

Greenhouse Gas Policy in Canada

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Abstract

Development of greenhouse gas policy in response to Canada's Kyoto Protocol obligations has proven a complex task. Despite the complexity, Canada has remained clear in its intent, and has moved slowly but steadily ahead with the development of its policy and regulatory regime. While development of the regulatory regime is not yet complete, the outline of Canada's greenhouse gas policy is now clear.

To set the context for the policy and regulatory regime, this paper will describe the key factors that have led to complexity in dealing with greenhouse gases in Canada, including; emissions growth, the energy production vs. emissions trade-off, regional disparities in economic activity and emissions, competitive influences, constitutional power sharing arrangements, and minority government. Canada's overall emission reduction plan will be briefly described. The paper will then outline the regulatory regime for industrial emitters as it has been developed to date, describing reporting requirements, emission reduction target structure, emission offsets and trading, and assured carbon price caps.

Finally the paper will describe what the regulatory regime will mean to the lime sector specifically. Proposed lime sector targets will be discussed as will recent developments around the concept of Best Available Technology Economically Achievable (BATEA).

Introduction

Of all nations with a target under the Kyoto Protocol, Canada perhaps faces the greatest challenge in meeting its commitment. The significance of the challenge arises from the rate of emissions growth and domestic political circumstances which inhibit aggressive action to reduce emission. These factors have meant that development of greenhouse gas emission reduction policy and regulation in Canada has been a complex task.

Despite the challenge and complexity of the task, Canada has moved slowly and steadily forward with policy development. This has been done in an open and transparent manner. Canadians have been consulted on most elements of the policy; industry has been consulted on elements of policy that directly impact it. Throughout the process policy has evolved and been adjusted as government listens and learns.

With the recent election of a new minority government in Canada, it is likely that greenhouse gas policy will continue to evolve. It is not yet clear where the new government will take policy, particularly with respect to industry. As such, this paper will describe policy as it has been developed to date and describe the implications for industry in general and the lime industry in particular.

A Complex Policy Environment

In 2002 Canada published its “Climate Change Plan for Canada” in advance of the Kyoto Protocol ratification decision. The Plan laid out several principles under which Kyoto ratification would occur. These principles hint at the complexity of the issue, and include:

- A made-in-Canada approach based on collaboration, partnerships, and respect for jurisdiction;
- No region or jurisdiction of the country should be asked to bear an unreasonable burden in the realization of climate change goals;
- Canadian jobs would not be exported to meet climate change goals;
- Industrial emission reduction requirements would incorporate an emission intensity reduction approach.

Canada’s significant greenhouse gas emissions challenge results from a disconnect between good intentions to reduce and the reality of Canada’s emissions. Canada’s target under the Kyoto Protocol is a reduction of greenhouse gas emissions to 6% below 1990 levels. In 1990 greenhouse gas emissions were 606.4 million tonne CO₂e. Canada’s target is 570 million tonne. Since 1990, greenhouse gas emissions in Canada have grown continuously. The most recent official emissions numbers, for the year 2003, show Canada with emissions 24.2% above 1990 levels or 32% above target.

Over the same time period the Canadian population has grown by 15% and the economy by around 45%. The majority of emissions growth has occurred in the oil and gas, power generation and transportation sectors.

It is unlikely that Canada’s emission growth will slow. One of the areas of greatest projected emissions growth is from the oil sands sector. The oil sands in western Canada have estimated reserves of 175 billion barrels, placing Canada second to Saudi Arabia in world ranking of crude oil reserves. Production of oil from oil sands has increased four fold since 1990. Production is forecast to double again by 2015 driven in large part by high world oil prices and the United States’ increasing desire to reduce reliance on Middle-Eastern oil. Current estimates indicate an additional 80 to 100 billion dollars will be invested in oil sands production by 2020. Emissions from oil sands production have been forecast to increase by 20 million tonne, or triple, from 2000 to 2010.

