

Examining the Revenue Neutrality of British Columbia's Carbon Tax

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Contents

Executive summary / i

Introduction / 1

Understanding Revenue Neutrality / 3

The Evolution of BC's Carbon Tax and Offsetting Tax Measures / 6

Tax Efficiency and the Composition of BC's Offsetting Tax Measures / 15

Conclusions / 19

Appendix 1: Tables / 20

Appendix 2: Clarifying Issues Surrounding the Extension or
Enhancement of Pre-existing Tax Credits / 22

References / 25

Acknowledgments / 27

About the authors / 27

Publishing information / 28

Supporting the Fraser Institute / 29

Purpose, funding, and independence / 29

About the Fraser Institute / 30

Editorial Advisory Board / 31

Executive summary

British Columbia's carbon tax is often praised as a model for other jurisdictions to follow, in part due to its alleged revenue neutrality. However, in the eight years since it was introduced, the offsetting tax measures used in the government's revenue neutral calculation have changed, prompting questions about whether the carbon tax is still revenue neutral.

Revenue neutrality simply means that the amount of revenue the government generates through the carbon tax is used to implement new reductions in other taxes that are equal to the revenue generated by the carbon tax. Revenue neutrality is also important for economic efficiency since cuts to economically damaging taxes, such as personal and corporate income taxes, can help offset the economic costs of a carbon tax.

When the carbon tax was first implemented in 2008/09, the BC government enacted four offsetting tax measures which included a reduction in the bottom two personal income tax (PIT) rates, a reduction in the general corporate income tax (CIT) rate, a reduction in the small business CIT rate, and the introduction of the low income climate action refundable tax credit. These four tax measures offset enough revenue to make the carbon tax revenue neutral in its first fiscal year.

However, by 2013/14, the first full fiscal year with the carbon tax at its highest value (\$30 per tonne), a major issue arose with the way the BC government was calculating revenue neutrality. At this point, the government was no longer solely relying on new tax measures to offset the carbon tax revenue and instead began using pre-existing tax reductions in its revenue neutral calculation.

Specifically, the pre-existing tax measures are the Training Tax Credit—Individuals, the Interactive Digital Media Credit, the Training Tax Credit—Businesses, Film Incentive BC Credit, the Production Services Credit, and the Scientific Research and Experimental Development Credit (SRED), which first appears in the revenue neutral calculation in 2014/15. The two film industry tax credits and the SRED tax credit were first introduced almost 15 years before they were included as carbon tax revenue offsets.

If the pre-existing tax measures are properly removed from the government's revenue neutral calculation, then BC's carbon tax ceases to be revenue neutral as of 2013/14, with a net tax increase of \$226 million that

year. In 2013/14 and 2014/15, the two years for which final data are available, British Columbians bore a combined \$377 million net tax increase.

If the available historical data are combined with the government's projections to 2018/19, then from 2013/14 to 2018/19, the carbon tax is projected to result in a cumulative \$865 million net tax increase for British Columbians. If we were to distribute this tax increase equally among the province's populace, each British Columbian would pay \$182 more per person, or \$728 for a family of four.

In addition, the composition of the offsetting tax measures has changed over time. Rather than most of these measures coming from cuts to broader, more distortionary taxes that help mitigate the economic costs of the carbon tax, the government has increasingly used targeted tax measures (i.e., boutique tax credits) to offset the carbon tax revenue. Specifically, before 2013/14, cuts to the general corporate income tax (CIT) rate and two personal income tax (PIT) rates totaled, on average, over 60% of the revenue generated by the carbon tax. However, from 2013/14 onwards, cuts to the general CIT rate and two PIT rates account for less than 45% of the revenue generated by the carbon tax.

The BC government should take the appropriate steps to ensure that the carbon tax is revenue neutral in a way that mitigates the economic damage of the carbon tax by reducing existing distortionary taxes to the greatest possible extent. Barring this, proponents who praise BC's alleged "revenue neutral" carbon tax reform as a model for others to follow should temper their enthusiasm and more accurately describe the actual model that currently exists, not the model that existed back in 2008.

Introduction

In October 2016, Canada's federal government announced that by 2018, all provinces must have implemented carbon pricing, either through a carbon tax or a cap-and-trade system (Environment and Climate Change Canada, 2016).¹ At the beginning of 2017, four Canadian provinces had already brought in carbon pricing schemes: two via carbon taxes (Alberta and British Columbia) and two via cap-and-trade systems (Ontario and Quebec). While there is considerable debate about the need to price carbon emissions and how best to do it, proponents often praise the BC model and claim it is a benchmark for other jurisdictions to follow (Beaty, Lipsey, and Elgie, 2014; Porter, 2016). A key reason for the praise of BC's carbon tax is its supposed revenue neutrality.

Revenue neutrality simply means that the amount of revenue the government generates through the carbon tax is used to reduce other taxes by an equivalent amount. Revenue neutrality is important for economic efficiency, since cuts to economically damaging taxes—such as personal and corporate income taxes—can help offset the carbon tax's economic damage (see McKittrick, 2016; McKenzie, 2016a).

Indeed, revenue neutrality was a key feature of BC's carbon tax when it was first announced (British Columbia, Ministry of Finance, 2008). However, eight years later, BC's revenue neutral carbon tax has evolved in terms of what tax measures are being used to offset the revenue generated by the carbon tax. This paper examines whether BC's carbon tax is actually revenue neutral and how the composition of offsetting tax measures has changed over time. To be clear, this paper does not seek to question the need for or the effectiveness of carbon taxes as

¹ A carbon tax is a policy instrument which levies a fee directly on the use of goods which emit carbon dioxide emissions. A cap-and-trade system is a policy instrument which caps the quantity of emissions and then issues tradable permits equal to that quantity which allow the holder to emit a given amount of emissions. These permits can then be traded in a market which determines the price. The primary goal of these policies is to ensure that firms and individuals pay for the expected damages to society (social costs) associated with putting additional carbon dioxide (CO₂) emissions into the atmosphere (McKittrick, 2016).

a policy tool. Rather, its purpose is to specifically evaluate the revenue neutrality of BC's carbon tax.

The paper's first section briefly describes the concept of revenue neutrality and what it means for a tax to be revenue neutral. A discussion of the evolution and revenue growth of the carbon tax follows. This section evaluates whether or not the carbon tax is in fact revenue neutral. The final section discusses the changing composition of the offsetting tax measures before concluding.

