



Essentials of a Carbon Tax for Canada

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Introduction

Climate change is now a fact of life in Canada as the effects of global warming are being felt across the country. In addition, climate science tells us that to avoid truly catastrophic impacts from climate change global emissions need to start dropping as quickly as possible — within this decade at the latest. Therefore, addressing climate change will be one of the key legislative and economic challenges facing Canadian governments for the foreseeable future.

Several studies have shown that the single most effective solution to rising greenhouse gas (GHG) emissions is to allow the market to respond to a price on carbon.¹ Putting a price on carbon is a broadly effective approach to emission reductions that is superior to subsidies or voluntary programs and more economically efficient than regulations.

With this briefing paper Ecojustice presents a carbon tax as the optimal approach to carbon pricing, and as the most effective and efficient means to address climate change. This paper emphasizes the following three key factors:

- A carbon tax law should put a significant price on greenhouse gas emissions broadly across the economy;
- A robust compliance and enforcement mechanism must ensure that polluters are not able to avoid their responsibilities under a carbon tax; and
- Complementary regulations, policies and investments will reinforce the effect of the carbon tax, expand green infrastructure and the use of clean technology.

In our view, the overriding imperative is to institute effective carbon pricing in Canada as soon as possible. Until a substantial portion of Canadian emissions carry a real financial cost, Canada will not be able to make a fair contribution to the global effort against climate change. A carbon tax is the most quick and efficient route to achieving this.

Opting for a Carbon Tax over a Cap and Trade System

In choosing which carbon pricing mechanism to adopt, Canada has the benefit of being able to look to the experience of other jurisdictions internationally, as well as here at home in British Columbia.

In theory both a carbon tax and a cap and trade system are capable of delivering a significant and sustained reduction in GHG emissions across a broad spectrum of sectors. However, a carbon tax has a key advantage over a cap and trade system. Crucially, it is much easier to implement a carbon tax, therefore allowing for faster introduction by government (as it can rely on existing administrative structures for taxing emissions). That is what the government of British Columbia did in 2008, moving from the announcement to the implementation of its carbon tax all within the same year. While it is theoretically possible to implement a cap and trade regime with similar swiftness, experience has shown that cap and trade systems for GHGs are highly complex, heavily influenced by vested interests, and require an extensive regulatory regime. The U.S. Congress's Waxman-Markey cap and trade legislation is 1427 pages in length.² By contrast, the legislation establishing the BC carbon tax is under 50 pages long.³

This distinction between the two approaches is important because the timely, efficient implementation of carbon pricing is a crucial objective in relation to climate change. Canada has already fallen behind many of its peers among developed industrialized countries in putting a price on GHG emissions. The EU's emissions trading system has been well underway for a period approaching a decade, and some Scandinavian countries have been taxing carbon emissions for over two decades. For Canada to carry its weight in the global effort against climate change, we will need a steeper decline in emissions than the current federal government's target.⁴

Comprehensive Coverage of all Sectors of the Canadian Economy

A carbon tax should be applied across the entire Canadian economy. As many GHG sources as possible, from the large to the small-scale, should be brought within the carbon price system. This way products, services and activities will begin to reflect the environmental and social cost of the direct and indirect carbon emissions associated with their use.

Maximizing the breadth of coverage of a carbon tax results in the lowest cost to the economy as a whole. For instance, the coverage of an emitting activity under the umbrella of a carbon tax precludes the need for carbon offsets, which invariably include undue costs associated with monitoring and additionality.⁵ Moreover, every emitting activity that is exempt from the carbon tax is effectively receiving a subsidy. This is so because GHG emissions cause damage to the environment in many ways (through climate change and through other land, water and air impacts associated with fossil fuel production), and when polluters do not pay for such damage society must pay instead. Indeed, not only are emitter subsidies economically inefficient, but

they also constitute a violation of the *polluter pays* principle.⁶

Currently we are all paying for the cost of carbon emissions in the form of poorer health, a degraded environment, and lost economic opportunities for many (including future generations). Further, the economic risk and volatility associated with the impacts of climate change is becoming increasingly apparent to Canadians. This cost is not reflected in the price of carbon intensive products and services. It is a cost that producers foist on all of us through what economists refer to as the 'market externality'⁷ of the social cost of carbon emissions. While the retail price of carbon-intensive products reflects the cost of inputs such as labour, capital, and transportation – they do not reflect the cost associated with the point when the carbon enters the atmosphere.

