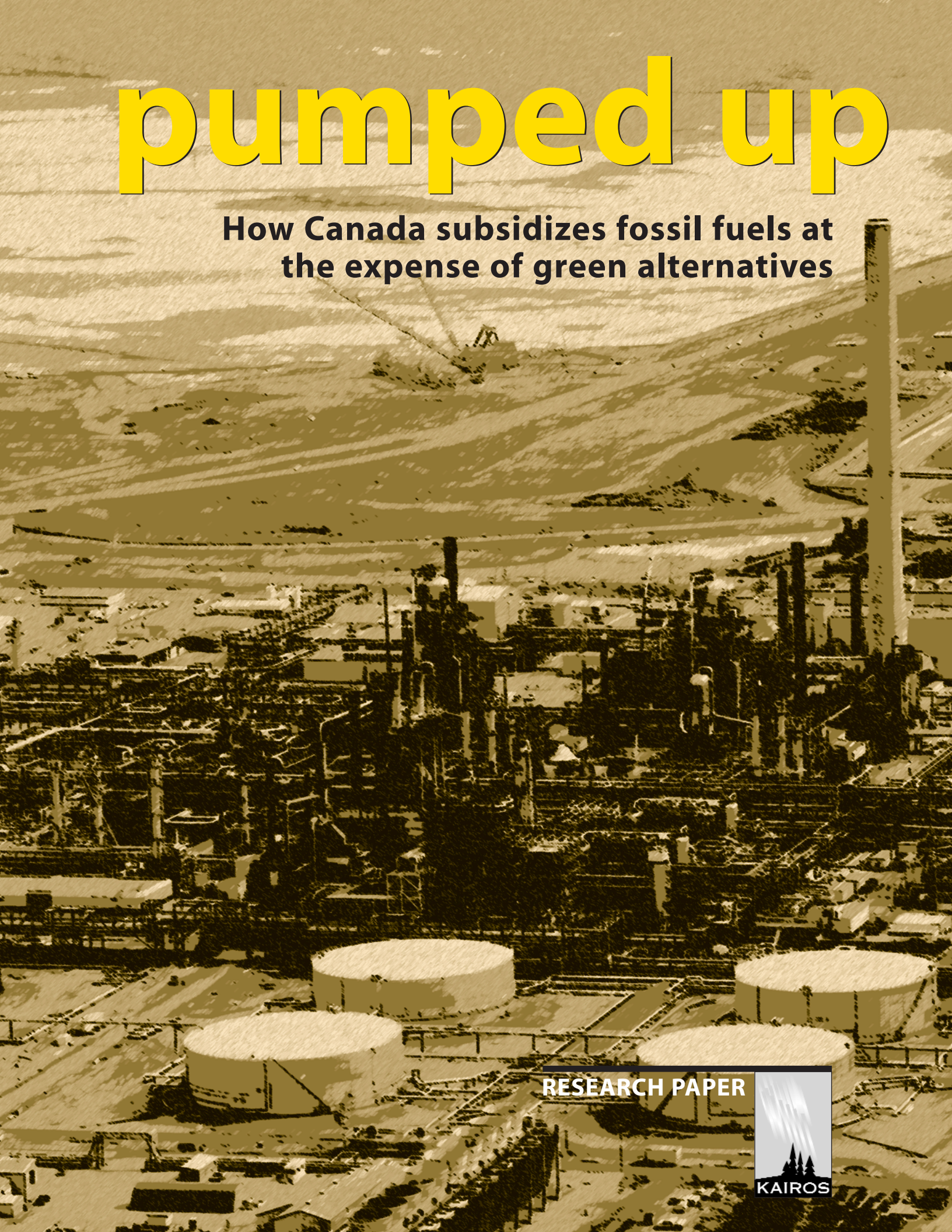
pumped up

How Canada subsidizes fossil fuels at the expense of green alternatives



RESEARCH PAPER

KAIROS

KAIROS Research Papers are written to help inform public debate on key domestic and foreign policy issues. This resource was written and produced with the support of a grant from the International Development Research Centre, Ottawa, Canada.

Written by John Dillon and Ian Thomson with input from Heather Orrange. Edited by Mark Foss and John Mihevc. Published by KAIROS: Canadian Ecumenical Justice Initiatives in support of the **Re-energize** campaign for a just and sustainable energy policy for Canada.

Layout: NOMAD Design
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Re-energize... time for a carbon sabbath

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KAIROS

KAIROS unites eleven churches and church agencies in faithful action for justice and peace. KAIROS members are: The Anglican Church of Canada, Canadian Catholic Organization for Development and Peace, Canadian Conference of Catholic Bishops, Canadian Religious Conference, Christian Reformed Church in North America (Canada Corporation), Evangelical Lutheran Church in Canada, Mennonite Central Committee (Canada), The Presbyterian Church in Canada, The Primate's World Relief and Development Fund (PWRDF), Religious Society of Friends (Quakers), and The United Church of Canada.

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preface

The global economy is utterly dependent upon the use of oil and other fossil fuels. Paradoxically, the same resource that is vital to our economy is also killing us, sometimes quickly as a result of the intensified conflict over the control and use of fossil fuels, and sometimes slowly through the degradation of the air that we breathe and the ecosystems on which we all depend.

Yet even as we begin to recognize the dim future of the fossil fuel economy, we search frantically for new sources of oil. We are in a bind: our appetite for oil is killing us, but we need more. And, as *Pumped Up* demonstrates, as a nation we spend more money to support multinational corporations in their search for oil (and profit) than we do in building a green, sustainable, and just energy economy.

Are there alternatives? KAIROS is encouraging Canadians to *Re-energize*: to look at the role oil plays in our individual and community lives, to see where we can make changes in our own practice to reduce our reliance on fossil fuels, and to encourage our government to examine those same questions and support viable alternatives. *Pumped Up* is an important contribution to the individual and collective analysis that we must take if we are truly committed to building a just and sustainable energy future.

For more information on how you can engage in the Re-energize campaign, visit www.re-energize.org.

executive summary

Conscious of the devastating effects of climate change, an overwhelming majority of Canadians now insist on prompt action to reduce greenhouse gas (GHG) emissions. To accomplish this goal, we must reduce our reliance on fossil fuels and invest instead in green technologies that promote conservation, energy efficiency and renewable alternatives.

Yet federal and provincial governments, as well as the International Financial Institutions (IFIs), still heavily subsidize the expansion of fossil fuel industries (oil, natural gas and coal) and wasteful modes of transportation at the expense of green alternatives.

During a recent seven-year period, 1996-2002, the Canadian government spent $8.3 billion on subsidies to the oil and gas industries. For the most part these subsidies continue today at around $1 billion a year. A tax break allowing tar sands operators to defer taxes on 100% of capital spending will not be phased out until 2015.

Prime Minister Stephen Harper refers to Canada as an "energy superpower" as he promotes more investment in Alberta's tar sands where extraction of synthetic crude produces three times as much GHG as conventional petroleum.

If tar sands operations continue to expand, it will clearly be impossible to reach our Kyoto commitments to reduce GHG emissions to 6% below their 1990 levels over the years 2008-2012.

During 2006 and 2007, the federal government announced $8.6 billion in new spending on 20 energy efficiency and GHG reduction initiatives over the next two to nine years. After accounting for inflation, these funds amount to less than the subsidies provided to oil and gas industry from 1996 to 2002.

More importantly, Environment Canada predicts that all the government's subsidy and regulatory programs would only reduce total GHG emission by 105 million tonnes of CO_2 in 2012. As a result, total Canadian emissions would remain 31% above Canada's Kyoto targets. Other analysts say the official predictions overestimate the likely effects of their programs by a wide margin.

By 2015 GHG emissions from the tar sands alone are predicted to equal or exceed the annual reductions from all the programs announced to date by the federal government.

In addition to the government's questionable support for oil and gas activities domestically, it also finances fossil fuel production internationally through Export Development Canada (EDC), the Canadian International Development Agency (CIDA) and multilateral agencies such as the World Bank.

KAIROS has petitioned the Commissioner of the Environment and Sustainable Development for a more thorough public accounting of all kinds of government subsidies relating to energy and climate change.

Given the government's current policies, KAIROS outlines four areas for action:

1) Redirect subsidies from fossil fuels to energy efficiency, conservation and renewable alternatives
In general, programs that promote public transportation, improved vehicle technology, more efficient freight transport, and the retrofitting of housing are among the most effective options.

2) Cap GHG Emissions and Put a Tax on Carbon
Carbon taxes promote energy efficiency, conservation and markets for low-carbon alternatives. Measures must also be taken to protect low-income Canadians and those living in remote communities without alternatives to fossil fuels so they are not penalized financially.

3) Promote exports and foreign direct investment in renewable energy, not fossil fuel production
The government should refocus the priorities of Export Development Canada (EDC), enabling it to help Canadian companies ensure their products and services support a greener, less fossil-fuel dependent energy future. Moreover, EDC should develop policies that support human rights, GHG emissions reporting and reductions, and improved disclosure.

4) Promote changes to policies of the International Financial Institutions
Four key changes are needed: end public subsidies for fossil fuels; step up efforts to meet the basic energy needs of the poor; refrain from imposing any policy conditions that would prevent subsidizing electricity connections and tariffs for the poor; and redirect existing energy financing for fossil fuels to renewable technologies and energy efficient projects.

1 introduction

Conscious of the devastating effects of climate change, an overwhelming majority of Canadians now insist on prompt action to reduce greenhouse gas (GHG) emissions.[1] To accomplish this goal, we must reduce our reliance on fossil fuels and invest instead in green technologies that promote conservation, energy efficiency and renewable alternatives.

Yet federal and provincial governments, as well as the International Financial Institutions (IFIs), lag behind public opinion. They still heavily subsidize the expansion of fossil fuel industries (oil, natural gas and coal) and wasteful modes of transportation. These subsidies could, instead, be supporting green alternatives.

Subsidies can be valuable tools to promote just and sustainable social, economic and environmental outcomes. Indeed, Canadians endorse government actions that promote the development of green technologies or favour impoverished social groups. Current subsidies, however, too often promote excessive consumption of non-renewable resources, pollution, waste, climate change and concentration of wealth. These "perverse subsidies" result in adverse consequences for human communities and the environment.

This study compiles available information on subsidies to fossil fuel industries and to climate change abatement measures both within Canada and abroad. It outlines options for actions by the Canadian churches in collaboration with our civil society partners to address climate change. These options include measures to shift subsidies away from promoting oil, gas and coal, and redirect them towards conservation and renewable forms of energy, as well as more direct ways of curbing GHG emissions.

Three Kinds of Subsidies

When we hear the word "subsidies," most of us think of governments issuing cheques to favoured businesses. However, there are several other ways in which subsidies help industries or consumers. For this study, we distinguish three broad types of subsidies:

1. Conventional Subsidies

Conventional subsidies include direct grants and other kinds of financial supports such as tax credits, tax exemptions, tax deferrals, loans, loan guarantees and accelerated depreciation allowances. In addition, government spending often indirectly subsidizes certain industries. For example, highway construction may benefit the automobile and petroleum industries at the expense of other alternatives.

While direct financial transfers are important, federal and provincial governments generally give financial support to fossil fuel industries through "tax expenditures." These are tax concessions used to achieve policy objectives that have the same effect as direct government spending.

This report will deal primarily with conventional subsidies since they are the easiest to quantify. Even so, precise estimates of their dollar value are not always available.

2. Externalities

A second kind of subsidy involves environmental and social costs not borne by fossil fuel industries. These costs are often called "externalities" since they are external to the traditional costs of doing business. For example, coal-fired electricity generating-plants bear no financial cost for the pollution and acid rain they produce. Communities downwind, however, do pay a price. These costs can be high, but difficult to calculate since other sources of pollution may affect communities.

Tragically, "between 5,000 and 16,000 Canadians die prematurely each year because of air pollution"[2] from a variety of sources. In addition, air pollution costs billions of dollars every year in hospital visits and worker absenteeism.[3] High cancer rates found in Aboriginal communities living downstream from tar sands operations provide a poignant example. Five of the 1,200 residents of Fort Chipewyan, Alberta, have died from a rare cancer of the bile duct that normally affects only one in 100,000 people.[4]

Communities can fight back. For example, class-action lawsuits have forced the tobacco industry to pay some costs of cancer and other diseases suffered by its consumers. In 1998, tobacco firms settled lawsuits from all 50 US states by agreeing to pay them US$246 billion over 25 years.[5]

Usually, however, the broader society absorbs the cost of externalities in the absence of government action.

Climate Change: The Biggest Externality

Climate change may well be the most far-reaching externality of them all. Its effects are global, massive and long-lasting. Once released, carbon dioxide (CO_2) remains in the atmosphere for up to 100 years.

Some communities, including Inuit in the Arctic, people living on coastal plains and inhabitants of small islands, will pay a higher price than others for the damages caused by climate change.[6] The Intergovernmental Panel on Climate Change (IPCC) says that climate change will "add to stress on water resources, food security, human health, and infrastructure" in Africa. A recent Christian Aid report finds that, "a staggering 182 million people in sub-Saharan Africa alone could die of disease directly attributable to climate change by the end of the century."[7]

One of the ways to discourage greenhouse gas emissions would be through placing a price on carbon emissions. The best option would be to use carbon taxes or fees to compel those who consume a disproportionate share of the earth's finite resources to accept responsibility for their actions and induce spending on low-carbon alternatives. Revenues could be used to indemnify low-income Canadians or residents of remote communities that do not have alternatives to fossil fuels and to invest in green technologies.

The time to act is now. The Stern Review on the Economics of Climate Change commissioned by the British government indicates that, as the quantity of GHGs in the atmosphere rises, the social and environmental costs of emissions will increase steadily.