Understanding Revenue Neutrality

When the BC government first introduced the carbon tax in 2008, it explicitly stated that it was committed to revenue neutrality. This meant that the government would offset all new carbon tax revenue with new tax reductions.² In other words, the BC government assured British Columbians that the carbon tax would not lead to a net tax increase (British Columbia, Ministry of Finance, 2008).³

At its core, the purpose of designing a revenue neutral carbon tax is to mitigate the costs such a tax imposes on the economy as well as ad-

² There is an important distinction between revenue neutrality and revenue “recycling.” Revenue neutrality specifically requires that the revenues generated from implementing one tax (or an assortment of taxes) are used to reduce other taxes equal to the value of the new revenue being generated. In other words, revenue neutrality requires that the government not increase its revenues through the imposition of a new tax. Revenue recycling, on the other hand, refers to only the designated use of revenues, and does not require that the revenues be used to offset other taxes. In debates over carbon tax revenue recycling, some have argued that carbon tax revenues should be used to fund investments in infrastructure (increased government spending), low-carbon technologies, etc. (Ecofiscal Commission, 2016). Note the difference: if a new tax is revenue neutral, then the revenues raised by the tax are specifically used to reduce other taxes and there is no net revenue increase. If revenue is recycled from a tax increase for new spending, then it is designated for specific non-tax reduction purposes and the government is increasing its revenue. The idea of revenue recycling, as opposed to revenue neutrality, in carbon policy has come under criticism. For instance, McKittrick (2016) argues that “[t]he logic of carbon pricing is that it induces the market to identify and implement the cheapest abatement options, and reject the rest. Using the revenues to subsidize the rejected ones would defeat the purpose of the policy” (p. 8). In a similar vein, McKenzie (2016b) argues that initiatives like infrastructure spending should be evaluated and financed independently of carbon tax revenues and new revenues should be used to reduce existing distortionary taxes.

³ While the government’s 2008 budget was clear about its commitment to offset the carbon tax revenue with new tax reductions, the wording in the formal legislation (the *Carbon Tax Act*) appears to be ambiguous about whether the government must use new tax reductions or credits as offsets, or whether it can include pre-existing tax measures (see *Carbon Tax Act*, SBC 2008, c. 40).

dress issues related to equity and competitiveness.⁴ Like all taxes, a carbon tax imposes economic costs in excess of the amount of money that the tax raises. The excess economic costs come from individuals and firms changing their behaviour in ways that reduce potential economic output. A carbon tax causes them to consume less of the goods associated with carbon emissions or engage in different activities than they otherwise would have had the tax not been in place (McKenzie, 2016a). One way to mitigate some of the economic costs imposed by implementing a carbon tax is to make the tax revenue neutral and reduce other taxes that also distort economic activity—preferably taxes that impose large economic costs, namely, personal and corporate income taxes.⁵

In fact, economists generally agree that an ideal revenue neutral carbon tax would reduce broad-based tax rates on personal and corporate income (McKenzie, 2016a; McKittrick, 2016). Few favour using targeted (so-called “boutique”) tax credits as offsets,⁶ which, while they can effectively reduce one’s tax bill, are problematic for a host of reasons. For starters, many tax credits have questionable economic value since they reward activities that would have still been undertaken in the absence of the tax credits. They do not change behaviour but simply subsidize things people are already doing. Tax credits also unfairly provide special benefits or privileges to certain individuals or businesses at the expense of others. Littering the tax system with special carve-outs for particular individuals, businesses, or activities adds to the complexity of the tax system and the related compliance costs, which are disproportionately borne by low-income individuals and small businesses. It is also troubling that many tax

⁴ A potential problem with mitigating economic costs from the carbon tax with offset tax reductions results from what is known as the “tax interaction effect.” The tax interaction effect is such that the introduction of a carbon tax can make the economic damage caused by other economically inefficient taxes (like the corporate income tax) even worse. This means that the effect of using revenue neutrality as a means of mitigating economic costs could be weaker than intended. For further explanation, see Goulder (2000).

⁵ A concept economists use to estimate the excess burden of taxes is the Marginal Cost of Public Funds (MCF). Ferede and Dahlby (2016) describe the MCF as a “measure of the loss incurred by a society in raising an additional dollar of tax revenue” (p.1). In 2013, Ferede and Dahlby (2016) estimated that the MCF in BC for the corporate income tax (CIT) was 3.19 and for the personal income tax (PIT) it was 2.86. That means that if BC raised its statutory CIT rate to raise an additional dollar of revenue, holding all else equal, the additional cost over and above the government revenue raised would be \$2.19. These figures for BC also show that it is currently more costly to raise an incremental dollar of revenue in the province through a CIT increase than PIT increases. On tax efficiency, see also Clemens, Veldhuis, and Palacios (2007).

⁶ Boutique tax credits are also known as “tax expenditures.”

credits are effectively forms of government spending (delivered through the tax system) but not subject to the same regular review and scrutiny as other spending programs. Rather than further distort the tax system with special privileges to some groups, a more effective approach is to reduce tax rates more broadly to benefit all British Columbians. Using tax credits as offsets to the carbon tax only adds distortions to the economy, which is the exact opposite of what the offsetting tax reductions are supposed to do for the purpose of revenue neutrality.

The Evolution of BC's Carbon Tax and Offsetting Tax Measures

When the BC government first introduced its carbon tax in July 2008, it was levied at \$10 per tonne. This gradually increased to \$30 per tonne by July 2012, when it was fully implemented (see table 1).

Table 2 displays the revenue from BC's carbon tax along with the sum of the offsetting tax measures, as reported by the government, from 2008/09 to 2018/19. The data from 2015/16 to 2018/19 are BC government forecasts, while the data from 2008/09 to 2014/15 are historical (final) values. Figure 1 illustrates this data visually. In its first fiscal year of implementation, the carbon tax generated \$306 million in revenue for the BC government (see table 2). To maintain its promise of revenue neutrality, the government concurrently enacted four new offsetting tax reductions, totalling \$313 million, including cuts to personal and business income

Table 1: BC's Carbon Tax Implementation Schedule

Effective Date	Tax Rate \$/tonne CO2-e
July 1, 2008	\$10
July 1, 2009	\$15
July 1, 2010	\$20
July 1, 2011	\$25
July 1, 2012	\$30

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008)

Table 2: BC's Carbon Tax Revenue and Reported Offsetting Tax Measures as Delineated by the Government, 2008/09-2018/19 (\$ millions)