A tax on carbon broadly across the economy ensures that all sectors respond according to the price signal, thus maintaining a level economic playing field for all businesses. To the extent that some sectors are vulnerable to the trade impacts of increased carbon costs, efforts at amelioration of these impacts could be addressed through focused rebates, not via discounts in the carbon tax.

With an economy-wide carbon tax, certain GHG intensive products will become less competitive in the marketplace compared to low carbon alternatives (as the tax rate increases). This is not undesirable, so long as transitional programs for business and labour are in place. Meanwhile, other low carbon products and services will gain market share and create business and employment opportunities.

But if the carbon tax is not economy wide, carbon intensive sectors that have been exempted from the tax will have an advantage over low carbon producers as well as over those carbon intensive competitors who have internalize the cost of GHGs into their products. This would artificially skew the market toward exempted producers at the expense of everyone else.

Emissions by sector

In Canada, the emission of all GHGs from the combustion of fossil fuels that are bought and sold (representing approximately two thirds of Canada's emissions⁸) is readily and easily subject to a carbon tax. Combustion during fossil fuel production and distribution, which is typically subsumed within the internal operations of a company, represents approximately eight percent of emissions and should be easy to account for as well. Most fugitive emissions from fossil fuel production and distribution can be quantified with adequate accuracy and thus should be covered by the carbon tax. The same applies to process emissions which, combined with fugitive emissions, represent approximately 15 per cent of Canada's greenhouse gas inventory.⁹

Landfill emissions, principally from municipal waste sites, can be estimated and taxed as well. However simply eliminating landfill emissions, via regulations that require methane capture, is a better approach.

In short, comprehensive and uniform carbon tax coverage is the most economically efficient and environmentally effective approach to reducing emissions. Moreover, for the sake of expedition, a national carbon tax should immediately be applied to all GHGs from the combustion of fossil fuel.

A Nation-wide Carbon Tax

The most effective approach to pricing carbon is for the federal government to establish a nation-wide carbon tax. A federal, nation-wide tax represents a unified and simplified approach to reducing emissions and avoids the border related headaches of a fragmented province-by-province carbon price. While three provinces already have an established carbon tax (B.C.'s being the only meaningful one) the prices are so low that the shortcomings of this policy patchwork are not readily apparent. This would quickly change if any one province were to introduce a robust carbon price.

Utilizing Carbon Tax Revenue Wisely

Once introduced, a carbon tax could fairly quickly generate substantial government revenue. A carbon tax of \$30 per tonne, applied to both combustion and non-combustion emissions,¹⁰ could generate an estimated \$10-15 billion in revenue annually, and a price of \$75 per tonne could generate at least \$50 billion in revenue each year.¹¹

This revenue could quickly be reintroduced into the Canadian economy, but how the money is reintroduced is crucial as well. Government has a number of options in this regard. It can maintain 'revenue neutrality,' whereby it reduces another revenue stream by an amount equivalent to the revenue generated by the carbon tax. Cutting other taxes to offset the carbon tax revenue is one example of revenue neutrality.

Overcoming a weak policy response

Earmarking a portion of the revenue for measures that address the inherent shortcomings in the coverage of a carbon tax is the best option for overcoming a weak policy response. There are two key shortcomings related to any carbon price, including a tax.

First, there are sectors of the economy that exhibit only a weak response to the tax (what economists refer to as an 'inelastic' response¹²). For instance, those who don't have a practical alternative to driving to work, such as residents in an area not served by public transit, would be unresponsive to an increase in the price of gasoline. In this case, earmarking some of the carbon tax revenue for the expansion of public transit infrastructure is desirable.

