

Recommendations for an Economic Stimulus

**Strategic investment for green jobs and a competitive
and environmentally sustainable economy**

Marlo Raynolds

December 18, 2008



This briefing was prepared by the Pembina Institute on behalf of the Pembina Foundation for Environmental Research and Education.

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The Pembina Foundation for Environmental Research and Education is a federally registered charitable organization. The foundation supports innovative environmental research and education initiatives that help people understand the way we produce and consume energy, the impact of energy generation and use on the environment and human communities, and options for more sustainable use of natural resources. The Pembina Foundation has contracted the environmental research experts at the Pembina Institute to deliver on this work. For more information about the Pembina Foundation, visit www.pembinafoundation.org or contact info@pembinafoundation.org.



About the Pembina Institute

The Pembina Institute is a national non-profit think tank that advances sustainable energy solutions through research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy, and environmental governance. For more information about the Pembina Institute, visit www.pembina.org or contact info@pembina.org.



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Breaking News

Budget Focus: Jobs, Green Economy

Ottawa, Jan 26. Green jobs and the clean economy are the focus of the federal budget to be announced later today, say government and opposition insiders. Over \$25 billion of loans and spending will be directed at creating “green collar” jobs by providing stimulus dollars into renewable energy, building retrofits, public transit, clean cars, training and other green economy initiatives. Combined with an accelerated cap-and-trade system, the announcement is earning applause from....

It is a moment for decisive action. The Pembina Institute recommends policies that are significant in scale yet evidence-based with a demonstrable track record in creating jobs and generating economic growth in relevant jurisdictions. The Pembina Institute has prepared the following set of recommendations for an economic “surge” aimed at stimulating the creation of jobs while helping Canada’s private sector vault into the clean economy, all while meeting our commitment to reduce pollution. The focus is on expanding and leveraging existing federal and provincial programs and initiatives.

Our recommendations are guided by the following objectives:

- 1) maximize job creation
- 2) stimulate private investment
- 3) prepare Canada’s economy for GHG constraints
- 4) pay back the public investment as fast as possible
- 5) strengthen Canada’s competitiveness

With recent announcements from U.S. President-Elect Barack Obama, it is clear that our single largest trading partner is guided by similar objectives in its approach to address the economic challenge.

With these five objectives in mind, our recommendations are for strategically targeted investments in energy efficiency, renewable energy, public transit, and the manufacturing of high efficiency vehicles. We also recommend moving quickly to implement a cap-and-trade system on greenhouse gas emissions. This portfolio of recommendations is aimed at providing increased

certainty for investors in Canada in the rapidly emerging “clean energy and infrastructure” industry. In the next few years, we expect that this industry could **leverage significant private investments**, create on the order of **50,000 jobs**, and **put Canada’s economy on course to be competitive** in a world of increasing pressure to significantly reduce greenhouse gas emissions.

Our recommendations are evidence-based using policies with a track record in comparable jurisdictions. We have tested our ideas with many stakeholders, including business, other non-profit organizations, and academia. We consider this public investment to be modest in scale, given the challenge before us. Below, please find a summary of our recommended economic stimulus portfolio, followed by additional details for each.

For further information and ideas, feel free to contact:

