

KAIROS briefing paper, September 2008:
X + Y = Z: Our Formula for a Green Fiscal Policy

Every year the Canadian government spends millions of dollars on subsidizing oil and gas extraction, a prime cause of climate change, while federal expenditures on energy efficiency, conservation and renewable alternatives remain woefully inadequate.

This briefing paper summarizes some proposals for reorienting federal fiscal policy away from spending on polluting hydrocarbons and towards green alternatives.

We call our formula “X + Y = Z” where X represents wasteful subsidies on fossil fuels, Y stands for revenues that could be raised through putting a price on carbon emissions and Z signifies areas where additional spending is needed on green initiatives.

X: Cut Subsidies

Our KAIROS study *Pumped Up: How Canada subsidizes fossil fuels at the expense of green alternatives* examines how the Canadian government annually hands over approximately \$1.4 billion in subsidies to the oil and natural gas industry.¹ These handouts must end, especially the \$300 million annual subsidy for tar sands projects delivered through a tax write-off known as the Accelerated Capital Cost Allowance that will not be completely phased out until 2015.

We must also put a stop to the \$1.5 billion subsidy that will be handed out by the federal government over 7 years for ethanol and biodiesel currently produced from food crops. The production of fuel from food crops is not only a prime cause of increased hunger and malnutrition but also a very dubious greenhouse gas (GHG) reduction measure.²

Pumped Up calls for redirecting these subsidies to green alternatives as a necessary, but insufficient, first step towards raising funds needed for investment in green alternatives.

Y: Raise Revenues from Carbon Pricing and Taxing Oil Profits

In addition to redirecting subsidies new revenues will be needed to facilitate the transition away from our over dependence on fossil fuels. One way to raise new revenues is through putting a price on GHG emissions either through carbon taxes or making large industrial polluters pay for the environmental costs of their emissions.³

i) Carbon taxes

While carbon taxes are often sold to voters as “revenue neutral”, that is, as tax shifts away from payroll, income or corporate taxes, they can and should also fund green initiatives.

In 2007 Quebec became the first jurisdiction in Canada to introduce a carbon tax. It charges 50 petroleum distribution companies a relatively small 0.8 cents on every litre of gasoline and 0.9 cents on each litre of diesel.⁴ This tax will raise about \$200 million

a year or \$1.2 billion over six years for a Green Fund for investment in such areas as public transit and wind power.

British Columbia's carbon tax initially raises the price of gasoline by 2.41 cents per litre or approximately three times as much as in Quebec. By 2012 the B.C. tax will reach 7.24 cents a litre. The B.C. tax, however, is designed to be entirely revenue neutral. In addition to being used to lower personal and corporate taxes it will fund a one-time \$100 Climate Action Dividend payable to every British Columbian resident supposedly "to encourage the transition to a greener lifestyle," although people can spend it on anything they like. There is another Climate Action Credit for low-income British Columbians worth \$100 per adult and \$30 per child per year starting in July 2008.

The federal Liberal Party's *Green Shift* carbon tax plan would dedicate most of the \$15.3 billion in revenues expected in the fourth year to personal and corporate tax cuts (\$9.5 billion) while spending \$4.5 billion to offset the effects of carbon taxes on working families, low-income earners and rural and Northern residents. Only \$1 billion would be set aside for green initiatives - an Accelerated Capital Cost Allowance for green investment (\$600 million) and a tax credit for Science, Research and Development (\$400 million).⁵

A larger portion of revenues from carbon taxes should be dedicated to energy efficiency, conservation and renewable alternatives.

ii) Fees on industrial emissions

Revenues for green initiatives can be raised from fees charged to large industrial emitters who are responsible for about half of Canada's GHG emissions. These revenues can be collected either as fines for excess emissions or as payments for emission permits under a cap-and-trade emission reduction system.

The Conservative government's plan gives industrial emitters the option of paying a relatively low \$15 per tonne of excess emissions into a technology fund while the Liberal Party's proposal calls for putting \$20 per tonne into a Green Investment Account to be invested in GHG abatement measures.