Significant growth in emissions from the oil sands sector created an emission reduction burden sharing dilemma for Canada. If emission reduction allocation were done on a “grandfathered” basis, a heavy burden would fall on oil sands with the consequent risk of driving investment away. This in large part explains the emission intensity reduction approach for industrial emissions that Canada has adopted. It is the mechanism that allows Canada to both promote development of, and attract investment for, oil sands and promote greenhouse gas emission reductions. Even though this mechanism shares the burden of increasing oil sands emissions amongst other industrial emitters, it was

generally acceptable to industry because it gave the promise that any industry could grow its output without facing a hard cap on emissions.

In 2003 then Prime Minister Jean Chretien made several promises to Canada's oil and gas industry that have been extended to all industry. These promises included:

- An assurance that the oil and gas industry would not face reduction requirements more stringent than the rest of industry;
- That emission reductions would be no more than 15%;
- That industry would be provided a financial backstop and would pay no more than CAD\$15 per tonne of CO₂e for emissions.

These promises provided certainty industry was looking for; maximum emission reduction requirements and cost were now well defined, at least through 2012. Industry could proceed with its investment decisions, but government had narrowed its range of maneuver.

Given the United States early indications it would not ratify the Kyoto Protocol, and considering the United States is Canada's largest trading partner, it was clear the Canadian government would have to consider competitiveness implications when developing its climate change plan. How else could it uphold its principle of not exporting jobs? The Canadian government spent considerable time with industry to understand the competitive situation of each sector. To the government's credit, it did incorporate learning from this process into an evolving climate change plan. But it didn't make the plan any simpler.

Canada's economic growth has not been uniform across the country. Fastest growth, particularly in the last few years, has occurred in regions of the country with significant natural resource industries. Provinces in central Canada, which have traditionally been the manufacturing heartland, are currently experiencing lesser levels of economic growth, in part because of high energy prices. This circumstance, in addition to the emission intensity reduction approach, left these provinces crying foul; they felt they were being asked to share an increased emission reduction burden so that other regions could enjoy more vigorous economic growth.

A related and complicating issue is that of Canada's constitutional power sharing arrangements. In Canada, provinces control natural resources. This means that provinces decide how and when natural resources are to be exploited. If the federal government were to implement policy or law that was perceived as an exercise to seize this power from the provinces, it could face a constitutional crisis. Indeed, discussion in the province of Alberta (home of the oil sands) of separation from Canada has never been as loud as during the Kyoto debate.

All of these factors; the enormous and growing gap between actual emissions and the emissions target, the economic and geopolitical drivers of emissions growth, the objective of keeping jobs in Canada set beside the reality that the United States will not

ratify Kyoto and consequent competitiveness concerns, and the potentially profound domestic political implications of greenhouse gas policy demonstrate why this policy environment is particularly complex. It also sheds light on why Canada's emission reduction plan has evolved in the manner it has.

Canada's Emission Reduction Plan

Canada's emission reduction plan may appear as more form than substance. Perhaps it simply reflects a recognition that Canada cannot hope to physically reduce emissions in order to meet its obligations. Therefore the plan is designed to ask industry to do what it can and equitably share the remainder of the reduction burden by asking the taxpayer to finance purchase of emission credits.

In 2005 Canada set forth its emission reduction plan in a document entitled, "Moving Forward on Climate Change: A Plan for Honouring Our Kyoto Commitment". This plan set out initiatives in six areas that are designed to produce emission reductions or otherwise allow Canada to meet its obligations. These initiatives are as follows:

- **Competitive and Sustainable Industries for the 21st Century:** this is the regulatory system for large final emitters (LFE) that will impose reduction targets and that "will enable Canada's largest emitters to contribute to national climate change objectives in a manner that facilitates growth and competitiveness".
- **Harnessing Market Forces:** this is the initiative under which Canada will purchase emission reductions, through the Climate Fund, in both the domestic and international markets.
- **A Partnership Among Canada's Governments:** this initiative, through the Partnership Fund, will see federal and provincial government investment in technology and infrastructure development that will facilitate emissions reductions.
- **Engaged Citizens:** this initiative challenges individual citizens to reduce their greenhouse gas emission by one tonne each.
- **Sustainable Agriculture and Forest Sectors:** this initiative will allow Canada to take advantage of forest sinks.
- **Sustainable Cities and Communities:** this initiative will facilitate investment in sustainable infrastructure.