If we do not take prompt action to reduce GHG emissions, global temperatures could rise by as much as 5°C above their pre-industrial level.[8] If we do take action to stabilize GHG emissions

at between 445 and 490 parts per million carbon dioxide equivalent (CO_2e)[i], the Intergovernmental Panel on Climate Change (IPCC) estimates that average global temperatures would still increase by around 2°C to 2.4°C.[9]

Global temperatures already increased by 0.8°C by 2006 and another 0.6°C rise will occur because of GHGs that have already been released.[10] Australian ecologists David Spratt and Philip Sutton, say that the 2°C target above pre-industrial levels for stabilization of temperature increases is too high and that GHG emissions must be capped at below 445 parts per million.[11] Even the chair of the IPCC, Rajendra K. Pachauri, has said that the report is conservative and affirmed that a two-degree increase is a minimal target that would still not be low enough.

Spratt and Sutton base their case for lower targets in part on the fact that climate change is already accelerating due to negative feedbacks caused by the melting of Arctic sea ice. Since sea ice in the Arctic is melting faster than expected, there is less white ice to reflect heat back into the atmosphere and more open water that absorbs about 80% more of the sun's radiation. The melting of sea ice creates a negative feedback as open water retains more heat impeding refreezing with the result that winter ice is thinner and melts more easily the following summer.

Canadian political scientist Thomas Homer Dixon notes that the most recent 2007 IPCC report only incorporates scientific findings up to mid-2005. "Since then, we've seen sharply higher carbon dioxide emissions than the IPCC expected, ... while the absorptive capacity of ocean and land-based carbon sinks appears to be decreasing more rapidly than predicted," observes Homer-Dixon.[12]

In the case where CO_2e emissions are held in the range of 450-550 parts per million, the Stern Review estimates the social and environmental costs would start around US$25-$30 per tonne of CO_2 and rise more slowly than in the "business as usual" scenario where the costs could be as high as US$85 per tonne of CO_2.[13] The IPCC says that most studies estimate lower social costs than does Stern, averaging US$12 per tonne of CO_2. But the span of estimates is very large, ranging from minus US$3 to US$95 per tonne of CO_2.[14]

Whatever the figure most studies indicate that we must put a price on carbon as soon as possible to minimize the social and environmental costs.

A report by the Canadian National Round Table on the Environment and the Economy, an arms-length advisory body appointed by the federal government, reaches a similar conclusion. The report says it's critical to put a price on carbon as soon as possible to reduce emissions over the long-term at a lower economic cost. It says a "fast" start, implying relatively higher carbon prices in the near-term, would avoid significantly higher prices and economic costs in later years.[15]

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i CO_2e stands for carbon dioxide equivalent. In addition to carbon dioxide greenhouse gases include methane, nitrous oxide, perfluorocarbons, sulfur hexafluoride, and hydrofluorocarbons. Some have a more potent effect than others in terms of heat retention. For example, methane has a global warming potential 21 times greater than carbon dioxide. Scientists convert each GHG to its carbon dioxide equivalent for measurement purposes.

Higher Temperatures Lead to Greater Social and Environmental Costs

According to the Intergovernmental Panel on Climate Change, average global temperatures have increased by 0.74 degrees Celsius over the last 100 years. As a result, we are already experiencing negative effects from global warming. The Stern report recommends stabilizing GHG emissions at between 450 and 550 parts per million carbon dioxide equivalent; this would still result in a rise in global temperatures of about 2°C. If significant steps are not taken to reduce GHG emissions, global temperatures are projected to increase by up to 5°C.

Each 1°C rise in average global temperatures would generate the following increasingly grave social and environmental costs:

1°C: Smaller mountain glaciers disappear in the Andes, threatening water supply of 50 million people. More than 300,000 people die from increases in climate-related diseases in tropical regions. Melting permafrost damages roads and buildings in Canada and Russia. One in 10 species threatened with extinction; 80% of coral suffers regular bleaching.

2°C: Water scarcity increases in southern Africa and the Mediterranean. Significant decline in food production in Africa, where malaria affects up to 60 million more people. Up to 10 million more people affected by coastal flooding each year. Arctic species, such as the polar bear, face extinction along with 15-40% of world's remaining wildlife. Gulf Stream begins to weaken and Greenland ice sheet begins to melt irreversibly.

3°C: Serious droughts in southern Europe occur once every 10 years. Between 1 and 4 billion people suffer water shortages and a similar number suffer from floods. Many millions of people risk malnutrition, as agricultural yields at higher latitudes reach peak output. More than 100 million people are affected by the risk of coastal flooding. Mass extinction of animals and plants accelerates.

4°C: Sub-Saharan Africa and the southern Mediterranean suffer between 30% and 50% decrease in available water. Agricultural yields decline by 15-35% in Africa. Crops fail in entire regions. Up to 80 million more people are exposed to malaria. Loss of around half of the Arctic tundra. Many nature reserves collapse. Giant West Antarctic Ice Sheet begins to melt irreversibly, threatening catastrophic increases in global sea levels.

5°C: Possible disappearance of the large glaciers of the Himalayas, affecting the water supply of 25% of China's population and hundreds of millions more in India. Ocean acidity increases with threat of total collapse in the global fisheries industry. Sea levels rise inexorably, inundating vast regions of Asia and about half of the world's major cities, including London, New York and Tokyo.

Source: Stern Review on the Economics of Climate Change

3. Political, Military and Diplomatic Subsidies

Governments accord political, diplomatic and military support to fossil fuel industries in a variety of ways.

Free Trade Agreements (FTAs) or Foreign Investment Protection and Promotion Agreements (FIPAs) require host governments to treat foreign investors as favourably as their own national firms. FTAs and FIPAs typically prevent host governments from imposing performance requirements on foreign firms and give foreign investors recourse to international tribunals in the case of disputes. Since the Canada-US FTA came into effect in 1989, Canada has been unable to restrain the growth of exports of non-renewable natural resources to the United States. Consequently, between 1990 and 2002, greenhouse gas emissions from the production of fossil fuels for export increased by 135%.[16] During 2002, 46.1% of all Canadian industrial GHG emissions were due to exports, particularly of fossil fuels.[17]

Political and diplomatic support for certain regimes may come with an implicit or explicit promise of military intervention. For example, the US government provides the Uribe regime in Colombia with US$641 million a year for police and military operations. While this spending ostensibly fights the drug trade, it also pays for three "anti-narcotics" bases. One base sits alongside, and guards, the Caña-Limón-Coveñas oil pipeline owned by Occidental Petroleum.[18]

Various authors argue the US military's defence of shipping lanes, primarily in the Persian Gulf, subsidizes the petroleum industry. The estimated cost of this subsidy varies from the Pentagon's own figure of US$1 billion a year to the Cato Institute's estimate of US$70 billion a year.[19] The US Navy also protects offshore petroleum installations in the Gulf of Guinea, off the west coast of Africa.

2 global subsidies for fossil fuels outweigh assistance for green alternatives

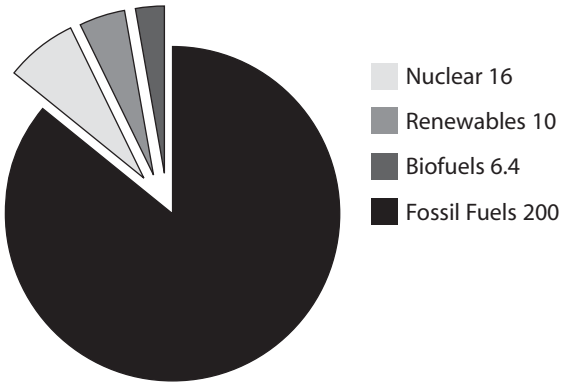
While the estimates from various sources cited in this report may vary, they all point to one conclusion: the subsidies available for fossil fuels far outweigh the amounts dedicated to investment in energy conservation and renewable sources of energy.[20] Our concept of renewable energy includes small-scale hydro-electric generation (up to 10 megawatts and therefore excluding large hydro dams), geothermal, wind, solar, tidal, wave and other marine energy and some forms of biomass such as its use in smokeless, efficient cooking stoves.

In the late 1990s, according to the UK's New Economics Foundation, industrial countries that are members of the Organisation for Economic Co-operation and Development (OECD) annually spent some US$73 billion on subsidies to fossil fuels. Meanwhile, they pledged just US$400 million to help developing countries adapt to climate change. US government subsidies for fossil fuels surpass those for renewable forms of energy by at least 10 to 1 and by as much as 28 to 1.[21]

The Stern Review on the Economics of Climate Change puts existing worldwide subsidies for fossil fuels at between US$150 billion and US$250 billion a year. It says that only US$10 billion was spent in 2004 on deployment of technologies for producing energy from renewable sources.

In addition, Stern reports that another US$6.4 billion a year was spent subsidizing biofuels and US$16 billion annually went to support nuclear power generation. Depending on carbon prices and levels of technological progress, Stern says money spent on deploying renewable technologies must increase from two to five times current levels over the next 20 years.[22]

Annual Subsidies Worldwide[23]
US$ Billions



In 2006 Export Development Canada (EDC) supported transactions in the oil and gas sector valued at $8,599 million and just $15 million worth of spending for alternative fuels and only $9 million for renewable energy.[24] In the first six months of 2007, Export Development Canada supported transactions in the oil and gas sector valued at $6.8 billion while business transactions it supported for alternative fuels were worth only $5 million and just $2 million for renewable energy.

Between 1992 and late 2004, the World Bank approved US$28 billion in financing

for fossil fuel-related projects. This lending was 17 times more than financing for energy efficiency and renewable energy projects.[25]

The Kyoto Protocol commits its signatories to the "progressive reduction or phasing out" of damaging subsidies for all GHG emitting sectors such as fossil fuels. The OECD estimates that removing these subsidies would reduce GHG emissions by 18% by 2050 while increasing world income by 0.7%.[26]

3 domestic subsidies for canadian oil and gas

According to a study by the Pembina Institute, the Government of Canada provided $8,324 million worth of subsidies to the domestic oil and gas sector over the years 1996 to 2002 of which $1,446 million was allocated in 2002.[ii] This federal money was provided in three ways: 1) direct expenditures, 2) program expenditures and 3) tax expenditures.[27]

1. Direct Expenditures: The direct expenditures were relatively small ($26.2 million or just 1.8% of the total). They included money for Nova Scotia and Newfoundland development funds, the Petroleum Technology Research Centre and aid to the Hibernia offshore oil project. One of the largest expenditures was $11.5 million for tar sands research and development.

2. Program Expenditures: The federal government spent at least $37 million on programs related to the oil and gas industry in 2002. It is difficult to give a precise figure because some departments, like Natural Resources Canada, do not break down their budgets by sector. The government does not disclose the annual spending of the Northern Oil and Gas Directorate, which oversees oil and gas resources in the Northwest Territories, Nunavut and offshore.

Bodies like the Northern Oil and Gas Directorate and the National Energy Board (NEB) regulate industry activities with a view to fulfilling government priorities. They are often accused of lax enforcement, however. This leads to the perception they serve private interests more than public policy goals.
Under the National Energy Board Act, the government should only issue oil and gas export permits "after due allowance has been made for the reasonably foreseeable requirements for use in Canada."[28] Years ago, the NEB would not allow exports unless a 25-year supply remained available to meet Canadian needs. However, the interpretation of this mandate has changed dramatically. In the mid-1980s, the Mulroney government first reduced this surplus test to 15 years and then effectively did away with it altogether.

Furthermore, natural gas exporters use a loophole allowing short-term contracts to get around the statutory requirement. As a result, Canada sold 64% of the oil and 62% of the gas it produced during 2004 and 2006 to the United States. Yet, at the end of 2005, our conventional oil and natural gas reserves were only able to meet domestic needs for 7.7 years and 9.6 years respectively.

Several civil society groups such as the Canadian Centre for Policy Alternatives, the Parkland Institute and the Polaris Institute advocate the reform of the NEB. As part of the transition to a less carbon-intensive economy, they want to ensure the NEB conserves our dwindling supplies of non-renewable oil and natural gas.[29]

Unfortunately, in recent years Canada's regulatory regime has moved further away from this goal. The North American Free Trade Agreement's proportional sharing

ii All data in the Pembina study are converted to Canadian dollars for the year 2000.

clause (Article 605) requires Canada to go on exporting non-renewable hydrocarbons to the United States even if those exports result in domestic shortages.[30] Not surprisingly, oil and gas exports account for an increasing amount of Canadian greenhouse gas emissions. Between 1990 and 2004, GHG emissions associated with net oil and gas exports rose by 123% from 21.5 megatonnes (Mt)[iii] to 48 Mt of carbon dioxide equivalent.[31] Rising petroleum exports are a significant reason why Canada is falling behind on its Kyoto targets.

Moreover, the Security and Prosperity Partnership (SPP) initiated by Prime Minister Paul Martin, President George W. Bush and Mexican President Vicente Fox in March 2005 aims at even deeper continental energy integration. The SPP is largely a product of lobbying by the Canadian Council of Chief Executives (CCCE), which represents the 150 largest corporations in Canada, many of them US owned. The CCCE was instrumental in persuading Prime Minister Harper, President Bush and President Fox to announce the establishment of a North American Competitiveness Council (NACC) at their second SPP Summit in March 2006. The NACC is comprised of 10 business executives from each country who have direct access to government decision-makers.

The CCCE and the NACC have made continental energy integration one of their highest priorities. An SPP-sponsored workshop held in Houston in January 2006 called for the rapid expansion of tar sands production from one million barrels a day to five million barrels a day by 2030. Radio-Canada reported that Canadian officials at the workshop promised to streamline environmental approvals to facilitate tar sands expansion. As a result, the Harper government announced the formation of a Major Projects Management Office in the 2007 federal budget. Ottawa will spend $60 million over the next two years on a body mandated "to cut in half the average regulatory review period [for large natural resource projects] from four years to about two years."[32]

3. Tax Expenditures: By far the largest amounts of government support for fossil fuel industries are delivered through tax expenditures ($1,384 million or 96% of the $1,446 million 2002 total). Tax expenditures represent the difference between the taxes that would be owed if a tax exemption or deferment did not exist, and the taxes actually paid.