								Forecast			
	2008/ '09	2009/ '10	2010/ '11	2011/ '12	2012/ '13	2013/ '14	2014/ '15	2015/ '16	2016/ '17	2017/ '18	2018/ '19
Carbon Tax Revenue	306	542	741	959	1,120	1,222	1,198	1,216	1,234	1,252	1,275
Reported Offsetting Tax Measures	313	729	865	1,141	1,380	1,232	1,524	1,730	1,733	1,785	1,815
Balance	-7	-187	-124	-182	-260	-10	-326	-514	-499	-533	-540

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

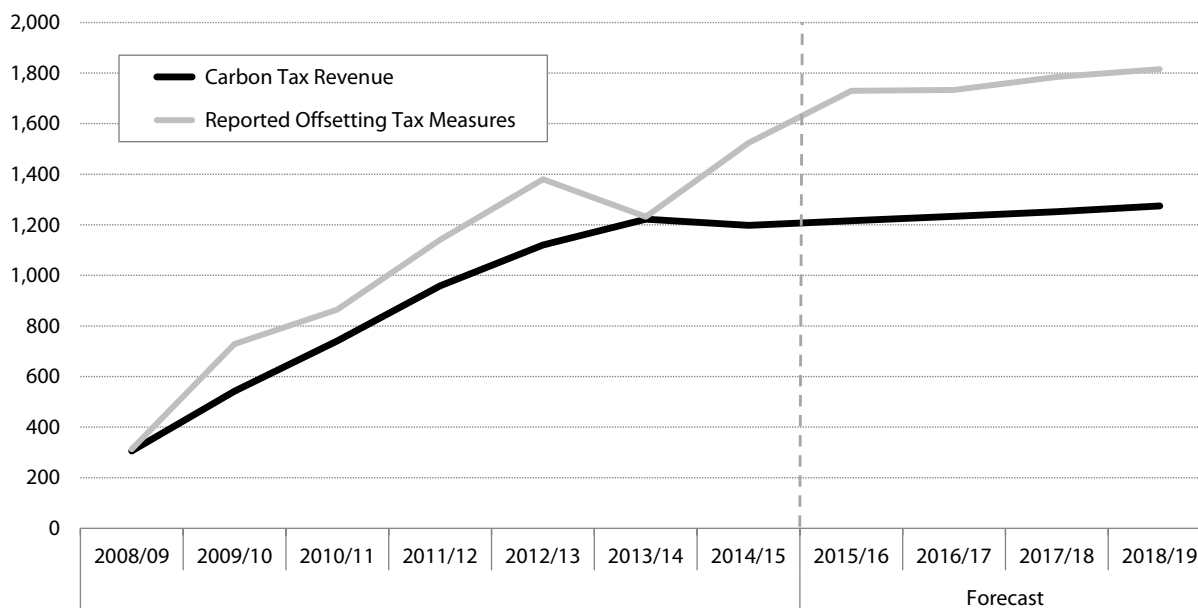
tax rates, and a refundable tax credit for low income British Columbians.⁷ Specifically, the initial offsetting tax measures for 2008 included: a two percent reduction in the bottom two personal income tax (PIT) rates;⁸ a reduction in the general corporate income tax (CIT) rate from 12 percent to 11 percent; a reduction in the small business CIT rate from 4.5 percent to 3.5 percent; and the introduction of the low income climate action refundable tax credit (valued at \$100 per adult and \$30 per child). In its first year of implementation, the carbon tax was revenue neutral, as the offsetting tax measures roughly equaled the value of the new revenue.

When the carbon tax was first introduced, the BC government's plan was to implement new offsetting tax measures or expand the original four offsets as the revenues from the carbon tax increased over time. As the tax rate per tonne of carbon emissions increased in the ensuing years, the amount of revenue generated by the tax also increased. By 2013/14, the first complete fiscal year with the carbon tax implemented at \$30 per tonne, the tax generated \$1,222 million in revenue. The BC government still claimed that the offsetting tax measures totalled enough (\$1,232 million) to make the carbon tax revenue neutral. Indeed, taking the BC government's numbers at face value, the carbon tax appears to have resulted

⁷ Table 3 gives a detailed breakdown of the value of individual offsetting tax measures in 2008/09.

⁸ This is a two percent reduction in the marginal tax rates for each bracket, not a reduction of two percentage points.

Figure 1: BC's Carbon Tax Revenue and Reported Offsetting Tax Measures as Delineated by the Government (\$ millions)



Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

in a net tax reduction every year since it was implemented and is projected to do so in the years ahead (see table 2).

However, an examination of the composition of the reported offsetting tax measures and their evolution over time leads to a very different conclusion. As noted above, when the carbon tax was first introduced in the fiscal year 2008/09, it was balanced by only four offsetting tax measures. At that time, cuts to the bottom two PIT rates and the general CIT rate amounted to 56% (\$172 million) of the revenue generated by the carbon tax, with the low income refundable tax credit totaling 35% (\$106 million) and the small business CIT cut totalling 11% (\$35 million).⁹

The composition of the reported offsetting tax measures in 2013/14 (the first full fiscal year with the carbon tax per tonne at its highest value) stands in stark contrast to the original composition (see table 3).¹⁰ Instead

⁹ The figures add up to more than 100% because the offsets in that year were greater than the revenue generated by the tax.

¹⁰ The carbon tax reached its top value on July 1, 2012, so there are a number of months in the 2012/13 fiscal year where the tax was still valued at \$25 per tonne.

Table 3: BC's Carbon Tax Revenue and Reported Offsetting Tax Measures as Delineated by the Government, 2008/09 and 2013/14 (\$ millions)

	2008/09	2013/14
Carbon Tax Revenue	306	1,222
Reported Offsetting Tax Measures	313	1,232
Balance	-7	-10
Breakdown of Reported Offsetting Tax Measures		
Original Offsetting Tax Measures		
Low Income Tax Credit	106	194
Cut to Two PIT Rates	107	237
General CIT Rate Cut	65	200
Small Business CIT Rate Cut	35	220
New Offsetting Tax Measures		
Northern and Rural Homeowner Credit	—	69
Children's Fitness Credit and Children's Arts Credit	—	8
Small Business Venture Capital Credit Budget Increase	—	3
Small Business CIT Threshold Increased	—	20
Industrial Property Tax Credit for Major Industry	—	23
Industrial Property Tax Credit for Light Industry	—	20
School Property Tax Reduction for Farm Land	—	2
Pre-Existing Tax Measures		
Training Tax Credit — Individuals	—	11
Interactive Digital Media Credit	—	63
Training Tax Credit — Businesses	—	8
Film Incentive BC Credit	—	88
Production Services Credit	—	66