This plan is meant to smooth over many of the complexities described above. Industry will have the LFE program that will impose emission reduction requirements, although they will not be as stringent as first envisioned. This is to alleviate competitiveness and export of jobs concerns. An emission trading scheme will provide the mechanism by which industry can collectively meet its reduction obligation at the lowest cost, and at the same time encourage emission reduction outside the LFE program by allowing sale of these "offset" credits to industry.

The plan looks to overcome regional and jurisdictional concerns over the LFE program by spreading money far and wide through the Climate Fund, the Partnership Fund and the

Sustainable Cities and Communities initiatives. It ostensibly asks individual Canadian's to share in the burden of emission reduction by voluntarily making personal reductions. In all, the government of Canada plans to spend at least CAD\$10 billion through 2012 in order to meet its Kyoto commitments. This estimate is surely far too low.

To allocate the reduction burden, Canada took the approach of forecasting emissions for the first Kyoto commitment period (based on a series of business as usual assumptions that included forecasts of growth in output and activity, energy efficiency improvement, fuel switching), determining the total forecast reduction requirement, and allocating this amongst different segments of society. The government explicitly assumed liability for errors in forecasting.

Unfortunately several assumptions upon which this plan was based have proven incorrect. Canada's emissions have grown faster than initially forecast. Fuel switching to natural gas has not occurred as forecast due to significant price increases. Expected emission reductions from government financed programs have not materialized. The end result is a large emission reduction gap with no apparent solution.

Regulatory Regime for Industrial Emitters

The greenhouse gas regulatory regime for industrial emitters in Canada is known as the Large Final Emitter (LFE) regime. The LFE group consists of three broad sectors (mining and manufacturing, oil and gas, and thermal electricity) composed of about 700 companies engaged in activities including the following:

- Electricity generation
- Oil (conventional and oil sands) and natural gas production
- Pipelines
- Petroleum refining
- Steel production
- Cement production
- Lime production
- Pulp and paper production
- Aluminum production
- Chemical and fertilizer production
- Mining and smelting

The initial, and to date only, regulatory requirement is the reporting of greenhouse gas emissions. Currently reporting is restricted to facilities that emit in excess of 100,000 tonne of CO₂e per year. Reporting began in 2005 for the 2004 emissions year.

Greenhouse gas emission reduction requirements will be regulated using the existing Canadian Environmental Protection Act (CEPA 1999) under which greenhouse gases have been designated CEPA toxic. The intent is to implement a new cross-cutting regulation under CEPA 1999 that would outline the basic and common features of the

LFE regime. This would be followed by sector specific regulations that will define reduction targets.

It is expected that the cross-cutting LFE regulation will include the following elements:

- Regulations apply to the operator of a facility (rather than the owner if not the same)
- A prohibition to emit above specified emission intensity
- A mechanism to allow remittance of compliance units for emissions in excess of the prescribed limit
- Rules for remittance and definition of eligible compliance units
- A requirement to report emissions once per year
- Rules for issuance of eligible domestic credits if emissions are lower than the proscribed limit
- Procedures for requesting confidentiality of reported information

Regulation regarding an emission trading system and the \$15 price assurance may be dealt with in the cross-cutting LFE regulation or could be dealt with in separate regulation under CEPA(1999). Other issues still under consideration are the inclusion or exclusion of methane and nitrous oxide emissions under emission reduction requirements.

It appears that Canada's emission trading system will be a domestic system, with its own carbon currency. International reduction units can be imported into the system but domestic units can not be exported out of the system. The system will incorporate domestic offsets to encourage emission reductions outside the LFE. Individuals or companies outside the LFE would receive credit for eligible emission reductions and be able to sell these credits in the emission trading system.