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Summary of Recommendations

	Federal investment	Estimated new jobs ¹	Estimated GDP contribution
Energy Efficiency: Protect low/fixed income households; help small business; lower costs for schools and public buildings; stimulate commercial investments; support energy efficiency products manufactured in Canada; increase the skills of our tradespeople			
1) Energy auditors, training and direct investments	\$3 B over 5 yrs	2,500 – 5,500	\$4.3 B – \$5.3 B over 5 yrs
2) Make capital available through low interest loans (1/2% below prime)	\$2.5 B over 5 yr (recover over 15 yrs)	14,500 – 24,600	\$4.8 B – \$5.9 B over 5 yrs
Renewable Energy: Provide certainty for Canada's emerging renewable energy industry; kick-start a National Research Network for Renewable Energy; energy self-sufficiency in the North			
3) Renew and expand ecoEnergy Program with specific set-asides for Northern and remote communities	\$2.8 B over 15 yrs	8,000	\$6 B over 5 yrs
4) National Research Network (provinces match funding)	\$200 M over 10 yrs	700	\$380 M over 5 yrs
Public Transit: Accelerate necessary public transit investments with a focus on infrastructure technology manufactured in Canada (e.g. buses and light rail).			
5) Direct investment in bus and light rail infrastructure	\$17.4 B over 5 yrs	20,500 – 42,700	\$24 B – \$31 B over 5 yrs
Automotive Sector: Support automotive parts manufacturers to design, develop and provide parts and services for high fuel efficiency vehicles (lighter materials, hybrid components); improve corporate average fuel efficiency to 45 mpg by 2020			
6) Low interest loans for retooling, invest in R&D for high efficiency vehicles, regulate to 45 mpg by 2020	TBD	TBD	TBD
Cap-and-trade Policy: Help prepare the economy by designing and implementing a cap-and-trade system, starting first with large point source emissions in 2010; auction all permits to cover the costs of public investments			
7) Implement cap-and-trade on GHG emissions	revenue through auction	TBD	TBD

¹ Cautionary note: Job and GDP contribution estimates were estimated by applying M-level employment and output multipliers from Statistics Canada (2005). Pembina acknowledges the limitation of using these multipliers. Due to time and resource constraints an extensive modeling exercise with an input-output or CGE model could not be performed. These numbers should be considered estimates and further analysis is required to adequately assess the job and GDP impacts of each of these program areas.

Energy Efficiency

Insulating Canada's Economy Against Volatile Energy Prices

The Opportunity: Energy prices are volatile and first and foremost affect the security of low- and fixed-income households and the profitability of our small businesses. There are major untapped opportunities for energy efficiency throughout all sectors. A major scale up in energy efficiency retrofits for households, public and private buildings and Canadian schools yields a short-term dual benefit — supporting growth in the construction, manufacturing and building supply sectors, while delivering long-term cost savings to taxpayers and homeowners. In addition, in Canada, residential, commercial and institutional buildings directly and indirectly produce more than one third of our total greenhouse gas emissions².

Commercial buildings represent a major untapped opportunity for energy efficiency retrofits. The 440,000 commercial buildings in Canada, providing 672 million square meters of floor space, spend approximately \$17.8 billion on energy annually. Energy efficiency retrofits in the commercial building sector can result in upwards of 50% reduction in energy consumption.

Suggested Actions

1) Direct Investments and Training (\$2.5 Billion over 5 years + \$500 Million for training)

- Inject \$2.5 billion over the next 5 years into direct investments supporting the retrofit and re-commissioning of Canada's homes and buildings. This would not only put thousands of people back to work, but also lower energy bills and free up income just like a tax cut. Investments should encourage upgrades that go beyond basic improvements by rebating audit costs on completion of high efficiency upgrades, providing grants for selected high efficiency products/measures, and giving free technical advice. \$1 Billion of the investment would be earmarked for **low-income homeowners/ renters/fixed income, schools, and small businesses** including the multiple-unit social housing (MUSH) sector.
 - Provide very low cost access to energy auditors for small businesses and households; free access to low-income households, schools and other public buildings; and partially subsidized access for larger commercial and industrial buildings. Auditors would also continue to provide technical and financial advice throughout the retrofit process, and ensure the upgraded building operates at peak efficiency.
 - Provide full funding to directly install improvements to low-income housing and schools through Canada Mortgage and Housing Corporation, provincial governments and gas/electric utilities.
 - Combination of tax rebates and incentives for high efficiency products/measures including high-level insulation upgrades, high efficiency windows, integrated heating and cooling systems, and solar hot water.
 - Direct support for marketing of Canadian manufactured energy efficiency and solar water heating systems.

² National Roundtable on the Environment and Economy. *Energy Related GHG Emissions in Canada 2050 Report*.

