



DRAFT  
COMMENTARY

## Time to actually begin

Comments on “Canadian policies for deep greenhouse gas reductions”  
by Mark Jaccard and Nic Rivers

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Prepared for the Canadian Priorities Agenda Project

May 2007

The IRPP's *Canadian Priorities Agenda* project is designed to initiate a broad-based and informed public debate on policy choices and priorities for Canada over the medium term. Research papers on the following eight broad policy challenges have been undertaken to examine the most effective ways to address them:

- Aging and demographic change
- Climate change
- Economic security
- Health outcomes
- Human capital
- Natural resource management
- Productivity performance
- Trade and globalization

Six judges will each craft a policy package from the specific recommendations put forth in the eight papers that in his or her view will best enhance the economic and social well-being of Canadians.

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The paper by Jaccard and Rivers is divided into three main sections. The first introduces the challenge of climate change policy. The second discusses criteria for selecting policies, the menu of available instruments, and parameters for composing a preferred policy package. And the third describes, and then considers the combined impacts, of three key policies: a carbon management standard for fossil fuel producers and importers; a zero-emission vehicle standard for vehicle manufacturers; and strengthened residential and commercial building codes and appliance and equipment standards.

After brief comments on the opening sections of the paper, my discussion will focus on the three selected policies. This will be followed by some concluding observations.

## **1. The approach to climate change policy**

The paper provides an excellent introduction to the challenge of climate change policy in Canada, the criteria for selecting policies, and the range of available instruments. The most important practical conclusion of the opening discussion is that voluntary programs and subsidies will not prove effective in securing significant long term greenhouse gas (GHG) emissions reductions. Instead, market-oriented regulations, supplemented by some more traditional "command and control" initiatives, will be required.

The necessarily synthetic presentation of the paper means that some nuances are lost, particularly with respect to the political complexity of the climate change file and the comparative costs and benefits of policy alternatives. To the points made in the paper it is worth adding that:

- Climate change policy requires both adaptation and mitigation. Neither can be avoided because i) we are already committed to substantial climate change due to greenhouse gas releases that have already occurred and ii) greenhouse gases will continue to accumulate in the atmosphere (provoking still further warming) until global emissions are radically curtailed.
- Canadian emissions reductions of 60% from current levels by 2050 provide a convenient basis for discussion, but deeper reductions with an earlier onset may be desired. European Union environment ministers recently agreed to a target of 20% reduction on 1990 levels by 2020, and 30% reduction if other countries join the effort. Recent studies suggest that to reach stabilization in the range of 450-550

ppm CO<sub>2</sub>e emissions from developed countries (taken as a group) would need to fall 70% to 90% below 1990 levels by 2050, to allow for emissions growth in developing countries (Stern 2006).

- Over the past decade Canada's response to the climate change issue represents a major policy disaster. The story is complex and has yet to be told in full. It includes a serious failure of political leadership and deliberate obstruction by vested interests. In policy terms we lag perhaps a decade behind more innovative jurisdictions (such as the United Kingdom, Sweden, Germany and the European Union as a whole) and this will not be without political, diplomatic and economic consequences.
- Although large distances and cold winters contribute to Canada's comparatively high energy intensity per unit of GDP and elevated GHG emissions per capita, the long term historical development of the economy and earlier rounds of policy choice also play a significant role. Low cost resource inputs have provided a cornerstone for Canadian economic development, and note, for example, that gasoline taxes in Canada are less than half the levels in most other OECD states.
- While the authors are correct that long term price signals (which can be generated by environmental taxes or market-oriented regulations) provide an effective stimulus for technological innovation, there is evidence that other forms of government intervention can also encourage the development and diffusion of new technologies (Vollebergh 2007).

## 2. The three policy options

### *a) Carbon management standard for fossil fuel producers and importers*

The first policy requires fossil fuel producers and importers to demonstrate over time that a growing proportion of the carbon in the fuel they sell does not reach the atmosphere. Each year firms surrender to regulators certificates demonstrating they have met the obligation. Regulated firms can trade certificates with each other and buy project-based certificates from upstream and downstream GHG abatements efforts (such as carbon capture and storage at power plants, and the reduction of emissions at the well head, in refineries, pipelines, and so on). The system could be designed to cover other greenhouse gases in the energy sector, as well as producers and importers of non-energy related GHGs. It could incorporate a 'safety valve' and/or the banking and borrowing of certificates. A partial exemption for fossil fuel exports would limit impacts on international competitiveness in this sector.

