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e-brief

## Economic Canada's Greenhouse Gas Emissions, 2006-2007 Greenhouse Gas Policy

By Mark Jaccard and Nic Rivers\*

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Mounting public concern about climate change has prompted the Canadian government to respond with a major policy effort to reduce greenhouse gas (GHG) emissions. Since early 2006, the Conservative government has launched a series of initiatives under its “ecoACTION” banner, culminating in the release in April 2007 of its “regulatory framework for air emissions,” which is currently under consultative review.

The government maintains that the combined effect of its policies will reduce Canadian GHG emissions to a target 20 percent below today’s levels by 2020.<sup>1</sup> The government also says that this initiative moves Canada toward its emission target for 2050 — a 65 percent reduction from current levels. If achieved, this four-decade target represents a profound transformation of our energy-economy system.

While these initiatives and commitments are undoubtedly taken in earnest, Canadian governments have an unfortunate record on GHG targets and policies. Since 1988, Canadian governments have, on several occasions, set targets for reduced GHG emissions and implemented policy initiatives to achieve those targets. However, five major policy initiatives have failed to stem the steady growth of Canadian GHG emissions, as shown in Figure 1. Emissions actually rose faster during the period of policy initiatives, from 1990 to 2006, than during the previous decade, from 1980 to 1990, even though this earlier period had no GHG reduction policies.

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1 Emissions in 2020 would be about 150 megatonnes (Mt) below current levels (750 Mt) and a full 300 Mt below the levels they were projected to reach by 2020 in the absence of new reduction policies.



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recognized by applied researchers assisting governments in forecasting policy effectiveness.<sup>4</sup>

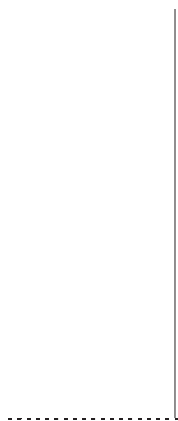
In this *e-brief*, we provide the results of our simulation of the government's

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**Figure 2:** *Estimated Effect of Canada's 2006-2007 GHG Policies*

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Source: Authors' calculations.

Some of the uncertainty in our study is due to unresolved policy decisions by government. But significant uncertainty also results from the imperfect knowledge of energy-economy researchers about the responsiveness of businesses and households to policies that affect the information, costs and/or regulatory constraints of emitting GHGs. We accordingly adjusted key parameters to reflect this uncertainty and then executed multiple model runs. These are reflected in the grey band around our central forecast in the figure, showing that emissions in 2050 could range from 1,000 to 800 megatonnes.

As noted, our assumptions and analysis are detailed in another document. We summarize the salient points.

- (i) Our assessment shows that the 2006-2007 policies of the current government of Canada will not be effective in meeting its stated targets. Leading independent research indicates that the principal reason for policy failure — in Canada especially, but elsewhere as well — is the unwillingness of government to place a value on the atmosphere. Setting a value on the atmosphere is essential since fossil fuels, the dominant source of human GHG emissions, will remain competitive with other energy sources for at least several decades and perhaps centuries. Such value-setting can only occur (1) directly via a GHG tax, the most economically efficient approach, or (2) indirectly by regulations that set a cap on emissions (perhaps with tradable permits), or control the carbon content of energy supplies, or control the emission characteristics of the technologies available in the market (vehicles, buildings, equipment). Policy reliance on information programs and subsidies to reduce GHGs may have a small

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effect, but cannot cause dramatic reductions in the short or long run.<sup>5</sup> Only with a cost to emitting GHGs (directly via tax or indirectly via regulation on emissions or technologies) will the economy see significant technological

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- (iii) We estimated GHG emissions reductions by 2020 and 2050, based on the individual policies introduced by the government in 2006/2007. The total of 116.5 megatonnes of CO<sub>2</sub> equivalent in 2020 is far less than the 300 megatonne reduction required for the government to reach its 20 percent reduction target (Table 1).
- (iv) This study is limited to assessing policy effectiveness and thus does not include an estimation of costs to the economy. In future analyses, we expect to assess the costs of the government's policies alongside alternative policies. The challenge for policymakers is to design policies that are effective at the lowest possible costs. Preliminary analysis suggests that the government's current policies — which will fail to meet its 2020 and 2050 targets — will incur costs to the GDP comparable to those of more effective policies that would actually achieve its targets. Costs imposed by an economy-wide GHG tax, or an economy-wide emissions cap, would not be substantially different.

This *e-brief* is a publication of the C.D. Howe Institute. **Ma<sup>o</sup>Jacca** is a professor and **N c R**, a graduate student in the School of Resource and Environmental Management at Simon Fraser University. Professor Jaccard is also a Fellow-in-Residence at the C.D. Howe Institute.

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