Table 1, based on a study by the Pembina Institute, describes the main tax expenditures available to the oil and gas industries in 2002. The Pembina analysts readily acknowledge their figures, which in some instances were extrapolated from historical data, "do not result in a complete picture of total government support."[33] Accordingly, the Pembina Institute reiterates a call first made by the Commissioner of the Environment and Sustainable Development for the Department of Finance to provide comprehensive annual estimates of public spending, including tax expenditures, at the sectoral level.

iii A megatonne is equivalent to one million metric tonnes.

Table 1: Federal Tax Expenditures Available to Oil and Gas Industries in 2002[34]

Initiative	Description	2002 Expenditures
Canadian Exploration Expense (CEE)	100% tax deduction for costs incurred to locate oil or gas reservoirs.	$1,035 million for CEE, CDE and COGPE combined
Canadian Development Expense (CDE)	30% tax deduction for costs of drilling a well, preparing the site, etc.	
Canadian Oil and Gas Property Expense (COGPE)	10% tax deduction for the cost of acquiring an oil or gas well.	
Earned Depletion (ED)	33.3% deduction for expenses incurred prior to 1990 — being phased out.	$17 million
Resource Allowance (RA)	25% deduction against resource profits — a proxy for royalties paid to provinces — being phased out.	$84 million
Atlantic Investment Tax Credit (AITC)	10% tax credit for investments in Atlantic provinces and Gaspé — mostly for oil and gas.	$112 million for AITC and SR&ED combined
Scientific Research and Experimental Development Tax Credit (SR&ED)	20% tax credit for R&D for large companies & 35% for small companies.	
Syncrude Remission Order (SRO)	Allowed Syncrude to deduct royalty payments — expired at end of 2003.	$226 million
Accelerated Capital Cost Allowance (ACCA) for tar sands projects	Deduction permits 100% depreciation of capital costs of new mines or major expansions of tar sands projects.	ACCA for tar sands costs the government about $300 million a year, depending on level of activity.

case study: the tar sands

Prime Minister Harper calls Canada "a new energy superpower." He boasts of "an ocean of oil-soaked sand under the muskeg of northern Alberta."[35] According to the Alberta Energy and Utilities Board, the tar sands contain 315 billion barrels of ultimately recoverable crude of which 174 billion barrels are deemed recoverable at current prices and with existing technologies. These 174 billion barrels exceed the reserves of all other oil-producing countries except Saudi Arabia and Venezuela, whose Orinoco heavy oil deposits are geologically similar to Canada's tar sands.

During an earlier era of lower oil prices, the federal and Alberta governments provided generous subsidies for tar sands extraction. Indeed, tar sands have been among the most highly favoured recipients of government largesse. Between 1996 and 2002, the Pembina Institute estimates tax expenditures for tar sands at $625 million. In addition, the industry received $60 million of federal money for research and development and $507 million through the Syncrude Remission Order. This combined total of $1,193 million could have provided 71,000 homeless people with shelter.

1. Federal Subsidies

As of 2006, federal tax treatment favoured the tar sands over conventional oil and gas in the following ways:

- All tar sands projects, whether mining or in situ, are treated as mines that have more generous write-offs for property and pre-development costs than conventional petroleum;
- The Accelerated Capital Cost Allowance (ACCA) allows new tar sands projects or major expansions to defer 100% of federal and provincial income taxes until all capital costs are paid off (other corporations can deduct 25% of costs);
- Exploration expenditures are fully deductible (25% for others);
- Development expenses are deductible at 30% per year (25% for others).

The industry does not pay for the huge external costs of extracting oil from the tar sands. On the contrary, Canadians in general, and particularly Aboriginal peoples living downstream from the tar sands, bear these costs. In 2003 Dr. John O'Connor reported on an unusually high number of cases of a rare cancer of the bile duct and also of thyroid problems among the residents of Fort Chipwyan near the mouth of the Athabaska River. While elders in the Aboriginal community praised Dr. O'Connor for his efforts on their behalf, government officials tried to silence him.[36]

Future development will only add to the social and environmental costs. Tar sands production is incompatible with meeting our Kyoto commitments to reduce greenhouse gases. In addition, the process of extracting and upgrading bitumen into synthetic crude oil consumes a huge amount of water and natural gas.

Extracting oil from the tar sands releases three times as much CO_2 as conventional oil production.[37] Greenhouse gas discharges from the tar sands are the largest contributor to the growth of emissions in Canada. Despite the alarming effects of the tar sands on greenhouse gas emissions, water and natural gas

availability, Canadian federal and provincial governments continue to subsidize production, largely for export.

Slow Phase Out of Federal Tar Sands Subsidies

For the tar sands, the 100% Accelerated Capital Cost Allowance (ACCA) is the most important federal tax break; it accounts for 77% of total tar sands tax expenditures over the period 1996-2002. The Canadian Exploration Expense, the Canadian Development Expense and the Resource Allowance provide the remaining 23% of tax savings. As noted in Table 1, these tax expenditures were worth over one billion dollars to the oil and gas industries in 2002.

The 2007 federal budget made headlines by announcing a gradual phase out of the ACCA for tar sands projects. But the planned phase out will occur very slowly:

i) The full 100% deferment will still be available for projects already underway or assets acquired before budget day, March 19, 2007.[iv]
ii) For projects started after March 19, 2007, the phase out will occur between 2011 and 2015.[v]

In another loophole built into the 2007 budget, tar sands operators can take advantage of the 50% ACCA for Clean Energy Generation if they invest in "equipment that generates energy more efficiently." Moreover, if tar sands operators invest in new areas like carbon capture and storage, the Conservative government commits itself to identify additional areas where an ACCA can help.

In short, the real message behind the 2007 federal budget was an exhortation to get shovels into the ground quickly to advance tar sands extraction before the ACCA is phased out. To help make this happen, the budget included $60 million for a new office with a mandate to cut in half the time needed to approve major resource projects.

With oil selling for over US$80 a barrel and predicted to rise even higher, the changes underway to provincial royalties and federal tax expenditures will not, by themselves, slow down tar sands expansion. In fact, the continuation of low levels of royalties, taxes and other fees relative to other jurisdictions such as Norway, effectively subsidizes the ill-conceived expansion of the tar sands.

2. Provincial Subsidies (Alberta)

The Alberta government levies a special royalty of only 1% on gross revenues from tar sands projects until they recover all their capital costs. After these construction costs have been paid off, companies must pay a low 25% royalty on their net earnings.

Media reports on changes proposed during 2007 to Alberta's royalty regime invariably suggest the proposals would lead to increased revenue from oil and gas projects. In fact, the proposals are attempting to stem a decline in revenues. In 2016, without a change to the royalty structure, total revenues would drop about $4 billion compared to 2006 revenues. As production of conventional oil and gas declines, more revenues from

iv This will include "assets acquired before 2012 that are part of a project on which construction began before March 19, 2007." In other words, if tar sands operators keep on expanding existing projects they can continue to collect the full 100% deferment until at least 2012 and probably well beyond since they do not have to start repaying the deferred taxes until all capital costs are paid off.

v These projects will still enjoy the full 100% deduction through 2010; a 90% ACCA in 2011; an 80% ACCA in 2012; a 60% ACCA in 2013 and a 30% ACCA in 2014. Only in 2015 will they be accorded the same 25% CCA accorded to other industries. The Pembina Institute estimates that 90% of tar sands projects currently planned will receive substantial federal subsidies.

tar sands operations will be needed.

A Royalty Review Panel appointed by the Alberta government recommended the 1% royalty holiday for tar sands should remain in place. At the same time, it argued the rate on net profits (after all construction costs are paid) should be increased from 25% to 33%. The royalty increases would cost tar sands producers about $3 to $4 a barrel; with world oil prices hovering above US$80 a barrel and industry operating costs range from $20 to $25 per barrel for existing plants, the industry could easily afford to pay these royalty increases.[38]

The panel also called for a windfall profits tax for the tar sands. This tax would start at 1% of profits when the price of oil reaches $40 a barrel. It would increase by 0.1% for each $1 price increase from $41 to $120 a barrel. Hence, the maximum windfall tax would be 9% if oil were to be priced at $120 a barrel.

If implemented, the panel's recommendations for change to royalties, taxes and other levies would increase the public share of tar sands revenues from the current 47% to 64%. Even so, the public share of revenues would be far less than the 88% share collected by Norway. In that country, foreign oil companies, including Shell, BP, Exxon, Petro-Canada and Talisman still operate profitably in cooperation with state-owned firms.[39]

Diana Gibson of the Parkland Institute has written a well-researched report entitled *Selling Albertans Short: Alberta's Royalty Review Panel Fails the Public Interest*. She argues cogently that, with oil selling for over $80 a barrel, companies do not need a royalty holiday for investing in tar sands. Moreover, these "holidays" dissuade companies from diversifying investments into other alternatives.[40]

The proposed 33% royalty rate is still far below the international standard set by other jurisdictions, including Norway and Bolivia. Furthermore, the windfall profits tax is modest. In Russia, once the price of oil exceeds US$25 a barrel, the government charges a 90% windfall tax; Ecuador just introduced a 99% windfall tax.

Gibson shows how public ownership and regulation are the most effective ways for Alberta to assert the rights of its citizens, who are the real owners of the province's natural resources. She also notes the panel's failure to address crucial issues such as the rights of Aboriginal peoples, the pace and environmental impact of development, and the use of royalty revenues.

In the face of public support for higher royalties, the oil industry countered with threats of a capital strike. If the government were to implement the panel's proposals, Alberta-based firms such as Encana and Talisman would take some $1.5 billion worth of investments to other jurisdictions.

On October 28, 2007, Premier Ed Stelmach announced a package of proposals designed to mollify the industry, while appearing to increase revenues substantially:

- Before construction costs are paid off, the low royalty available for tar sands projects would start at 1% when oil is priced at US$55 a barrel; if oil were to reach US$120 a barrel, the royalty would rise to 9%. At current prices, which reached US$90 a barrel on the day of Stelmach's announcement, the royalty would be 5%.
- After construction costs are paid off, royalties would increase on a sliding

scale depending on a price range between US$55 and US$120 a barrel. At current oil prices, the royalty rate would be 33%. If prices were to reach US$120 a barrel, this rate could rise to 40%.

Stelmach also gave the companies an extra year to adjust to a new royalty regime and rejected the proposal for a windfall profits tax.

What would this mean for Alberta revenues?

After the announcement, the headlines proclaimed a $1.4 billion annual revenue "grab."[41] The petroleum companies feigned dismay at this apparently high number. In fact, the Premier's report says the $1.4 billion increase is relative to revenue projections under the current system based on the same assumptions

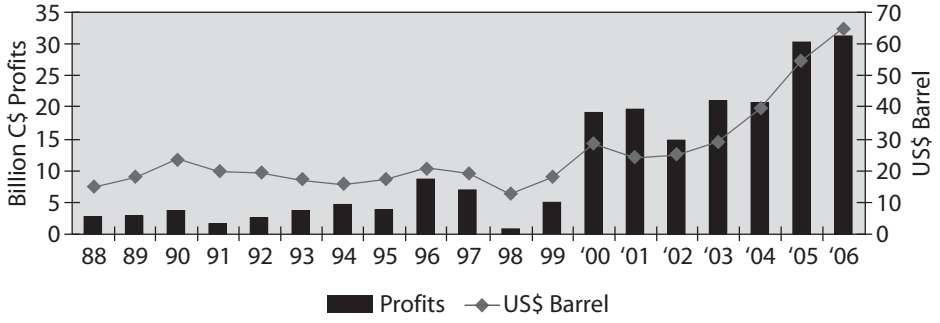
No Need to Subsidize Companies Earning Record Profits

The oil and gas industry is the most profitable of all Canadian industries. In 2006, companies engaged in oil and gas extraction earned a record $31.1 billion in profits-more than twice as much as the $14.7 billion earned in 2002.[42] Their 2002 profits already represented a healthy 16% return on equity, which was bolstered by $1.4 billion worth of subsidies from the federal government.[43] In other words, subsidies were equivalent to one out of every 10 dollars of profits.

As the graph shows, the steep rise in profits largely stems from the increase in world oil prices-from a low of US$12.72 per barrel in 1998 to US$25.02 in 2002 to US$65.14 in 2006.[44]

The data cited here probably underestimate the true extent of petroleum company profits. As John W. Warnock notes in his study *Selling the Family Silver*, "All of the major oil corporations engage in transfer pricing and the use of offshore dummy corporations" to hide the true extent of their profits.[45]

Canadian Oil and Gas Company Profits and Oil Prices



Since 2000, Canadian upstream oil and gas companies have earned annual returns on equity averaging 18.4%.[46] This is well above the rate of return earned by other industries that do not benefit from so much government largesse.

According to the National Energy Board, when oil prices are between US$30 and $35 a barrel, investors in the tar sands can earn a 10% rate of return on their investments.[47] With world oil prices at twice that level, neither tar sands producers nor convention oil producers, who face much lower production costs, clearly need any subsidies at all.

as the Royalty Review Panel.[48] That report projects 2010 revenues under the current system at $2.3-billion less than revenues in 2006.

In other words, an additional $1.4 billion in revenue would not constitute a "windfall." It would merely begin to recuperate 61% of the expected revenue decline. After all of the changes proposed by Premier Stelmach, Alberta government royalty revenues are likely to be about $900 million less in 2010 than they were in 2006.

The media largely failed to report that Alberta revenues are falling. This decline is partly due to less revenue from conventional oil and gas production, which is in decline. By 2016, had the full recommendations of the Royalty Review Panel been implemented, the provincial government would still collect $2 billion less in royalty payments than it did in 2006.[49] In other words, the industry is still doing very well — better, in fact, than ever.