This is an innovative policy proposal. Among its appealing features are that it:

- focuses attention on the core of the mitigation issue – GHG releases associated with the production, distribution and use of fossil fuels.
- embodies the "polluter pays" principle and some notion of extended product liability. Companies that produce and import fossil fuels will ultimately be held accountable for the emissions of the products they bring to market.
- covers fossil fuel usage throughout the economy, in contrast to a downstream cap and trade system (like the European Union Emission Trading Scheme (ETS) or the original Canadian Large Final Emitters (LFE) program) which deals only with large point source emitters.

- avoids problems associated with the distribution of permits under emission cap and permit trading systems.

But there are also some difficulties. For example:

- There is limited practical experience with upstream obligation and certificate trading systems. More is known about the actual operation of emission cap and permit trading systems and tax-based instruments.
- Most other jurisdictions have adopted (or appear to be gravitating towards) these alternative designs for GHG abatement. Selecting a different policy design than other industrialized countries involves some risks. It could, for example, make it somewhat more difficult to engage in international emissions trading.
- It is not clear this proposal would easily win political acceptance. Politicians and the public are just beginning to come to terms with the idea of a downstream cap and trade system. Might this proposal further complicate debate and delay action? Some will argue that it unfairly shifts the whole burden of responsibility for adjustment onto fossil fuel producers and importers. Paradoxically, removing the “problem” of permit allocation associated with emissions cap and permit trade systems might be perceived as a negative by some political and economic actors who would have decreased opportunities to “game” the system.

A number of issues appear to merit further consideration:

- It would be nice to see a more detailed comparison between this policy option and (i) a downstream cap and trade system supplemented by a downstream carbon tax (the latter to deal with the economic sectors such as households and transport not covered by the cap); and (ii) an upstream carbon tax (i.e. one levied at the point of production or import). Such a comparison should deal with economic effects, but also with how the rival systems would actually be experienced by different economic actors, and how they might be perceived by different political actors.
- Linkage to international GHG trading systems is important if Canadian companies are to benefit from the lowest cost abatement options. Modalities for linking the proposed system to other trading systems (and to avoid double counting) should be explored.
- In the longer term, if highly localized options for GHG mitigation emerge, the carbon management standard trading system could be extended to include emissions reductions secured by consumers of fossil fuels – extending the potential reach of the scheme as delineated in Figure 3 of the proposal.

#### *b) Zero-emission vehicle standard for vehicle manufacturers*

The second policy establishes an obligation and certificate trading system for vehicle manufacturers and importers that requires an increasing percentage of their total sales to be zero-emission vehicles. The focus on zero (tailpipe and evaporative) emissions is to encourage technological system change rather than incremental improvements to fossil fuel engine efficiencies. Although the proposal is centred on passenger vehicles the policy could be extended to freight transport.

Among the advantages of this proposal are that it would create a protected niche to encourage the development of zero emissions vehicles (which are important for long term GHG abatement) and that it would leave firms and markets to determine the best technologies to meet the mandated goal.

Yet there are some concerns with this approach.

First, from the perspective of long term GHG abatement what is important is minimizing the total emissions that reach the atmosphere. Other things being equal, policy makers should be relatively agnostic about which technologies will deliver the required level of aggregate GHG reductions. Hydrogen, electricity, bio-fuels, and hybrid technologies may all play a role in the solution. Zero-emission vehicles will be important, but so too may low GHG emission vehicles. After all, a low GHG emission vehicle running on fossil fuels might be associated with lower life cycle GHG emissions than a zero-emission vehicle running on hydrogen or electricity derived from fossil sources. Moreover, it is unclear how the costs of the different technological options will work out. For this reason it would seem prudent to link low GHG emission and zero-emission vehicles in the standard, an option the authors themselves raise.

Secondly, considering the internationalized character of the auto industry, it is not clear that it makes sense for Canada to pursue a technology forcing policy in isolation from initiatives in other jurisdictions. The policy would be most effective if implemented in step with initiatives in other countries.

Third, questions may be asked about the phasing and range of the obligation. For example, if the policy is advocated on niche protection grounds why does it end by mandating 80% compliance in 2050?

### *c) Residential and commercial building codes and appliance and equipment standards*

The third policy involves regulations raising standards for the construction of residential and commercial buildings and for the energy efficiency of equipment and appliances. Strictly speaking this is not one policy, but a series of related policies involving carefully designed instruments enacted by different levels of government. These policies are not intended to drive technological innovation, but rather to encourage the diffusion of existing technologies by prohibiting the least efficient products from entering the market and gradually raising the average efficiency of the overall stock.

