First Steps Towards a Massive Scale-Up of Renewable Energy and Energy Efficiency in Canada

Pembina Institute's Federal Policy Recommendations

Distributed to all parties

August 2008

Tim Weis, P.Eng.
timw@pembina.org
819-483-6288 x22

the PEMBINA institute Sustainable Energy Solutions

First Steps Towards a Massive Scale-Up of Renewable Energy and Energy Efficiency

August 29, 2008

Introduction

To address the issue of climate change the world's industrialized countries, including Canada, must make deep reductions in greenhouse gas (GHG) emissions. In the words of the Canada's federal Environment Commissioner's 2006 report to Parliament, a "massive scale-up" of efforts is needed to effectively address climate change.[1] According to the National Round Table on Environment and Economy, this includes significant federal and provincial action on energy conservation and efficiency, and the rapid deployment of renewable sources of energy.[2]

However, current programs (both provincial and federal) are not up to the task of supporting a massive scale-up and we lag behind other countries. Significant new programs will need to be implemented in order to make major strides forward. The following document outlines important first steps in a massive scale-up; namely, supporting key programs with immediate funding. In parallel to these programs, the federal government should also take the following steps:

1. Prepare a comprehensive **National Renewable Energy Strategy** that sets out a long-term vision and action plan with short- and long-term goals.
2. **Establish a National Task Force on Renewable Power Integration** to investigate barriers and solutions to integrating large amounts of renewable energy into Canadian power grids.
3. Table a **Canadian Renewable Energy Act** that enables the federal government to set targets for renewable energy in partnership with the provinces; support provincial renewable energy policies; and provide long term funding for supporting programs.

1. Energy Efficiency Programs: Setting and Achieving Targets

Recommendation Summary

A massive scale-up of federal efforts to improve energy efficiency is required to meet or exceed Canada's commitment to achieve a "reduction in energy intensity of at least 25% by 2030"[3], as made at the 2007 APEC conference in Sydney, Australia. The sooner action is taken, the more effective it will be. Therefore, fully funding the following energy efficiency opportunities will be important near-term steps:

[1] http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c2006menu_e.html
[2] http://www.nrtee-trnee.ca/eng/publications/getting-to-2050/index-getting-to-2050-eng.htm
[3] http://pandora.nla.gov.au/pan/64638/20071026-0047/www.apec2007.org/apec1440.html?inc=lw/lw_syd_dec

1) Provide targeted support for **low-income housing retrofits** as a step towards eliminating "energy poverty". This segment of the population is least able to finance retrofits, yet is most affected by increasing energy prices. *Target:* Retrofit all low-income housing over 10 years by investing $500 million over 5 years.
2) Implement a **five-fold increase in the ecoENERGY retrofit program** for residential housing. *Target:* Retrofit 20% of Canadian homes by 2012 and 100% by 2030. $1 billion over 5 years.
3) Provide **incentives for commercial and institutional building retrofits** under a new component of the ecoENERGY energy efficiency programs, with specific funding set aside for the multiple-unit social housing (MUSH) sector. *Target:* Retrofit 20% of Canadian buildings by 2012 (30% improvement in building energy performance) and 100% by 2030. $1 billion over 5 years.
4) Provide **tax credits for new green buildings** in response to international recommendations on green buildings. *Target:* All new Canadian buildings are net zero energy by 2030. $500 million over 5 years.
5) Implementing the **Early Adopters — Commercial Electric/Hybrid Vehicle program**. The program would catalyze the adoption of hybrid vehicles into Canadian commercial fleets. $200 million over 3 years.

Total Investment: $3.2 billion over 5 years.

Background and Rationale

Energy efficiency and conservation are widely acknowledged as the most cost-effective, fastest to implement and most environmentally beneficial means of securing our energy supply. Improving efficiency in all sectors of the economy — including the transportation, industrial and residential sectors — will reduce home owners' monthly expenses and improve industrial efficiency while improving air quality and reducing GHG emissions. Furthermore, these investments will stimulate a versatile energy efficiency industry capable of creating jobs for Canadians across the country.

In her fall 2006 report to Parliament, Environment Commissioner Gélinas outlined the need for a "massive scale-up" of federal efforts to effectively address climate change. In 2007, federal, territorial and provincial governments signed *Moving Forward on Energy Efficienc*y, a Council of Energy Ministers (CEM) document that provides a foundation for a scale-up of national action on energy efficiency. Ministers agreed to collaborate on concrete actions that would transform Canada's energy use in industry, transportation and the built environment.

Energy efficiency and conservation must be cornerstones of any energy plan that responds to these directives, as they are the most cost-effective measures available and the fastest to deploy.

Working papers prepared for the CEM show that major improvements in all sectors are both possible and cost effective, but only if action is taken by governments to remove barriers to market transformation and to aggressively regulate efficiency of equipment, buildings and vehicles. These CEM papers recommended short-term targets for the built environment, including 2012 and 2020 milestones.

Each of the energy efficiency recommendations, including the *Switch Green* and *Early Adopters* initiatives, is an example of the cost-effective programs that the federal government could quickly

implement to rapidly create tangible benefits for Canadian households, consumers and businesses. Each recommendation sets the stage for the accomplishment of meaningful longer-term targets.

However, individual recommendations cannot be considered in isolation from a larger strategy. All future federal budgets should include strong financial support programs for efficiency in the industrial sector and for all modes of transportation and freight movement.

In particular, the Pembina Institute urges the federal government to move quickly to develop and implement — in coordination with provinces, cities and municipalities — a comprehensive public transit strategy. The Federation of Canadian Municipalities recently developed a national transit strategy that could serve as a starting point for an expanded federal initiative.[4] National public transit strategies should include both intercity and urban transit initiatives.

