



Canadian Climate Policy Report Card: 2015

Mark Jaccard, PhD, FRSC¹

**Professor
Energy and Materials Research Group (EMRG)
School of Resource and Environmental Management
Simon Fraser University**

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Executive Summary

Over the past three decades, governments in developed countries have made many commitments to reduce a specific quantity or percentage of greenhouse gases by a specific date, but often they have failed to implement effective climate policies that would achieve their commitment. Fortunately, energy-economy analysts can determine well in advance of the target date if a government is keeping its promise. In this 2015 climate policy report card, I evaluate the Canadian government's emission commitments and policy actions. I find that in the nine years since its promise to reduce Canadian emissions 20% by 2020 and 65% by 2050, the Canadian government has implemented virtually no policies that would materially reduce emissions. The 2020 target is now unachievable without great harm to the Canadian economy. And this may also be the case for the 2050 target, this latter requiring an almost complete transformation of the Canadian energy system in the remaining 35 years after almost a decade of inaction.

¹ I am solely responsible for the content and views in this report. It has not been reviewed by, nor does it represent the views of, my university or any other entity.



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Background

A critical challenge to preventing the harms from human-produced greenhouse gas emissions, especially CO₂ from burning fossil fuels, is that elected representatives face weak incentives to implement effective climate policies and strong incentives to implement no or ineffective policies. There are several reasons.

First, significant CO₂ emissions reductions require ‘compulsory policies’ – regulation of technologies and energy forms and/or pricing of CO₂ emissions – and these are seen to cause immediate costs for some even though the long-term benefits for society exceed these costs. These immediate costs would begin during the mandate of current politicians, and have significant political risks, while the benefits of avoiding climate change will mostly occur after the career of current political leaders.

Second, the benefit from taking action to reduce emissions is uncertain because success against human-caused climate disruption requires that most other countries also reduce emissions. With the exception of the largest two emitters, China and the US, efforts by a single country would have a negligible effect in reducing future harms from rising CO₂ concentrations. This argument provides an excuse for political leaders in a given jurisdiction to delay action until there is a near-universal global effort, conveniently ignoring the fact that this very requirement renders an effective global effort extremely unlikely.

Third, it is difficult for non-experts to know if a government’s climate policies are having an effect until much valuable time has been lost. If a person agrees with his or her doctor to lose 10 kilos over the next six months for health reasons, both know that this promise will not be kept if the doctor finds after four months that the person has actually gained weight. With national CO₂ emission promises, however, there is no authoritative third party, like a personal doctor, to monitor the government’s progress and assess the likelihood of meeting its commitment. Without that check, governments may continue to claim they will meet their commitment even though it is obvious to experts they will not.

In producing this ‘report card’, I address this third problem by providing an evaluation of the Canadian government’s progress in fulfilling its emission reduction promises since its election in 2006. My assessment is primarily based on simulations using an energy-economy, micro-economic model called CIMS, with some of its results adjusted to reflect information from an energy-economy, macro-economic model called GEEM.² Most of the analysis I rely on was conducted by researchers under my direction in the School of Resource and Environmental Management at Simon Fraser University. I have produced similar evaluations over the past two decades, some as a research fellow at the CD Howe Institute, some published in refereed

² Brief descriptions of these two models are provided in Peters, J., Bataille, C., Rivers, N. and M. Jaccard, *Taxing Emissions, Not Income*, 2010, CD Howe Institute.



academic journals, some as an advisor to the Canadian government, and some as an advisor to independent entities such as the National Roundtable on the Environment and the Economy.

Evaluation

Within a year of its 2006 election, the Harper government promised to reduce Canadian GHG emissions 20% by 2020 and 65-70% by 2050. It claimed, moreover, that it would achieve these commitments by regulating technologies, fuels and individual industrial sectors rather than by emissions pricing.³

Canada could have a near-zero-emission energy system with currently available technologies, but the rate of energy system transformation has a large effect on costs. In electricity generation, Ontario decreased its GHG emissions over 80% in one decade by closing or converting its coal-fired power plants – shifting toward nuclear, hydro, wood, wind, small hydro, solar and some natural gas. This was in part possible because coal had previously provided only 25% of Ontario's electricity. Even so, Ontario had initially tried to close its coal plants in just four years, but this proved too costly so the target was delayed.

The more quickly society tries to reduce emissions, the greater the cost, since this is likely to require the premature replacement of still-useful plant and equipment. Energy system transformation that occurs at the natural rate of turnover of plant and equipment is much less costly. Electricity plants provide one example. Vehicles provide another. Near-zero-emission vehicle technologies and fuels are commercially available, including biodiesel, ethanol, plug-in hybrid electric, pure electric and soon hydrogen fuel cell. But vehicles last 14 years on average, and 2020 is just over four years away. An effort to significantly reduce transportation emissions would be expensive if an ambitious government regulatory effort only occurred four years before the deadline. In other sectors of the economy, like major energy-using industries and buildings, the turnover rate of much of plant and equipment is so slow that even a decade provides little opportunity for significant, low-cost reductions.

Soon after the Harper government made its 2020 promise, I and a research associate estimated the cost and effectiveness of the policies it proposed to achieve its target.⁴ The suggested policies were a mix of information programs, subsidies and proposed intensity-based emissions caps. Using the CIMS model, we estimated that these policies would not significantly reduce emissions. As it turned out, the government abandoned most of the policies anyway, but promised to soon replace them with sector-by-sector emissions regulations to meet its promise. However, it has still not done so, and as of 2015 virtually all GHG emissions in Canada have no

³ Government of Canada, 2007, *Regulatory Framework for Air Emissions*. Government of Canada, 2008, *Turning the Corner*. While the government later changed its 2020 target slightly, from 20% to 17% reduction, this has no significance for the analysis and evaluation reported here. To discourage mid-stream target changes, I focus here on the initial promise of the federal government in 2006.