- Long-term education and training, on-the-job experience, certification and apprenticeship programs are the key to new good jobs in the green energy sector. Budget 2009 should establish and finance a national program to train and certify auditors, renovators, installers, financiers, designers and operators. This would help tradespeople adapt their skills, and mobilize the network of trades-schools to provide intensive training programs. This requires \$500 million over 5 years.
 - Direct investment in trades schools across Canada to provide intensive training in energy efficiency and solar hot water installations. Every province becomes able to offer a training program for enough tradespeople needed for the province's population.

2) *Low Interest Loans* (\$2.5 Billion made available, paid back over 15 years)

- **Smart Energy Fund:** For energy efficiency and small-scale renewable energy systems, access to capital can be a primary barrier. Budget 2009 should establish a \$2.5 Billion Smart Energy Fund that makes low interest loans (1/2% below prime) to homeowners, businesses, industrial firms, and public entities for energy efficiency technologies, staff training, green building, and building-scale renewable energy technologies like solar water heating. Financing would be provided through financial institutions and municipalities that would be able to use a variety of financing vehicles such as performance contracting, green mortgages and local improvement charges. Loan terms would be up to 10 years to allow savings to be used to repay loans. Large commercial entities would be required to match capital investment from their own funds. Any support for new construction should be conditioned on the building meeting the highest energy efficiency standards, such as R-2000 or LEED Gold/Platinum.
 - Designate \$1 billion of the fund for loans to larger commercial and industrial facilities which must be matched with their own capital investment. Payment schedule for the loans should be 10 years. Expectation is distribution of the loans over 5 years (first come, first serve), resulting in all funds paid back to the government within 15 years.

Expected Outcomes

- Targeted support for low-income housing retrofits makes a significant step towards reducing “energy poverty”. This segment of the population is least able to finance retrofits yet is most affected by increasing energy prices. Improvements in housing structure also provide health, social and other benefits. Every dollar saved in energy is a dollar these households can invest back into their family's well being.
- Scale up of support for the retrofit of residential housing could result in 20% of Canadian households being improved by 2012.³ Including subsidized audits, technical support, direct installation of low income improvements, and rebates/grants targeted at higher cost longer payback items would result in more efficient use of federal funds (and matching provincial funds) than rebates for all upgrades. Certification of renovators will ensure better quality control as well as provide homeowners with clear, consistent information.

³ Federation of Canadian Municipalities. *Sustaining the Momentum: Recommendations for a National Action Plan on Housing and Homelessness* (January 23, 2008)

- The biggest barrier for commercial and industrial retrofits is lack of knowledge of how well their facilities operate and the opportunities to improve this operation and take advantage of efficient technologies (The Canada Green Building Council reports that similar commercial buildings can vary in energy use by up to three fold⁴). The best means to remove this barrier is through energy auditors who can benchmark performance against best practices, present a strong business case with high returns on investment, and provide technical assistance throughout the re-commissioning process.
- Direct support to public facilities (schools, etc) helps manage energy costs over the long term and provides a visible local example for homeowners and small businesses.
- Investing in our trades and professions and certifying their performance will ensure they are equipped for a growing demand in quality installation of energy efficiency and renewable energy systems in all sectors.
- Profiling Canadian manufactured systems (windows, furnaces, solar hot water, solar walls, etc) supports this sector in becoming more competitive in the rapidly growing North American and European markets for energy efficiency and building-scale renewable energy products and services.
- Using existing financial institutions and municipalities to deliver low interest loans for building efficiency will minimize transaction costs, provide additional employment, and develop a robust knowledge and capability all across the country. By requiring matching investment for larger facilities, the public investment is leveraged while the effective cost of capital is significantly reduced for business.

The Government of Canada is collaborating with provinces and territories on the promotion of homes, buildings and efficient equipment under the Council of Energy Ministers “Moving Forward on Energy Efficiency” process. All of the above initiatives would support this collaboration and leverage significant additional support from provinces and territories.