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2010; 2015)

of only the four original offsetting tax measures, in 2013/14 the government reported a total of 16 different offsetting tax measures.¹¹ The four original measures have remained in the calculation and are part of the 16

¹¹ While the number of offsetting tax measures that the government included in 2013/14 had grown dramatically from when the tax was first implemented, it is not the year with the greatest number of offsetting tax measures. In 2015/16, the government began using 17 distinct offsetting tax measures and it is expected to continue doing so for the foreseeable future.

that appeared in 2013/14, although each of the four has been expanded as the carbon price and accordant revenue increased.¹² By 2013/14, the four original offsetting tax measures had been expanded as follows: the bottom two PIT rates had been cut by a total of 5% each, the general CIT rate was still at 11% (after the government lowered it to 10% in 2011 and then increased it in 2013), and the small business CIT rate had been reduced to 2.5%.¹³ In addition, a number of other tax measures were now being used as offsets, including tax credits targeted at specific groups or individuals.¹⁴

BC's carbon tax is no longer revenue neutral

By 2013/14, it is evident that a major problem has emerged with the way the BC government calculates revenue neutrality: the government no longer relies solely on new tax measures to offset the revenue from the carbon tax. Critically, five of the 16 offsets used in 2013/14 (and an additional offset which was first used in 2014/15) existed in BC's tax system before their inclusion as tax measures used to offset carbon tax revenue. Put simply, at this point, several of the reported offsetting tax measures are not actually new tax cuts, but are existing tax measures included in the calculation to give the appearance of revenue neutrality.¹⁵ The pre-existing tax measures are the Training Tax Credit—Individuals, the Interactive Digital Media Credit, the Training Tax Credit—Businesses, Film Incentive BC Credit, the Production Services Credit, and the Scientific Research and Experimental Development Credit.¹⁶ The inclusion of pre-existing

¹² This increase in revenue is the result of an increase in the carbon price, not an expansion in the base or a reduction in exemptions.

¹³ See appendix table A2 for an overview of how the rates for the original four tax offsets changed over time. Also, in 2012/13, the government raised the income threshold at which the small business tax rate applies, but this is a separate item (and value) than the small business tax rate reduction.

¹⁴ See appendix table A1 for a complete overview of the composition of the carbon tax offsets, as delineated by the BC government.

¹⁵ See appendix 2 for a discussion of the extension of some of the pre-existing tax measures during their tenure as carbon tax revenue offsets.

¹⁶ Notably, the values of a number of these pre-existing tax measures have increased substantially since they were first included as carbon tax revenue offsets. For example, when the Production Services Credit was first included in 2013/14, the government only included \$66 million of the total \$79 million cost of the credit. However, in 2014/15, the next fiscal year, the government included the full value of the credit, which was worth \$265 million that year. The value of this credit expanded again in 2015/16 to a projected total of \$385 million.

tax measures in the revenue neutrality calculation clearly contradicts the government's original commitment.

Table 4 displays the tax measures that existed before being included as carbon tax revenue offsets, specifying the year they were introduced, their first appearance in the carbon tax calculation, their value in 2015/16,

Table 4: Pre-Existing Tax Measures Now Included as Offsetting Carbon Tax Revenue by B.C. Government

Credits	Year credit introduced	First appearance in carbon tax calculation	Value as carbon tax offset in 2015/16 (\$ millions)	Major amendments
Training Tax Credit—Individuals	2007	2012/13	9	This credit was extended in 2012 and 2015, and is set to expire after 2018.
Interactive Digital Media Credit	2010	2012/13	33	This credit was extended in 2015 and is set to expire in 2018.
Training Tax Credit—Businesses	2007	2012/13	5	This credit was extended in 2012 and 2015, and is set to expire after 2018.
Film Incentive BC Credit	1998	2013/14	106	The rate for the credit was increased in 2005 and 2008.
Production Services Credit	1998	2013/14	385	The rate for the credit was increased in 2005, 2008, and 2010. The rate for the credit was lowered in 2016.
Scientific Research and Experimental Development Credit	1999	2014/15	131	The credit was extended in 2004, 2009, and 2014. The credit is set to expire in 2017.
Total Projected Value of Pre-Existing Tax Measures in 2015/16			669	

Notes:

1) Data are in nominal dollars.

2) While the venture capital tax credit that is part of the carbon tax's revenue offsets appears to have existed before an aspect of this credit was included as a revenue offset, it has not been included as the government appears to only use the value that has resulted from increasing the budget's formula.

Source: British Columbia, Ministry of Finance (2008-2016); year credits introduced confirmed via personal communication (Richard Purnell, Senior Director, Tax Policy Branch, British Columbia Ministry of Finance, December 6, 2016).

and notes on major amendments. Both of the film industry tax credits¹⁷ and the Scientific Research and Experimental Development (SRED) tax credit were introduced almost 15 years before they were included as carbon tax revenue offsets. The two training credits (for individuals and businesses) were introduced approximately five years before they were included as carbon tax revenue offsets, and the Interactive Digital Media Credit was introduced approximately two years before being used as revenue offset. In total, five of the six pre-existing tax measures were created before the carbon tax was even introduced. The total projected value of these tax credits in the 2015/16 carbon tax plan is \$669 million, or roughly 55% of the revenue that the carbon tax is projected to generate.

The question we turn to now is whether the carbon tax would be revenue neutral if the pre-existing tax measures were excluded from the offset calculation. Table 5 presents the same data as in table 2 (BC's carbon tax revenue and offsetting tax measures from 2008/09 to 2018/19) but with the pre-existing tax measures properly removed from the offset calculation. Once the pre-existing tax measures are removed, the carbon tax ceased to be revenue neutral in 2013/14. In fact, the carbon tax became a net tax increase of \$226 million for British Columbians in 2013/14. Neither was the carbon tax revenue neutral in 2014/15 (with a net tax increase of \$151 million), the last year of available historical data. In these two years, British Columbians bore a \$377 million tax increase.

In fact, BC's carbon tax is not projected to be revenue neutral in any subsequent year up to 2018/19, the last year of projected government data available. From 2014/15 to 2018/19, the carbon tax will represent between a \$100 to \$150 million net tax increase in each year (see figure 2). Based on projections from the government, from 2013/14 to 2018/19, the carbon tax will result in a cumulative \$865 million tax increase.¹⁸ If we were to distribute this tax increase equally among the provincial population, each British Columbian will be paying \$182 more per person, or \$728 for a family of four.