3. Impact of Tar Sands on Greenhouse Gas Emissions and the Kyoto Gap

The federal government periodically forecasts Canada's total CO_2 emissions in 2010 (the mid-year of the five year period to which our Kyoto commitment applies) under a "business as usual" scenario; it assumes no major policies have been introduced to reduce emissions. It then computes the level of annual reductions needed to meet our Kyoto target of reducing emissions to 6% below their 1990 levels. The difference between these two amounts is known as the "Kyoto gap." In February 2002, the Kyoto gap was set at 238 megatonnes (Mt) with 18 Mt of that amount attributed to planned additions to tar sands production. In April 2005, the projected Kyoto gap was estimated at 270 Mt.[50]

In August 2007, Environment Canada released a report on progress towards reducing GHG emissions. This was required by the Kyoto Protocol Implementation Act, a private member's bill passed by Parliament against the wishes of the Harper government. The Act requires the Minister of the Environment to submit an annual report on Canada's measures to meet its obligations under the Kyoto Protocol. According to the report, under current policies Canada will fail to meet its Kyoto targets by 176 Mt-despite reductions achieved through measures introduced during 2006 and 2007.[51]

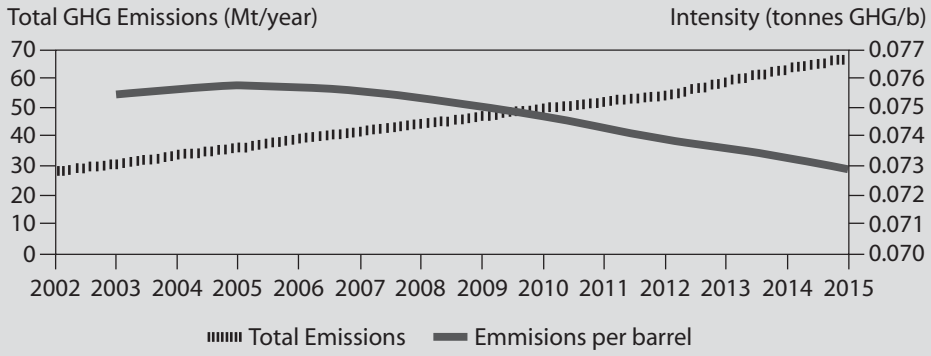
How has this happened?

According to the Pembina Institute, CO_2 emissions from the tar sands are projected to increase between 2000 and 2015 from 23.3 Mt to between 57 and 97 Mt. The lower estimate assumes that tar sands operators will continue to use natural gas and improve the efficiency of extraction enough to reduce GHG intensity by 2.3% annually. The higher figure assumes that operators start burning more carbon-intensive coal or oil sands residues as a substitute for natural gas.[52]

The following graph shows how total GHG emissions from tar sands operations are projected to grow despite expected reductions in the intensity of GHG emissions per barrel of oil extracted.

A study by the Tyndall Centre for Climate Change Research estimates that in the absence of mitigation efforts by 2015 GHG emissions from the tar sands could be between 81 and 122 Mt depending on how many projects now in the planning stages actually proceed. Assuming that all planned tar sands

Projected GHG Emission from Oil Sands to 2015[53]



Source: Pembina Institute. Oil Sands Fever — The Enivironmental Implications of Canada's Oil Sands Rush

projects go ahead the Tyndall report projects that GHG emissions from the tar sands in 2012 would amount to 105.2 Mt. This estimate is almost exactly equal to the 104.8 Mt of emission reductions expected to result from all the Harper government initiatives for all of Canada as tabulated in Table 4 in Part 5 of this report.[54]

Liberal leader Stéphane Dion wrote an open letter to Prime Minister Harper on the occasion of the Environment Canada report on the Kyoto Protocol Implementation Act. Dion projects larger emissions from tar sands than either the Pembina Institute's estimates or those of the Tyndall Centre. He says that GHG emissions are expected to reach 126 Mt of CO_2e by 2015 — a figure larger than all the emission reductions expected under Harper government initiatives.[55]

If tar sands operations continue to expand as currently planned, it will clearly not be possible to close the Kyoto gap.

4. Impact of Tar Sands on Water

Tar sands corporations withdraw huge amounts of water from the Athabaska River and underground aquifers. Mining operations use between 2 and 4.5 barrels of water for each barrel of synthetic crude oil they extract. Although they recycle a small amount of this water, most of it ends up in tailings ponds. At more than 50 square km, these ponds are actually visible from outer space. Seepage of pollutants from these ponds affects fish, wildlife and human health.

Tar sands operations are already the largest and fastest growing users of water from the Athabaska River. According to a recent study by the Environmental Research and Studies Centre at the University of Alberta and the Munk Centre at the University of Toronto, water flows in the Athabaska River are declining due to climate warming and less snow. The study concludes that, "Projected extraction in the oil sands will require too much water to sustain the river and the Athabaska Delta, especially with the effects of predicted climate warming."[56] The National Energy Board also acknowledges that, "the Athabaska River does not have sufficient flows to support the needs of all planned oil sands mining operations."[57]

The alternative to mining is in situ extraction, which injects steam underground to loosen the bitumen from sand and allow it to flow to the surface.

About 82% of Alberta's remaining tar sands reserves can only be extracted through in situ methods. It takes 2.5 to 3.0 barrels of water to generate enough steam to extract one barrel of bitumen.[58] Although most of this water is recycled, operators must use 1.3 barrels of additional groundwater to produce 6.3 barrels of bitumen.[59]

5. Impact of Tar Sands on Natural Gas

Devoting huge amounts of Canada's dwindling supplies of natural gas to tar sands extraction constitutes yet another subsidy. For each barrel of bitumen extracted, tar sands mining consumes 250 cubic feet of natural gas; steam-assisted in situ recovery requires 1,000 cubic feet of natural gas. In addition, both methods use another 500 cubic feet of gas per barrel to upgrade bitumen into synthetic oil.

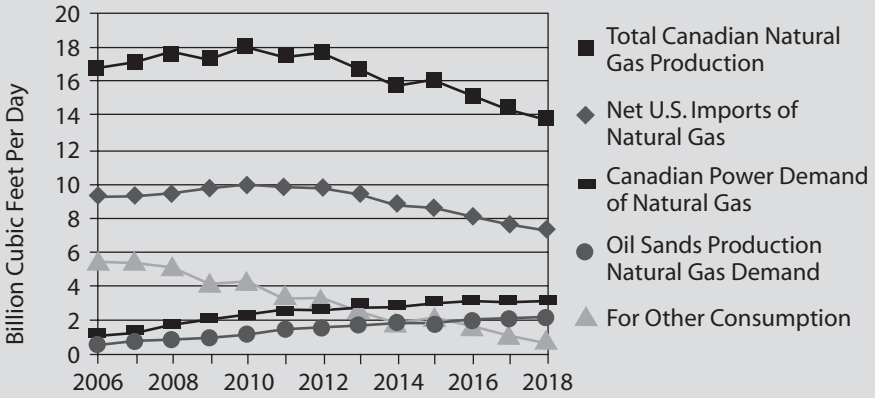
As a result, the amount of natural gas consumed by tar sands could heat half the gas-heated homes in Canada. Burning a valuable resource like natural gas just to produce steam for tar sands extraction is like chopping up fine mahogany for firewood.

The Hydrocarbon Depletion Study Group at Uppsala University in Sweden recounts how natural gas consumption by tar sands operations has grown from 0.72 billion cubic feet per day (Bcf/d) to 1.01 Bcf/d between 2004 and the end of 2006. Consumption is projected to reach 3.1 Bcf/d by 2018-more than 4 times the 2004 level.[60] This rising demand is incompatible with Canada's NAFTA obligation to continue exporting gas to the United States not to mention Canadians' own needs for this relatively clean-burning fuel.

The following graph drawn from that study shows how total Canadian gas production is projected to decline over the next 12 years. While exports to the United States will also decline, the graph shows an increase in demand for gas to generate electricity and particularly for tar sands extraction. As a result, less natural gas would be available for Canadian consumers outside of the tar sands and power generation industries.

The study predicts higher and more volatile gas prices. It also projects that, by 2018, Canada's proven gas reserves will be exhausted and 24% of Canada's "additional discovered natural gas resources" will be in use.[61]

Canadian Natural Gas Production and Allocations 2006-2018



B. Södenbergh et. al./Energy Policy 35 (2007) 1931-1947

The tar sands are being developed primarily to feed demand for energy in the United States. By dedicating more of Canada's dwindling supply of natural gas to develop the tar sands, we subsidize US consumers at the expense of Canadians. Not only will Canadians pay more for substitute fuels, but we must also pay the costs of climate change, ill health and water contamination induced by tar sands production.

In the near future, a shortage of natural gas will likely force tar sands operators to experiment with coal combustion or the gasification of bitumen residues. Both technologies would emit considerably more greenhouse gases than are released by burning natural gas.

Given the looming shortage of natural gas, companies such as Royal Dutch Shell and Husky Energy are actively exploring the construction of nuclear power plants to generate steam for in situ extraction of bitumen or else electricity to extract bitumen from limestone formations. The most likely builder is Energy Alberta Corp., a private company working in partnership with Atomic Energy of Canada Limited (AECL).[62]

4 federal energy efficiency and greenhouse gas reduction subsidies

Over 2006 and 2007, the federal government announced energy efficiency and greenhouse gas (GHG) reduction initiatives requiring some $8.6 billion over two to four years for most programs while an initiative to produce electricity from renewable sources would run for 14 years. Tables 2 and 3 list the various programs along with the likely GHG reduction effects as estimated by Environment Canada.

Independent analysts such as the Pembina Institute's Mathew Bramley have widely criticized Environment Canada's estimates. The government's own advisory panel, the National Round Table on the Environment and the Economy, has questioned their accuracy as well; it argues insufficient information is available to evaluate most of the estimates.

Here we briefly describe the largest government programs and evaluate their likely effectiveness. Table 2 includes both the government's estimates of GHG reductions for the largest programs as well as those of Professor Mark Jaccard and graduate student Nic Rivers from the School of Resource and Environmental Management at Simon Fraser University.[63] Table 3 lists smaller programs, along with the likely GHG reduction effects as estimated by Environment Canada.

1. Eco-Trust for Clean Air and Climate Change

This $1.5 billion fund will be dispersed among the provinces and territories over a three-year period. Since the dispersal of funds is still under negotiation, it is difficult to evaluate its impact on GHG emissions. It may include some worthwhile initiatives like an East-West electricity grid that would allow Ontario to import hydro-electric power from Manitoba.

Other projects are more dubious. These include a proposal to subsidize a $1.5 billion pipeline to take CO_2 from the tar sands to a facility near Edmonton for sequestration, allowing tar sands expansion to continue unabated. University of Calgary engineering professor David Keith says it would be more efficient to use the money for CO_2 emission abatement at coal-fired power plants. Jaccard and Rivers estimate that half of the subsidies available under the Eco-Trust program will be spent on projects that would have happened anyway without a federal subsidy.

Environment Canada estimates this spending will reduce GHG emissions by 16 megatonnes (Mt) each year from 2008 to 2012. The National Round Table on the Environment and the Economy (NRTEE) reports the 16Mt figure was probably based on expected results from Quebec programs. The anticipated results for Quebec were then extrapolated to arrive at estimates for all provinces and territories. The Quebec program includes some reductions counted elsewhere in Environment Canada's totals such as benefits from substituting ethanol for 5% of gasoline consumption. In the absence of details on all provincial and territorial programs, the NRTEE says it is "difficult (if not impossible) to attribute incremental emission reductions."[64]

The Pembina Institute's Mathew Bramley says 16 Mt of reductions are not plausible by 2008. He notes that, "most of the news releases announcing allocations of the Trust money to each province and territory give lists of projects that 'may' be funded."[65]

2. Subsidies for Renewable Fuels

The 2007 budget includes up to $1.5 billion for promoting renewable fuels over the next seven years. This program offers subsidies of 10 cents a litre for ethanol to replace gasoline and 20 cents a litre for biodiesel over a nine-year period. These new subsidies will be offset by the elimination of excise tax breaks for ethanol (10 cents a litre) and for biodiesel (4 cents a litre) as of April 1, 2008.

The funds will promote renewable fuels to achieve the government's target of replacing 5% of gasoline consumption with biofuels by 2010 and 2% of diesel and heating oil by 2012. Currently, biofuel production in Canada almost exclusively involves biodiesel derived from oilseeds and ethanol made from corn, although the use of wheat as a feedstock is also planned. The benefits of these fuels are highly questionable since they offer only marginal gains in net energy output and small reductions in greenhouse gas emissions.

The International Food Policy Research Institute has analysed the potential benefits of biofuels. If the production of biofuels continues to expand at the current rate, it argues, food prices could rise as much as 20% to 33% by 2010. For its part, the UN Food and Agriculture Organization (FAO) is concerned this expansion of biofuels could increase the number of people without access to adequate food from 824 million to 1.2 billion.[66]

In our briefing paper, "Are Agrofuels Alternatives to Oil?", we note several problems posed by plans for massive cultivation of crops for fuel production — whether it's corn, sugarcane or oilseeds.[67] These problems include displacement of food crops, higher prices for low-income consumers, environmental degradation, proliferation of genetically modified plants and exploitation of impoverished labourers in the global South for the benefit of over-consumption in the North.