Additionally, small businesses and building owners may be unaware of practical opportunities to save energy and money by installing efficient heating systems and equipment. In this instance, lack of information or financing constitutes a 'market barrier'¹³ preventing an efficient

response to the carbon tax. Government can overcome this barrier by using carbon tax revenue to provide energy efficiency retrofits grants and energy management assistance to small business.

Overcoming a weak price signal

At the outset, when the carbon tax is likely to be relatively low, the weak price signal does not significantly influence behaviour. Before the carbon tax is at a level that generates meaningful emission reductions, government is to some extent merely collecting revenue (as with the \$3 per tonne Québec carbon tax¹⁴). In this context, in order to reduce GHG emissions as quickly as possible, government could allocate revenue to major projects that can immediately bring down emissions. This simply expedites a process that will occur naturally when the carbon tax is subsequently increased.

Early investment in renewable energy and energy efficiency

Investing a portion of the carbon tax revenue in renewable energy and energy efficiency could further reduce GHG emissions beyond what the carbon tax achieves on its own, by up to 10 per cent.¹⁵ Given Canada's high level of emissions, and the deep reductions required to bring emissions to within acceptable limits, an additional 10 per cent reduction is substantial. Coupled with a modest initial tax rate, it is important to incent early, significant emission reductions before the tax takes full effect.

Income tax reductions

A portion of the revenue could also be returned to Canadians in the form of personal and corporate income tax reductions (as has been done in British Columbia).¹⁶ This provides a boost in job creation and take-home pay,¹⁷ thereby creating an incentive for even greater emission reductions. Many Canadians and companies are apt to find that they can come out ahead financially as a result of the tax reductions. Canadians should be able to substantially decrease the financial impact of the carbon tax by reducing their carbon footprint, while enjoying a steady increase in the financial rewards associated with the income tax reduction.

Finally, a portion of the carbon tax revenue could be reserved in order to address competitiveness issues (see section below) and to providing transitional assistance to workers in affected sectors.

One additional note: studies show that once the carbon tax reaches higher levels, the additional emission reductions obtained through revenue recycling almost disappear in the face of the powerful price signal.¹⁸ There comes a point when the carbon tax alone is sufficient to achieve the necessary emission reductions.

Using Revenue to address Regional Variations in Household Energy Costs

Canada has a cold climate, with temperatures hovering in the single digits in some regions for much of the year. In other regions summers can be sizzling hot. And by contrast, some communities can experience both -30°C temperatures in the winter and 30°C temperatures in the summer. Indeed one of the hallmarks of modern day life in Canada is that not only do we use substantial energy in the winter to heat our homes, but we also use substantial electricity in the summer to keep our homes and workplaces cool. Thus, depending on the province or region, a heavy reliance on coal to generate electricity could mean a marked increase in the cost of energy with the introduction of a carbon tax.

Consequently, a portion of the carbon tax could be returned to individuals to compensate for regional variations in household energy cost increases. Payment could be targeted at different households in a manner that creates an incentive to reduce energy consumption. In that respect, low-income households must be protected from the financial impacts of energy poverty. Meanwhile higher-income (and typically larger) households could receive compensation only as a financial incentive in exchange for the introduction of energy conservation measures.

Using Revenue to Assist Trade-Exposed Industries

At least one study has shown that the overwhelming majority of sectors, comprising most of Canada's economy, would continue to experience strong economic growth, with only a marginal impact on international competitiveness even in the face of a stringent domestic carbon tax.¹⁹

Indeed, the level playing field created by the elimination of hidden subsidies to carbon intensive industries (i.e. the market externality of an atmospheric dumping ground for GHGs) is likely to allow many other sectors of the Canadian economy, including the clean tech and smart tech sectors, to flourish and become more competitive globally.

Nonetheless, a handful of carbon intensive and trade-exposed industries could experience a drop in growth to such a degree that they may seek to shift production to other countries with a lower carbon price. Indeed, on the flip side, low cost carbon-intensive imports from countries without a meaningful carbon price might also displace domestic production.