⁴ Presentation to National Advisory Council on Energy Efficiency, November 27, 2008

Renewable Energy

Actions to Remain Competitive

The Opportunity: The global industry for low impact renewable energy has grown by 30% annually for over a decade. With very strong signals from the forthcoming Obama administration the American market is expected to grow even faster in the coming years, and Canada has an opportunity to become a major supplier to this market or to be left struggling to compete for investment. Canada's only production incentive (\$0.01/ kWh for renewable power) is already oversubscribed and fully allocated despite being less than half of the value of its counterpart in the United States⁵. Canadian innovations in solar PV and power storage are also being lost to other countries because of lack of domestic markets⁶. If Canada is to successfully compete for investment with the United States, the Canadian market needs a strong, stable policy signal. As significant parts of Canada's electricity infrastructure are reaching the end of their economic lives, renewable energy can be deployed quickly, delivering energy, creating jobs and developing innovative solutions for cold climates. The suggested actions below are focused on helping to ensure Canada remains competitive in the renewable energy industry, while also finding unique Canadian niches to lead portions of this rapidly growing global industry.

Suggested Actions

3) Expand ecoEnergy Program for Renewable Power with specific set-asides for Northern and remote communities (\$2.8 Billion total spread over 15 years)

- With the renewal of this program, certainty can be provided to investors, developers and manufacturers to proceed with wind, small hydro, geothermal, ocean and biomass energy projects. Special considerations for support of solar PV projects would complement provincial market development programs in this fastest growing global energy market.
- Delays or a failure to renew this program not only risks slowing the momentum of the burgeoning renewable energy industry in Canada, but also jeopardizes millions of dollars already invested in partially developed projects.
- Specific set-asides for remote communities will help reduce price volatility and increase energy self-sufficiency for Northern communities and further develop the medium-scale wind-turbine manufacturing base where Canada has quietly developed a global manufacturing niche.

4) Renewable Energy Research Network (\$20 million per year for 10 years)⁷

- Access matching provincial and industrial funding to create a pan-Canadian research network focused on overcoming technical barriers to increased renewable energy deployment in cold climates, centralized power grids, and diffuse populations. This funding would be used to develop and commercialize new technologies such as energy storage (thermal and power), and grid management systems. It is expected that provinces

⁵ The United States offers a pre-tax production incentive of 2.1 cents US / kWh.

⁶ Arise Technologies of Waterloo, ON recently set up a solar PV production plant in Germany. VRB of Victoria BC – an innovator in flow battery technology – went out of business in November 2008.

⁷ The US has the National Renewable Energy Lab with a \$210 million annual budget.

would match the federal contribution and that private funding would match 50% of federal investment, for a total of \$50 million per year into R&D and commercialization.

- Identify and accelerate R&D and commercialization in niche renewable energy opportunities such as power storage, geothermal, lignocellulosic ethanol, solar heat for northern climates, and medium scale integrated wind power systems.
- Utilize existing administrative infrastructures to oversee the research funds such as NSERC in combination with the National Energy Sustainability Sector Table and SDTC.