¹⁷ In addition to being pre-existing, there is another issue with the film credits: evidence suggests that their impacts on the economy are likely to be weak, meaning that they will not offset as much economic damage as would cuts to taxes like the PIT and CIT. Indeed, a number of studies that have examined the empirical economic effects of film industry credits in the US have found that such incentives bring little to no economic benefit (Thom, 2016; Robyn and David, 2012).

¹⁸ If we net out the tax cuts in the years that the carbon tax was revenue neutral, British Columbians will still face an almost \$150 million cumulative tax increase.

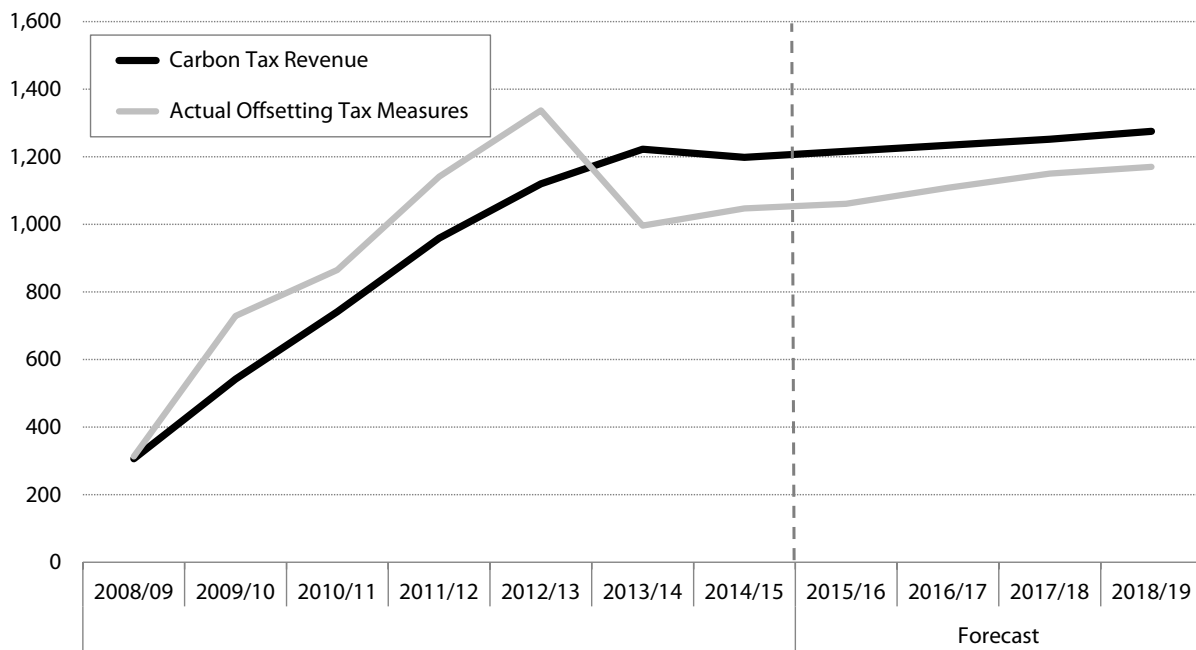
Table 5: BC's Carbon Tax Revenue and Actual Offsetting Tax Measures with Pre-existing Credits Excluded, 2008/09-2018/19 (\$ millions)

								Forecast			
	2008/ '09	2009/ '10	2010/ '11	2011/ '12	2012/ '13	2013/ '14	2014/ '15	2015/ '16	2016/ '17	2017/ '18	2018/ '19
Carbon Tax Revenue	306	542	741	959	1,120	1,222	1,198	1,216	1,234	1,252	1,275
Actual Offsetting Tax Measures	313	729	865	1,141	1,337	996	1,047	1,061	1,108	1,150	1,170
Balance	-7	-187	-124	-182	-217	226	151	155	126	102	105
Breakdown of Actual Offsetting Tax Measures											
Original Offsetting Tax Measures											
Low Income Tax Credit	106	153	165	184	195	194	193	192	195	195	195
Cut to Two PIT Rates	107	206	207	220	235	237	269	283	288	302	315
General CIT Rate Cut	65	152	271	381	450	200	216	218	236	250	253
Small Business CIT Rate Cut	35	164	144	220	261	220	229	226	244	256	260
New Offsetting Tax Measures											
Northern and Rural Homeowner Credit	—	—	19	66	67	69	83	83	83	84	84
BC Seniors' Home Renovation Tax Credit	—	—	—	—	27	—	—	1	2	2	2
Children's Fitness Credit and Children's Arts Credit	—	—	—	—	9	8	8	8	8	8	8
Small Business Venture Capital Credit Budget Increase	—	—	—	—	3	3	3	3	5	5	5
Small Business CIT Threshold Increased	—	—	—	—	20	20	21	21	21	21	21
Industrial Property Tax Credit	—	54	58	—	—	—	—	—	—	—	—
Industrial Property Tax Credit for Major Industry	—	—	—	19	22	23	23	24	24	25	25
Industrial Property Tax Credit for Light Industry	—	—	—	49	46	20	—	—	—	—	—
School Property Tax Reduction for Farm Land	—	—	1	2	2	2	2	2	2	2	2

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

Figure 2: BC's Carbon Tax Revenue and Actual Offsetting Tax Measures with Pre-existing Credits Excluded (\$ millions)



Note: Data are in nominal dollars.
 Source: British Columbia, Ministry of Finance (2008-2016).

Tax Efficiency and the Composition of BC's Offsetting Tax Measures

There are additional concerns surrounding the composition of the reported offsetting tax measures in BC's carbon tax. Not only are some of the tax reductions pre-existing and therefore not actually new, but those that are new do a poor job of mitigating the carbon tax's economic costs. Ideally, offsetting tax measures should reduce economically damaging taxes that distort economic activity and impose large economic costs due to their incentive effects. These ideal measures would include reductions to broad-based tax rates on personal and corporate income. However, over time, such broad-based tax measures have made up a declining share of the carbon tax revenue. This means the economic costs created by the carbon tax are not being mitigated to the fullest extent possible. Indeed, BC's carbon tax is causing more damage to the provincial economy than it would have had the government fully offset the carbon tax with broad-based cuts to highly distortionary taxes.