As Table 2 shows, Environment Canada's projection of GHG reductions through biofuels (4.1 Mt by 2012) is far more optimistic than that of Jaccard and Rivers (0.8 Mt by 2020). This is a prime example of how different assumptions create varied estimates. The NRTEE notes how the emission reductions estimated by Environment Canada are based on ratios that are higher than those cited in the most recent scientific literature and probably include some double counting of reductions already included elsewhere.[68]

3. EcoEnergy Renewable Initiative

This initiative allocates $1,480 million over four years for projects that generate electricity from renewable sources. This program provides a one-cent per kilowatt hour subsidy over 10 years for the output of each project. As plans for building renewable power facilities are already underway in Quebec, Ontario and British Columbia, Jaccard and Rivers say this subsidy program will also benefit many "free riders" (projects that would have happened without a subsidy). The National Round Table on the Environment and the Economy concludes that Environment Canada overstates benefits for this program by including total likely

emission reductions and not just incremental reductions that occur from new funding.

4. Public Transit Infrastructure

The Harper government pledged to provide $1.3 billion for public transit infrastructure, as well as another $962 million for public transit in the Greater Toronto Area. In addition, the 2007 budget announces other spending that may favour either more public transit or more private vehicles depending on how it is ultimately used:

- $2 billion per year transfer to municipalities through the Gas Tax Transfer may be spent on roads, on public transportation or on other infrastructure;
- $8.8 billion over seven years for a Building Canada Fund that likewise may be spent on highways, public transit or other infrastructure projects.

It is difficult to assess the ultimate impact of these programs without more information on spending priorities. No doubt some spending will help expand public transit, but the piecemeal approach falls short of a comprehensive national plan.

5. Public Transit Tax Credit

This income tax deduction for purchasers of monthly transit passes was first introduced in 2006. The 2007 budget extends this subsidy to some weekly passes and purchases made with electronic payment cards.

This is a prime example of a very inefficient subsidy since it mostly benefits people who are already regular transit users, attracting few new riders. One study estimates the passes cost $2,000 per tonne of CO_2 reduced.[69] The Jaccard and Rivers study estimates the cost of emission reductions at over $1,000 per tonne of CO_2e.[70]

6. Research and Development of Next Generation of Biofuels

The 2007 budget includes another $500 million to help develop the next generation of renewable fuels (from switchgrass, agricultural and wood wastes, etc). While these fuels promise fewer greenhouse gas emissions than ethanol made from corn, ethanol derived from cellulose is not a panacea; overproduction could still encroach on farmlands needed for food production.

7. EcoENERGY Retrofit Initiative

This program replaces two similar initiatives put in place by the previous government. The Liberals included a program called EnerGuide for Low-Income Households to help poorer Canadians retrofit their homes and save on energy bills. Conversely, the Conservatives' EcoENERGY Retrofit Initiative has no special provisions for people who cannot afford to undertake their own renovations.

Moreover, the EnerGuide for Low-Income Households was a larger program providing $100 million in subsidies annually for five years. By contrast, the Harper government's program provides around $55 million annually for only four years.

Moreover, the Conservatives' program is likely to end up creating "free riders" — subsidies for all those who would have undertaken retrofits even without subsidies. The National Round Table on the Environment and the Economy (NRTEE) estimates that free ridership could be as high as 40% to 80% of subsidy recipients.[71] By contrast, the cancelled EnerGuide for Low-Income Households

program would not have had many free riders: poorer families cannot afford expensive retrofits on their own. The NRTEE states that projections of gains from the EcoENERGY Retrofit Initiative are likely overstated since potential gains are often translated into estimated gains.

8. EcoEnergy Technology Initiative

This program will provide $57 million in annual subsidies over four years to develop green technologies. Jaccard and Rivers say the program, with its relatively small budget, is unlikely to lead to significant GHG emission reductions.

9. Vehicle Efficiency Initiative

The 2007 budget includes rebates for buyers of high efficiency vehicles:

- $2,000 rebate for vehicles that consume less than 5.5 litres of gasoline per 100 km
- $1,000 rebate for vehicles that consume between 5.5 and 6.5 litres per 100 km.

Furthermore, it imposes a Green Levy of $2,000 to $4,000 on vehicles consuming over 13 litres per 100 km.

In principle, this program taxes the sale of goods that harm the environment, while reducing the costs of better alternatives. In practice, the Green Levy is an inefficient carbon tax . Critics say an extra $2,000 fee will not deter purchasers of a $70,000 SUV. Environmentalist David Suzuki and auto industry analyst Dennis DesRosiers calculate the rebate will cost "an inordinately high $5,600 per tonne of greenhouse gas emissions reduced."[72]

10. EcoFriendly Vehicles

The 2007 budget includes $36 million over two years to promote the replacement of less fuel-efficient, pre-1995 vehicles. DesRosiers says the $36 million incentive for scrapping older cars will have little effect: it will amount to just $15 per vehicle. These vehicles are not likely to be replaced anyway over the next two years.

11. 50% ACCA for Clean Energy Generation

The Accelerated Capital Cost Allowance (ACCA) allows firms to defer taxes on half their capital spending for projects using a renewable energy source (e.g. wind, solar, small hydro), using waste for fuel (e.g. landfill gas, manure, wood waste) or making efficient use of fossil fuels (e.g. high efficiency cogeneration).

The Department of Finance's Annual Tables on Tax Expenditures do not give an overall cost estimate for this tax expenditure. The 2006 budget, however, does provide an estimate for extending this tax incentive to pulp and paper companies that burn wood waste for cogeneration to produce both thermal energy and electricity. In this case, the ACCA will reduce federal revenues by $10 million in 2006-07 and by $20 million in 2007-08.[73]

The 2007 budget expands this deferment to include wave and tidal energy, as well as space heating of commercial and apartment buildings and hot water for laundries, car washes and hotels. Support for active solar devices was formerly available only for industrial processes or greenhouses. The budget also eliminates minimum-size requirement for photovoltaic or fixed-location fuel cell systems to qualify for accelerated tax deferments.

Table 2: Federal Energy Efficiency and Greenhouse Gas Reduction Initiatives involving expenditures above $100 million

Policy	Total Subsidies Promised ($ millions)	Duration of Program (years)	Approximate Annual Subsidies ($million)	Environment Canada Estimate of GHG Reduction in 2012 (Mega-tonnes)	Jaccard & Rivers Estimate of GHG Reduction in 2020 (Mega-tonnes)	Jaccard & Rivers Estimate of GHG Reduction in 2050 (Mega-tonnes)
EcoTrust for Clean Air and Climate Change transfers to provinces and territories	$1,519	3	$506	16	15	30
EcoENERGY for Biofuels — + subsidies for biofuels + Renewable Fuels R&D for next generation biofuels	up to $1,500 $500	9 7	$167 $71	4.1	0.8	1.7
EcoENERGY Renewable Initiative subsidies for renewable power projects	$1,480	14	$106	6.67	5.6	10
Public transit infrastructure funding	$1,300 +$962 for Greater Toronto Area	3	$754	n.a.	n. a.	n.a.
Public Transit Tax Credit	$605	3	$202	0.22	0.1	0.1
EcoENERGY Retrofit Initiative subsidies for building retrofits	$220	4	$55	1.0	1.5	4.5
EcoENERGY Technology subsidy for R&D of clean energy	$230	4	$57	n.a.	1.1	8.0
Vehicle Efficiency Initiative: Green levy on inefficient vehicles; Rebates on efficient vehicles	- $215 revenue from Green levy; $160 cost of rebates	2	- $10	0.25	1.2	2.2
Sub Totals	**$8,261**		**$1,908**	**28.24 Mt**	**25.3 Mt**	**56.5 Mt**

Sources: 2006 and 2007 federal budgets; Environment Canada. *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act 2007; and Jaccard, Mark and Rivers, Nic. 2007. Estimating the Effect of the Canadian Government's 2006-2007 Greenhouse Gas Policies.* Toronto: C.D. Howe Institute. June 12.

Table 3: Federal Energy Efficiency and Greenhouse Gas Reduction Initiatives involving expenditures of less than $100 million

Policy	Total Subsidies Promised ($ millions)	Duration (years)	Approximate Annual Subsidies ($million)	Environment Canada Estimate of GHG Reduction in 2012 (Megatonnes)
EcoENERGY for buildings and houses	$60	4	$15	1.3
EcoENERGY for Renewable heat	$36	4	$9	0.02
EcoFriendly Vehicles — subsidy for scrapping older vehicles	$36	2	$18	0
EcoFREIGHT subsidies for trucking and freight technology	$33	4	$8.25	1.255
EcoENERGY for Fleets	$22	4	$5.5	0.5
50% Accelerated Capital Cost Allowance for forestry bioenergy cogeneration	$30	2	$15	n.a.
EcoENERGY for personal vehicles	$21	4	$5.25	0.1
Tax incentives for Clean Energy Generation	$20	2	$10	n.a.
EcoENERGY for Industry	$18	4	$4.5	0.4
EcoTECHNOLOGY for Vehicles	$15	4	$3.75	0.928
EcoMobility Program to encourage use of public transportation	$10	4	$2.5 1.675	$2.5 1.675
Marine Shore Power Program (shore based power for vessels in ports)	$6	4	$1.5	0.008
Sub-Total Table 3	**$307**		**$98.25**	**6.186 Mt**
Sub Total Table 2	**$8,261**		**$1,908**	**28.24 Mt**
Totals Tables 2 and 3	**$8,568**		**$2,006.25**	**34.426 Mt**

Sources: 2006 and 2007 federal budgets and Environment Canada. *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act 2007.*

While these extensions are welcome, there is no additional support for active or passive solar systems for individual houses. Why is the ACCA for renewable energy projects only 50% instead of the 100% accorded to the tar sands?

Subsidies Alone Will Not Achieve Significant GHG Reductions

As Tables 2 and 3 show, the government announced $8.6 billion in new spending on 20 energy efficiency and GHG initiatives during 2006 and 2007. Environment Canada projects these initiatives will reduce just 34.4 Mt of GHG in 2012.

Other measures listed in Table 4 involving the regulation of large industrial emitters, passenger vehicle emission standards and energy product standards are expected to reduce emissions by over twice as much-70.4 Mt in 2012.

These results indicate that direct regulation is more effective than subsidy programs for reducing GHG emissions.

Yet the regulatory initiatives announced to date are far from sufficient. Even if Environment Canada's estimates proved accurate, all these subsidy and regulatory programs together would only reduce total GHG emission by 105 Mt in 2012. As a result, total Canadian emissions would remain 31% above Canada's Kyoto targets.

Some Subsidies More Efficient Than Others

Based on data in Tables 2 and 3, one can estimate the relative efficiency of various programs in terms of GHG reduction per dollar spent. The most efficient initiatives include the following:

- EcoMobility Program to encourage use of public transportation;
- The program for improving vehicle technology;
- Two programs for efficiency improvements in freight transport;
- EcoENERGY for Industry; and
- Subsidies for retrofitting individual houses.

Each of these programs appears to cost less than $30 per tonne of GHG emission reductions. Clearly, these kinds of programs are good investments. Yet these six programs together account for only $158 million or just 1.8% of all the federal spending programs listed in Tables 2 and 3.

At the other end of the spectrum, programs like the rebates for purchasers of high efficiency vehicles, the subsidy for scrapping older vehicles and the Public Transit Tax Credit are very inefficient. These programs cost between $900 and $5,600 per tonne of GHG emission reductions. Other relatively inefficient programs include subsidies for biofuels costing around $190 per tonne of emission reductions.

Building retrofit programs can be relatively expensive but are good investments because renovated buildings lead to energy savings and emission reductions year after year. These kinds of programs can be improved by giving preferential treatment to low-income households that could not afford renovations without financial assistance.

In the short run, subsidies for buying solar heating and cooling devices may appear costly. However, if they create market demand and encourage large-scale production runs that bring down prices for other purchasers, they have long-term benefits.

Most of the programs shown in Tables 2

and 3 are only funded for two to four years. Experience teaches, however, that government must sustain spending on policies to foster green technologies long enough for new systems to achieve economies of scale and capture significant market shares. Back in the 1970s, when federal incentives were first made available for solar industries, more than 700 solar companies emerged in Canada. Within two years of the Mulroney government removing these subsidies in the mid-1980s, 85% of these companies went out of business.[74]

case study: aviation and the world's climate

With the growth of the global economy, air travel has never been more accessible or more in demand. This surge in popularity has led to rapid growth in passenger traffic. According to the Intergovernmental Panel on Climate Change (IPCC), passenger traffic on scheduled airlines has increased by 60% over the past 10 years; it is expected to grow by about 5% per year over the next 10-15 years.[75] Furthermore, the IPCC also projects the total amount of fuel used in aviation — including passenger, freight and military — will increase by 3% per year over the same period.[76]

As the popularity of air travel increases, so do the negative environmental impacts associated with the burning of aviation fuel. Currently, air travel is one of the world's fastest growing sources of greenhouse gases. It is responsible for 2% of all global warming emissions[77], and accounts for almost 4% of Canada's total transportation greenhouse gas emissions.[78]

Aircraft Emissions and Climate Change

Emissions from aircraft flying several km above the Earth's surface affect the atmosphere more directly than the same emissions at ground level. Aircraft emissions posing particular environmental concern include:

- The two greenhouse gases: carbon dioxide (CO_2) and water vapour (H_20),
- Nitrogen Oxides (NO_x),
- Sulphur Oxides (SO_x), and
- Soot.