Protecting Canada's economy from other countries with lax or non-existent carbon pricing is important. It's also important to protect the environment, which sustains ongoing harm if Canadian emitters simply relocate their facilities to countries without a comparable carbon price (referred to as 'carbon leakage'²⁰).

There are available options to address carbon leakage. One of the most effective and efficient is the introduction of a 'border tax adjustment' policy. Border tax adjustments involve providing

export rebates to reduce the loss of foreign market share by carbon-intensive Canadian companies and, conversely, levying tariffs on carbon-intensive imports to reduce gains in the share of the domestic market.

In a small handful of sectors Canadian exporters could receive a rebate tied to the total embedded carbon in their products (upon which they paid a domestic carbon tax). Meanwhile, carbon-intensive imports would face a duty tied to their embedded carbon (for which no carbon price was paid in the country of origin).

In short, border tax adjustments level the playing field between companies operating under a carbon tax in Canada and international competitors who do not face a comparable price on emissions. And the funds for the domestic rebate could be obtained from the revenue associated with the carbon tax.

Complementary Policies and Regulations

As noted, while a carbon tax is a broadly effective market-based tool for reducing GHG emissions, there will always be barriers to emission reductions, or at least cost-effective reductions that will require the utilization of complementary policies and regulations.

Complementary policies can substantially improve the effectiveness of a carbon tax, particularly during the initial period when the rate is likely to be fairly low, and can be employed to address emission sources which do not readily lend themselves to the application of a carbon tax.

Economic modelling shows that a substantially greater decrease in GHG emissions can be obtained when an economy-wide carbon tax is augmented with emissions reduction regulations in several key sectors, including transportation and buildings. The research shows that “regulatory policies can be very effective in closing gaps between actual emissions and targets when some segments of the economy are insensitive to emission prices.”²¹

These findings align with those of the U.N. Intergovernmental Panel on Climate Change, which concluded in a comprehensive study that barriers to implementation, which include financial, institutional, technological, informational and behavioural impediments, can prevent the realization of cost effective GHG mitigation opportunities. The report notes that “no one sector or technology can address the entire mitigation challenge. All assessed sectors contribute to the total”²² thus underscoring the need for complementary policies and regulation.

The following is a list of key policies and regulations that could complement a carbon tax:

- ❖ Vehicle GHG emission regulations
- ❖ Energy efficiency standards for appliances and equipment on par with the best-in-class globally
- ❖ Energy efficient building codes, and regulations to limit urban sprawl
- ❖ Increased capital and operating funding for public transit
- ❖ Increased public investment in renewable energy and energy efficiency

- ❖ Government investment in research and development to help reduce the cost of green technologies
- ❖ Regulations to capture landfill gas (given technical issues related to accurate measurement)
- ❖ Regulations to restrict venting and flaring in the oil and gas sector (given technical issues related to accurate measurement)

Compliance and Enforcement

In addressing the issue of carbon price compliance and enforcement, a carbon tax represents the simplest approach to achieving emission reductions and ensuring revenue collection (substantially simpler and less prone to compliance issues than a cap and trade system).

As noted, a carbon tax would be set in terms of dollars per ton of CO₂ emissions (or CO₂-equivalent emissions) by sources covered under the system. At a minimum this should include a tax on the carbon content of the three main fossil fuels used in Canada (coal, petroleum, and natural gas) as they enter the economy.

Government could apply the carbon tax at the point of production and import of these fuels based on their carbon content. Under this 'upstream' approach, refineries and importers of petroleum products such as gasoline and diesel pay the tax based on the carbon content of these liquid fuels. Coal companies pay a tax reflecting the carbon content of the tonnes imported or extracted at the mine. And natural gas operators pay a tax reflecting the carbon content of the gas they bring to the surface at the well.

With a relatively small number of firms to cover (fewer than 1,000 in Canada) a carbon tax is considerably simpler to monitor and enforce than a cap and trade system. Crucially, 'downstream' cap and trade, which considers only the ultimate emitters of carbon, would involve several thousand points of regulation since it would include the smokestacks and chimneys of every emitter.

