

Pricing Carbon Pollution in Alberta

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1. Introduction

Alberta is a place where people pride themselves on finding innovative solutions and not shying away from a challenge. With this solutions-oriented and entrepreneurial spirit, it is no surprise that Alberta was the first jurisdiction in North America to address greenhouse gas emissions through pricing them. As early as 2007, Alberta introduced the Specified Gas Emitters Regulation (SGER) to price carbon pollution from large emitters in the province and use the resulting revenue for investments in low-carbon technology. Pricing carbon pollution reduces emissions at the lowest economic cost, can drive innovation and be designed in a way that protects businesses' competitiveness and low-income households.¹

Globally, we are in the midst of major transformations that are also felt in Alberta, especially in the oil and gas sector. Global markets will continue to fluctuate in the decades to come, and the world's energy systems are also undergoing game-changing technological and political shifts.

Alberta's future as an energy provider is directly linked to an ability to demonstrate a demand for its products in a decarbonizing world. With the right policies, Alberta can be competitive, attract investment, spur innovation and remain a supplier of choice in the global energy market. Climate policy is critical for Alberta's oil and natural gas industry to be a supplier of choice in the global energy market. With the right climate policies, including a price on carbon, Alberta can attract investment, spur innovation and compete in a decarbonizing world.

Recently, however, the discussion in Alberta has shifted from how to best implement a price on carbon pollution, to if one should be implemented at all. This thinking goes against evidence from scientists, economists, and business leaders. Economists and thought leaders across the political spectrum and businesses support a price on carbon pollution to lower greenhouse gas emissions as part of a comprehensive plan to tackle climate change.

As an innovator, Alberta implemented a price on carbon pollution on its large emitters in 2007 that kept competitiveness in mind. In 2017 the system addressing large emitters

¹ Ecofiscal Commission, *Why the Ecofiscal Commission is intervening in the carbon-pricing court case (2019)*
<https://ecofiscal.ca/2019/02/13/intervening-carbon-pricing-court-case/>

was improved² and the scope of the price on carbon pollution was broadened by the introduction of the carbon levy, thus addressing pollution more effectively across the economy. As of January 1st, 2019 carbon pollution is no longer free across the country; all jurisdictions have a price on carbon pollution under either a provincial model or the federal backstop³, which (like Alberta) combines a carbon levy on fossil fuels with an output-based pricing system for large emitters.

This report provides an overview of how pricing pollution works to lower emissions while maintaining a strong economy, and how it has been implemented in Alberta since its early start in 2007. The report also provides recommendations on how Alberta should move forward.

We are long past the time to discuss “if”. Decision makers must focus on how to best improve and implement solutions that credibly address climate change and ensure Alberta’s energy economy can remain competitive in the global energy market. Carbon pricing is the most effective economic tool to keep Alberta competitive, attract investment, spur innovation, compete in a decarbonizing world and reduce emissions.

² Sara Hastings-Simon, Andrew Read and Benjamin Israel, Understanding the pros and cons of Alberta’s new industrial carbon pricing rules, <https://www.pembina.org/pub/understanding-pros-and-cons-of-alberta-s-new-industrial-carbon-pricing-rules>

³ The federal backstop has two elements: an element for heavy emitters called an output-based pricing system which was implemented on January 1, 2019, the other element is the fossil fuel charge (carbon levy) which will apply from April 2019 on.

2. How pricing pollution works

2.1 Options for carbon pricing

To implement carbon pricing there are basically three options: a cap-and-trade system, a carbon tax, or a hybrid model that combines the two mechanisms. Alberta opted for a hybrid model that combines a fuel charge on fossil fuel importers and distributors and an emissions trading scheme with a compliance payment option for heavy emitters (without a fixed cap) where they pay the fuel charge on a portion of their emissions above a performance standard.