The New Democratic Party estimates that auctioning off annual emission permits at \$35 per tonne would generate around \$2.5 billion in revenue in the first year under a cap-and-trade system. The NDP proposes that all revenues from such a system would go into green investments in such areas as "transit, green jobs and training, alternative energy solutions such as wind, solar and water [power] and assisting in making green consumer products more affordable."⁶

iii) Windfall profits taxes and restoring corporate taxes on petroleum companies

With crude oil selling for well above US\$100 a barrel, petroleum companies are amassing unprecedented amounts of "economic rent", that is, surplus earnings over and above their costs including normal profits. A substantial share of these economic rents should be captured for reinvestment in green alternatives. The public share of petroleum rents should be comparable to what is collected in other jurisdictions such

as Norway where 88% to 90% of the income from petroleum extraction accrues to public bodies.⁷

Norway uses part of its US\$400 billion sovereign wealthy fund accumulated through the collection of petroleum rents for renewable energy development. Canada should emulate Norway's example both by charging higher royalties at the provincial level and through federal measures including windfall profits taxes and higher corporate income taxes.

Over the last three years (2005 - 2007) Canada-based oil and natural gas companies earned very high profits, averaging \$28.7 billion per year, due to lofty petroleum prices. While some of these companies do invest in renewable energy, most of their investments continue to be directed to fossil fuel extraction, including to some of the most polluting kinds such as tar sands operations.

The Alternative Federal Budget (AFB), produced by the Canadian Centre for Policy Alternatives, calls for a 25% excess profits surtax on petroleum corporations to be integrated with a federal carbon pricing strategy. The AFB also proposes "restoring the federal corporate income tax rate to 28% (the initial level that prevailed before deep federal corporate income tax cuts beginning in 2003) for the oil and gas industry. That will raise approximately \$1.75 billion per year in new federal revenue."⁸

Choosing either a windfall profits tax or a higher corporate tax rate for the petroleum companies would be a more progressive option than across the board consumer carbon taxes where low-income earners pay the same rate per litre of fuel as the wealthy.

Z: Spend Wisely on Energy Efficiency, Conservation and Renewable Energy

i) Make increased efficiency the first priority

The best return per dollar of investment and the most effective GHG reductions involve measures to increase the efficiency of our energy use. Renowned Canadian scientist David Suzuki observes how *"Less than 10 per cent of the energy we generate is actually used for its intended purpose. Most of it goes up in smoke."*⁹

Canadians waste enormous amounts of heat due to inadequate building insulation and standard-efficiency furnaces that convert only 65% or less of the energy in the fuels they burn to usable space heating.¹⁰ Higher levels of insulation, high efficiency doors and windows, and sealing of air leaks in houses could reduce the energy consumption for space heating by about two-thirds. Building a new home to an R-2000 standard adds just 3% to 5% to the cost of construction.¹¹

83% of energy used in Canadian residences and 67% of energy used in commercial and industrial buildings for heating and cooling could be replaced with market-ready "green heat" technologies including: geothermal heat pumps, solar water heaters, solar air pre-heaters and biomass heaters.¹² The David Suzuki Foundation estimates that 80,000 new jobs could be created in Ontario alone through the use of "green heat".

Key to energy efficiency is using the right kind and the right scale of energy for each task. For example, keeping a room at a comfortable temperature does not require a high-grade source such as electricity or a massive quantity of energy such as what could be generated by a nuclear power plant hundreds of kilometres away. Space heating can best be provided by a nearby source such as geothermal energy from underground, a woodlot or the sunshine falling on the building.

