnerGuide for Homes Program have provided financial incentives to ten of thousands of home-owners, led to the development of a standard home energy labeling program, and produced a national home energy use database. Mandatory energy labeling is being adopted in Ontario. The City of Vancouver is adopting a new bylaw requiring minimum retrofit requirements at time of renovation.

On the other hand, less than 10% of Canadian homes have been retrofitted to date. There are also still thousands of low income families that live in highly inefficient housing yet are the most affected by energy pricing measures such as carbon taxes and time of use rates. We need to move from using just a single measure – a retrofit rebate – to a comprehensive national initiative involving labeling, financing, training and regulations.

The United States has had a low income weatherization program since the 1970s and recently announced a National Home Retrofit program that has the objective of retrofitting all American homes by 2025. The program was developed by a high level White House and multi-departmental team and includes information, training, and financing components. It also includes innovative financing to raise capital and uses the property tax system to repay loans – the so called Property Assessment for Clean Energy (PACE) concept).[ii] Significant low income housing weatherization funds are also provided through the *American Recovery and Reinvestment Act of 2009.*[iii]

In the UK, the Green Deal program has the objective of upgrading all UK homes by 2030 with firm targets for 2015 and 2020. It includes major public investment in low income housing and also uses innovative "Pay as you Save" financing through the property tax system.[iv]

This concept of attaching municipal loans for energy efficiency improvements to a property rather than its owner was first researched in Canada.[v] Several provinces are now considering changes to their municipal acts to allow its use here.

Canada needs a bold plan to transform the nation's housing stock and bring it into the 21st century. We need hard targets like the UK commitment to retrofit every home in the UK by 2030, with ambitious interim targets along the way.

Details:

We propose the following comprehensive program covering all aspects of home envelope, heating and electricity/gas using equipment:

- ⇒ Targeted direct investment in housing weatherization and rebates for selected major high cost equipment and upgrades in low income housing across all Provinces and Territories as part of a national social housing improvement program.

⇒ A national financing program for home retrofit run through financial institutions and municipalities using on-bill or “pay as you save” property tax system financing.
⇒ A national home retrofit training and certification program to reach all types of renovators through major collaboration between governments, home builders associations, and community colleges.
⇒ Mandatory energy performance and benchmark labeling of all homes at time of sale or new rental agreement.
⇒ Minimum building and housing retrofit standards at time of sale or renovation to be phased in over 5 years in all provinces, following a national model home retrofit code.
⇒ Support for net zero home construction.

Targets:

⇒ Mandatory labeling and property tax financing in place in all provinces by 2013.
⇒ 40% of all homes upgraded by at least 30% by 2020.
⇒ Most low income housing upgraded by 2015. All low income homes by 2020.
⇒ All new homes being built to net zero levels by 2020.

Coordination:

⇒ Coordinated by expanding / combining the current Council of Energy Ministers working groups on accelerated retrofit and low income housing

Federal Role:

⇒ Maintenance of home energy database and EnerGuide benchmarking system.
⇒ Major financial support for country wide low income housing upgrade programs.
⇒ Explicit arrangements through CMHC with financial institutions and provincial municipal lending agencies to guarantee loans to municipalities for property tax system financing for home renovation purposes.
⇒ National training and certification program for trades, builders and renovators.
⇒ National model home retrofit code setting minimum standards for home upgrade at time of sale or lease.

Provincial Role:

⇒ Regular 3-year upgrading of building code energy efficiency requirements to best practices.
⇒ Delivery of low income housing upgrade programs.
⇒ Mandatory home labeling regulations.
⇒ New regulations on minimum retrofit upgrades on sale or lease phased in over 5 years.
⇒ Legislative changes that allow municipalities to use the property tax system for financing energy efficiency improvements.

Key Partners:

⇒ Federation of Canadian Municipalities
⇒ Canadian and Provincial Home Builders Associations, NAIMA Canada
⇒ Community colleges
⇒ Financial institutions

2. A National Green Buildings and Small Enterprise Program

A national Green Buildings program with the objectives of improving the technical and operational efficiency of all buildings across Canada by 50% over the next 10 years and all new buildings net zero by 2020.