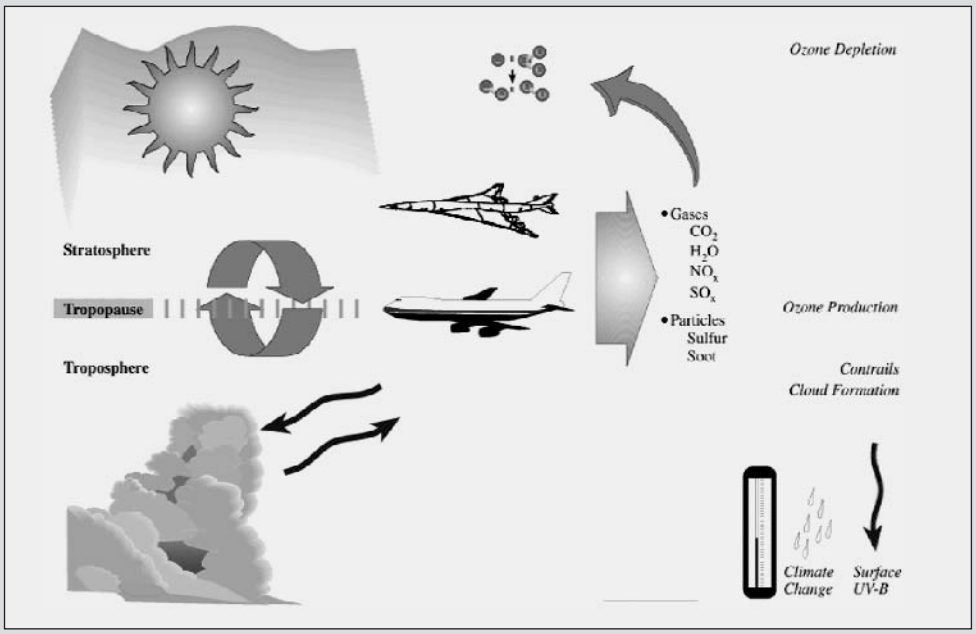
The burning of aviation fuel affects the atmosphere in various ways. CO_2 emissions remain in the atmosphere for about 100 years, during which time they become greenhouse gases. NO_x, SO_x, water vapour and soot have shorter atmospheric lives, but continuously alter the concentration of local atmospheric greenhouse gases, including CO_2, Ozone (O3) and Methane (CH4); these also contribute to climate change.

Most aircraft emissions are produced at high altitudes. High-altitude emissions do greater harm since they trigger chemical reactions and atmospheric effects that have a net warming effect.[79]

As a result, the climate impact of aircraft is two to four times greater than the effect of their CO_2 emissions alone.[80]

Furthermore, the emissions of NO_x, SO_x, water vapour and soot crystallize and form condensation trails (contrails). These thin vapour trails can be seen in the sky behind airplanes for several hours, and can spread up to 2 km wide before dispersing. Contrails trap heat radiating from the Earth's surface that would otherwise escape, thus contributing to global warming. Night flights have the strongest warming impact, as daytime flight contrails actually reflect some sunlight away from the Earth.[81]

Figure 1: Impacts of aviation on the atmosphere[82]



Aviation and Fossil Fuel Consumption

The aviation sector currently consumes 2-3% of total fossil fuels used worldwide, of which civil aviation uses more than 80%.[83] In addition, the global transportation sector currently consumes 20-25% of all fossil fuels. Therefore, the aviation sector consumes 6-12% of fossil fuels used in transportation. This makes it the second largest consumer of fossil fuels after road transportation, which consumes 80%.[84]

It is unlikely that climate-friendly alternatives such as solar or hydrogen will replace fossil fuels for aviation anytime soon. A number of airlines including Air Canada[85] are implementing carbon-offset programs to green their image. Such initiatives, however, do little to change consumer attitudes or directly address the increased emissions resulting from the projected growth in aviation.

Inadequate Responses to the Crisis

The International Civil Aviation Organization (ICAO) is the UN agency that sets standards and regulations for aviation security, safety, efficiency and environmental protection. Under the terms of the 1997 Kyoto Protocol, member states were invited to pursue the limitation or reduction of emissions produced by international aviation through the ICAO. While the ICAO recently called for a plan to address GHG emissions through voluntary emissions trading schemes, it has not made any meaningful attempts to deliver or support mandatory policies to stabilize or reduce emissions.

Certain ICAO member states are reluctant to take immediate action. At the ICAO's 36th Assembly, a coalition led by the United States, and including Canada, China, Saudi Arabia and Brazil, blocked the adoption of a proposal from the European Union (EU) to integrate the aviation sector into its existing emissions trading system. Environmental groups have criticized Canada's alignment

with the US on voluntary measures for aviation as more evidence of Canada's "made in the USA game plan for climate inaction."[86]

Canada has also been dragging its heels on climate change and the aviation sector with respect to subsidies to the Canadian aviation industry. The IPCC has suggested removing subsidies for air travel to reduce aircraft emissions. Yet between 2001 and 2006, the Government of Canada infused $374 million into the airline industry in the form of direct subsidies, grants and contributions.[87] The government should use these subsidies to research more sustainable forms of aviation or encourage travel by rail or bus.

case study: the mackenzie valley natural gas pipeline

Plans for building a pipeline down the Mackenzie Valley to deliver gas from the Mackenzie Delta and the Beaufort Sea to Southern Canada have been on and off again for decades. The pipeline's major sponsor, Imperial Oil Limited — Exxon's Canadian subsidiary — has consistently maintained it will not build the pipeline without government subsidies. These could include everything from indirect support (building infrastructure such as roads and airfields) to more direct subsidies (tax breaks such as accelerated capital cost allowances). Imperial's demands also include payments for indemnifying Aboriginal communities, as well as political support through the settlement of First Nations' land claims.

Imperial has publicly threatened to suspend the project unless the company, which earned $2.6 billion in profits in 2006, is guaranteed a double-digit percentage return on its investment. In March 2007, the company announced its cost estimate for building the pipeline had jumped from $7.5 billion in 2004 to $16.2 billion. Whereas Imperial once sought $1.2 billion in federal subsidies, it now wants more. Analysts say the federal government would have to offer at least $2 billion to satisfy Imperial.[88] Northern Affairs Minister Jim Prentice has publicly challenged Imperial and its partners to "reconfigure and reinvent the project," implying that Ottawa is not ready to meet all of Imperial's demands.[89] At the same time, Prentice signalled the government is willing to help through such measures as reduced royalties or taking gas in lieu of royalties.

Media reports indicate that a reconfiguration of the project may indeed be underway with Trans Canada Corp. likely to take a major stake in the $8 billion main transmission line in partnership with the Aboriginal Pipeline Group.[90] Meanwhile Imperial, Shell and Conoco-Phillips would take responsibility for the gathering system to get the gas to the main pipeline costing another $8 billion.

In this case TransCanada's Chief Executive Officer still expects to receive "significant involvement of the government of Canada."[91] TransCanada has already filed an application to build a gas pipeline from northwest Alberta where it would link into a Mackenzie line to the Fort McMurray area. Under this scenario Imperial still holds a strong bargaining position; natural gas from the Arctic is crucial to sustain tar sands production and fulfill the Prime Minister's vision of Canada as an "energy superpower."

Journalist Hugh McCullum has revealed how "the entire contents of the Mackenzie Gas project for 20 years could flow directly to the tar sands, according to a speech in the spring of 2005 at Harvard University by [then Alberta] Premier Ralph Klein."[92] If that happened, Beaufort gas would not be available for the half of all Canadian homes now heated by gas or as a feedstock for petrochemical, fertilizer, pharmaceutical and plastics industries.

5 regulatory policies for GHG reduction

Canada's greenhouse gas emissions are mostly attributable to two sets of actors:

- Large firms in the oil and gas, electricity generation, smelting, iron and steel, potash, cement and chemical industries, which produce about half of Canada's emissions.
- Downstream energy users in the transportation, commercial, residential and institutional sectors, which produce about two fifths of emissions.

1. Policy Options

Many civil society groups call for setting targets for large emitters that meet our Kyoto commitments, that is, to reduce GHG emissions to 6% below their 1990 levels over the years 2008 to 2012. These groups reject "intensity" targets, which require industry to reduce GHG emissions per unit of production but allow absolute levels to increase. They argue such targets are inadequate.

Many groups also call for end users of fossil fuels to pay carbon taxes or fees that discourage over-consumption. These taxes or fees can be calibrated according to the relative GHG emission-intensity of various fuels (i.e. higher fees for coal, gasoline and diesel fuel, and lower fees for natural gas). That said, low-income Canadians and those living in remote communities without alternatives to fossil fuels should not be penalized financially. For example, the Alternative Federal Budget proposes a Green Energy Tax Refund for households with incomes of up to approximately $67,000.[93] The federal tax system already makes special allowances for people living in remote Northern communities where living costs are high.

Rising energy costs are a particular concern for low-income Canadians. Inability to pay energy bills is the second leading cause of evictions from rental housing. The poorest fifth of the population pays 13% of its income on energy bills; other Canadians spend 4% of their incomes on energy.

The National Anti-Poverty Organization (NAPO) calls for a national program to retrofit homes and rental accommodation of low-income Canadians. In addition, NAPO insists on adequate wages and social assistance payments. This would enable low-income Canadians to afford higher energy costs rather than rely on temporary subsidies aimed at offsetting rising energy prices.

2. Federal and Provincial Plans Inadequate

In April 2007, federal Environment Minister John Baird announced a regulatory framework for industrial air emissions based on intensity targets. It falls far short of meeting Canada's Kyoto commitments.[94] The policy would require existing large emitters to reduce the intensity of their GHG emissions per unit of production from 2006 levels by 6% per year over the period 2007 to 2010. New facilities are granted a three-year grace period during which no emission intensity targets would apply. Several tar sands projects are expected to take advantage of this exemption.

A study by the Tyndall Centre for Climate Research in Britain commissioned by the World Wildlife Fund Canada concludes that, despite reductions in emission intensity, GHG emissions from Canadian tar sands plants could grow by between 112% and 219% by 2015. The study finds the federal intensity targets are so low that tar sands firms could meet them in some instances through measures that the industry has already volunteered to adopt. The cost of compliance with the government's requirements will be only about five cents per barrel on average. Moreover, after meeting the government's modest targets tar sands companies could make windfall profits by selling emission reduction credits worth as much as $714 million.[95]

Firms that do not reduce their own emissions can buy emission credits from other firms within Canada and to a limited extent internationally. The Conservative government policy paper promises to explore opportunities for linking a Canadian emission trading system to a yet to be established US system that may also involve Mexican participation. The paper also says Canadian firms may trade up to 10% of their emission targets with countries from the global South through the Kyoto Clean Development Mechanism. However, this is unlikely since the CDM is legally available only to countries that meet their Kyoto targets.

The federal policy would also allow companies to meet their obligations by contributing to a new Climate Change Technology Fund. Initially, the price would be $15 per tonne of CO_2 emissions for the period from 2010 to 2012, rising to $20 per tonne in 2013, and thereafter in line with nominal growth in GDP. The initial $15 per tonne price is probably too low to induce the tar sands industry to invest in large-scale emissions reductions; the principal technical option-carbon capture and storage-is expected to cost more than $30 a tonne.[96]

As noted in Table 4, Environment Canada's report on *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act 2007* estimates large emitters will reduce emissions by 58 Mt in 2012. Mathew Bramley of the Pembina Institute provides two reasons why this estimate is highly suspect. First, the program allows emitters to claim "early action credits" without having to secure new reductions. Second, industries that pay into the technology fund can avoid emission reductions in the short term, while any reductions that do result from new technologies are unlikely for several years. Hence, Bramley concludes that reductions of 13 Mt, rather than 58 Mt, are more likely in 2012.[97]

The federal government has yet to elaborate on proposals to curb emissions by downstream fossil fuel users. In general, the proposal will include a mandatory vehicle fuel-efficiency standard to begin with the 2011 model year. The government will develop this standard with various "stakeholders" and the US government as part of a "Clean Auto Pact."

Regulations governing emissions from rail, marine and aviation transportation sectors have also yet to be developed. There is, however, a reference to a Memorandum of Understanding negotiated with the aviation industry in 2005 that sets a cumulative GHG reduction target of 24% by 2012 relative to 1990 levels.

Ultimately, the Harper government seeks to reduce total GHG emissions by 20% relative to 2006 levels by 2020. If this goal were achieved, Canadian GHG emissions would still be 8% above the Kyoto target set for 2012.[98]

Environmentalist David Suzuki estimates that, under the Baird plan, Canada would not meet its Kyoto target until 2025 — 13 years too late.[99]

While large industries are responsible for around half of Canada's GHG emissions, Baird expects them to account for only 40% of total reductions. The transportation sector is expected to account for another 27% of reductions, but as noted, new policies for vehicle fuel-efficiency standards are undeveloped. How the remaining third of reductions will be met is even more vague. The federal government is counting on the provinces and the territories to achieve most of these additional reductions, partly with the aid of $1.5 billion in federal subsidies allocated under the Eco-Trust for Clean Air and Climate Change described in Part 4.

It is not at all clear whether the provinces and territories will achieve this goal. Alberta, for example, has announced a plan similar to the federal government's. It would compel companies to cut the intensity of their CO_2 emissions by 12% per unit of overall production or face a carbon tax of $15 per tonne on excess emissions. According to David Keith, a professor of engineering at the University of Calgary, this tax is too low to create an incentive for large final emitters to lower their emissions.[100] Several studies suggest that a carbon tax or penalty under a cap and trade system should be at least $30 per tonne.[101]

3. Estimate of Emission Reductions from Federal Policy Initiatives

Table 4 reproduces estimates from the Environment Canada report on *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act 2007*. In addition, it showcases the Jaccard and Rivers study published by the C.D. Howe Institute concerning emission reductions that will likely result from federal policies announced in 2007. (Although Jaccard and Rivers asked Environment Canada about the major assumptions behind these programs, they say they did not receive adequate information. Hence, their estimates depend on their own assumptions, such as the adoption of California's vehicle emission standards by Canadian jurisdictions.)

Table 4 also adds in the sub-total of smaller emission reductions achieved through subsidies listed in Tables 2 and 3. By comparing the sub-totals, it's clear that regulatory measures listed in Table 4 are far more effective at curbing GHG emissions than all the subsidy programs combined. Jaccard and Rivers show all the government policies introduced over the last two years will only reduce carbon dioxide equivalent (CO_2e) emissions by 116.5 Mt in 2020-far less than the 300 Mt reduction required to meet the government's own target of a 20% decrease from 2006 levels.[102] If these policies were to continue unchanged over four decades, they argue, the government would miss the 2050 target of a 65% reduction in emissions by a wide margin. Indeed, reductions would have to be twice as large as expected to meet the 2050 target.

