Assessing Canada's 2008 Climate Policy

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Introduction

For two decades, Canadian governments have set ambitious targets for reducing greenhouse gas (GHG) emissions, but their policies have consistently failed. Like previous governments, today's federal Conservative government promises that its policies are better, and claims that these will reduce Canadian GHG emissions to 20% below their 2006 levels by 2020.[2] The Liberal, NDP, Green and Bloc Quebecois parties argue that the government's claim is wrong. The Canadian electorate is trying to assess these competing claims as it prepares for the October 14, 2008 federal election.

Our research group at Simon Fraser University has performed numerous assessments of Canadian climate policies at the federal and provincial levels.[3] In this briefing note, we provide a short assessment of the main elements of the federal government's current climate policy.

Lessons from past failures

Before turning to the specific policy proposals, it is important to note some key lessons from the failures of the past 20 years, as described in the growing research literature on climate and energy policy failures.[4]

1. Emission targets are meaningless by themselves and often a red herring. Some environmentalists have applauded politicians for setting aggressive targets for GHG reduction (called "stretch targets" or "aspirational targets") and the media tends to focus on these. As a consequence, many politicians select ambitious targets even while their actual policies have negligible likelihood of achieving them.[5]

2. Non-compulsory policies, such as information provision (labels, advertisements) and modest subsidies, do not increase the cost of emitting GHGs and therefore fail to cause

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[2] We use the term GHG and CO_2 equivalents interchangeably, the latter written as CO_2e.
[3] Jaccard, M., Rivers, N., Bataille, C., Murphy, R., Nyboer, J., and Sadownik, B., *Burning Our Money to Warm the Planet: Canada's Ineffective Efforts to Reduce Greenhouse Gas Emissions*, Toronto: CD Howe Institute, 2006. Jaccard, M. and Rivers, N., *Estimating the Effect of the Canadian Government's 2006-2007 Greenhouse Gas Policies*, Toronto: CD Howe Institute, 2007.
[4] More detail is provided in Simpson, J., Jaccard, M. and Rivers, N., *Hot Air: Meeting Canada's Climate Change Challenge*, Toronto: McClelland and Stewart (Douglas Gibson Books), 2007.
[5] Some non-government organizations have still not learned this lesson. The Sierra Club grades Canadian political parties in part on the magnitude of their stated emissions reduction targets. See www.sierraclub.ca.

substantial emissions reductions. If climate policies leave the atmosphere as a free waste receptacle in a market economy, GHG emissions will continue to rise.

3. Only compulsory policies that impose a cost for emitting GHGs or for acquiring GHG-emitting technologies will reduce GHG emissions. These are regulations on technologies (like renewable electricity requirements and vehicle emissions standards), regulations on emissions (like the emissions cap and trade), and emission charges (like the carbon tax).

4. To make substantial GHG emissions reductions throughout the economy as inexpensively as possible, compulsory policies need to have economy-wide application. In the case of emissions cap and trade or carbon tax, virtually all GHG emissions must be covered.

5. The two most prominent emissions pricing policies are emissions taxes and emissions caps (with permit trading). In their purest designs, they differ in that emissions caps set an absolute limit on emissions while emissions taxes fix a price for emissions. Permits totaling the emissions cap are allocated according to some criteria (such as by historical levels or by auction) and then these permits can be traded. Under the cap, the permit trading price, and thus the cost of GHG emissions, is uncertain in advance. In contrast, with emissions taxes, the cost of GHG emissions is certain, but the emission reductions that will occur are uncertain; government cannot be certain how industries (and households if the policy is economy-wide) will respond to the tax. The following figure presents this conventional distinction between the assumed emissions certainty of caps and the assumed price certainty of emissions taxes. Many researchers note, however, that policy design details when implementing cap and trade can blur this distinction, with some of these details reducing the quantity certainty of caps and others reducing their pricing uncertainty.[6] Thus, the distinction between emission caps and emission taxes is not nearly as significant as sometimes portrayed. Emissions pricing throughout the economy is key and both policies can achieve this if designed properly.

[6] C. Fischer, C. Hanson and W. Pizer, "Carbon taxes and cap-and-trade programs: Not necessarily either/or." *Resources for the Future* (working paper), 2008.

The current government's climate policy

In March 2008, the federal Conservative government issued its latest climate policy proposal, which modified slightly the proposal it had issued a year earlier.[7] The key component of its policy is to cap GHG emissions from industrial plants in the oil and gas, manufacturing, electricity generation, and mining sectors, which together produce 50% of the country's emissions.[8]

Unfortunately, the government's emissions cap only applies to industrial emissions and thus excludes from emissions pricing 50% of Canadian emissions. (Sources of unregulated and thus unpriced emissions include residences, institutions, office buildings, light industry, personal transportation, freight transportation, urban waste, agriculture and forestry.) This means that the government's climate policy fails to apply an economy-wide emissions pricing signal, which is one of the critical lessons from the failed climate policies of the past (lesson 4 above). While the government claims that it will implement effective policies for the other 50% of Canadian emissions, these have not been presented in a way to suggest that economy-wide emissions pricing will be the outcome. Claims of emissions reductions in these sectors from a combination of information programs, subsidies and a few efficiency regulations should be treated with considerable skepticism, given the similarity with the failed climate policies of the past two decades.