An Intergovernmental Panel on Climate Change report says 10% to 30% improvements in energy efficiency are possible at no cost and reductions in energy use on the scale of 50% to 60% may be possible if appropriate technologies and financing are available.¹³

ii) Make Transportation More Efficient

Our examination of existing federal climate initiatives in *Pumped Up* leads to the conclusion that programs that promote improved vehicle technology, public transportation and more efficient freight transport yield the best return on investments.¹⁴

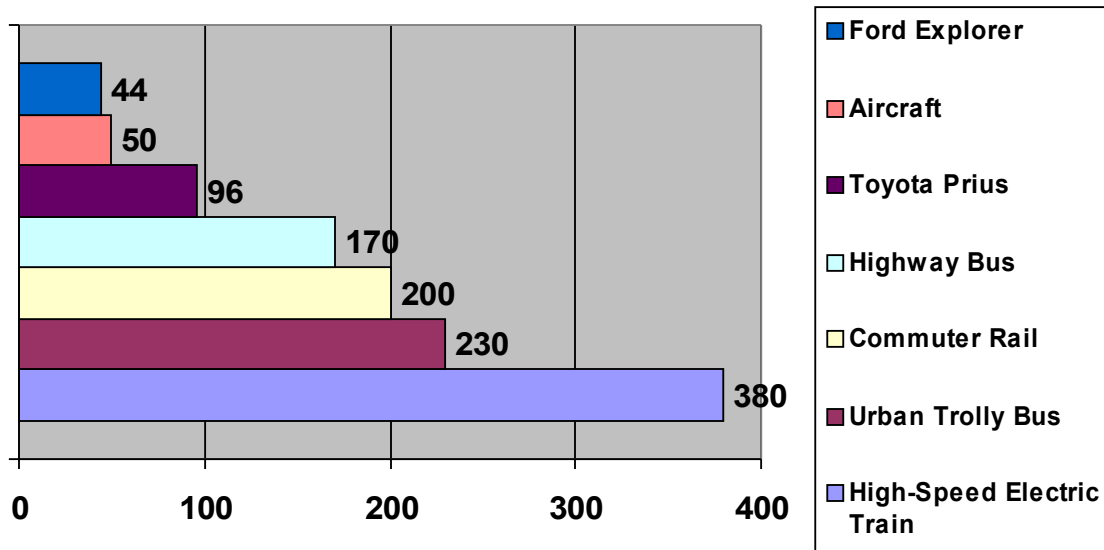
Existing gasoline/electric hybrid engines can achieve 50% increases in efficiency.¹⁵ On the horizon is a next generation of plug-in hybrids that would recharge overnight when electricity demand is lower. These promise more efficiency gains although battery storage technology has to be improved. Proponents say that plug-in hybrids could be about 50% more efficient than standard hybrids.

While vehicle efficiency improvements are important, the greatest gains could be achieved through a shift from individualized to collective modes of transportation. Hence governments should give a high priority to investments in energy-efficient public transit and rail transportation. One train can remove 280 trucks or 1,000 cars from the road.¹⁶

The promotion of telecommuting, teleconferencing, e-Learning and internet shopping are all additional ways of reducing travel requirements.

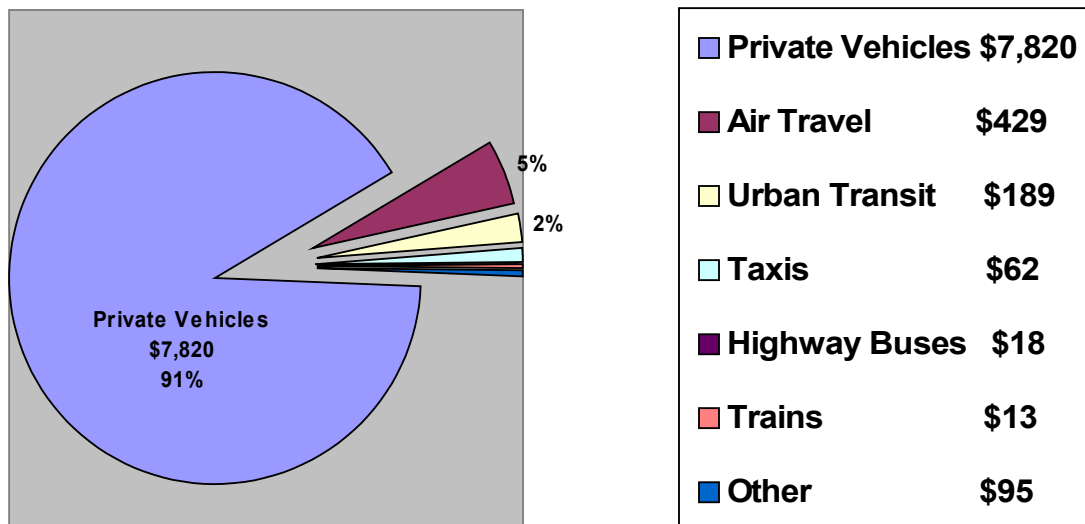
The accompanying graphs illustrate the contrast between the modes of transport that are most energy efficient and actual spending by Canadian families on transportation.