The next difference in implementation is the usage of the revenue collected through pricing pollution. There are three commonly used options for using carbon pricing revenue: 1) support the transition to a low carbon economy; 2) address fiscal priorities (e.g. small business tax cuts); and 3) mitigate the unintended consequences of carbon pricing. The approach needs not be limited to meeting a sole objective, and policy makers rarely use revenues in a single way. For example, between 2008 and 2017, B.C.'s carbon tax was revenue neutral; all revenues collected were returned to tax payers. As of April 2018, the increasing portion of the province's carbon tax is no longer revenue neutral. New revenues will be used to provide carbon tax relief (such as the Low Income Climate Action tax credit and the Northern and Rural Homeowner Benefit), to encourage new green initiatives, and to implement a new growth incentive program for industrial emitters.

In jurisdictions where the federal pollution pricing system is applied, all revenues will be returned to the jurisdiction.⁴ 90% of the revenue from the fuel charge on fossil fuels will be returned to taxpayers through the climate action incentive and the remaining 10% will be used to support schools, hospitals, not for profit organizations, Indigenous communities and small businesses. In Germany, parts of the revenue from the fuel tax are channeled into the social security system.⁵ In Alberta over 40% of the revenue went into business tax cuts and household revenues, while the rest was invested into clean tech, energy efficiency, renewables, transportation and other initiatives.

⁴ https://www.fin.gc.ca/n18/data/18-097_2-eng.asp

⁵ Alexander Jung, "Hefty Gas Taxes Fill Up Germany's Coffers," *Spiegel Online*, April 05, 2012. <http://www.spiegel.de/international/germany/high-german-fuel-taxes-have-been-a-bonanza-for-government-a-826004.html>

2.2 How a price on pollution lowers emissions

In economics, a negative externality is a market failure where the cost of certain action from one market player falls on another market player without the latter player being able to prevent the occurrence of that cost.⁶ Pollution is a market failure as it creates a cost that falls not to the polluter but to the general public — costs like health impacts from air pollution, damage to crops from climate change intensified heat waves, or property damage from flooding. We have known for close to a century — since economist Arthur Pigou’s work on externalities — that putting a price on pollution is the most efficient way to reduce this cost.

Through a price on carbon, the burden for the damage is shifted to the producers of the pollution. The pricing signal encourages polluters to decide if they will⁷:

- reduce emissions by doing less of what they are doing that creates pollution,
- reduce emissions by doing it more efficiently, or
- pay for the pollution they create.

This way, the negative externality to society is internalized, as those creating the pollution are forced to address it directly.

A well-designed price on pollution will:

- lead to behaviour change of individuals and businesses
- incentivize innovation
- create revenue that can be invested into further reductions and support for low income individuals

Beyond economic theory, there is real-world proof that carbon pricing works to reduce carbon pollution. California has recently demonstrated this by reaching their 2020 carbon pollution reduction goal **four years ahead of schedule** — a reduction of 13% from the 2004 peak, while the economy grew by 26% in the same period — thanks in part to its cap-and-trade carbon pricing program. We’ve seen this closer to home, too. Since implementing a carbon tax in 2008, British Columbia has succeeded in reducing net

⁶ James Buchanan and Wm. Craig Stubblebine, "Externality" *Economica* 29 no. 116 (1962).
doi:10.2307/2551386

⁷ Carbon Pricing Leadership Coalition, "What is Carbon Pricing?"
<https://www.carbonpricingleadership.org/what>

emissions by 4.7%⁸ while having one of the best performing economies in the country over the past decade.⁹

2.3 Relationship between economic growth and pricing pollution in Canada

Since January 2019, Canada has a price on carbon of \$20 per tonne, but already in 2017, pricing carbon pollution became mainstream economic policy in Canada.^{10,11} In that year, comprehensive carbon pricing systems were in place in Canada's four largest provinces, representing 86% of the population; Quebec and Ontario had a cap-and-trade system linked to California's system, Alberta had a carbon levy at \$20/t, and British Columbia a carbon tax at \$35/t.¹² In that same year, Canada led the G7 in economic growth.¹³ It was the country's best year for job gains since 2002,¹⁴ and unemployment was at a four-decade low.¹⁵

In 2018, Quebec, Alberta, B.C. and Ontario were the four best performing provinces, with 2.6%, 2.4%, 2.3%, and 2.2% in real GDP growth forecast, respectively (see Figure 1).