In another study, Jaccard and Rivers say a carbon tax would be the most effective policy tool, but they deem it unlikely to be accepted "for political reasons."[103] However, as Canadians become more aware of the consequences of climate change, they are more likely to endorse a carbon tax. A recent poll commission by the BBC World Service found that 57%

Table 4: Federal Energy Efficiency and Greenhouse Gas Reduction Regulatory Policies announced during 2007

Regulatory Policies	Targets	Environment Canada Estimate of GHG Reduction in 2012 (Megatonnes)	Jaccard and Rivers Estimate of GHG Reduction in 2020 (Megatonnes)	Jaccard and Rivers Estimate of GHG Reduction in 2050 (Megatonnes)
Large Industrial Emitters required to reduce GHG emission intensity	18% GHG emission intensity reduction by 2010 and a further 2% per year reduction by 2015	58	74.7 Mt (assuming 2% annual reduction rate maintained after 2015)	283.9 Mt (assuming 2% annual reduction rate maintained after 2015)
Passenger vehicle emission standards	"benchmarked against a stringent North American standard"	5.3	14.8 Mt (assuming California standards)	44.6 Mt (assuming California standards)
Energy Using Products	Updates for 10 regulated products and new regulations for 18 others	7.1 (includes 5.7 Mt of reductions through regulation of incandescent light bulbs)	1.7 Mt	2.6 Mt
Sub-Total for Regulatory Policies described above		70.4	91.2 Mt	331.1 Mt
Sub-Total for Initiatives recorded in Tables 2 & 3		34.426	25.3 Mt	56.5 Mt
Total for Subsidy and Regulatory Policies		**104.826 Mt**	**116.5 Mt**	**387.6 Mt**

Sources: Environment Canada. *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act 2007* and Jaccard, Mark and Rivers, Nic. 2007. *Estimating the Effect of the Canadian Government's 2006-2007 Greenhouse Gas Policies*. Toronto: C.D. Howe Institute. June 12.

of Canadians would support a carbon tax. This figure rises to 81% if the other tax reductions offset the carbon tax.[104]

Many civil society organizations (CSOs) have endorsed carbon taxes. For example, the Canadian Union of Public Employees (President Paul Moist), Friends of the Earth (CEO Beatrice Olivastri) and the Loreto Bay Company (Chair David Butterfield) have jointly called for carbon taxes. They warn that anything less than $30 per tonne of CO_2 won't induce serious reductions in consumption. Such a levy, they argue, would involve paying about 10 cents a litre more for gasoline and 3 cents more per kilowatt hour for electricity. It would cost oil companies an extra $2 to $3 per barrel.[105]

Similarly, the Alternative Federal Budget (prepared by the Canadian Centre for Policy Alternatives with several other CSOs) has called for carbon taxes coupled with rebates for low-income households earning less than $67,000 a year.[106] Likewise, Friends of the Earth Canada has called for a $50 tax per

tonne of CO_2e on transportation and heating fuels with rebates for households with less than $80,000 in annual income. The David Suzuki Foundation champions "ecological fiscal reform" whereby the government would raise taxes on items that damage the environment such as inefficient vehicles, and lower them on goods that benefit the environment.

6 canada subsidizes fossil fuels in the global south

In this section we explore how two foreign policy arms of the federal government, Export Development Canada (EDC) and the Canadian International Development Agency (CIDA), finance fossil fuel production and some green alternative energy projects internationally.

1. Export Development Canada

The oil and gas sector receives significant financial support and services from Export Development Canada (EDC), a Crown corporation established to promote Canadian trade and investment internationally. EDC provides project financing, loan guarantees, risk insurance and other financial services to Canadian companies, including fossil fuel producers, as well as oil and gas subcontractors and equipment suppliers.

In 2006, the first year of public reporting by sub-sector, EDC supported transactions in the oil and gas sector valued at $8.6 billion.[107] [vi] In that year, the oil and gas sector was second only to the pulp and paper industry in the level of EDC support. By contrast, EDC reported business transactions of a mere $15 million for alternative fuels and $9 million for renewable energy. This represents a ratio of 358 to 1 between EDC's business in fossil fuels compared to alternatives and renewable energy.

The imbalance became even greater in 2007. In the first half of the year, EDC supported transactions in the oil and gas sector valued at $6.8 billion, the highest of any industry sub-sector.[108] By contrast, EDC business transactions for alternative fuels were only $5 million and for renewable energy just $2 million. Hence, for every dollar of exports EDC facilitated in the alternative fuels and renewable energy sectors, it facilitated $974 of buisness in oil and gas.

Since 2002, EDC has supported at least eight major fossil fuel production projects that were deemed likely to have "significant adverse environmental effects" (Category A projects):

Table 5: Business Volumes of Export Development Canada, by industry sub-sector[109]

	2006	2007 (first six months)
Oil and gas sector:	$8,599 million	$6,817 million
Alternative Fuels:	$15 million	$5 million
Renewable Energy:	$9 million	$2 million

vi Transactions facilitated by EDC include not only direct financing by the Crown corporation, but also any transactions covered by EDC's contract insurance, political risk insurance or short-term insurance. Since EDC only discloses limited information about each of its transactions on its website, it is difficult to assess which transactions are included in any given sub-sector.

Table 6: Partial list of EDC transactions in the oil and gas sector (first half of 2007)[110]

Transaction details	Range, in Canadian dollars
Financing to various unidentified Canadian oil and gas exporters doing business with **Petroleos de Venezuela S.A.**	$250-500 million
Financing to **TransCanada PipeLines Limited** to support foreign direct investment in the United States	$50-100 million
Financing to various unidentified Canadian oil and gas exporters doing business with US-based **ConocoPhillips**	$50-100 million
Financing to **Irving Oil Ltd.** for a liquefied natural gas (LNG) terminal in New Brunswick.	$25-50 million
Financing to various unidentified Canadian oil and gas exporters doing business with the **Qatar Chemical Company Ltd.**	$25-50 million
Financing to **Sherritt International** and other Canadian energy exporters to support foreign direct investment	$25-50 million
Financing to various unidentified Canadian oil and gas exporters doing business with **Reliance Industries Ltd.** of India.	$15-15 million
Financing to various unidentified Canadian oil and gas exporters doing business with **China Gas Holdings Ltd.**	$5-15 million
Financing to **Terasen International Inc.**, a natural gas pipeline company, for business in Turkey.	$5-15 million

- Offshore Oil and Gas Platform, Brazil (2006);
- Qatargas3 Liquefied Natural Gas Project, Qatar (2005);
- Dolphin Energy Project, United Arab Emirates (2005);
- Buzzard Offshore Oilfield Development, United Kingdom (2004);
- White Rose Offshore Oil and Gas Project, Canada (2003);
- PEMEX Oil and Gas Master Loan, Mexico (2003);
- Eastchester Gas Expansion Project, USA (2002); and
- Kern River Gas Expansion Project, USA (2002).

Through these transactions, the Government of Canada has provided major financial assistance to Canadian oil and gas companies and their foreign project partners. Indeed, project proponents can sometimes leverage EDC support to access additional financing, either from international financial institutions (IFIs) or private lenders. The Buzzard Offshore Oil Project in the North Sea is a case in point. Calgary-based Nexen Inc. secured commitments of $92.5 million (U.S.) from EDC in November 2004 as part of a larger $2 billion (U.S.) credit facility from a group of private lenders that included the Toronto-Dominion Bank.[111]

While fossil fuel production still receives a much larger share of support than renewables, EDC has taken some small steps to support greener energy projects. Until recently, EDC's EnviroExport Initiative focused on supporting exporters of environmental technologies, including some wind energy and solar energy companies. In 2006, as part of a corporate restructuring, EDC merged its environmental sector unit with the infrastructure sector unit. Thus, it may become more difficult to determine how much EDC business involves environmental technologies unless its disclosure practices improve.

EDC and Climate Change

EDC's Environmental Policy acknowledges it is bound by the Government of Canada's international obligations. The Policy states EDC must "take into account multilateral environmental agreements signed by Canada." Presumably this would include the Kyoto Protocol, but EDC has never disclosed which agreements fall under the policy.

What does it mean, in practice, to take into account the Kyoto Protocol? Under the Protocol, Canada and many of its trading partners have made formal commitments to GHG emission reductions. As a Crown corporation that facilitated $66.1 billion of business transactions in 2006, EDC could have a significant impact on the ability of Canada and other countries to meet their Kyoto targets. According to Stephen Poloz, vice-president of corporate affairs, however, EDC has not conducted any comprehensive carbon audit of its portfolio to measure indirect GHG emissions or assess risks and impacts related to climate change.[112] EDC should, at a minimum, quantify the GHG emissions of the business activities that it facilitates.

Still, the EDC has been watching the growing market for greenhouse gas emissions credits. While EDC has not taken a clear position on this market, the 2006 Corporate Social Responsibility Report states that, "EDC has been following the development of the [emissions trading] market closely and has discussed it with Canadian companies and other players to understand market dynamics and to identify potential gaps for Canadian exporters and investors. In 2007, EDC will continue to devote resources to this emerging market."[113]

EDC and Human Rights

KAIROS and several other Canadian civil society groups are concerned about the human rights impacts of overseas activities of EDC-supported resource extraction companies. EDC is still incorporating human rights considerations into its decision-making. At present, it does not have a publicly available human rights policy against which it assesses potential projects.

Currently, EDC uses World Bank standards to benchmark clients' handling of social and environmental issues associated with

projects under consideration. These standards do not include specific requirements to comply with human rights. EDC has signed a Memorandum of Understanding with the Department of Foreign Affairs and International Trade to assist EDC and its Political Risk Assessment Department (PRAD) in understanding the human rights risks associated with specific countries. According to EDC's 2006 Corporate Social Responsibility report, "in 2006, 67 transactions included an assessment. For transactions in markets with known human rights sensitivities, PRAD may undertake a more detailed human rights assessment."

Such an assessment would have been welcomed in Colombia, a country embroiled in armed conflict with well-documented patterns of human rights violations. In 2006, EDC contributed US$20 million to a credit facility totalling US$50 million for Calgary-based Petrobank Energy and Resources Ltd., to help further develop the company's Colombian oil fields.[114] Petrobank is undertaking oil exploration and development in Putumayo, a region that is heavily militarized to protect local petroleum installations.

According to Canadian academic Gary Leech, the Colombian Army has "two helicopters — owned by the state oil company Ecopetrol and Canada's Petrobank — at its disposal for transporting troops on counterinsurgency operations."[115] EDC does not disclose any information on whether, or how, it assesses human rights impacts for a given transaction. The Canadian public has no way of knowing what kind of assessment, if any, was conducted in relation to the Petrobank loan.

In recent years, several leading Canadian and international agencies have developed credible human rights impact assessment (HRIA) tools. For instance, Montreal-based Rights and Democracy has tested an HRIA methodology on five Canadian foreign investment projects and published its findings in May 2007. Several NGOs, companies and international financial institutions are developing and testing other HRIA methodologies.

In 2006, the government's national roundtables on corporate social responsibility (CSR) in the Canadian extractive sector repeatedly discussed EDC's performance with respect to human rights and CSR. The final report from the roundtables' Advisory Group contained two recommendations specifically addressing EDC:

Recommendation 2.3.2.3
"That Export Development Canada (EDC) improve its disclosure policy. Subject to bona fide commercial confidentiality concerns, EDC should publicly release:

- Project classification rationales;
- Project assessments (undertaken during EDC due diligence);
- Modifications and mitigation measures required by EDC; and
- Project monitoring and evaluation documents generated by EDC, project proponents and consultants throughout project implementation."

Recommendation 3.4.2.1
"That Export Development Canada (EDC) utilize the Canadian CSR Standards in the development of their policies, practices and in the assessment of proposed extractive-sector projects. It is recommended that EDC ask project proponents to undertake peace and conflict impact assessments or equivalent tools when operating in conflict zones.

During the course of the project, EDC should apply a compliance management process that includes, at a minimum,

the following elements:

- Enhanced efforts to make companies more aware of their human rights and environmental considerations; and
- Efforts to bring non-compliant companies back into compliance through active engagement with the companies.

EDC's contracts should provide that serious failure by extractive-sector companies to meet the Canadian CSR Standards should lead to the withdrawal of financial and insurance support when reasonable efforts by EDC and the Government of Canada to bring the company back into compliance have failed. EDC should develop and publicly release policies and guidelines for measuring 'serious failure,' reflecting the Government of Canada's work in this area. Among other things, in deciding whether there has been such a serious failure, EDC should take into account a finding by the Compliance Review Committee that the company is not in compliance with the Canadian CSR Standards and any accompanying relevant recommendations."

Given EDC's lack of transparency around GHG emissions and human rights impacts described above, it is clear that the roundtable Advisory Group recommendations need to be implemented.

2. Canadian International Development Agency (CIDA)

Climate Change: In 2000, CIDA launched a $100 million Canada Climate Change Development Fund (CCCDF) "to promote activities addressing the causes and effects of climate change in developing countries, while helping to reduce poverty and promote sustainable development."[116]

By 2005, the CCCDF had funded projects in more than 50 countries and contributed $10 million to the Least Developed Countries Fund (LDCF) managed by the United Nations and the Global Environment Facility. The LDCF helps low-income countries prepare and implement national programs for adaptation to climate change.