Expected Outcomes

- Providing clean energy to Canadian households and industry is a growth business. Renewing the ecoEnergy Program for Renewable Power is the minimum required to keep pace with development in the fastest growing energy source of the 21st century.
- Recent economic modeling indicates that with a strong carbon price, the electricity sector in Canada can potentially account for a reduction of 39.3 Mt in annual GHG emissions by 2020, relative to business as usual.⁸ Prompt action on expanding the ecoEnergy program will enable an additional 8,000 MW of renewable electricity projects that would otherwise not proceed. This increased installment of low impact renewable power will help Canada meet our target of 90% zero emission electricity by 2020. Without this incentive program, renewable electricity will be hard pressed to compete with conventional fossil fuel sources of electricity until a carbon price is in place to correct the existing market failure of not accounting for pollution. A one-cent-per-kWh-hour incentive for carbon free renewable electricity is approximately equivalent to a carbon price of \$50 per tonne on average. Furthermore, the development of low impact renewable electricity, such as wind power, provides financial benefits in rural areas both for landowners and municipalities.
- Ensuring a specific set-aside for Northern and remote communities will not only increase the self-sufficiency and sustainability of Canada's Arctic communities, but will also foster the medium-scale wind turbine manufacturing capacity in Canada, where we already have 50% of the global market share. Developing this technology domestically opens the door for export to thousands of off-grid communities globally.
- Being a northern country with centralized power grids and a disperse population, Canada will face challenges at integrating large amounts of renewable energy before many other countries do. Mobilizing Canada's academic research and development ability into a coordinated national network will not only create innovative technologies, like power storage and vehicle-to-grid systems, that can be implemented in Canada and abroad, but will also create the human capacity to assist in the commercialization of these solutions.
- Through these strategic investments by the government of Canada to enhance the deployment of renewable energy, we expect to see a contribution to GDP on the order of \$6.0 billion and creation of approximately 8,700 green collar jobs in Canada.

⁸ The Pembina Institute and David Suzuki Foundation. *Deep Reductions: Strong Growth* (December 2008) available online: www.pembina.org/pub/1740

Public Transit

Accelerating Investments

The Opportunity: A major opportunity exists to accelerate much needed investment in transit systems and sustainable urban design across Canada. Canada is one of the most urbanized countries in the world, and home to some of the most livable cities. At the same time, our urban infrastructure is aging and many of our cities are experiencing significant urban sprawl with largely inadequate and inefficient transit systems. Canada is a world leader in passenger train manufacturing yet much of this expertise is not currently being deployed here at home. Canada is also a major North American bus manufacturer.

Canadian transit system operators estimate they will need to invest \$28.3 billion on expansion and upgrading between 2008 and 2012 to meet projected demand. The pressure on transit systems has increased in the past years as transit has been identified as a key solution to mobility and reducing pollution in our urban areas. Of the total required investment, only \$10.9 billion is possible within existing funding programs, with the remainder dependent on new commitments.⁹ Our recommendation is for the federal government to rapidly close this funding gap to accelerate the modernization of Canada's public transit systems.

Suggested Actions

5) Direct Investment in Bus and Light Rail Infrastructure

a) Modernize existing public transit infrastructure (\$7.6 billion total over 5 years)

- Provide direct support to municipal governments to maintain and modernize existing transit systems.
- Provide direct support to municipalities to integrate transportation systems in land-use planning to gain the highest efficiency and ridership uptake possible.

b) Expand service capacity to meet growing demand (\$9.8 billion total over 5 years)

- Provide direct capital support to municipalities and provinces to expand intra-urban transit and inter-urban transportation systems (especially in the Windsor-Montreal and Calgary-Edmonton corridors) to help minimize urban sprawl and reduce congestion.
- Provide support for research and development of strategies that will promote increased ridership, modal shift, and sustainable urban design.

Expected Outcomes

Accelerating investments in public transit will help ensure our cities remain healthy, vibrant and livable, while reducing congestion and increasing productivity. Investments in buses, light-rail train systems and high-speed commuter trains are seen as critical components to an integrated and efficient urban transit system. Transit is also an important component of any plan to reduce greenhouse gas emissions and urban air pollution. Further, the current slowdown in the Canadian economy provides an opening for transit construction to be undertaken in a more cost-effective manner. The investments proposed here are expected to contribute \$24.0 to \$31.0 billion to the Canadian economy as well as employ some 20,500 to 42,700 Canadians.

⁹ CUTA. *Transit Infrastructure Needs for the Period 2008-2012* (February 2008). Available online: www.cutaactu.ca/en/node/1628

Automotive Sector

Green Retooling for High Efficiency

The Opportunity: Canada has the potential to maintain and enhance market share in the global automotive and auto parts manufacturing sectors with strategic investments that are tied to clear environmental performance standards. In a world market that will increasingly privilege high efficiency, and ultimately zero emission vehicles, any public support for auto manufacturers should be conditional on production of state-of-the-art fuel-efficient vehicles.