Energy use for residential and commercial buildings is responsible for over ten per cent of national greenhouse gas emissions. This recommendation highlights some of the many opportunities to reduce the energy use in existing building stock and to ensure that future buildings are as efficient as possible.

The federal government must provide leadership by working with provinces on adopting binding short- and long-term targets for energy efficiency. These should be supported by complementary regulatory actions in the industrial and transportation sectors, as well as minimum efficiency standards for energy-using products.[5] All of these actions are complementary to the Green Budget Coalition's *Carbon Pricing* recommendation.

Contact:

Tim Weis, Pembina Institute, 819-483-6288 ext. 22, timw@pembina.org

[4] Federation of Canadian Municipalities. http://www.fcm.ca/English/media/press/march52007.html

[5] Minimum energy efficiency standards should meet or exceed the best levels in North America, be extended to cover all energy-using equipment (and those that influence energy use), and be upgraded to the best in North America every four years.

2. Renewable Energy: Towards a Comprehensive Strategy

Recommendation Summary

Ensure that low-impact renewable energy sources become both the primary focus of Canada's long-term energy supply strategy and a key new manufacturing sector by allocating $4.85 billion in new funding over fourteen years in order to:

1) Scale-up the current **ecoENERGY for Renewable Power** incentive program by three fold, with **specific set-asides for the North** and a level of incentive that matches the development status of each technology. *Target:* 12,000 MW installed capacity by 2012. $2.8 billion over 14 years.
2) Introduce a **national tax credit for residential and small business solar water heaters** as a supplement to the ecoENERGY for Renewable Heat program. *Target:* 1,000,000 residential and small business reduced-impact hot water systems in 10 years. $500 million over 10 years.
3) Support **sustainable, renewable biomass heating fuels** through the ecoENERGY program. *Target:* 1.25 million homes using renewable heating fuels by 2018. $1 billion over 10 years.[6]
4) Create a **green job industry** by funding **National Renewable Energy Job Training** and through **targeted manufacturing incentives**. Establish a national fund for curriculum support and student scholarships to train a workforce capable of meeting the "green job" needs of a growing renewable industry, while fostering companies to provide employment for these newly trained workers through tax incentives and direct support for start-up renewable energy companies in Canada. *Target:* $300 million over 5 years.
5) Invest in large-scale **power storage research and development**. Power storage will be a key element in integrating increasing amounts of renewable energy into electrical grids in Canada. This technology also has export potential around the world, as Canada already has some of the world leaders in power storage technologies. Canada invested $250 million in carbon capture technology in 2008 and ought to match that amount towards power storage. *Target:* $250 million.
6) **Develop sustainability criteria for renewable agricultural and biofuels**. *Goal:* Establish criteria in the bio-energy sector that ensures sustainable use of Canada's natural resources, including forests and agricultural areas. It is strongly recommended that existing and future financial support for renewable fuels be limited to fuels that meet established criteria similar to what the European Union is already developing.

Total Investment: $4.85 billion over 14 years

[6] An average Canadian home requires 50 GJ of heat per year. During years 1-5 the program would provide incentives for the equivalent of 250,000 homes. In the subsequent five years, having established a growing market, the program would provide an incentive sufficient to heat the equivalent of 1.25 million homes. This fuel is equally useable in commercial and institutional applications, e.g. biomass boilers.

Background and Rationale

Renewable energy technologies such as wind and solar are among the fastest growing industries in the world. Helping Canadians capitalize on this growth will provide economic benefits across the country in the form of job creation in manufacturing, installation and maintenance. It will also reduce Canada's vulnerability to conventional energy costs and create a cost-effective energy supply. Increasing the use of low-impact renewable energy will also reduce the harmful air, water and greenhouse gas pollution caused by our current reliance on fossil fuels.

Canada is a vast country with significant and untapped opportunities to develop a renewable energy sector that provides for the needs of Canadians and protects the environment. These recommendations are designed to kick-start a massive scale-up of renewable energy from coast to coast to coast.

In 2007, the federal government introduced a series of ecoENERGY programs to support the development of renewable power, heat and fuels. While these programs re-instated previous federal government commitments to renewable energy, they now need to be augmented and accelerated so that Canadian homeowners, businesses and industries are capable of realizing the economic and environmental benefits of renewable energy.

The Pembina Institute is asking that specific resources be set aside to support the development of nascent renewable energy industries. The recommended programs — including a national tax credit for resource-savings water heaters and incentives for sustainable biomass resources — will support the formation of self-sustaining, viable industries. Scaling-up the ecoENERGY for Renewable Power program and providing different incentives for each type of power source will provide the necessary assurances to investors, project developers and all renewable power industries as they forge a new, sustainable and diverse path for electricity supply in Canada.

Similarly, we believe that providing some regional specificity to programs that support the development of renewable energy will ensure a robust industry that benefits all Canadians. In particular, providing an enhanced program for the North will provide job creation, and security of energy supply and energy costs, in a region that needs both.

Currently the vast majority of renewable energy equipment is manufactured offshore. Canadian renewable energy project developers are already seeing supply constraints and price volatility, and predictions are that this will only continue to worsen. With a skilled labor force, manufacturing infrastructure and capacity already in place in Canada, fostering a renewable energy industry will not only facilitate the deployment of renewable technology nationally but will create jobs and opportunities to export goods to meet rapidly growing global demand.

The scale-up recommended here is necessary for Canada to match investments being made by our partners in the Group of Eight, Asia-Pacific Economic Cooperation, and Organization for Economic Co-operation and Development. More importantly, these are investments in a clean, secure energy supply for generations of Canadians to come.

Contact:

Tim Weis, Pembina Institute, 819-483-6288 ext. 22, timw@pembina.org