Focusing on the industrial emissions cap, the government claims this will reduce Canadian GHG emissions by 165 megatonnes (MT) by 2020 from their expected ("business-as-usual") level. However, the policy has two attributes that cause substantial uncertainty about its effectiveness.

First, instead of an absolute cap on industrial emissions, the government is applying a cap on the intensity of emissions from industrial activities – such as emissions per tonne of steel, per kWh of electricity or per barrel of oil. The policy calls for reductions in the GHG intensity of production of 18% by 2010 (relative to 2006 levels) and then a further intensity reduction of 2% per year after that. If each industrial sector grows at the rate the government expects, then the anticipated emissions reductions could be achieved. But if emission intensive sectors grow more rapidly than expected, then the full reductions will not be achieved.

This decision to set an intensity cap instead of an absolute cap puts Canadian climate policy in a unique situation relative to the emissions caps already applied or currently under consideration in other jurisdictions around the world (Europe, USA, Australia, Japan). If the Canadian government truly intends to hit its 2020 emissions reduction target, one has to ask why the government would not simply set this as an absolute cap, thereby ensuring an outcome that it promises will happen anyway. Since the government promises this outcome (a 20% reduction in emissions by 2020), why would it not provide Canadians with the assurance that this time our policies will not fail, simply by converting the intensity cap to an absolute cap?

[7] Government of Canada, *Turning the Corner: Taking Action to Fight Climate Change*, 2008.
[8] Government of Canada, *Turning the Corner: Regulatory Framework for Industrial Greenhouse Gas Emissions*, 2008.

Second, the policy outcome is especially uncertain because of various flexibility mechanisms that allow industrial emitters to do things other than reduce their own emissions in a given year. Some critics have especially focused on the policy's allowance of "technology fund" payments as an alternative to in-house emissions reduction – the assumption being that such payments will eventually translate into future emissions reductions once the funds are applied to special investments like CO_2 pipelines, carbon capture projects and electricity transmission lines.

This is troubling. But a much more troubling flexibility provision is the allowance for industrial emitters to purchase domestic "offsets" as an alternative to in-house emissions reduction. An offset occurs when an individual or firm pays another individual or firm to reduce their GHG emissions as a means of offsetting its own emissions. For an offset mechanism to actually reduce emissions, the offset payment recipient must reduce emissions from what they otherwise would have been. This payment is identical in practice to the subsidies that past governments provided for emissions reductions, and herein lies the problem. One reason past subsidy programs were ineffective is that it is impossible to determine definitively that an emission reduction action would not have taken place without the subsidy (or offset payment). Researchers trying to estimate these effects have found, for example, that a certain percentage of households do install better insulation when renovating their homes even in the absence of subsidy or offset policies. Yet these people are impossible to know in advance, and so are inevitably eligible for the subsidy or offset. Thus a certain percentage of subsidy / offset funds are captured by "free riders," meaning that the assumptions about the "additionality" of the program need to be adjusted downward – sometimes severely.

This is one of the reasons that governments in other jurisdictions tend to limit the recourse to offsets to 10% or 15% of the total reductions that must be achieved by regulated entities. Yet, the current government plan allows use of offsets for up to 100% of the emissions reductions required by industry. To estimate the effect of the government's claim for emissions reduction, therefore, it is necessary to estimate the percentage of offsets that industry will rely on and the likely additionality of these offsets in terms of actually reducing emissions – rather than simply paying unregulated firms and households for actions they would have taken in a business-as-usual world.[9]

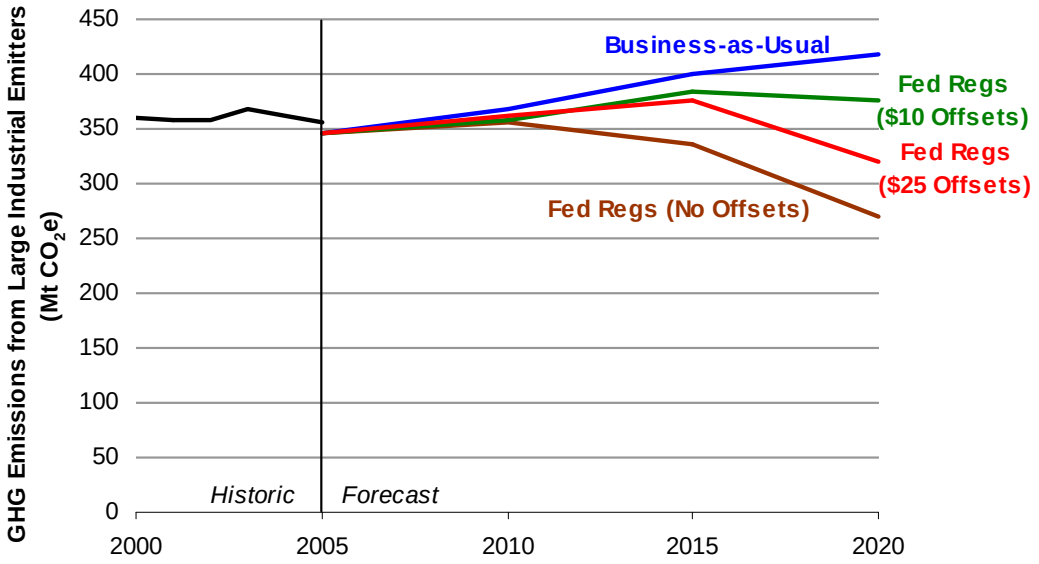
To provide an estimate of the likely emission reducing effectiveness of the current government policy, we simulated the policy in our energy-economy model under different assumptions of offset costs, recourse to offsets by industry and offset effectiveness. This model is very similar to the model the Canadian government uses when estimating the effect of its climate policies.[10] The