While it should be acknowledged that automobile and auto parts manufacturing is not the most efficient or environmentally sound means of providing personal transportation, in the short and mid-term the lack of appropriate infrastructure constrains Canadians from adopting public forms of transportation. Our suggested actions are focused on ensuring Canadians have access to, and demand, the most fuel-efficient vehicles in the world while ensuring our automotive parts manufacturing sector is globally competitive. The freight sector in Canada is also a significant source of GHG emissions, with many opportunities to reduce fuel consumption.

Suggested Actions

6) Green Retooling and Fuel Efficiency

a) Adopt fuel efficiency standards for Canadian automobiles of at least 45 miles per gallon for the Canadian fleet by 2020

- Through the adoption of high vehicle efficiency standards, Canada can encourage the development of an automotive manufacturing sector that remains competitive globally with growing demand for hybrid / plug-in hybrid and other high efficiency technologies and components.

b) Provide financial support for consumer awareness of high-efficiency vehicles

- Canadians are increasingly interested in doing everything that they can to fight global warming. Through public awareness building, the Canadian government can help Canadians begin to make smarter choices about what to look for in an environmentally friendly automobile and assist the sector in achieving the 45 mpg by 2020 fleet fuel efficiency standard.

c) Provide support for a Green Automotive Sector Innovation Fund

- In order to assist our automotive sector in making the transition to the 45 mpg by 2020 average fleet fuel efficiency standard, federal funding could be made available to help the industry shift production to high-efficiency vehicle technologies and vehicle-to-grid systems. At this time, we are unable to suggest a scale of investment required.
- Boost funding for the EcoEnergy for Freight program with an increased focus on commercialization of fuel efficiency technologies.

Expected Outcomes

By meeting world-class fuel efficiency standards¹⁰ the Canadian automotive sector will remain more competitive as global demand moves towards high efficiency vehicles. These initiatives will also help Canada reduce its own greenhouse gas emissions, and keep more money in the pocket of consumers as they spend less on fuel.

¹⁰ Examples of existing and emerging vehicle fuel efficiency standards: EU: 47 mpg by 2012, California: 42.5 mpg by 2015, Japan: 35.5 mpg by 2010, China: 43 mpg by 2008.

Cap-and-Trade Policy

Investments and Influence by 2010

The Opportunity and the Outcome: A cap-and-trade system linked with the U.S. is the principal tool that the Government of Canada has said it will use to meet its commitment to reduce GHG emissions. Economic modeling shows that a strong cap-and-trade system can maintain strong net job growth and GDP growth while modernizing Canada's economy.¹¹

A well-designed cap-and-trade system that takes effect no later than 2010 will:

- stimulate large-scale, near-term private investment in clean energy
- give Canada a track record of success that maximizes Canadian influence over U.S. policy design
- provide a substantial new source of revenue to pay for major public investments in energy efficiency, renewable energy, sustainable transportation, and other clean technologies.

If, on the other hand, Canadian cap-and-trade is delayed until 2012 (the expected U.S. start date), the accompanying private investments will be delayed until businesses have more certainty about the "rules of the game," and the chances of Canadian influence over U.S. policy will be greatly reduced. By taking action on cap-and-trade early, Canada will gain much needed experience in how the system will work and impact our economy, allowing us to be in a much stronger position in the negotiations with the U.S.

Suggested Action

7) Implement cap-and-trade on GHG emissions

Environment Canada should prepare cap-and-trade regulations under the *Canadian Environmental Protection Act* for publication in draft no later than April 30, 2009. The regulations should enter into force on January 1, 2010. The regulatory framework previously proposed by the government will not be acceptable as a component of a North American system because of its use of intensity targets and its complex compliance options. Instead, the government should implement a system based on the principles below; this will both limit the regulations' complexity and expedite their implementation.