This policy strand is important to overcome barriers that discourage groups and individuals from making more energy efficient choices. It is also important because of the possibility of making relatively substantial short to medium term gains. Measures which reduce (or slow the growth of) aggregate electricity demand help postpone the need for additional generation capacity, to a time when prices and technologies presumably will be more favourable to GHG abatement. Short term reductions in GHGs are particularly desirable because they (modestly) contribute to slowing the rate of warming. More important is their potential political and diplomatic impacts in a context where Canada is failing to meet agreed international GHG reduction targets.

In developing such regulations it is important to set them in a context of continuous improvement: there should a commitment to periodic revisions (perhaps every 5 years), with a strong signal that regulations will become ever more stringent.

### 3. Additional observations

The three policy proposals assessed here constitute a useful package of measures to pursue long term abatement of Canada's GHG emissions. The first engages with the most important framework issue – driving up the price of carbon emissions. The second addresses the critical transport sector – where emissions are rising rapidly and fossil fuel dependence is most complete. The third involves regulatory initiatives to secure significant energy efficiency gains.

The assumption behind the Jaccard and Rivers paper is that a long run price signal is required to orient investment decisions towards GHG abatement and to stimulate the technological innovation required to achieve significant reductions. The real impact of the carbon management standard will be to progressively drive up the price of fossil fuels as an ever greater share of associated GHG emissions must be prevented from entering the atmosphere.

However, as the Stern Report has argued forcefully, carbon pricing is not enough. Other policy instruments must be invoked to: (i) accelerate technological invention, innovation and deployment; and (ii) encourage behavioural change (Stern 2006). Public policy can help breach the barriers (including information issues, transaction costs, and behavioural and organizational inertia) which prevent smooth adjustments to rising carbon prices. Varied policy tools can be applied across the innovation chain to speed up the emergence and deployment of new technologies (Geels 2002). Although subsidies do have a place here, there is also a major role for government as a catalyst for innovation networks. Some of these issues have begun to be discussed in the emerging literature on 'transition management' (Rotmans, Kemp and van Asselt 2001; Kemp and Rotmans 2003; Kemp and Loorbach 2005).

Although trajectories for GHG abatement are typically discussed in terms of environmental risks and economic costs it is important to note that political factors should be accorded independent weight.

Developing successful international collaboration, including appropriate participation from large developing countries, is essential if dangerous climate change is to be avoided. By securing emissions reductions *in the short to medium term*, developed countries can establish the seriousness with which they view this issue and encourage others to act. In a context where Canada is known to have taken no meaningful steps to achieve its agreed (Kyoto) abatement target, an effort to secure some early emissions reductions (whether domestically, or through the use of international mechanisms) is important politically, even if these reductions turn out to be somewhat more costly (than they would have been, had they been undertaken earlier, or would be, were they to be deferred to the future).

One of the difficulties of approaching climate change in terms of isolating one or two headline policies is that the character of the problem means that there can be no magic bullet. A mature policy framework must include initiatives related to mitigation, but also adaptation. An advantage of bringing forward the discussion of adaptation is that it makes more real the emerging costs of dealing with a changing climate. On the broad scale, initiatives on public education, science policy, and industrial policy are also important dimensions of climate policy

Nevertheless, at present the critical step for advancing climate change policy in Canada is government action to end free use of the atmosphere as a dump for GHGs. This could be secured by a carbon tax, some form of emission cap and permit trading system, or the carbon management standard described by Jaccard and Rivers. In April 2007 the Conservative government announced a new regulatory framework

including a baseline and credit trading system involving intensity targets and a series of flexibility mechanisms (including contributions to a technology fund and “offsets”). The government objective is to reduce GHG emissions by 20% from 2006 levels by 2020, but the information released so far on the derivation of the intensity targets and the design of the scheme make it unclear how far the system would actually contribute to such a goal. Of course, after so many delays some form of binding controls in this area would at least be a beginning. And the regime could be tightened in the future. But to be effective the initiative should ultimately be complemented with measures applying to parts of the economy that fall outside the regulated sector, such as a downstream carbon tax.

Notwithstanding the recent federal announcements, the carbon management scheme presented by Jaccard and Rivers deserves consideration. It should be examined by a wider audience in Canada, including stakeholders in government, business and the environmental sector. And it should be considered among options for post-Kyoto international efforts. Of course, changing policy designs at some point in the future (say from one market-oriented regulatory mechanism to another) would have costs. But it is not impossible. Indeed, such shifts should probably be expected as countries learn more about GHG abatement, over the very many decades that lie ahead for climate change policy.

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