Efficiency of Transportation Modes¹⁷
Passenger Miles per Gallonⁱ



The following graph illustrates how Canadians depend on inefficient means of transportation at the expense of more ecologically responsible alternatives. We must make reduced private vehicle use a priority over subsidized fuels from food crops.¹⁸

Average Canadian Family Spending on Transportation 2004¹⁹
Annual Spending in Canadian Dollars and Percentage of Total



iii) spending on housing for low-income Canadians

ⁱ The data in this chart represent vehicles that are neither filled to capacity nor occupied by drivers alone. In the case of motor vehicles an average of 1.5 passengers per vehicle is assumed. Other sources indicate poorer fuel economy ratings for the same vehicles. For example a Ford Explorer is rated at 17 miles per gallon for city driving and 25 mpg on the highway for a single occupant. Similarly a Toyota Prius is rated at 61 miles per gallon for city driving and 51 mpg on the highway. The extreme example of fuel inefficiency has to be the Hummer which is said to only get 9 miles to the gallon (NYT 31/05/06).

One of the best ways governments (federal and provincial) can combat both climate change and poverty at the same time would be to dedicate more resources to the construction and retrofit of housing for low-income Canadians.

Low-income earners spend a higher portion of their income on energy than do the wealthy. The poorest fifth spend 13% of their income on energy bills while other Canadians expend just 4%.

The federal government should reinstate the former Liberal government's EnerGuide for Low-Income Households program that provided \$100 million in subsidies annually for retrofitting dwellings. The Conservative government replaced this program with a smaller EcoENERGY Retrofit Initiative which has no special provisions for people who cannot afford to undertake their own renovations.

Canada needs an ambitious program to build new, energy-efficient social housing. The Alternative Federal Budget recommends spending \$4.5 billion over the next 3 years to build 30,000 units of secure, affordable housing annually for the 300,000 homeless Canadians and the 1.5 million households who live in substandard dwellings.²⁰

iv) Public investment in research and development of solar, wind, geothermal, and combined heat and power generation systems.

A wide variety of alternatives to fossil fuels exist. Since no single energy source is suitable for every task, we must invest in several kinds of renewable energy. Different ecological zones may use different sources appropriate to their endowments of prevailing winds, hours of sunlight, forests, geothermal or run-of-river hydro potential.

In some cases government procurement programs are appropriate to support nascent green industries producing energy saving or renewable energy products until they establish sufficient economies of scale to lower their production costs. Germany has become a leader in the generation of wind and solar power by paying well above market prices for electricity from these sources.²¹

In the 1970s federal incentives helped to stimulate the growth of more than 700 solar companies in Canada. But the Mulroney government removed those incentives and within two years about 85% had gone out of business.²²

According to the Canadian Solar Industries Association the consumer payback period for installing a solar water heater is about 8 to 12 years.²³ A well-designed program should extend the use of this technology widely across Canada.