An increasing share of the offsets is composed of targeted tax measures in the form of tax credits for particular individuals and businesses. The group of new offsetting tax measures includes the Northern and Rural Homeowner Credit, BC Seniors' Home Renovation Tax Credit, Children's Fitness Credit and Children's Arts Credit, Small Business Venture Capital Credit Budget Increase, Industrial Property Tax Credit (major and light industry), and School Property Tax Reduction for Farm Land. While the government might have a rationale for some of these targeted measures (for instance, equity and financial considerations for British Columbians who live in the north and rural areas, and who consume a disproportionate amount of carbon dioxide emitting goods), these targeted tax measures do not improve incentives and therefore will not meaningfully mitigate the harm to BC's economy caused by the carbon tax (as discussed earlier).¹⁹

¹⁹ This paper distinguishes between economic harm and financial harm. Economic harm results from the effects that a tax has on the behaviours and incentives of individuals and firms, in that it causes them to do things that would otherwise have been inefficient if that tax were not in place. Financial harm refers to the direct and indirect financial costs that individuals and firms incur when a tax is implemented.

In addition to the new offsetting tax measures listed above, actual offsetting tax measures in the carbon tax calculation include a cut to the small business CIT rate (one of the four original offsets) and an increase in the income threshold at which the rate is applied. Importantly, however, the small business CIT rate cut, which is a preferential and targeted tax measure, also creates economic distortions (Chen and Mintz, 2011). As Clemens and Veldhuis (2005, p. 3) point out, differential business tax rates between small and large firms act as “strong disincentives to growth and expansion,” thereby contributing to economic distortions, not reducing them, as cuts for the purpose of offsetting carbon revenue are supposed to do. Although the small business CIT cut adds distortions, the increase to the threshold at which the rate applies counteracts this to some extent.

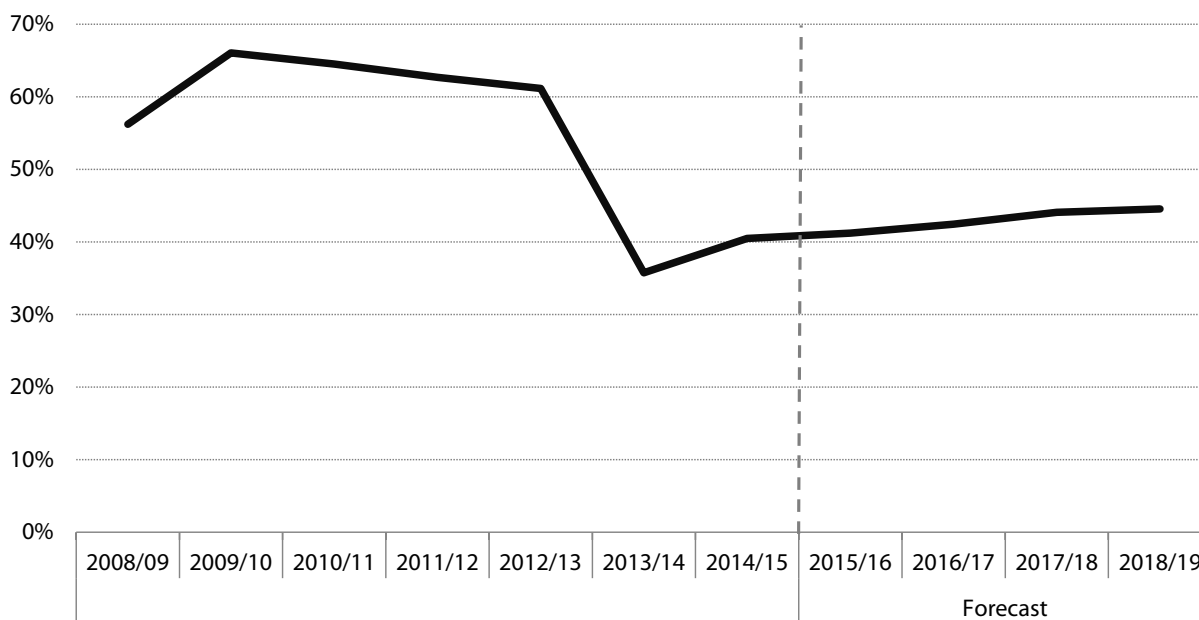
While the targeted tax measures that are now in the offset calculation may help to mitigate the financial impact of the carbon tax, they do not provide the same degree of economic benefits as do cuts to PIT rates and the general CIT rate. After all, cuts to existing distortionary taxes will provide the greatest alleviation of some of the economic harm generated by the carbon tax (McKenzie, 2016b).

Figure 3 displays the percentage of carbon tax revenue that is offset by reductions to the two PIT rates and the general CIT rate from 2008/09 to 2018/19 (again, data from 2015/16 onward are forecasts from the provincial government). Before the government raised the general CIT rate in 2013, in every year except the first year that the tax was implemented, cuts to the general CIT rate and the two PIT rates accounted for more than 60% of the revenue generated by the carbon tax. However, in the 2013/14 fiscal year, the changes to the general CIT rate and reductions to the two PIT rates offset only 36% of the revenue generated by the carbon tax. This is a 25 percentage point difference over the previous year. While the percentage of revenue being offset by cuts to the broadest, most economically damaging taxes increased slightly to 40% in 2014/15 and is projected to continue doing so until the 2018/19 fiscal year, the percentage of carbon tax revenue offset by reductions to the general CIT rate and two PIT rates will remain under 45%.²⁰

Table 6 displays the value of the offsetting tax measures for only the cuts to the general CIT rate and two PIT rates. As the general CIT rate

²⁰ Even if we include the reductions to the small business CIT rate, which are in fact distortionary, the percentage of carbon tax revenue offset by reductions to the general CIT rate, small business CIT rate (including the threshold increase), and two PIT rates, is much lower since 2013/14 than when the carbon tax was introduced. Specifically, the share of these offsetting tax measures was 96% in 2009/10 (the peak) versus 61% in 2014/15, the last year for which final data are available. The share is projected to be between 62% and 67% in the years ahead.

Figure 3: Percentage of Carbon Tax Revenue Offset by Cuts to the General CIT Rate and Two PIT Rates



Note: Data on the general CIT rate cut exclude changes to the small business CIT rate and threshold.
Source: British Columbia, Ministry of Finance (2008-2016).

was reduced, the combined value of these tax offsets rose substantially, from \$172 million in 2008/09 to \$685 million in 2012/13. When the general CIT rate was increased, the combined value of the offsets dropped to \$437 million in 2013/14. This value is projected to increase to \$568 million by 2018/19. If only these two tax cuts are accounted for in the revenue neutral calculation, then a total of \$5,704 million in carbon tax revenue is not projected to be offset by the end of the 2018/19 fiscal year.