⁸ Government of British Columbia, "British Columbia's Carbon Tax,"

<https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/carbon-tax>

⁹ Ecofiscal Commission, page 6, How Carbon pricing helps Canada fight Climate Change.

<http://ecofiscal.ca/wp-content/uploads/2018/04/Ecofiscal-Commission-Carbon-Pricing-Report-Clearing-the-Air-April-4-2018.pdf>

¹⁰ Josha MacNab, Erin Flanagan, Maximilian Kniewasser, Sara Hastings-Simon, *Putting a price on carbon pollution across Canada* (Pembina Institute, 2017). <https://www.pembina.org/pub/carbon-pollution-pricing-canada>

¹¹ Maximilian Kniewasser, Julia-Maria Becker, "Four provinces outperformed the rest, all while pricing carbon pollution," *The Hill Times*, January 17, 2018. <http://www.pembina.org/op-ed/carbon-pricing-economic-growth>

¹² Karen Tam Wu, Maximilian Kniewasser, "British Columbia has second chance to get climate plan right," *Vancouver Sun*, October 24, 2017. <https://www.pembina.org/op-ed/bc-clean-growth-council>

¹³ CBC News, "Canada tops G7 in latest IMF estimate for 2017 economic growth, No. 2 in 2018," October 10, 2017. <https://www.cbc.ca/news/business/imf-canada-economy-g7-1.4347737>

¹⁴ Andy Blatchford, "Canadian jobs market 'on fire' as unemployment falls to 41-year low," *The Canadian Press*, January 5, 2018. <https://www.bnnbloomberg.ca/canada-blows-past-jobs-estimates-as-unemployment-falls-to-41-year-low-1.959888>

¹⁵ Theophilos Argitis, "Canada's unemployment rate plunges to lowest in 40 years," *Bloomberg News*, January 5, 2018. <https://business.financialpost.com/news/economy/canadas-unemployment-rate-declines-to-lowest-in-four-decades>

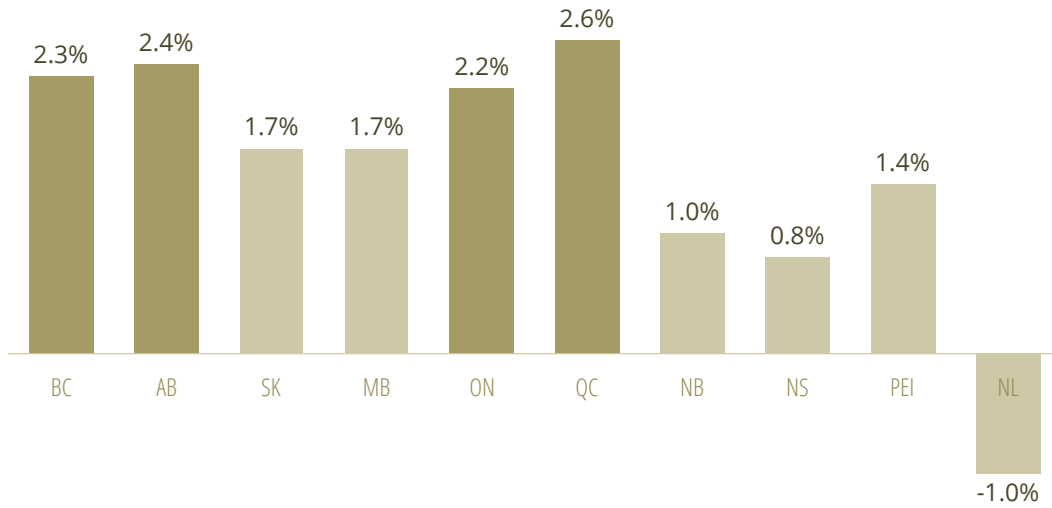


Figure 1. Real GDP growth forecast for 2018 by province as of December 2018

Data source: RBC Economics Research¹⁶

While these figures do not indicate a causal relationship between pollution pricing and outperforming economies, the data refute the assertion that a carbon price hurts economic competitiveness, is incompatible with growth or could even cause recession.

¹⁶ RBC Economic Research, *Provincial Outlook* (December 12, 2018), 12.
<http://www.rbc.com/economics/economic-reports/pdf/provincial-forecasts/provfcst-dec2018.pdf>

3. Joining the world in pricing carbon

Canada, along with the rest of the world, is transitioning to a low-carbon economy and looking at what policies will most effectively reduce emissions, while ensuring a strong economy. Alberta is critical to this conversation, as emissions from Alberta make up almost 40% of Canada’s total greenhouse gas emissions.¹⁷ Therefore, small percentage reductions from our emission sources can have a large impact on Canada’s national emissions.

Addressing climate change is a systemic challenge that our society faces. Therefore, all different layers of society are part of the solution. We have an opportunity at the provincial level to implement solutions that take into account the local context and the needs of Alberta’s economy while at the same time addressing the emissions across the whole economy.

As noted in Section 2, economists label carbon pricing as the most cost-effective method of reducing emissions. But not only economists prefer to address pollution through the mechanism of pricing it. Across the political spectrum, it is also recognized as the smartest and most cost-effective choice. Conservative thought leaders like Preston Manning¹⁸ and Mark Cameron¹⁹ have advocated for this measure. More progressive leaders also support this measure. Angela Merkel, for example, has noted that “growth and climate protection can go hand in hand” when using carbon pricing.²⁰

¹⁷ Government of Canada, “Greenhouse Gas Emissions.” <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html>

¹⁸ Preston Manning, “How to communicate a good idea: carbon pricing,” *Globe and Mail*, November 19, 2014. <https://www.theglobeandmail.com/opinion/how-to-communicate-a-good-idea/article21642629/>

¹⁹ Mark Cameron, “Alberta Carbon Pricing,” *Clean Prosperity*, March 3, 2017. <https://www.cleanprosperity.ca/2017/03/03/alberta-carbon-pricing/>

²⁰ Angela Merkel, “We support a price on carbon – Growth & climate protection can go hand in hand,” *The World Bank*, August 23, 2014. <http://blogs.worldbank.org/climatechange/eastasiapacific/trade/publicsphere/voices/publicsphere/impactevaluations/category/tags/angela-merkel>

As of November 2018, 70 jurisdictions price carbon pollution and carbon pricing is used in seven out of the ten largest economies in the world — including Canada.²¹

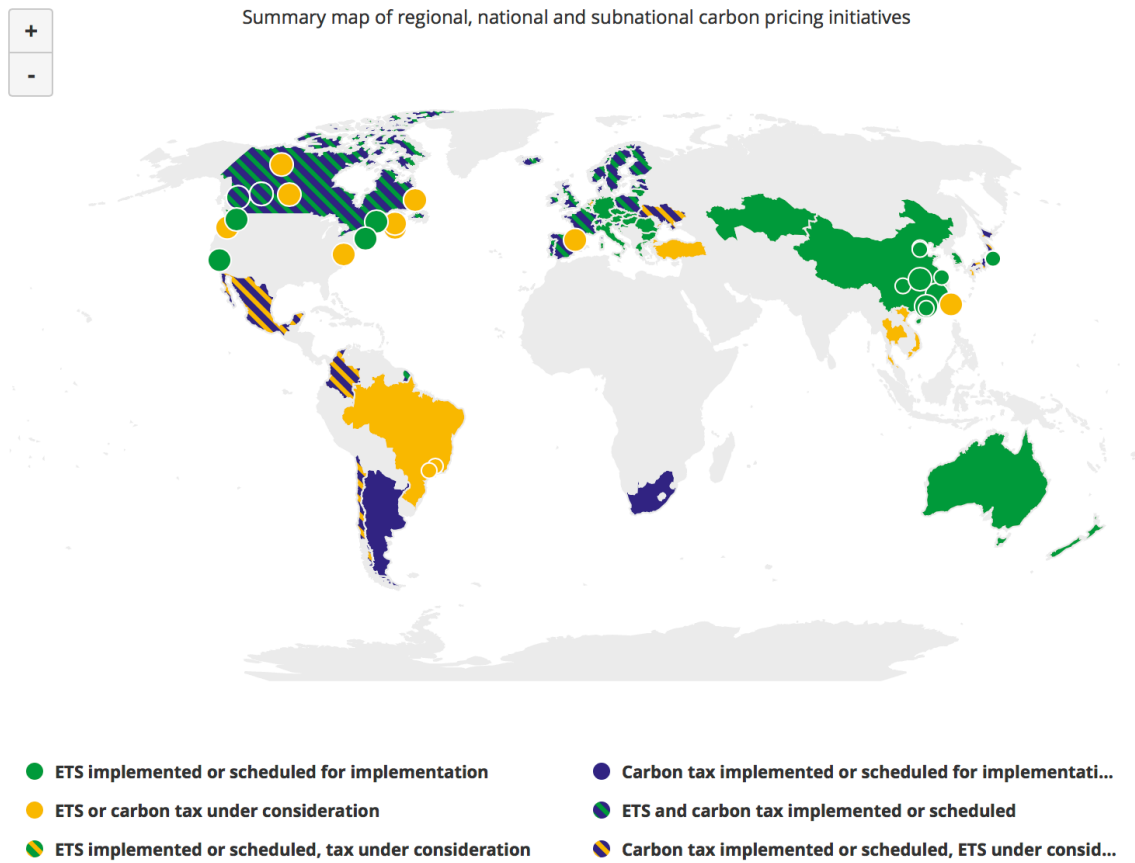


Figure 2. Jurisdictions with a carbon price as of November 2018

Source: Carbon Pricing Leadership Coalition²²

So economists like it, politicians think it makes sense — and what about business?

Businesses understand their responsibility to contribute to the overall success of addressing climate change. Nearly 40 Canadian businesses have signed on to the World

²¹ Carbon Pricing Leadership Coalition, *2016–2017 Carbon Pricing Leadership Report*, 6. <http://pubdocs.worldbank.org/en/183521492529539277/WBG-CPLC-2017-Leadership-Report-DIGITAL-Single-Pages.pdf>

²² Carbon Pricing Leadership Coalition, “Carbon Pricing in Action.” <https://www.carbonpricingleadership.org/who/>

Bank's Carbon Pricing Leadership Coalition,²³ which supports the implementation and sharing of best practices of carbon pricing. Alberta companies include Enbridge Inc., Suncor and Cenovus; other Canadian companies are Air Canada, Royal Bank of Canada, Lafarge Holcim, Blackstone Energy, and Bank of Montreal.

Canada now has a price on pollution nationally. Since January 1, 2019, Canada has a minimum price on carbon of \$20 in effect in all provinces and territories, with a scheduled increase of \$10/year until 2022. Provinces and territories are encouraged to implement their own regionally tailored carbon pricing policies, so long as programs adhere to a set of minimum standards. Alberta's carbon pricing plan suits the province's unique needs while meeting the federal requirements.

²³ Delphi Group, *The Role of Carbon Pricing in a Low-Carbon Transition*, prepared for Canadian Business Members of the Carbon Pricing Leadership Coalition (2018). <http://delphi.ca/cplc-report/>

4. How a price on pollution has worked in Alberta

4.1 History of carbon pricing in Alberta

Alberta has had a price on carbon emissions since 2007 in the form of the Specified Gas Emitters Regulation (SGER). This made Alberta the first jurisdiction in North America to price carbon, but the system had its flaws. Each facility's emission limits were based on a given facility's historic emissions, so facilities with historically high emissions were not pressured to drastically lower them, while facilities that had already invested in emissions reductions and had lower emissions as a result were effectively penalized. It was also perceived as unfair by industry as the burden of Alberta's emissions reduction fell on their shoulders. In 2016, revenue from SGER was roughly \$206 million. Those funds were invested in projects that reduce greenhouse gas (GHG) emissions, including: a research project on algae based biomass for the production of fuels and chemicals, and an Anaerobic Digestion Facility built by the City of Edmonton's Waste Management Services, in partnership with the University of Alberta.

In 2017, an economy-wide price on carbon was introduced with a carbon levy to address the rest of the economy while SGER remained in place to continue to address emissions from large emitters. The carbon levy in Alberta was set in 2017 at \$20 per tonne of carbon dioxide emitted, and rose to \$30 per tonne in 2018. It is applied individually to each type of fossil fuel — including gasoline, natural gas, diesel and propane — based on how much carbon is emitted during combustion. Fuels used in farm operations are exempt.²⁴

In 2018, SGER was replaced with the Carbon Competitiveness Incentive Regulation (CCIR) for industry. Under CCIR, all firms are treated equally. Each company's emissions limit is based on what on its product (e.g. per barrel of oil, per MWhr of electricity generation) and how much it produces.²⁵ The benchmark is therefore set based on average sector performance as opposed to a facility's historic emissions like under SGER. This means that each company's emissions limit is based on what it

²⁴ Government of Alberta, "Carbon levy and rebates." <https://www.alberta.ca/climate-carbon-pricing.aspx>

²⁵ Sara Hastings-Simon, "Alberta's current carbon pricing plan is a big improvement from days gone by," *Pembina Institute*, June 18, 2018. <https://www.pembina.org/blog/albertas-carbon-pricing-plan-big-improvement-days-gone>

produces (e.g. per barrel of oil, per MWhr of electricity generation) and how much. Some firms have already reached the benchmark of emissions per production, while others that have not must take further action or pay the carbon price. All firms have the same financial incentive to continue to reduce emissions below the benchmarks.

The carbon levy and CCIR together target carbon emissions for both consumers ($\approx 40\%$ of Alberta's GHG emissions) and industrial producers ($\approx 60\%$ of Alberta's GHG emissions).

4.2 Revenue from carbon pricing

In 2017-2018, revenue from the carbon levy was \$1.05 billion; a further \$246 million came via SGER payments and other sources so revenue from pricing pollution in Alberta that fiscal year totalled \$1,296 million.²⁶

This revenue from pricing pollution in Alberta has been spent to reduce the tax burden of small businesses, small and middle-income families, and investments into renewables, energy efficiency and clean tech projects and capacity building (see Figure 3). This is in line with the design features of a carbon tax outlined in Section 2.

²⁶ Government of Alberta, *Government of Alberta 2017–18 Annual Report* (2018). <https://open.alberta.ca/dataset/7714457c-7527-443a-a7db-dd8c1c8ead86/resource/cb1d2565-b262-4746-9499-68e409d9f72c/download/goa-2017-18-annual-report.pdf>