Additionally, a carbon tax should be administratively simple and straightforward to implement, since the tax could incorporate pre-existing methods for fuel supply monitoring and reporting to Canadian governments. Monitoring the physical quantities of fuels sold yields a precise estimate of the emissions that would occur during their combustion.

Oversight of a carbon tax system could be given to the same government authorities who are already involved in the administration of excise tax collection for gasoline and other fossil fuels. In that regard, it makes sense to draw upon the government tax authority's expertise in collecting revenue, implementing tax legislation, and enforcing compliance with the *Income Tax Act*.

On the flip side, the hundreds of companies covered under a carbon tax system are already monitoring and reporting their fossil fuel production and sales to government for various purposes, including excise and sales tax. Regular reporting requirements are therefore unlikely to impose a significant additional administrative burden. As a result, monitoring, reporting and compliance verification are likely to be relatively straightforward. This has been the experience in British Columbia with the carbon tax that was introduced in 2008.

Compliance and Enforcement: the British Columbia Carbon Tax Example

When British Columbia introduced a carbon tax the province decided to utilize the longstanding administrative system for collecting revenue under the B.C. *Motor Fuel Tax Act*. The existing procedure of appointing fuel vendors or retailers as 'tax collectors' under the Act was applied to the collection and remittance of the carbon tax on almost all fuels that are sold and used in the province.

Under the B.C. *Carbon Tax Act* the Director appointed to administer the Act has powers to examine documents, demand production of documents, search premises and obtain a warrant to search a dwelling occupied as a residence.

And, as under existing tax collection legislation, including the *Motor Fuel Tax Act*, the Director has been endowed with a broad set of enforcement options ranging in severity. This grants the Director substantial flexibility in addressing violations in the most appropriate and effective manner. The Director can address minor or inadvertent breaches efficiently with infringement notices or small fines. The most stringent enforcement options, in instances of willful misconduct, are civil and criminal penalties including fines equal to 100 percent of the amount not remitted and criminal penalties of up to two years in prison.

The Director may also go to court to obtain an injunction ordering a vendor to cease selling fuel in British Columbia until the vendor complies with the *Carbon Tax Act* and fulfills the obligation under the Act. Finally, in a proceeding under the Act there is a reverse onus of proof on the accused to prove that the outstanding amount in question was remitted to the government.

Conclusion

Experience, both here in Canada and in other jurisdictions, has shown that a consistent, economy-wide carbon tax is the optimal approach to reducing greenhouse gas emissions. The simplicity, transparency and effectiveness of a carbon tax makes it the recommended policy choice over the implementation of a cap and trade system.

The price signal that accompanies a carbon tax sends a clear and straightforward message to energy producers, industrial users and consumers — that damaging greenhouse gas emissions must come down.

The government revenue that accompanies a carbon tax should be invested in green infrastructure, public transportation, energy efficiency, renewable energy, and reductions in personal and corporate income tax.

The federal government should move quickly to introduce an economy-wide carbon tax that will ultimately result in deep national greenhouse gas emission reductions by the end of the decade. The overriding climate change imperative is that government take action now.

NOTES

¹ Marc Jaccard, Nic Rivers. 2007. *Canadian Policies for Deep Greenhouse Gas Reductions*, Institute for Research on Public Policy; Don Drummond. 2007. *Market-Based Solutions to Protect the Environment*. TD Bank Financial Group; Jeffery Simpson, Marc Jaccard, Nic Rivers. 2007. *Hot Air: Meeting Canada's Climate Change Challenge* (Toronto: McClelland & Stewart)

² American Clean Energy and Security Act of 2009. Available here: <http://www.gpo.gov/fdsys/pkg/BILLS-111hr2454pcs/pdf/BILLS-111hr2454pcs.pdf>

³ Carbon Tax Act, SBC 2008, c 40. Available here: http://www.bclaws.ca/civix/document/id/complete/statreg/08040_01

⁴ Under the Copenhagen Accord, Canada has committed to reducing its greenhouse gas emissions by 17 per cent from 2005 levels by 2020. Available here: <https://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=D59B6AF5-5533-49F7-9CEA-52DE5F3766C5>

⁵ Offsets allow emitters to purchase emission reductions from third parties, who are engaged in GHG mitigation activities, without actually reducing their own emissions. Offsets enable the business-as-usual emission of GHGs here at home and generally delay real emission reductions. Offsets typically involve concerns about additionality because of difficulties in determining what investments funded by offsets are in fact 'additional', or whether they would have happened in any event. This means offset projects need to be monitored and verified over lengthy periods, often at considerable expense.

⁶ The polluter pays principle assigns to emitters the direct and immediate cost of pollution and the cost of remedying environmental degradation for which they are responsible.

⁷ A situation where the market fails to incorporate the environmental costs associated with carbon emissions, such as drought, disease and extreme weather events, into the final price and instead leaves them to be borne by society as a whole.

⁸ National Inventory Report: Greenhouse Gas Sources and Sinks in Canada. 2013. Environment Canada. Available here : <https://www.ec.gc.ca/Publications/A07ADAA2-E349-481A-860F-9E2064F34822/NationalInventoryReportGreenhouseGasSourcesAndSinksInCanada19902011.pdf>

⁹ National Inventory Report: Greenhouse Gas Sources and Sinks in Canada. 2013. Environment Canada. Available here : <https://www.ec.gc.ca/Publications/A07ADAA2-E349-481A-860F-9E2064F34822/NationalInventoryReportGreenhouseGasSourcesAndSinksInCanada19902011.pdf>

¹⁰ Excluding agricultural, forestry and landfill emissions.

¹¹ Nic Rivers, Dave Sawyer. 2008. *Pricing Carbon: Saving Green: A Carbon Price to Lower Emissions, Taxes and Barriers to Green Technology*. David Suzuki Foundation. Available at: http://www.davidsuzuki.org/publications/downloads/2008/Pricing_Carbon_saving_green_eng.pdf

¹² The demand for a product is not very responsive to changes in price.

¹³ Conditions that impede the adoption of cost-effective technologies or practices that would reduce GHG emissions.

¹⁴ C.D. Howe Institute. 2009. *Quebec's Green Future: The Lowest-Cost Route to Greenhouse Gas Reductions*. Available at: http://www.cdhowe.org/pdf/backgrounder_118_English.pdf

¹⁵ Nic Rivers, Dave Sawyer. 2008. *Pricing Carbon: Saving Green: A Carbon Price to Lower Emissions, Taxes and Barriers to Green Technology*. David Suzuki Foundation. Available at: http://www.davidsuzuki.org/publications/downloads/2008/Pricing_Carbon_saving_green_eng.pdf

¹⁶ Carbon Tax Act, SBC 2008, c 40

¹⁷ Sustainable Prosperity. 2012. British Columbia Carbon Tax Review. Available at: <http://www.sustainableprosperity.ca/dl891&display>

¹⁸ Nic Rivers, Dave Sawyer. 2008. *Pricing Carbon: Saving Green: A Carbon Price to Lower Emissions, Taxes and Barriers to Green Technology*. David Suzuki Foundation. Available at: http://www.davidsuzuki.org/publications/downloads/2008/Pricing_Carbon_saving_green_eng.pdf

¹⁹ Chris Bataille, Ben Dachis, Nic Rivers. 2009. Pricing Greenhouse Gas Emissions: The Impact on Canada's Competitiveness. C.D. Howe Institute

²⁰ Carbon leakage occurs when carbon emissions increase in one country as a direct result of emission reductions in a second country, typically due to a climate policy.

²¹ National Round Table on the Environment and the Economy. 2008. *Getting to 2050: Canada's Transition to a low-Emission Future*. p. 28. Available at: <http://collectionsCanada.gc.ca/webarchives2/20130322175244/http://nrtee-trnee.ca/wp-content/uploads/2011/08/Getting-to-2050-low-res.pdf>

²² Intergovernmental Panel on Climate Change. 2007. IPCC Fourth Assessment Report: Climate Change 2007. p.19. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg3/en/spmssp-c.html