While focusing only on the reductions to the general CIT rate and two PIT rates does not account for the inclusion of other tax measures including those to help address equity concerns (i.e., the refundable low income tax credit), it does clarify just how much of the revenue generated by the carbon tax is being offset by measures that have the greatest ability to mitigate the economic damage of the carbon tax—a key purpose of revenue neutrality. However, over time, cuts to the general CIT rate and two PIT rates have had a diminishing role in the revenue neutral calculation, with these tax cuts projected to offset roughly just 42% of the carbon tax revenue in 2016/17.

Table 6: BC's Carbon Tax Revenue and Offsetting Tax Reductions to the Two PIT Rates and the General CIT Rate, 2008/09-2018/19 (\$ millions)

								Forecast			
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Carbon Tax Revenue	306	542	741	959	1,120	1,222	1,198	1,216	1,234	1,252	1,275
Cut to Two PIT Rates	107	206	207	220	235	237	269	283	288	302	315
Cut to General CIT Rate	65	152	271	381	450	200	216	218	236	250	253
Total	172	358	478	601	685	437	485	501	524	552	568
Percentage of Revenue Offset											
Cut to Two PIT Rates	35%	38%	28%	23%	21%	19%	22%	23%	23%	24%	25%
Cut to General CIT Rate	21%	28%	37%	40%	40%	16%	18%	18%	19%	20%	20%
Total	56%	66%	65%	63%	61%	36%	40%	41%	42%	44%	45%

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

Conclusion

BC's carbon tax is often misperceived and misrepresented as being revenue neutral, meaning that all revenues generated by the carbon tax are offset with new cuts to other taxes. This paper finds that the carbon tax is currently not revenue neutral and is therefore a net tax increase for British Columbians. The BC government should take the appropriate steps to ensure that the carbon tax is revenue neutral in a way that mitigates the economic damage of the carbon tax by reducing existing distortionary taxes to the greatest possible extent. Barring this, proponents who praise BC's alleged "revenue neutral" carbon tax reform as a model for others to follow should temper their enthusiasm and more accurately describe the actual model that currently exists, not than the model that existed back in 2008.

Appendix 1: Tables

The following pages contain ancillary data on carbon tax revenues and offsetting tax measures.

Table A1: Detailed Breakdown of BC's Carbon Tax Revenue and Reported Offsetting Tax Measures as Delineated by the Government, 2008/09-2018/19 (\$ millions)

	Forecast										
	2008/ '09	2009/ '10	2010/ '11	2011/ '12	2012/ '13	2013/ '14	2014/ '15	2015/ '16	2016/ '17	2017/ '18	2018/ '19
Carbon Tax Revenue	306	542	741	959	1,120	1,222	1,198	1,216	1,234	1,252	1,275
Reported Offsetting Tax Measures	313	729	865	1,141	1,380	1,232	1,524	1,730	1,733	1,785	1,815
Balance	-7	-187	-124	-182	-260	-10	-326	-514	-499	-533	-540
Breakdown of Reported Offsetting Tax Measures											
Original Offsetting Tax Measures											
Low Income Tax Credit	106	153	165	184	195	194	193	192	195	195	195
Cut to Two PIT Rates	107	206	207	220	235	237	269	283	288	302	315
General CIT Rate Cut	65	152	271	381	450	200	216	218	236	250	253
Small Business CIT Rate Cut	35	164	144	220	261	220	229	226	244	256	260
New Offsetting Tax Measures											
Northern and Rural Homeowner Credit	—	—	19	66	67	69	83	83	83	84	84
BC Seniors' Home Renovation Tax Credit	—	—	—	—	27	-	-	1	2	2	2
Children's Fitness Credit and Children's Arts Credit	—	—	—	—	9	8	8	8	8	8	8
Small Business Venture Capital Credit Budget Increase	—	—	—	—	3	3	3	3	5	5	5
Small Business CIT Threshold Increased	—	—	—	—	20	20	21	21	21	21	21
Industrial Property Tax Credit	—	54	58	—	—	—	—	—	—	—	—
Industrial Property Tax Credit for Major Industry	—	—	—	19	22	23	23	24	24	25	25
Industrial Property Tax Credit for Light Industry	—	—	—	49	46	20	—	—	—	—	—
School Property Tax Reduction for Farm Land	—	—	1	2	2	2	2	2	2	2	2
Pre-Existing Tax Measures											
Training Tax Credit—Individuals	—	—	—	—	10	11	9	9	20	20	20
Interactive Digital Media Credit	—	—	—	—	26	63	37	33	45	45	45
Training Tax Credit—Businesses	—	—	—	—	7	8	6	5	10	10	10
Film Incentive BC Credit	—	—	—	—	—	88	78	106	90	90	90
Production Services Credit	—	—	—	—	—	66	265	385	310	310	310
Scientific Research and Experimental Development Credit	—	—	—	—	—	—	82	131	150	160	170

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

Table A2: Rate Changes in the Four Original Offsetting Tax Measures, 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Low Income Climate Action Tax Credit										
Maximum annual tax credit per adult	\$0.00	\$100.00	\$105.00	\$105.00	\$115.50	\$115.50	\$115.50	\$115.50	\$115.50	\$115.50
Maximum annual tax credit per child	\$0.00	\$30.00	\$31.50	\$31.50	\$34.50	\$34.50	\$34.50	\$34.50	\$34.50	\$34.50
Personal Income Tax										
Lowest marginal rate (%)	5.70	5.24	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
Second lowest marginal rate (%)	8.65	7.98	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70
Corporate Income Tax										
General tax rate (%)	12.0	11.0	11.0	10.5	10.0	10.0	11.0	11.0	11.0	11.0
Small business tax rate (%)	4.5	3.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Note: The reductions in the two bottom PIT marginal rates from 2007 to 2008 are larger than what is indicated in the carbon tax plan because the BC government made additional cuts in that period.

Source: British Columbia, Ministry of Finance (2007-2016).

Appendix 2: Clarifying Issues Surrounding the Extension or Enhancement of Pre-existing Tax Credits

In order to rationalize their use of pre-existing tax measures as offsets, the BC government will likely argue that such tax measures have either been extended (i.e., the credit has been extended past when it was set to end) or enhanced (i.e., the rate or value of the tax credit has increased) during the period when the carbon tax has been in effect. However, the fact that the government has extended or enhanced a number of the pre-existing tax measures does not mean that they should necessarily count as new measures and be included in the carbon tax revenue neutrality calculation.

For example, both the Film Incentive BC Credit and the Production Services Credit were enhanced in 2008 and the Production Services Credit was further enhanced in 2010. The initial 2008 enhancements were announced in the budget and were effective January 1, 2008, which predates the carbon tax. As well, when these enhancements were announced, the rhetoric surrounding them focused on securing film activity so that BC would remain “Hollywood North,” not that the enhancements were going to be used in the future as offsets for the carbon tax (British Columbia, Ministry of Finance, 2008). The 2010 enhancement of the Production Services Credit also occurred before the credit became a carbon tax offset. If the government wanted to claim that the enhancement was initially implemented to be an offset for the carbon tax, which it did not, then it could only reasonably use the additional value of the enhancement, not the full value of the credit.²¹

The story is similar for the Interactive Digital Media Credit and the two Training Tax Credits. When the Interactive Digital Media Credit was announced in the 2010 budget and became effective September 1, 2010—two years before the credit became a carbon tax offset—the rhet-

²¹ According to the 2010 provincial budget, the increase to the Production Services Credit rate to 33 percent from 25 percent was estimated to cost \$25 million in 2010/11 and 2011/12. In 2009/10 the estimated cost of the tax expenditure was \$105 million (British Columbia, Ministry of Finance, 2010).

oric surrounding the credit was to “support the continued growth and development of the province’s vibrant video game sector,” not to offset the economic or financial damages of the carbon tax (British Columbia, Ministry of Finance, 2010). Similarly, when the two Training Tax credits were initially extended in 2012, the government did not mention that those extensions were meant as offsets for the carbon tax. According to a news release from the BC government, the extension was intended to help “employers and apprentices get the skills and training they need” (British Columbia, Office of the Premier, 2011).

Similarly, there are issues with the history of the Scientific Research and Experimental Development (SRED) credit and its 2014 extension that was introduced as an offsetting tax measure in the carbon tax revenue neutral calculation. The extension in 2014 appears to be line with an existing trend of previous extensions, rather than for the specific purpose of being used as a carbon tax offset. Indeed, since the SRED credit was first introduced in 1999, 15 years before it appeared in the carbon tax offsets, the credit had been extended twice previously in both 2004 and 2009. The 2009 extension also came at a time when the carbon tax was already in place, yet the SRED credit was not considered an offset at this time. It is only after the BC government raised the general CIT rate, significantly reducing the value of offsetting tax measures, when the government announced that the cost of extending the SRED credit beyond when it was set to expire in 2014 would be included in the carbon tax revenue neutral calculation. In fact, in the 2011 budget, the government’s forecasted carbon tax plan out to 2013/14 did not indicate that there was an intention to extend the SRED credit for the purposes of including it as a carbon tax offset.

One thing all these credits have in common is their inclusion as offsetting tax measures occurs after the BC government decided to raise the general CIT rate. BC’s 2011 budget offers some insights into what the composition of the carbon tax revenue offsets may have been had the government not increased the general CIT rate in 2013, as this was the last budget before the general CIT rate hike and it contained a three year forecast as to how the government planned to offset the carbon tax revenue. Based on government estimates, prior to the increase in the CIT rate, by 2013/14, there were only expected to be seven different offsetting tax measures in the formula, none of which were pre-existing, compared to the 16 that ended up appearing.

Given the issues surrounding the SRED credit and whether its extension should count as a new offset, we re-estimated whether the carbon tax would be revenue neutral had the SRED credit been included. Table A3 displays those results. If the SRED credit were to be included as an offset and the other pre-existing tax measures excluded, the carbon tax would

still be not revenue neutral from 2013/14 to 2015/16, with a cumulative tax increase in those years of \$319 million. Beginning in 2016/17, the carbon tax is projected to become revenue neutral again, but given that the SRED credit is to expire in 2017, this remains uncertain. If the SRED credit does expire, assuming it does so on January 1, 2017, then the carbon tax would not be revenue neutral in either 2017/18 or 2018/19.

Table A3: BC's Carbon Tax Revenue and Actual Offsetting Tax Measures with Pre-existing Credits Excluded and SRED Included, 2008/09-2018/19 (\$ millions)

								Forecast			
	2008/ '09	2009/ '10	2010/ '11	2011/ '12	2012/ '13	2013/ '14	2014/ '15	2015/ '16	2016/ '17	2017/ '18	2018/ '19
Carbon Tax Revenue	306	542	741	959	1,120	1,222	1,198	1,216	1,234	1,252	1,275
Actual Offsetting Tax Measures	313	729	865	1,141	1,337	996	1,129	1,192	1,258	1,310	1,340
Balance	-7	-187	-124	-182	-217	226	69	24	-24	-58	-65
Breakdown of Actual Offsetting Tax Measures											
Original Offsetting Tax Measures											
Low Income Tax Credit	106	153	165	184	195	194	193	192	195	195	195
Cut to Two PIT Rates	107	206	207	220	235	237	269	283	288	302	315
General CIT Rate Cut	65	152	271	381	450	200	216	218	236	250	253
Small Business CIT Rate Cut	35	164	144	220	261	220	229	226	244	256	260
New Offsetting Tax Measures											
Northern and Rural Homeowner Credit	—	—	19	66	67	69	83	83	83	84	84
BC Seniors' Home Renovation Tax Credit	—	—	—	—	27	—	—	1	2	2	2
Children's Fitness Credit and Children's Arts Credit	—	—	—	—	9	8	8	8	8	8	8
Small Business Venture Capital Credit Budget Increase	—	—	—	—	3	3	3	3	5	5	5
Small Business CIT Threshold Increased	—	—	—	—	20	20	21	21	21	21	21
Industrial Property Tax Credit	—	54	58	—	—	—	—	—	—	—	—
Industrial Property Tax Credit for Major Industry	—	—	—	19	22	23	23	24	24	25	25
Industrial Property Tax Credit for Light Industry	—	—	—	49	46	20	—	—	—	—	—
School Property Tax Reduction for Farm Land	—	—	1	2	2	2	2	2	2	2	2
Scientific Research and Experimental Development Credit	—	—	—	—	—	—	82	131	150	160	170

Note: Data are in nominal dollars.

Source: British Columbia, Ministry of Finance (2008-2016).

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