⁴ Jaccard, M. and N. Rivers, 2007, *Estimating the Effect of the Canadian Government's 2006-2007 Greenhouse Gas Policies*, CD Howe Institute.



regulatory constraints or emissions charges imposed by the federal government. Nine years have passed since regulations were first promised.

Two initiatives of the federal government have sometimes been suggested as affecting GHG emissions in the 2020 timeframe, but this is not supported by evidence. In 2012, the government established regulations for new coal-fired power plants. Since no new coal plants are planned in the 2020 timeframe, these regulations make no contribution to achieving the government's 2020 commitment, nor even in the 2020-2030 period. In contrast to the Canadian approach, the US government is in the process of finalizing significant emissions controls that will immediately constrain the current operations and force the early closure of existing coal-fired power plants.

The second initiative has been to harmonize Canadian vehicle efficiency regulations with regulations imposed by the US government. These would reduce fuel use somewhat after 2016 and, more significantly, after 2020. While improved efficiency potentially reduces fuel consumption and CO₂ emissions (only if greater vehicle use does not offset the efficiency reduction), it does not have the CO₂ effect of policies targeted directly at changing fuels and propulsion systems, such as California's 'low carbon fuel standard' and 'vehicle emissions standard'. Canada has not adopted these regulations, yet they are the only way in which its preferred regulatory approach could have achieved its promised reductions in a sector like transportation.

As noted, I conduct this evaluation to compensate for the lack of an external check on the GHG reduction promises of politicians. However, while the Commissioner on Environment and Sustainability under the Auditor General of Canada lacks the modeling capacity to fully evaluate the likelihood that the government is acting to meet its commitments, in 2012 it nonetheless produced an evaluation based on modeling by Environment Canada. It noted that because the government had done little, including still not implementing emissions regulations in the all-important oil and gas sector, "it is unlikely that enough time is left to develop and establish greenhouse gas regulations ... to meet the 2020 target."⁵ That statement was made in 2012, with eight years remaining to the 2020 target. Today, in 2015, still no additional climate regulations have been passed at the federal level.

Even with no federal policies, it is conceivable that Canada's emissions will fall somewhat for other reasons. The global recession of 2008-2009 caused a temporary reduction in Canadian emissions. Provincial climate policies may also play a role. Ontario's closure of its coal plants was by far the single greatest cause of emission reductions in Canada in the past decade. And the BC government issued a near-zero-emission electricity requirement in 2007 which led to the cancellation of two proposed coal-fired power plants and a large natural gas-fired plant. National emissions would have climbed more rapidly were it not for these provincial policies.

⁵ Auditor General of Canada, Commissioner on Environment and Sustainability, 2012, *Meeting Canada's 2020 Climate Change Commitments*.



In 2014, a research associate under my direction used the CIMS model to estimate the relative effects of the federal government's policies (such as the coal plant regulations) and other developments (such as provincial climate policies) on Canadian emissions in the 2020 and 2050 timeframes to assess the likelihood that the federal government would keep its emission reduction promises.⁶ Even with the economic recession and the proposed climate policies of provincial governments, the study found that emissions in 2020 would be over 20% higher than the Canadian government's promise (744 Mt CO₂ instead of 612 Mt.). This is almost identical to an estimate made by Environment Canada with a similar model a year earlier.⁷ A key factor in both studies is the assumption that oil sands production would rise from 1.9 million barrels per day in 2012 to 3.4 in 2020. Even though oil sands expansion is one of the major reasons why the Canadian government would break its emissions promise, its promotion of this expansion is nonetheless one of its highest priorities.

Finally, because the federal government has done virtually nothing to reduce emissions, my research associate calculated that the government, at this late date, would need to apply a carbon tax of \$50 in 2015 that rises in annual increments to over \$150 by 2020 in order to keep its climate promise.⁸ Moreover, even the 2050 target is in jeopardy, unless government very soon implements a significant and rising price on carbon emissions or regulations of equivalent effect.

Report Card

In 2006 the Canadian government committed to reduce national GHG emissions 20% by 2020 and 65-70% by 2050. The government claimed, moreover, that it would use regulations (rather than emissions pricing) to force the shift toward low emission fuels and technologies throughout the Canadian economy.

Since 2006, the government has implemented no regulations that would materially reduce Canadian GHG emissions from what they otherwise would be in 2020. The two regulations it has implemented (coal plant emissions and vehicle efficiency) may slightly slow the growth of emissions after 2020, but they would contribute only marginally to the energy system transformation that must occur by 2050 for the government to keep its promise. Because of nine years of inaction, it may already be extremely costly to achieve the 2050 target.

In climate policy, the Canadian government has done virtually nothing to keep its 2020 and 2050 emission reduction promises. A failing grade is the obvious result.

⁶ Kniewasser, M., 2014, *Achieving Canada's Climate Targets and the Impacts on Alberta's Oil Sands Industry*, Master's Project, School of Resource and Environmental Management, Simon Fraser University.

⁷ Environment Canada, 2013, *Canada's Emissions Trends 2013*.

⁸ Kniewasser, M., 2014, *Achieving Canada's Climate Targets and the Impacts on Alberta's Oil Sands Industry*, Master's Project, School of Resource and Environmental Management, Simon Fraser University