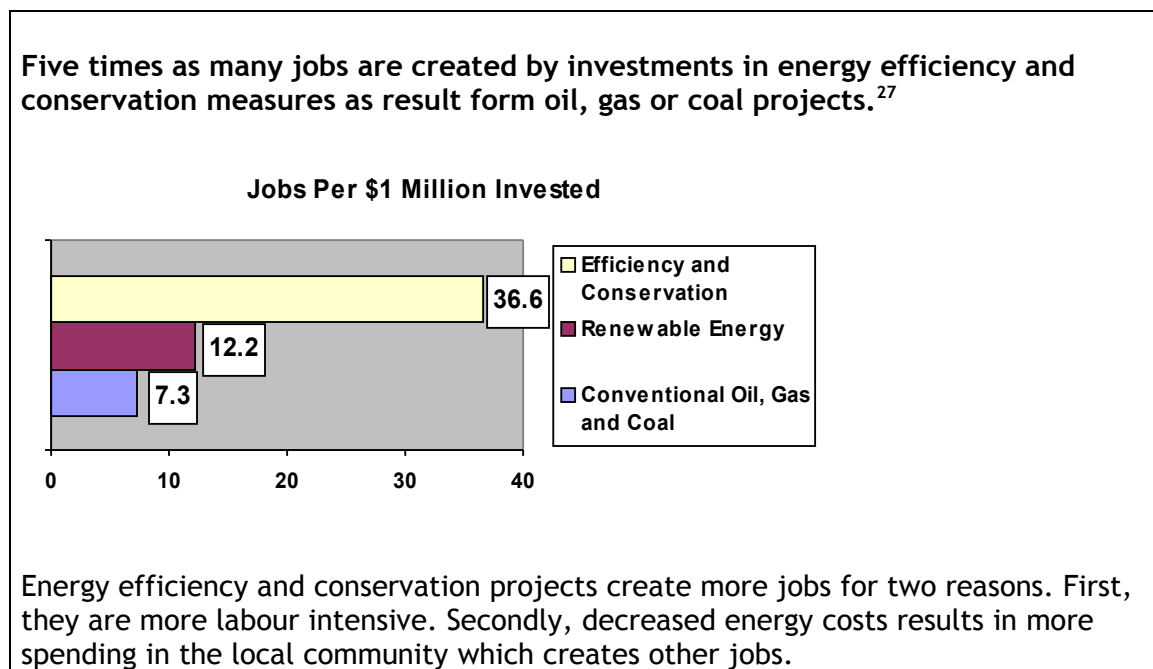
v) Federal, provincial and municipal collaboration on measures for the decentralization of energy production so local communities and individual households or farms can generate their own power and feed any surplus into a grid.

Canada's wind power potential is conservatively estimated at 30 gigawatts, enough to supply around 15% of our electricity needs. According to the Suzuki Foundation the costs of wind-generated electricity fell from around 56 cents (US) per kilowatt-hour (kWh) in 1980 to 4 to 7 cents in 2005.²⁴

The current federal subsidy for renewable electricity under the EcoEnergy Renewable Initiative is just one cent per kWh. The US offers a 1.9 cents per kWh production tax credit for wind power.

Ontario Power Generation (OPG) now pays 11 cents per kWh under Standard Offer Contracts (also known as feed-in tariffs) to suppliers of wind, biomass, landfill gas and small hydro power. It also offers 42 cents per kWh for solar photovoltaic (PV) electricity. While Ontario's average purchase price for conventional energy in 2005 was 4-7 cents per kWh, during periods of peak demand OPG often pays more than 42 cents. While the Canadian Solar Industries Association judges 42 cents as the minimum needed to stimulate pioneering developers of PV power, a rate of 83 cents per kWh (falling to 63 cents over 5 years) is needed to make solar electricity a major energy source.²⁵

The Canadian Wind Energy Association suggests that the federal government spend \$74 million to promote wind energy in remote Northern communities. They are seeking a 3 cents per kWh incentive for providing power to large Northern communities and a 15 cents per kWh for remote communities.²⁶