Effectiveness and Fairness Principles

a) Set strong caps. To ensure Canada meets its overall target, the cap for 2020 should be proportional to our national GHG target. For example, if Canada's target is to reduce total emissions by 20% in 2020, then the cap should also reduce the emissions it covers by 20% in 2020. The cap levels for earlier years should represent a credible path towards the 2020 level. The system must initially cover at least all large industry and aviation, but a "broad as practical"

¹¹ M.K. Jaccard and Associates Inc., *Preliminary Report — Exploration of a policy package to reduce Canadian greenhouse gas emissions 25% from 1990 levels by 2020*, December 3, 2008 (Vancouver, BC: MKJA, 2008). Available online at climate.pembina.org/pub/1740.

approach (including all emissions from fuel combustion, which would result in about 80% of Canada's total emissions being covered) would maximize the system's fairness and effectiveness.

b) Auction off permits. President-elect Obama has committed to a cap-and-trade system in which 100% of the permits are auctioned. Auctioning is consistent with the "polluter pays" principle and provides an advantage to firms that have taken early action to cut emissions; auctioning 100% of permits makes the system very simple and quick to implement. Government revenues would be substantial: a system covering 80% of Canada's emissions, with a modest permit price of \$50/tonne, would initially raise about \$29 billion annually.

c) Provide targeted protection. A portion of the auction revenue can be set aside to protect (i) industry sectors against impacts on international competitiveness, and (ii) low-income individuals against increased costs. Sectors should receive such protection only following an independent assessment of their vulnerability based on the following factors: trade exposure, compliance costs as share of profits, return on investment net of compliance costs, and global mobility.

d) Maintain the integrity of the system. The use of "offset credits" for compliance with the system should be strictly limited or avoided altogether. Offset credits represent emission reductions that take place outside the cap, but experience shows that it is very hard to avoid crediting reductions that would have happened "anyway."

Expected Outcomes

By being a first mover in North America in designing and implementing a cap-and-trade system, we will:

- provide increased certainty to our industry,
- prepare our economy for the higher carbon prices that will be needed to make reductions in our emissions,
- be able to more effectively influence the design of a North American system, and
- generate revenue for targeted investments back into the economy which accelerate the development and commercialization of low emission technologies.

Annex 1: Useful Resources

Energy Efficiency

- Energy Efficiency Working Group of the Energy Sustainability Sector Table. Publication series: www.tdds.ca/default.asp?lang=en&n=ED717E3F-1
- Federation of Canadian Municipalities. *Sustaining the Momentum: Recommendations for a National Action Plan on Housing and Homelessness* (January 23, 2008).
- NRCan. "Comprehensive Energy Use Database" Government of Canada (2008) available online: oee.nrcan.gc.ca/corporate/statistics/neud/dpa/comprehensive_tables/index.cfm?fu_seaction=Selector.showTree

Renewable Energy

- Green Budget Coalition: www.greenbudget.ca/main_e.html
- Canadian Wind Energy Association: canwea.ca/
- Clean Air Renewable Energy Coalition: www.cleanairrenewableenergycoalition.com/

Public Transit

- CUTA. *Transit Infrastructure Needs for the Period 2008-2012* (February 2008). Available online: www.cutaactu.ca/en/node/1628
- Federation of Canadian Municipalities. *National Transit Strategy* (March 5, 2007)

Automotive Sector

- Merrill Lynch. "Alternative for the clean car revolution" (November 2006).
- CAW. "The Auto Industry and Climate Change" (2008).

Cap-and-trade

- Matt Horne, *Cap and Trad: Reducing Pollution, Inspiring Innovation* (Drayton Valley, AB: The Pembina Institute, 2008). Also available online at climate.pembina.org/pub/1616.
- Matthew Bramley and Clare Demerse, *The Pembina Institute's Perspective on Carbon Pricing in Canada* (Drayton Valley, AB: The Pembina Institute, 2008). Also available online at climate.pembina.org/pub/1584.
- *Barack Obama and Joe Biden: New Energy for America*, 2–3. Available online at www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf.