

British Columbia Carbon Tax Review



Sustainable Prosperity is a national research and policy network, based at the University of Ottawa. SP focuses on market-based approaches to build a stronger, greener economy. It brings together business, policy and academic leaders to help innovative ideas inform policy development.

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INTRODUCTION

Sustainable Prosperity (SP) is a national research and policy network, based at the University of Ottawa. SP focuses on market-based approaches to build a stronger, greener, more competitive economy in Canada.

Our **Low-Carbon Economy program** produces cutting-edge research and policy experiences on carbon pricing and its role in the transition to a low-carbon economy, seeking to better understand how carbon taxes, cap-and-trade and other carbon pricing systems can effectively contribute to **innovation** and **competitiveness** for a more sustainable and prosperous economy.

Climate change presents a unique challenge for policy-makers: it is the greatest and widest-ranging market failure ever seen.¹ At the same time, it presents a unique opportunity: the core policy response to this market failure, carbon pricing, also generates a new stream of revenue and supports the shift to a low-carbon economy, critical for success in an increasingly carbon-constrained future. Moreover, it can generate **new investments, spur innovation and productivity**, and lessen our economy's reliance on fossil fuels to drive economic growth. Given that fossil fuel prices are likely to increase over time, decoupling economic growth from fossil fuels may be the most significant and positive structural shift promoted by a carbon tax.

Sustainable Prosperity welcomes the opportunity to comment on the British Columbia (BC) carbon tax as part of the BC Government's review process. SP commends British Columbia for its commitment to public engagement and consultation on an issue of critical importance to British Columbia's economic and environmental prosperity. Given the importance of this review process to BC's economic and environmental future, Sustainable Prosperity urges the BC government to carefully weigh the nature and rigour of the various submissions that it will receive. The charged political atmosphere around the carbon tax has given rise to much anecdotal evidence of the tax's impacts that is not – in our view – supported by evidence.

Sustainable Prosperity's submission is meant to reflect our own understanding of the state of knowledge on the issues raised, based on carefully reviewed evidence and analysis. It is not offered with a view to advocating or promoting a specific set of conclusions or recommendations; but rather, as evidence to be considered in the BC carbon tax review process.

A. GENERAL COMMENTS

First, we commend British Columbia for its commitment to carbon pricing. **British Columbia** has been a leader in North America on carbon pricing since it introduced the carbon tax in 2008. Economists widely agree that pricing carbon is the most economically efficient approach to reducing carbon emissions. Pricing carbon has three principal advantages over a traditional 'command and control' approach to carbon regulation: (i) it provides an incentive to reduce emissions without favouring any single approach; (ii) it can achieve reductions at much lower cost (thereby allowing for greater reductions); and (iii) it creates a continuous incentive for clean innovation, since there is an economic reward for each additional unit of emission reduction.² It is also favoured by many **business sectors** over traditional regulation.

Most economists also consider that a carbon tax has several advantages over the alternative pricing instrument, a cap-and-trade system. These include easier comprehensive coverage of emission sources, administrative simplicity and frugality (it uses existing public and private tax administration infrastructures), speed of establishment, low transaction costs, price certainty (critical for investment decisions), and transparency to consumers (critical for influencing behaviour).³ While a carbon tax does not guarantee a specific level of emission reductions (as a cap-and-trade system does), this can be approximated by setting the tax rate at the right level to meet emission reduction goals. The use of a carbon tax or

¹ Stern, Nicholas. 2006. "The Economics of Climate Change." The Stern Review. Cabinet Office -HM Treasury. Pages xvi-xvii.

² Ibid, and Stavins, Robert. November 2001. "Experience with Market Based Environmental Policy Instruments." Resources for the Future.

³ For example, Congressional Budget Office, [op.cit](#); William D. Nordhaus, *Economic Issues in Designing a Global Agreement on Global Warming*, keynote address. (Climate Change: Global Risks, Challenges, and Decisions conference, Copenhagen, March 10-12, 2009); and *An Open Letter to the Leaders of Canada's Federal Political Parties*, signed by 255 leading Canadian economists. October 6, 2008. At www.econ-environment.ca

carbon tax with cap-and-trade, versus a cap-and-trade system alone is endorsed by a strong majority (66%) of leaders from government, academia, industry, and non-profit organizations in Canada, with only 6% recommending a cap and trade alone.⁴

Tax shifting is not only politically appealing, but also offers the opportunity to reduce those taxes that create the largest distortions and disincentives to work, savings, and investment. In so doing, governments maximize the likelihood of achieving economic as well as ecological benefits, the so-called “double dividend.” Substantial empirical research has been conducted to test this double-dividend hypothesis. Work by the Organization for Economic Co-operation and Development (OECD) to evaluate and summarize double-dividend research concluded that positive employment effects can be expected if the revenues from environmental taxes are used to finance reductions in income taxation. Likewise, the OECD concluded that positive effects on GDP can be expected if the revenues are used to finance reductions in taxes on investment.⁵ A meta-analysis conducted by the World Bank reviewed 103 studies on environmental fiscal reform and employment impacts. The review revealed that 73% of studies showed a positive influence on employment, 24% showed a negative impact on employment and the remainder showed no impact on employment.⁶ An in-depth European Union study of the tax shifts undertaken by Denmark, Sweden, Finland, the United Kingdom, the Netherlands and Germany found that five of the countries experienced modest economic gains as a consequence of the carbon/energy tax shift while one country, the United Kingdom, experienced a neutral economic outcome.⁷

The limited research that has been conducted on the gross domestic product (GDP) and welfare impacts of different uses of carbon revenue for Canada concludes that the specific choices of which taxes are reduced will influence the net impact of the carbon price on the jurisdiction’s international competitiveness, economic efficiency, household welfare, and greenhouse gas reductions. For example, the National Roundtable on the Environment and the Economy concluded that cuts in corporate taxes stimulate growth more than other tax cuts, and cuts in labour and payroll taxes do not stimulate growth as much as cuts in corporate taxes, but perform better than cuts in sales taxes.⁸ This has been confirmed by more recent work by the Brookings Institution in the United States.⁹ Modelling of the possible economic and environmental effects of a large-scale green fiscal reform in the United Kingdom (UK), conducted by the UK’s Green Fiscal Commission, reached parallel conclusions about the significant influence on greenhouse gas emissions and GDP of different choices for how revenue is recycled.¹⁰

INTERNATIONAL DEVELOPMENTS

BC has taken a large step forward with its carbon tax, but is not alone in pricing carbon. Some of the world’s largest economies and highest emitters already have or plan to implement some form of carbon pricing. [Australia](#) recently put a national carbon tax in place. The European Union has the world’s first and largest cap-and-trade system. At the sub-national level in the United States and Japan, there is some form of carbon pricing. There are plans in the works in Korea, South Africa and China to put a price on carbon emissions. From 2013, around 20% of global greenhouse gas emissions and 30% of global GDP will be covered by a carbon price (consisting of 33 countries and 18 sub-national jurisdictions).¹¹

4 McAllister Opinion Research, *the 2010 Global Thought Leader Survey on Sustainability*. (Alberta: Pembina Institute, May 2010).

5 OECD, *Environmentally Related Taxation in OECD Countries: Issues and Strategies*. (Paris, France: OECD, 2001).

6 Benoit Bosquet, “Environmental Tax Reform: does it work: A survey of the empirical evidence.” *Ecological Economics* 34. (Elsevier, 2000).

7 Paul Ekins, *An assessment of ETR on the competitiveness of selected industrial sectors*. COMETR (Competitiveness Effects of Environmental Tax Reforms), Work package 3. (March 2007).

8 National Roundtable on the Environment and the Economy, *Technical Report on Achieving 2050: A Carbon Pricing Policy for Canada*. (Ottawa: NRTEE, 2009).p. 52 and 53.

9 McKibben, Warwick, Morris, Adele, Wilcoxon, Peter and Cai, Yiyong, *The Potential Role of a Carbon Tax in U.S. Fiscal Reform*. (Brookings 2012).

10 Green Fiscal Commission, *A Major Green Fiscal Reform for the UK: Results for the Economy, Employment, and the Environment*. Briefing Paper Five. (March 2010). At www.greenfiscalcommission.org.uk.

11 Flannery, Tim, Beale, Roger and Hueston, Gerry, 2012. *The Critical Decade: International Action on Climate Change*. Climate Commission, Department of Climate Change and Energy Efficiency, Australia. http://climatecommission.gov.au/wp-content/uploads/climatecommission_internationalReport_20120821.pdf.

B. LESSONS LEARNED ON CARBON PRICING

This section highlights the findings of SP's research on carbon pricing drawing from [Policy Briefs](#) and other [reports](#) commissioned and disseminated by SP, in the context of [fiscal sustainability](#), [equity](#) and [fairness](#), [competitiveness](#) impacts, and [innovation and productivity](#). SP also examined concepts such as the [social cost of carbon and marginal abatement cost](#) that help policy-makers to estimate the costs and benefits of carbon pricing and understanding [energy elasticities](#) to better predict how consumers are likely to respond to energy price changes. These reports review the state of knowledge on a particular topic, and assess implications for policy-makers, and so are well-suited as background for the carbon tax review.

1. FISCAL SUSTAINABILITY

There are many worthy choices for how to direct the [new revenue](#) arising from a carbon tax. In reviewing other carbon pricing programs and proposals (Canadian and international), we have identified four broad categories of potential revenue use, each with some merit for reasons of economic efficiency, equity, competitiveness, or environmental benefits:

1. **Broad [fiscal priorities](#)** such as improving the economic efficiency of the tax system (by using the fiscal space created by carbon revenue to reduce distortionary taxes e.g. on income);
2. **Alleviating [inequitable impacts](#) of the carbon tax** (providing fiscal or other forms of relief to remote communities, low-income households, and vulnerable industries);
3. **Faster adoption of [low-carbon practices and technologies](#)** (by government departments, communities, businesses and institutions, and individuals through funding and technical support programs for increasing energy efficiency, accelerating adoption of renewable and carbon neutral energy, and demonstration and pilot projects in alternative energies and emerging technologies);
4. **Climate adaptation programs** (adaptation plans to address the ongoing and expected impacts of climate change and related infrastructure upgrades).

CONSIDERATIONS

This section reviews the four broad categories of potential revenue use, as well as the additional considerations of accountability and transparency, and public opinion.

[BROAD FISCAL PRIORITIES AND REVENUE NEUTRALITY](#)

Revenue from a carbon tax is reasonably predictable and reliable, and can replace declining government revenues from existing sources. The dominant short-term factor in carbon tax revenue levels is the performance of the economy. As BC's GDP has fluctuated, so have carbon tax revenues.

[ALLEVIATING INEQUITABLE IMPACTS OF THE CARBON TAX](#)

This category of expenditure is integral to the good design of a carbon tax for economic, equity, and environmental reasons. Experience in BC demonstrates that careful anticipation of the social justice impacts of a carbon tax (i.e. on rural and remote communities, and low-income households) is vital to its public acceptance.

[FASTER ADOPTION OF LOW-CARBON PRACTICES AND TECHNOLOGIES](#)

BC's carbon tax is still too low in terms of price to drive the shift to new low-carbon practices and technologies on its own. Public investment to accelerate low-carbon practices and to support demonstration and pilot projects in alternative and emerging technologies is also needed. In BC for example the purchase of carbon offsets through the Pacific Carbon Trust has helped to support clean technology projects in the province. Faster uptake in low-carbon practices and technologies also

translates into avoided higher mitigation costs later, and conversely reduces the cost of future, more stringent, reduction targets.¹² In addition, there are and will continue to be sectors of the economy that are relatively insensitive to the impacts of carbon pricing or regulation, and for which specific investment policies will be required: for example, tenanted buildings in which the building owner has no incentive to improve the energy efficiency of the building, because utility costs are borne by the tenant, or the demonstration stage of emerging technologies such as wind and geothermal.

CLIMATE ADAPTATION PROGRAMS

In addition to mitigating carbon emissions, governments need to initiate programs to reduce vulnerability to the impacts of climate change. Adaptation is a local issue with direct economic and social benefits and security implications to individuals, businesses, and communities. These investments need to include adaptation plans, studies and data collection, plus already-present adaptation needs such as upgrading physical infrastructure to adapt to thawing permafrost, and improving disaster management capacity.¹³

ACCOUNTABILITY AND TRANSPARENCY

North American governments are increasingly assuming a high onus of accountability in accounting for how carbon revenue is used, beyond customary fiscal policy practices. Stakeholder consent for carbon pricing, with its 'new tax' association, appears to be contingent on parallel consent for the use to which the revenue will be put.

PUBLIC OPINION

Public opinion research consistently finds that the use to which funds generated through carbon pricing are put is decisive to public acceptance of a carbon price.¹⁴ Canadian focus group testing in 2007 found that participants would be unlikely to support any form of carbon pricing unless the revenue was spent to help solve the climate change problem and make Canada catch up to other countries, rather than contributing to general government coffers. Two thirds of focus group participants prioritized a "virtual cycle" of investments in new, clean technologies such as wind and solar power and improving the efficiency of public transport. Secondary priorities included the healthcare system, environmental sustainability training and consumer rebates. Tax cuts, whether for individuals or companies were "seen as a non-starter that would deprive the government of additional means to tackle global warming."¹⁵

The research does, however, point to a quandary for policy-makers: while economic modelling identifies strong double dividends (ecological and economic) from using carbon tax revenue to reduce taxes on income and savings, public opinion research suggests that the public wants carbon pricing revenues to be used in accelerating the fight against climate change, and actual experience with a carbon tax in BC shows that alleviating the inequitable impacts of a carbon tax is also key to maintaining public support.

2. EQUITY AND FAIRNESS

Experience from BC points to [equity](#) and [fairness](#) considerations as being key to political acceptance of a carbon tax. Rural and remote BC communities felt they were being unfairly burdened by the carbon tax, because of their need to travel, a lack of vehicle and transportation mode options, and higher home heating requirements. These northern and rural protests catalyzed into an influential resistance to the carbon tax and the focal point of political campaigning against the tax.¹⁶ (Interestingly, Statistics Canada data showed that residents in the Lower Mainland drive as much as three times

12 Sustainable Prosperity, *Public Investment in Low-Carbon Technologies and Infrastructure: Operating Assumptions and Principles*. Background Paper. (Ottawa: Sustainable Prosperity, December 2009).

13 National Round Table on the Environment and the Economy, *True North: Adapting Infrastructure to Climate Change in Northern Canada*. (Ottawa: NRTEE, 2009).

14 Harris/Decima, *Tax Environmental Harm, Reward Environmental Good* (May 7, 2008); McAllister Opinion Research, *Carbon Pricing Focus Groups 2007*, (December 2007); BBC World Service Poll and GlobeScan, *Most would pay higher energy bills to address climate change says Global Poll*, (November, 2007).

15 McAllister Opinion Research, *Carbon Pricing Focus Groups 2007*, (December 2007). Six focus groups in Calgary, Toronto, and Montreal, n=80. Participants were asked to choose their preference from a list of 11 revenue recycling options.

16 Earncliffe Strategy Group, *Review of Media Opinion on Carbon Pricing, February 15, 2008-July 20, 2008*. Presented at Sustainable Prosperity's Montebello Retreat, February 2009.

further to work than commuters in rural and northern BC,¹⁷ but the *perception* of inequity determined the debate.) The BC government eventually responded by introducing a Northern and Rural Homeowner benefit of up to \$200 for homeowners in the areas of the province outside of major metropolitan centres.

ALLEVIATING REGRESSIVE IMPACTS ON LOW-INCOME HOUSEHOLDS

The BC carbon tax was designed to mitigate its distributional impacts, notably with the Low-Income Climate Action Tax Credit. Households with lower incomes, who spend a greater proportion of their income on carbon-intensive goods, and have less ability to make substitutions towards lower-carbon alternatives, need specific support policies, such as those implemented in BC.

By combining the carbon tax with deliberate policies to lessen the impacts on low-income households, the incentive for households to reduce emissions can be maintained but disproportionate impacts on low-income households can be neutralized. The choice of mechanisms for how to address regressivity must consider how to reach residents who do not pay tax, and how to specifically target the lowest income households.

Analysis of the impact of BC's overall package of carbon tax, accompanying income tax reductions and Low-Income Climate Action Tax Credit across income groups¹⁸ concluded that the policy package had been moderately progressive in its first year, meaning that the bottom 20% of BC families, by income, had a small net gain from the policy package (albeit smaller in absolute dollars than the gain of the top 20% of BC families). This analysis confirms that the regressive impacts of a carbon tax can be successfully addressed.

This analysis also looked at several methods of transferring benefits to low-income households (low-income tax credits; per household transfers; or a refundable tax credit gradually phased out above a certain income threshold, similar to the federal Canada Child Tax Benefit). It concluded that low-income tax credits were the most redistributive model, providing the greatest benefit to the two lowest quintiles, while the per household transfer benefitted the bottom quintile only.¹⁹ Other researchers have found that lump sum payments, versus reductions in personal income taxes, are more effective in mitigating the regressive impacts of a carbon pricing policy.²⁰

Policies to alleviate the regressivity of a carbon tax need to take into account any carbon tax rate increases. Analysis of the schedule of BC's income tax reductions and Low-Income Climate Action Tax Credit increases concluded that they are not keeping up with the annual \$5/tonne CO₂e carbon tax increases. In other words, the impact of the carbon tax package on low-income households has shifted from an initially positive economic impact to a negative economic impact.²¹ This analysis suggests that income tax reductions and tax credits should be indexed to any future increases in the carbon tax rate, to continue to mitigate potential regressive impacts of the carbon tax.

3. COMPETITIVENESS IMPACTS

Concern that a carbon tax would affect the cost **competitiveness** of firms, and lead to loss of market share or even the emigration of business to jurisdictions without similar carbon pricing, has been used as an argument against implementing carbon pricing policies. This is potentially an environmental as well as an economic concern: if these impacts shift production to locations with higher carbon intensities, the ecological effectiveness of the carbon policy is also diminished since there is no net reduction in global emissions.

Despite the prominence of this concern in public debate, only a very small percent of industries are vulnerable (1-3 % in

17 David Suzuki Foundation, *Frequently Asked Questions about the BC Carbon Tax*. At www.smartgrowth.bc.ca/Portals/0/Downloads/FAQsCarbonTax_SuzukiFdn.pdf

18 Marc Lee and Toby Sanger, *Is BC's Carbon Tax Fair? An Impact Analysis for Different Income Levels*. (Vancouver: Canadian Centre for Policy Alternatives, 2008).

19 Ibid.

20 Nic Rivers. 2011. "Distributional incidence of climate change policy in Canada". Working paper.

21 Lee, Marc, Ivanova, Iglia and Klein, Seth, *BC's Regressive Tax Shift: A Decade of Diminishing Tax Fairness, 2000 to 2010* (Vancouver: Canadian Centre for Policy Alternatives, 2011).

countries such as the UK, US, Germany).²² To be vulnerable, a sector must combine the following properties (the first two properties can be assessed using precise criteria, such as those proposed in recent US draft climate legislation.²³):

- **An intensive emitter of greenhouse gases** - either directly or indirectly through emission-intensive electrical consumption, such that the imposition of a carbon price would make up a significant portion of that sector's value-added.
- **Intense exposure to international market**, either as an exporter or as the manufacturer of a product that can be easily substituted with an import of the same or functionally-same good; and,
- **No cost-effective technologies** available or in the pipeline to respond by lowering carbon intensity.

4. INNOVATION AND PRODUCTIVITY

There is [emerging evidence](#) which suggests that there can be a positive relationship between carbon pricing and innovation. That innovation, in turn, has in some cases led to increases in productivity. Pricing carbon can help drive innovation in technologies and business models that promote resource efficiency, and so drive productivity improvements. The research also suggests that certain conditions need to exist for that positive relationship to emerge, centred on the need for a multi-layered, predictable, and transparent carbon pricing policy regime. It also suggests that carbon pricing should be part of a transitional strategy that begins with public support of low-carbon technology (assuming that a carbon price may not in the short-term be enough of an incentive) that gets replaced over time by an escalating carbon price that “steps in” to create the incentive for low-carbon innovation.

CONCLUSION

BC has taken a large step forward in implementing carbon pricing, and has clearly considered and incorporated many of the issues SP has examined in its [low-carbon research program](#) in the design of its carbon tax. SP welcomes the opportunity to continue to leverage its research and policy experience to contribute to the ongoing evolution of the BC carbon tax.

²² Wooders, Peter, Reinaud, Julia and Cosbey, Aaron, *Options for Policy-Makers: Addressing Competitiveness, Leakage, and Climate Change* (Winnipeg: International Institute for Sustainable Development, October 2009), p. 16-17; and Houser, Trevor, Bradley, Rob, Childs, Britt, Werksman, Jacob and Heilmayr, Robert, *Levelling the Carbon Playing Field: International Competition and US Climate Policy Design* (Washington: Peterson Institute for International Economics and World Resources Institute, May 2008), p. xvi.

²³ HR2454, 11th Congress, 1st Session. *American Clean Energy and Security Act of 2009*. Section 764 (b) (2) (A); *American Power Act of 2010*, discussion draft, May 12 2010.