- ¹ See *Pumped Up: How Canada subsidizes fossil fuels at the expense of green alternatives*. Toronto: KAIROS April 2008.
- ² Ibid. Page 26 and Table 2 on page 29.
- ³ See forthcoming KAIROS study on Carbon Pricing from the Standpoint of Justice, Equity and Sustainability.
- ⁴ Quebec to collect nation's 1st carbon tax. CBC.ca 7 June 2007.
- ⁵ Liberal Party of Canada *The Green Shift*. Ottawa: Liberal Party of Canada. Page 41.
- ⁶ Jack Layton. "In praise of cap-and-trade". *National Post* 4 June 2008.
- ⁷ See John Dillon. *Bolivia Emulates Norway; Why Doesn't Canada?* KAIROS Briefing Paper. Toronto: KAIROS October 2006 for comparative data on public and private revenue shares in various jurisdictions.
- ⁸ Canadian Centre for Policy Alternatives. *Alternative Federal Budget 2008*. Ottawa: Canadian Centre for Policy Alternatives. The AFB further explains how "The application of differential corporate tax rates for particular sectors has been a feature of federal tax policy at many times in the past, motivated by the desire to stimulate particular sectors (such as secondary manufacturing and processing) or tax particularly lucrative sectors (such as energy or finance)."
- ⁹ Cited from Boyd, David R. 2004. *Sustainability within a Generation: A New Vision for Canada*. Vancouver: David Suzuki Foundation. Forward page vi.
- ¹⁰ Torrie, Ralph et al. 2002. *Kyoto and Beyond: The Low Emission Path to Innovation and Efficiency*. Vancouver and Ottawa: The David Suzuki Foundation; Climate Action Network Canada and Torrie Smith and Associates. Page 29.
- ¹¹ Prebble, Peter 2006. *Renewable Energy Development and Conservation in Saskatchewan*. Regina: Government of Saskatchewan. Page 36.
- ¹² Canadian Renewable Energy Alliance. 2006. Fact Sheet on Green Heat. www.canrea.ca
- ¹³ Last, John, et al. 2002. *Taking Our Breath Away*. Vancouver: David Suzuki Foundation. October. Page 39.
- ¹⁴ See *Pumped Up* Table 3 and Page 31.
- ¹⁵ Boyd. Op. cit. Page 13.
- ¹⁶ Hamilton, Tyler. Trains on track to play key role in bioeconomy. *Toronto Star*. 20 August 2007. B4.
- ¹⁷ Strickland, James. 2006. Energy Efficiency of Different Modes of Transportation. Victoria. <http://strickland.ca/efficiency.ca>
- ¹⁸ see KAIROS Briefing Paper No. 9 "Are Agrofuels Alternative to Oil?" March 2007. www.kairoscanada.org/e/resources/policyBriefing9Agrofuel0703.pdf
- ¹⁹ Statistics Canada. 2006. Human Activity and the Environment: Annual Statistics. Ottawa: Statistics Canada. Text Table 1.13. Page 30.
- ²⁰ Alternative Federal Budget Table 4, Page 16 and Pages 48-50.
- ²¹ Reguly, Eric. Lessons from Germany's Energy Renaissance. *The Globe and Mail*. 22 March 2008. B4.
- ²² Hamilton, Tyler. 2004. Here comes the sun. *Toronto Star*. July 26. Page D2.
- ²³ Black, D. Grant. 2006. Wind and solar power catch a stiff breeze. *The Globe and Mail*. Toronto. November 13. Page B12.
- ²⁴ David Suzuki Foundation. 2005. Wind Power. Fast Facts. Vancouver: David Suzuki Foundation.
- ²⁵ McMonagle, Rob. Setting the Price For PV for the Advanced Renewable Tariffs Program in Ontario. Canadian Solar Industries Association. 13 January 2006.
- ²⁶ Blackwell, Richard. Wind power lobbies for northern exposure. *The Globe and Mail*. 29 January 2008. B6.
- ²⁷ Dale Marshall. 2002. *Making Kyoto Work*. Ottawa: Canadian Centre for Policy Alternatives. Page 38.