Recent surveys by the Canada Green Building Council (CaGBC) have shown that there are huge differences in energy use among similar buildings that can be attributed to operational practices, as well as large potential gains in lighting, HVAC and equipment technology.[vi] CaGBC have helped industry associations like REALPac set targets and implement a whole building performance based conservation protocol to help building owners achieve these targets.[vii]

Many successful energy efficiency organizations like Vermont Efficiency have also found that providing targeted technical services to energy users is far more effective than "programs" that provide financial incentives and standard solutions.[viii] This is especially true in the buildings and small enterprise sectors where energy users are aware that improvements can be made but do not have the technical or staff resources to see them through.

Governments can play a valuable benchmarking role and provide technical service staff to help energy users in all aspects of energy efficiency from auditing to operational improvements, to financing, and commissioning. Currently the Office of Energy Efficiency is working on a common rating and labeling system for buildings and developing a benchmarking database. This should be the cornerstone of a new national green buildings program.

Details:

- ⇒ National building performance data base and benchmarking service.
- ⇒ Mandatory building energy labeling.
- ⇒ Regional energy efficiency centres providing comprehensive "audit-to-implementation" technical assistance services to major commercial/institutional energy users and small and medium scale enterprises.
- ⇒ Innovative financing including loan guarantees and property tax system financing.
- ⇒ National buildings commissioning/re-commissioning/upgrade training program to reach all trades and professions serving commercial/institutional buildings through major collaboration with CaGBC, and all post-secondary institutions.
- ⇒ Support for new net zero / green buildings through training, R&D, and fiscal incentives such as tax credits.

Targets:

- ⇒ Benchmarking of all Canadian building types by 2012.
- ⇒ Support for REALPac 20 kWk/ft2 by 2015 target.
- ⇒ 60% of existing buildings with major upgrades of >30% to by 2020.
- ⇒ Reduction of energy use in total Canadian buildings by 50% by 2020.

⇒ 50% market share net zero in new buildings by 2020.

Coordination:

⇒ The current Council of Energy Ministers Building Labeling should establish a new full sector Building Energy Services group to coordinate this initiative.

Federal Role:

⇒ National building labeling, database and benchmarking service.
⇒ National buildings commissioning/re-commissioning training program.
⇒ Cost sharing of regional efficiency technical services centres.
⇒ Federal green building tax credits.

Provincial Role:

⇒ Regular 3-year upgrading of building code energy efficiency requirements to best practices.
⇒ Regional technical services centre.
⇒ Tax credits to builders who use best practices (LEED, Net Zero etc.).

Key Partners:

⇒ ASHRAE
⇒ BOMA
⇒ REALPac
⇒ Canada Green Building Council
⇒ Community colleges
⇒ University engineering and architecture departments.

3. A Canadian Community Efficiency Support Program

A national community efficiency program of financing, capacity building, and financial assistance for municipalities for energy efficiency policies, projects, and smart land use planning.

Municipalities are turning out to be the leaders in innovative new approaches supporting energy efficiency.[ix] .[x] .[xi] Yet Canadian municipalities do not have the resources needed to undertake significant action and often also lack the legal jurisdiction to make their own decisions and raise their own resources. The Council of Energy Ministers (CEM) recently issued a report in which federal and provincial governments agreed to work on a wide range of policies supporting sustainable community energy use and integration.[xii] It's time to take action on these policies.

Details:

- ⇒ Financial support for alterative transportation strategies, transit and road to rail/ship modal shift projects.
- ⇒ Financial and technical support for adoption of integrated community energy systems (e.g. through QUEST).
- ⇒ Support for the implementation of SMART Growth strategies by municipalities.
- ⇒ Model enabling legislation to strengthen municipal powers over efficiency. Evaluation and modification of legislation in each province and territory which may inhibit the implementation of efficiency measures by municipalities.
- ⇒ Guaranteed revolving funds for use by municipalities to provide municipal property tax financing (LIC, PACE, Pay as you save).
- ⇒ Guaranteed financing that would allow municipalities to undertake and finance longer term efficiency projects and Smart Growth strategies.

Targets:

- ⇒ All major municipalities have community energy plans by 2015 with 50% of these implemented by 2020.
- ⇒ Personal vehicle and truck usage in urban areas cut by 20% by 2015, 50% by 2020.

Coordination:

- ⇒ Coordinated by the current Council of Energy Ministers Integrated Community Energy Systems collaborative group with additional stakeholders.

Federal Role:

- ⇒ Energy efficiency block grant program for municipality energy efficiency projects.
- ⇒ Explicit arrangements with financial institutions and provincial municipal lending agencies to guarantee loans made to and by municipalities for energy efficiency and Smart Growth purposes.
- ⇒ Establishment of a national clean energy / energy efficiency finance fund.

Provincial Role:

- ⇒ Financial and technical support for community energy planning.
- ⇒ Legal efficiency targets for all local utilities based on cost effective potential with market mechanisms for compliance.
- ⇒ Legislative changes that allow municipalities to use the property tax system for financing energy efficiency improvements.

Key Partners:

- ⇒ Federation of Canadian Municipalities and Centres of Excellence in sustainable mobility.

4. A National Industrial Energy Management Program

A national industrial energy management program helping Canadian industry to adopt international management standards and improve productivity.

The Canadian Industrial Program on Energy Conservation (CIPEC) has successfully achieved greater than 1% improvement in efficiency per year for over 25 years. Many Canadian industrial facilities are planning to adopt the new International Standards Organization (ISO) standard on energy management.[xiii] Some provinces are considering incentives for the adoption of the ISO standard. However, there is still many more efficiency productivity gains to be realized. Other industrialized countries have obtained 4-5% improvement in industrial energy efficiency through programs that encourage adoption of these types of energy management standards.

Details:

- ⇒ Promotion and support for the adoption of the ISO Energy Management standard among all major Canadian industrial sectors.
- ⇒ National industrial energy management training program run in conjunction with an expanded CIPEC program.
- ⇒ Tax and other incentives to encourage adoption of the ISO standard.

Targets:

- ⇒ All industrial facilities using new ISO Energy Management Standard by 2015.
- ⇒ Annual improvement of industrial energy efficiency up to 4% by 2015.

Coordination:

- ⇒ Coordinated by the current Council of Energy Ministers Industrial Working Group.

Federal Role:

- ⇒ Support and coordination through Office of Energy Efficiency programs like CIPEC.
- ⇒ Significantly expanded energy management training programs and support for industry training courses.
- ⇒ Expanded tax measures and incentives for those that adopt the ISO standard.

Provincial Role:

- ⇒ Legislation to require all industrial facilities over a certain size to adopt ISO Energy Management Standard.
- ⇒ Incentives for the adoption of Energy Management Standard.

Key Partners:

- ⇒ CIPEC Industrial task forces
- ⇒ Education and training institutions.

5. A National Transport Efficiency Program:

A national transport efficiency program of increasing standards for all types of vehicle, and support for modal shifting, driver training, and logistical efficiency.

Canada is harmonizing light vehicle emissions standards with those of the United States. Federal and provincial governments are also working together on development of truck efficiency standards and the promotion of truck efficiency technology such as aerodynamics and auxiliary generators (to reduce idling). Canada's driver training courses are widely used and being adopted by the US EPA. Federal and provincial governments are also financially supporting several public transit expansion projects.

Several Canadian companies are participating in the US SMARTWAY truck program - a comprehensive independently verified series of measures that participating companies sign on to including retrofit of efficient technologies, driver training, and optimization of shipping logistics.

However, much more can be done to make Canada's transportation system more efficient and to reduce the amount of traveling Canadians do. Much more investment is needed in public transit, transport demand management, and measures to shift passengers and freight to more efficient modes such as rail.

Details:

- ⇒ Car and light truck emission regulations in line with California standards.
- ⇒ Harmonization of federal and provincial energy efficiency legislation covering truck efficiency standards and other measures such as idling reduction.
- ⇒ Full participation and promotion of the US SMARTWAY program across Canada.
- ⇒ Mandatory labeling of car and truck energy performance.
- ⇒ National strategic plan around flexible work arrangements, adjusted work schedules and tele-working.
- ⇒ Innovative financing and loan guarantees for clean transportation infrastructure projects.

Targets:

- ⇒ Reduce annual person-km and tonne-km by 2% per year.
- ⇒ Truck emissions/energy efficiency standards in place by 2014.
- ⇒ Mandatory labeling of all vehicles by 2013.
- ⇒ Full roll out of SMARTWAY across Canada by 2013.

Coordination:

- ⇒ The current Council of Energy Ministers Transportation working group.

Federal Role:

- ⇒ National vehicle efficiency standards and mandatory labeling protocols and regulations.

- ⇒ Financial support for SMARTWAY including independent verification, training, and optimization tools, etc.
- ⇒ Block grants to municipalities for public transit and modal shift/modal coordination and infrastructure projects.
- ⇒ Require flexible work planning in all departments and agencies.

Provincial Role:

- ⇒ Regulations governing idling, highway speed, traffic demand management, delivery and shipping scheduling.
- ⇒ Legislation to favour smart growth and efficient community planning and restrict new road construction.
- ⇒ Require flexible work planning in all departments and agencies.

Key Partners:

- ⇒ Vehicle manufacturers
- ⇒ Fleet operators
- ⇒ Trucking companies
- ⇒ Retail companies.

End Notes:

[i] The following is sample of organizations and coalitions that have recently made recommendations on national energy efficiency policy:

Act Locally — The Municipal Role in Fighting Climate Change, Federation of Canadian Municipalities 2009, http://www.fcm.ca/english/View.asp?mp=1&x=1235

Climate Leadership, Economic Prosperity, Pembina Institute, David Suzuki Foundation, TD Bank, October 2009. http://climate.pembina.org/pub/1909 http://www.td.com/economics/special/ca1009_climate.pdf

CanREA Recommends Federal Action on New Green Economy (2009), The Canadian Energy Efficiency Centre (CEEA) and the Canadian Renewable Energy Alliance (CanREA) Recommend First Steps in a New Canadian Energy Efficiency Strategy (2007), Canadian Renewable Energy Alliance http://www.canrea.ca/site/category/energy-efficiency/

Investing in a Prosperous Green Future, Green Budget Coalition (2010) http://www.greenbudget.ca/2010/main.html

Green, Decent and Public, Canadian Labour Congress and Council of Canadians, 2009 http://www.canadians.org/energy/documents/climatejustice/green-decent-public.pdf

Integrated Community Energy Solutions – A Roadmap for Action, Natural Resources Canada 2009, http://oee.nrcan.gc.ca/publications/cem-cme/index.cfm

"Geared for Change: Energy Efficiency in Canada's Commercial Building Sector", National Round Table on Environment and Economy. 2009

[ii] Recovery Through Retrofit, US Council of Environmental Quality http://www.whitehouse.gov/the-press-office/2010/11/09/vice-president-biden-announces-actions-build-a-strong-home-energy-retrof

[iii] *Energy Efficiency Program Options for Municipalities under the American Recovery and Reinvestment Act*. American Council for an Energy Efficient Economy (ACEEE) 2009

[iv] UK Department of Energy and Climate Change (2010). *The Green Deal* http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/green_deal/green_deal.aspx

[v] A report was prepared for Natural Resources Canada in 2005 showing how the innovative financing approach of attaching energy efficiency loans to a property instead of the owner could be used in each Province: *Using Local Improvement Charges to Finance Energy Efficiency Improvements – Applicability across Canada*. Pembina Institute, 2005 http://www.pembina.org/pub/197

[vi] Canada Green Building Council http://www.cagbc.org/initiatives/index.php

[vii] Real Property Association of Canada (REALPac) http://my.cagbc.org/newsletter/index.php?sbget=enews_articles,,649,,0,,,89,,,;enews_issues,,89,,0,,;enews_archives,,,,0

[viii] Pre-filed evidence L-8-3 from Scudder Parker et al. from the Vermont Energy Investment Corporation. Ontario Energy Board review of Ontario Power Authorities Integrated Power System Plan 2008. http://www.veic.org/Libraries/Resource_Library_Documents/Scudder_Parker_GEC_Testimony.sflb.ashx

[ix] *Act Locally — The Municipal Role in Fighting Climate Change*, Federation of Canadian Municipalities 2009, http://www.fcm.ca/english/View.asp?mp=1&x=1235

[x] *Energy Efficiency Program Options for Local Governments*, 2009 ACEEE, http://www.aceee.org/store/proddetail.cfm?CFID=3986821&CFTOKEN=68176682&ItemID=471&CategoryID=7

[xi] *Clean Communities: Financing that drives the renewable energy and energy efficiency agenda*, REEEP Power Lunch series 2009 http://webinars.reeep.org/documents/2009Jun25_Clean_Communities.pdf

[xii] *Integrated Community Energy Solutions – A Roadmap for Action*, Natural Resources Canada 2009, http://oee.nrcan.gc.ca/publications/cem-cme/index.cfm

[xiii] International Standards Organization http://www.iso.org/iso/hot_topics/hot_topics_energy/energy_management_system_standard.htm