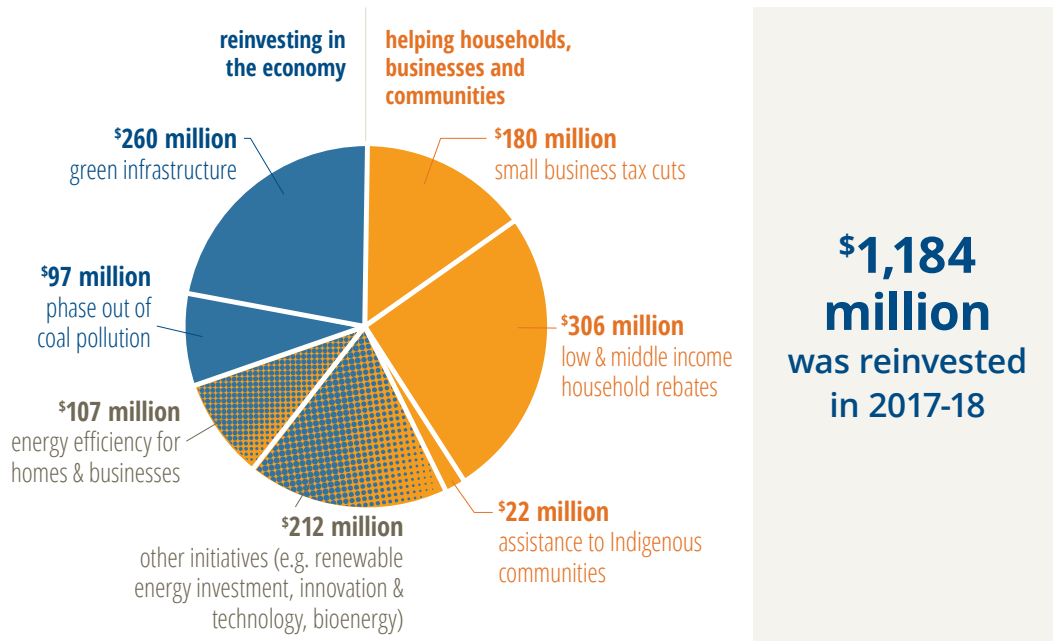


Figure 3. Breakdown of spending from carbon levy revenue for the fiscal year 2017-2018.

Data source: Government of Alberta²⁷

The 2017-18 year-end revenues were \$1,297 million and year-end expense was \$1,184 million, creating a surplus of \$113 million (i.e. unspent revenues). This surplus resulted from greater than anticipated revenue and lower than forecasted spending. These surplus funds are available for allocation in future fiscal years through the annual budget development process and are accounted for in the Climate Change and Emissions Management Fund. The forecast for revenue for the fiscal year 2018-2019 is \$1,309 million from the carbon levy and \$541 million from SGER, while the total spending is forecasted to be \$1,029 million.

4.3 Emissions reductions

As of January 2018, SGER had achieved reductions of 95 million tonnes since its start in 2007 through investing in Alberta-based carbon offsets.²⁸ In February 2019, the Government of Alberta released program and policy highlights of its Climate Leadership

²⁷ Ibid.

²⁸ Government of Alberta, “Specified Gas Emitters Regulation.” <https://open.alberta.ca/publications/9781460142400>

Plan since its implementation in 2015.²⁹ As carbon pricing is part of a larger set of policies of Alberta’s Climate Leadership Plan, emissions reductions cannot be attributed only to carbon pricing. Through the mix of policies, Alberta is now tracking toward 263 megatonnes per year of emissions.³⁰



Figure 4. Emissions trajectory before and after the Climate Leadership Plan.

Data source: Government of Alberta³¹

²⁹ Government of Alberta, *Climate Leadership Plan: Program and Policy Highlights* (2019), 1. https://open.alberta.ca/dataset/83285ecd-dbbe-4b6f-a1a2-ceaebf289fa3/resource/9932c8ce-516a-4fcc-9bda-97cbedbc581a/download/clp_policyandprogramhighlights.pdf

³⁰ Ibid.

³¹ Ibid.

5. Conclusion

A price on pollution is widely recognized as the most cost-effective way to reduce emissions. It leaves the door wide open for the most innovative companies and the most creative ideas, and leaves freedom for consumers to make the choices that work best for them. A well-designed system uses revenue to find solutions to lower emissions and give individuals more options.

Since 2017, Alberta has implemented an economy-wide price on pollution with revenue re-invested into diversifying Alberta's economy through low-carbon initiatives as well as tax cuts for businesses and rebates for households. This program has been successful in incenting diversification, supporting individuals and reducing emissions.

Strong and effective climate policy is critical for Alberta's oil and natural gas industry to be a supplier of choice in the global energy market. With the right climate policies, including carbon pricing, Alberta can be competitive, attract investment, spur innovation and compete in a decarbonizing world.

Rejecting a price on carbon pollution is walking away from a proven, lowest-cost way to address climate change. Instead of seeking short-term savings, we need to think about long-term economic opportunities and further advance our trajectory to implement proven solutions to address climate change.

We therefore think it is crucial to:

- continue with an economy-wide price on carbon
- maintain and enhance Alberta's output-based system for large emitters which rewards efficient operators, incentivizes technology development and protects them from international exposure
- commit to increasing the price of pollution over time in order to drive deeper emissions reductions.

Decision makers must focus on how to best implement solutions we have already developed to address climate change — carbon pricing being primary among them. Alberta's carbon pricing plan suits the province's unique needs while meeting the legal requirements set by the federal government. It is an effective mechanism that puts Alberta in line with a decarbonizing country and world.