Industry in Canada is very concerned with the likely lack of liquidity in the domestic emission trading system. Industry as a whole believes it will not be able to physically reduce emissions to achieve emission reduction targets. The Canadian government is forecast to be the largest buyer in the market, competing with industry for offset credits. It is extremely unlikely that enough offset credits will be generated to meet both industry and government demand.

The proposed regulated emission reduction target for the LFE regime is 45 million tonne per year below business as usual forecasts. This target has been reduced from the originally proposed 55 million tonne per year based on competitiveness assessments. A primary reason for this reduction was resolution of the process emission issue.

After consultations with industry over the course of two years, the Canadian government concluded that "some sectors, particularly those with fixed process emissions faced competitiveness issues in reducing emissions" and "there is a fundamental distinction between [fixed process emissions and all other types of emissions], owing to the fact that the levels of fixed process emissions cannot be controlled by industry, other than by

lowering production entirely.” The overall reduction target and sector specific targets reflect this distinction.

In the LFE regime, fixed process emissions will receive a zero percent reduction target during the 2008-2012 period. All other emissions will receive a 15% reduction target; however, the targeted reduction from these other emissions as a percentage of total emissions cannot exceed 12% of total emissions. This means that an activity with only combustion related emissions will have an intensity reduction target of 12% while an activity like lime production will have an intensity reduction target of 15% on combustion related emissions only.

Lime Activity Targets

For the purpose of the LFE regime, it appears the activity of producing lime will include production from merchant lime producers as well as captive lime producers in the sugar and steel industries. Lime production from kilns operating in pulp mills will not be included.

At this writing it appears there will be three activity targets related to lime production; one for high calcium lime production, one for dolomitic lime production, and one for double burned dolomitic lime production. This on the basis that targets will apply to “activities” within a sector for which there is a logical reason for specific targets.

Each of the lime sector activity targets were developed using the following methodology:

1. Define the emissions envelope that an activity target will cover. In the case of lime the envelope includes emissions from limestone crushing and sizing, calcining limestone, processing lime and lime handling and storage. Emissions from quarrying limestone and transporting lime are not included.
2. Define the emission intensity metric. In the case of lime, the tentative emission intensity metric is as follows:

Total CO₂e [covered emissions]

(Lime produced at kiln) + (Partially calcined byproducts sold)

3. Determine the baseline emission intensity, including process and combustion emission components, using the average year 2000 emissions for all production in each activity category in Canada.
4. Determine forecast 2010 business as usual emission intensity, including both process and combustion emission components, by considering improvements in energy efficiency and trends in fuel switching for all production in each activity category in Canada.
5. Determine the emission intensity target by summing 85% (15% reduction) of the combustion component plus 100% of the process component of the forecast 2010 business as usual emission intensity.
6. Each target will apply to all production in Canada in that activity category.

At this writing the final numeric targets for the lime sector have been determined but have not been released. Final review and release of the targets awaits policy direction from the new government.

At one point, the Canadian government was proposing that targets determined as outlined above would apply only to existing facilities. New or significantly modified facilities would receive targets based on Best Available Technology Economically Achievable (BATEA). The quid pro quo was that BATEA targets would be valid for at least ten years (i.e. into the second Kyoto commitment period) which would provide investors with longer term certainty with respect to reduction targets.

The Canadian Lime Institute opposed this concept on the basis that it was as likely to discourage investment in new facilities or facility modification as it was to encourage investment. There would be no incentive to modify a facility to reduce emissions only to receive a more stringent BATEA target. It appears the Canadian government accepted CLI arguments and that the lime sector will not be subject to this proposed policy during the first Kyoto commitment period.

Conclusion

Canada faces a significant challenge in meeting its Kyoto Protocol greenhouse gas emission reduction target; in fact the new Canadian government has publicly stated Canada will not meet its target. It seems likely that Canada will continue with regulation of large final emitters. The regulatory regime described above will be subject to change but nonetheless will likely form the basis of regulation.

Of particular note for the lime industry is the exclusion of process emissions from reduction requirements and the principle upon which that decision was made, the principle of distinguishing between process and other emissions on the basis that industry can not control process emissions other than through reduced production. Canada has not yet decided that deindustrialization is in the public interest.