[9] Eligible offsets include actions such as energy efficiency, renewable energy, methane capture at landfills, conservation tillage in agriculture and conversion of agricultural land to forest for carbon storage.

[10] The model, called CIMS, has been used by governments, industry and non-government organizations to estimate the effect of climate policies. It is similar to the NEMS model of the US government, the Maple-C model of Natural Resources Canada and the Energy 2020 model used by Environment Canada. The model is technologically explicit, in that it keeps track of energy producing and using technologies. And its firm and household behavioural parameters are estimated using standard statistical methods from past market data and, in some cases, from surveys of consumer receptivity to new and emerging technologies — thereby reducing the risk of biased assumptions about the responsiveness of consumers and businesses to GHG policies. The value of this approach is well recognized by applied researchers assisting governments in forecasting policy effectiveness. See Hourcade, J-C., Jaccard, M.,

following figure shows our estimates of the emissions reductions resulting from Canada's proposed industrial emissions regulations under different assumptions about the use of offsets. The top, business-as-usual line shows the forecast evolution of industrial emissions if the government does not implement its intensity-based emissions cap. The bottom line shows the emission trajectory that the government claims will result from its policy. For this outcome, the only offsets industry purchases involve capture of methane from landfills (for electricity generation) and from pipelines and field operations in the oil and gas sector.

The other two lines present our specific simulation assumptions. The $25 offset line assumes that offsets cost $25, meaning that industry only reduces its own emissions where these actions cost less than $25 per tonne CO_2e. In this case, we also assume – consistent with the research literature – that about 50% of the apparent offset emissions reductions are not actually additive, meaning that free riders received subsidies for actions they would have taken under the business-as-usual future. The $10 offset line assumes that the price of offsets does not rise above $10 per tonne CO_2e and that 80% of offsets emissions reductions are not additive. We show this line to convey the risk that the offset system presents to the effectiveness of the industrial regulations.



It is important to understand that the reductions from business-as-usual that lead to the lower green and red lines occur in and outside of regulated industry – because of the offsets. This means that actual in-house industrial emissions will be higher in both cases than depicted by the coloured lines. But industry is given credit in this figure for any reductions that its offset payments cause elsewhere in the economy.

The 100% offset provision in the federal industrial emitters regulation creates a serious uncertainty in the government's claim of the emissions reductions it will achieve by 2020. We believe that the evidence supports the assumption that reality will be somewhere closer to the

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Bataille, C. and Ghersi, F., "Hybrid modeling, new answers to old challenges: introduction to the special issue of the Energy Journal," *The Energy Journal*, Special Issue on Hybrid Modeling, 2006, 1-12.

two offset scenarios we have simulated, perhaps between them. In this case, the government will fail to achieve the promised emissions reductions by 2020.

The government has claimed that an outcome in which Canada fails to meet its 2020 emissions reduction goal is undesirable and unacceptable. One has to ask, therefore, why the government would not dramatically increase the chance of achieving its reduction targets by closing the offset loophole in its industrial emitters policy, or at least by limiting the recourse to offsets to a level that is consistent with other jurisdictions, namely in the range of 10% of total required emissions reductions. This would dramatically increase confidence that the government's policies will reduce industrial emissions to the levels it has promised, even though the policy still lacks an emissions pricing signal that would provide reductions in the other sectors of the economy.

Conclusion

We conclude that, as currently designed, it is highly unlikely that the policies of the government of Canada will achieve the target of reducing national emissions 20% below 2006 levels by 2020. The lack of an economy-wide emissions price and the allowance for 100% offsets for industrial emitters make it highly likely that emissions will be significantly higher than target levels in 2020 and indeed might even be close to today's levels. Since the government claims that it is intent on achieving its 2020 emissions reduction target, it is difficult to understand why it does not immediately convert the intensity cap to an absolute cap and eliminate or severely reduce the offset provision. It also needs to extend its cap to cover all emissions in the economy.