Five projects in China that received financing from the CCCDF are allocated:

- $4.9 million to provide Canadian technical expertise to help China address issues of climate change, including technical tools for collecting, measuring, analyzing and presenting climate change data;
- $2.35 million to enhance China's capacity for carbon sequestration including how to assess the potential for sequestration through managing forests and planting trees while identifying the social, economic and environmental implications of such land use;
- $2 million to share Canadian expertise on how to reduce CO_2 emissions from coal-fired utility boilers;
- $2.15 million to provide Canadian expertise on small-scale hydro-electric generation;
- $5 million to share Canadian technology for sequestration of CO_2 in deep, unmineable coalbeds to enhance the recover of coalbed methane. Tests indicate that CO_2 injection will increase methane production by about 400%.[117]

Africa: Through the $100 million Canada Investment Fund for Africa, a partnership with private investors, CIDA supports oil exploration in Northern Africa and the privatization of the energy sector in Senegal. Another project undertaken with the Southern Africa Development Community (SADC) is "increasing the capacity of consulting

engineers, industrial firms, and educational institutions in the SADC region to develop industrial energy management programs, undertake energy efficiency projects, and offer education and training programs in energy conservation and management."[118]

Americas: In the Americas, CIDA invested in a heavy oil project in Venezuela involving Phillips Petroleum and Chevron/Texaco. CIDA has funded projects in Bolivia for technical assistance in hydrocarbon regulation and for indigenous participation in rural energy.[119] A Cuba-Canada Environmental Restoration Partnership project "focuses on a 700-hectare parkland in Havana, Cuba. Through strong community involvement in environmental education and restoration projects, [it] strengthens the capacity of local groups to deliver focused environmental education programs involving Havana school children."[120]

Due to a lack of comprehensive information, it is difficult to assess the balance between CIDA projects that promote fossil fuel extraction and those that support green alternatives. Hence, KAIROS has petitioned the Commissioner of the Environment and Sustainable Development to request a more thorough public accounting of CIDA projects relating to energy and climate change initiatives.

7 international financial institutions

World Bank invests heavily in fossil fuel projects...

About 40% of Canada's Official Development Assistance is channelled through multilateral institutions. The World Bank is the most important international financial institution involved in financing energy projects in the global South. Regional development banks in Asia, Africa and Latin America are also involved. For example, the Inter-American Development Bank has pledged some US$2.5 billion to expand ethanol production in Brazil.[121] However, an in-depth exploration of the lending practices of the regional banks is beyond the scope of this study.

The origin of World Bank involvement in fossil fuel projects can be directly traced to the influence wielded by its most powerful member, the United States of America. After the 1979 Iranian revolution led to a doubling of oil prices and a heightened sense of its dependence on petroleum from the Middle East, the US stepped up efforts to undermine the power of the Organization of Petroleum Producing Countries (OPEC). In 1981, the US Treasury instructed the World Bank to play a leading role in the "expansion and diversification of global energy supplies to enhance security of supplies and reduce OPEC market power over oil prices."[122]

The Sustainable Energy and Economy Network has documented the extent of World Bank support for fossil fuel investments[123]:

- Between 1992 and late 2004, the World Bank approved US$11 billion in financing for 128 fossil fuel extraction projects in 45 countries. These projects will ultimately lead to more than 43 billion tonnes of CO_2 emissions, many times more than all the CO_2 emission reductions required by the Kyoto Protocol for the years 1990-2012.
- Another US$17 billion went to other fossil-fuel related projects — $11 billion for fossil fuel power plants and $6 billion for sectoral support or policy reform initiatives.
- More than 82% of World Bank financing for oil extraction focused on exporting oil back to the North.
- World Bank financing for fossil fuels outpaced financing for renewable energy and energy efficiency by a ratio of 17 to 1.
- Some of the biggest beneficiaries were transnational corporations including Halliburton, Chevron/Texaco, Total and Exxon/Mobil.

... And ignores its own panel's recommendations about investing in renewables

In 2000, in response to critics who showed how lending for oil, gas and mining industries contributes to poverty and environmental destruction, the World Bank appointed a panel to conduct an Extractive Industries Review (EIR). In 2003, the EIR report recommended the Bank "phase out investments in oil production by 2008 and devote its scarce resources to investments in renewable energy resource development, emissions-reducing projects, clean energy technology, energy efficiency and conservation, and other efforts that de-link energy

The money the World Bank lends every year for fossil-fuel projects would be enough to provide small-scale solar installations supplying electricity to 10 million people in sub-Saharan Africa.[126]

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use from greenhouse gas emissions. During this phase-out period, World Bank Group investments in oil should be exceptional, limited only to poor countries with few alternatives."[124] The report also recommended the Bank continue its moratorium on lending for coal projects.

The EIR proposed that the World Bank initially devote 20% of its lending portfolio to green technologies and then raise this amount by 20% of its overall energy portfolio each year for five years. The Bank has endeavoured to appear to be adopting this recommendation by increasing lending for renewables, clean energy, energy efficiency and conservation. However, its chosen baseline for green technologies of US$209 million was only one tenth of its historical average spending on fossil fuel projects, which amounted to over US$2 billion a year over the period 1992 to 2004. Indeed, its baseline was so low that the 2005 target for green technologies was lower than actual support for these technologies in 1994.

In 2006, World Bank spending on the energy sector reached US$4.4 billion, up from US$2.8 billion in 2005. Spending on oil and gas increased by 93%, while spending on renewable sources of energy such as wind, solar, and small-scale hydro grew by only 1.4% and accounted for just 5% of the total.[125]

The World Bank's new investment framework released in April 2006 proposes business as usual, reinforcing dependence on fossil fuels and encouraging investments in "clean coal," nuclear power and large hydro dams to meet climate change. It foresees financing for clean energy coming mostly from carbon trading.

8 conclusion and policy options

This study has explored the contradiction between government subsidies that encourage the production and export of fossil fuels contributing to greenhouse gas emissions and policies that aim at energy efficiency and the reduction of GHG emissions. Over a recent seven-year period, the federal government spent some $8.3 billion on subsidies to the oil and gas industries. Then during 2006 and 2007, the Harper government announced new spending initiatives worth $8.6 billion for energy efficiency and greenhouse gas reduction initiatives.

In the words of Jim MacNeill, former Secretary General of the Brundtland Commission on Environment and Development and lead author of its report "Our Common Future": "It makes absolutely no sense for the Government to use our taxes ... to reduce CO_2 emissions and, at the same time, use ... our taxes to provide massive subsidies which increases them. It's quite mad. [The subsidies] should be cancelled."[127]

Tax expenditures that encourage the expansion of tar sands extraction are a particularly poignant illustration of the contradiction. By 2015, tar sands operations could emit some 126 megatonnes of greenhouse gases. This would effectively negate all the GHG emission reductions expected from current federal government mitigation efforts.

Moreover, most of the synthetic crude extracted from the tar sands will be shipped to the United States. This will leave Canadians to cope with the water pollution, shortages of natural gas and the social and environmental costs of tar sands production. Exports, particularly of fossil fuels, already account for almost half of Canada's industrial GHG emissions.

The analysis presented in this study suggests the following policy options for actions by Canadian churches in conjunction with civil society partners:

1. Redirect Subsidies from Fossil Fuels toward Green Alternatives

KAIROS is petitioning the Commissioner of the Environment and Sustainable Development in the Office of the Auditor General to solicit information from the Ministers of Finance, the Environment, Natural Resources, International Trade, International Cooperation and Foreign Affairs concerning the contradiction between government policies that promote fossil fuels and those designed to reduce GHG emissions. The petition also seeks appropriate remedial actions. These Ministers are required by law to submit substantive replies within 120 days after the Commissioner accepts our petition.

This study has shown that some spending programs are much more effective than others in terms of achieving energy efficiency and GHG reductions. In general, programs that promote public transportation, improved vehicle technology, more efficient freight transport, and the retrofitting of housing are among the most effective options. Programs like the rebates for purchasers of high efficiency vehicles, the subsidy for scrapping older

vehicles and the Public Transit Tax Credit are very inefficient and not cost effective.

It's vital to redirect subsidies from fossil fuel extraction to green technologies. But redirecting subsidies alone will be insufficient to achieve the GHG emission reduction targets set by the Harper government, let alone Canada's commitments under the Kyoto protocol. While Environment Canada's predictions probably overstate the effectiveness of current programs by a wide margin, even these estimates point to the need for stronger regulatory measures.

The government's own estimates indicate that its three regulatory programs — emission intensity reductions for large industries, passenger vehicle emission standards and new regulations for energy using products — are expected to be twice as effective as its $8.6 billion worth of spending on energy efficiency and greenhouse gas reduction programs.

In addition to redirecting subsidies, civil society organizations (CSOs) advocate more direct regulatory measures combined with economic incentives to reduce fossil fuel consumption.

2. Cap Emissions and Put a Price on Carbon

Several CSOs, including the Pembina Institute, the Canadian Centre for Policy Alternatives, Friends of the Earth Canada, the David Suzuki Foundation and the Climate Action Network, endorse emission caps for large industrial emitters that would go beyond the emission intensity targets announced by Environment Minister Baird. Stronger measures would aim to meet Canada's Kyoto commitments, that is, to reduce emissions to 6% below their 1990 levels on average over the years 2008-2012.

Many CSOs advocate various forms of carbon taxes or fees charged to end users of fossil fuels to promote energy efficiency and conservation. For example, the Alternative Federal Budget (AFB) prepared by the Canadian Centre for Policy Alternatives in conjunction with several other CSOs has proposed carbon taxes along with rebates for low-income Canadian households earning less than $67,000 a year. Those living in remote communities without alternatives to fossil fuels could receive similar tax rebates so they are not penalized financially.

Likewise, Friends of the Earth Canada has called for a $50 tax per tonne of CO_2e on transportation and heating fuels with rebates for households with less than $80,000 in annual income.[128] The David Suzuki Foundation champions "ecological fiscal reform" in which the government would raise taxes on items that damage the environment such as inefficient vehicles and lowered them on goods that are beneficial.

The Canadian Centre for Policy Alternatives, the Parkland Institute and the Polaris Institute also address some of the regulatory and trade policy measures that subsidize fossil fuel industries. They call for reform of the National Energy Board to ensure that it fulfills its mandate to conserve our dwindling supplies of non-renewable oil and natural gas as part of the transition to a less carbon intensive economy. These same groups also call on Ottawa to win release from the North American Free Trade Agreement's proportional sharing clause (Article 605). Under certain circumstances, this clause could require Canada to export non-renewable hydrocarbons to the United States even in the face of domestic shortages.[129]

The Polaris Institute supported by the Sierra Club and other organizations, has

constructed a strong case for declaring a moratorium on further tar sands development. They argue the tar sands cause damage through GHG emissions, water depletion and pollution, natural gas depletion, infringement on Aboriginal rights, social damage and military links.[130]

The Pembina Institute and the Alternative Federal Budget both recommend a just transition strategy for workers and communities highly dependent on oil and gas production that would be affected by the withdrawal of government subsidies.

3. Promote Exports and Foreign Direct Investment in Renewables, not Fossil Fuel Production

The government should refocus the priorities of Export Development Canada (EDC), enabling it to help Canadian companies ensure their products and services support a greener, less fossil-fuel dependent energy future. Imagine if the $8.6 billion in oil and gas-related transactions supported by EDC in 2006 were instead directed towards promoting trade and investment in renewable energy. If this happened, Canada would support the development of its own green energy sector, while at the same time encourage the use of green technology internationally. In the global South, EDC could help countries leapfrog over the fossil-fuel intensive development pattern of the North towards a greener development model that is less reliant on fossil fuels.

A. Human rights

EDC must adopt a clear policy on human rights in keeping with Canada's international commitment to human rights. The agency should provide information on how it assesses the human rights impacts of potential projects and other investments, both prior to signing and over the lifetime of a project.

B. GHG emissions reporting and reduction strategy

EDC must develop policies and programs to measure the carbon footprint of its business transactions, and develop a multi-year plan with specific targets to reduce its direct and indirect emissions. Part of this plan should involve shifting its support from fossil fuel extraction to energy efficiency and renewables. Business development planning should explicitly describe how EDC takes into account the risks and opportunities of a carbon-constrained future. This planning should extend far beyond fossil fuel production and renewable energy projects to include all sectors-from power generation to airlines. In addition, EDC should keep out of the carbon emissions trading market as long as there is no legal framework for such trading established by the Government of Canada.

C. Improved disclosure

EDC should improve its disclosure policy, as recommended by the Advisory Group of the national roundtables on CSR, by publicly releasing:

- Project classification rationales;
- Project assessments (undertaken during EDC due diligence);
- Modifications and mitigation measures required by EDC; and
- Project monitoring and evaluation documents generated by EDC, project proponents and consultants throughout project implementation.

In addition, EDC should publish an up-to-date list of all multilateral environmental agreements that Canada has signed, and report on how it takes into account these environmental commitments in its risk assessment and business development planning.

4. Options for Changes to International Financial Institutions' Policies

KAIROS and other groups are calling on Northern governments and multilateral and bilateral development agencies to do the following:

- End public subsidies for fossil fuels in light of high prices and escalating concern about climate change.
- Step up efforts to meet the basic energy needs of the poor. Access to electricity and fuel for cooking and heating is a basic need. The rural poor are in greatest need of access to electricity, motive power, and efficient, clean and affordable cooking and heating fuels. Renewable energy technologies based on local availability and capacity (such as modern biomass, small-scale hydro, geothermal, wind and solar) are particularly appropriate options to support rural off-grid electrification. Improved stoves can make the use of cooking and heating fuels much more efficient. Multilateral and bilateral financial institutions should massively step up their efforts to support rural electrification and renewable energy programs that are owned and controlled by local people.
- Refrain from imposing any policy conditions that prevent utilities from subsidizing electricity connections and tariffs for the poor.
- Redirect existing energy financing for fossil fuels to renewable technologies and energy efficiency projects via an appropriate multilateral framework or agency. The World Bank is not the appropriate institution to design and execute a global framework for clean energy and development. This task should be the mission of an international agency that is not skewed towards Northern interests.

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