

Climate change policy in Alberta

by Andrew Read

At a glance

Alberta's key climate policy, the *Specified Gas Emitters Regulation* (SGER), is due for renewal before December 31, 2014. This backgrounder provides a summary of how SGER has functioned to date and provides recommendations to improve the current approach.

Alberta's current approach

Alberta currently regulates greenhouse gas emissions for large industrial facilities through an intensity-based approach. Since 2007, Alberta has required major industrial facilities to reduce their "emissions intensity" (i.e. emissions per unit of production) by up to 12 per cent, relative to their typical performance or "baseline" level. Generally, this can be achieved by either increasing production, without creating additional emissions, or reducing emissions without reducing production.

This kind of system, with an appropriate level of stringency, can lead to absolute reductions in emissions.¹ However, intensity systems inherently do not consider the total amount of emissions that are generated by a facility. For example, if a facility tripled production while tripling the emissions generated, it would still have the same emission intensity.

This intensity-based approach is advantageous for Alberta, since the province is forecasting a significant expansion of industrial development related to oilsands production. However, in the absence of strong enough limits that motivate reductions in total emissions, Alberta's forecasted expansion will continue the current trend of increasing emissions. This trend is out of step with what climate science indicates; we must stabilize and then reduce the amount of greenhouse gas emissions generated from producing and burning fossil fuels.

¹ Timothy Herzog, Kevin Baumert, and Jonathan Pershing, "Target: Intensity – An Analysis of Greenhouse Gas Intensity Targets," World Resources Institute, November 2006. http://pdf.wri.org/target_intensity.pdf.

How SGER works

Emissions subject to regulation

Alberta's emissions regulation applies to industrial facilities that emit over 100,000 tonnes of greenhouse gases per year. At this threshold, 106 facilities fall under the regulation, including oilsands production and processing, natural gas processing, electricity generation, chemical manufacturing, forestry products, and mineral mining and processing facilities (see Figure 1). Fully three quarters of the emissions reported under the SGER come from oilsands operations (39.8 per cent) and electric power generation (35.4 per cent).²

The province's regulatory threshold means that the SGER only applies to around 50 per cent of Alberta's total emissions.³ However, the emissions required to be reduced are less than this since facilities are only required to make up to a 12 per cent reduction in their intensity.

In addition, industrial process emissions (emissions produced from processes other than combustion) are strictly excluded from the emissions target. These emissions typically contain high concentrations of carbon dioxide, and are particularly amenable to carbon capture and storage. With their exclusion, there is no financial incentive to capture them.

Due to these design features, the total amount of emissions that must be reduced under the SGER is only a small portion of Alberta's total emissions. Our analysis of compliance data, as shown in Figure 1, found that only four per cent of Alberta's total emissions are covered under the current system.

² Alberta Environment and Sustainable Resource Development. "Report on 2011 Greenhouse Gas Emissions", May 2013.

³ Based on facility emissions reported in 2011 under Alberta's Specified Gas Reporting Regulation, <http://esrd.alberta.ca/focus/alberta-and-climate-change/regulating-greenhouse-gas-emissions/documents/8849.pdf>, retrieved May 14, 2014.

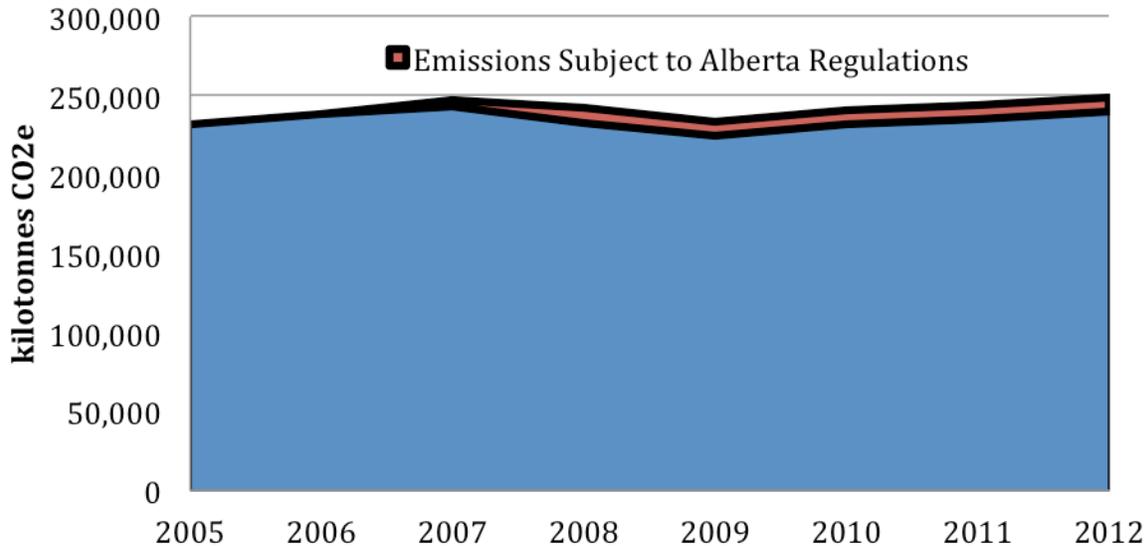


Figure 1: Alberta greenhouse gas emissions required to be reduced under the SGER.⁴

Compliance options

For facilities to comply with Alberta’s regulation, emission intensity improvements are not necessarily required. Instead, SGER allows facilities to: make payments into a technology fund at a rate of \$15 per tonne; purchase emission offsets;⁵ or, use previously generated emission performance credits.⁶

There is no limit on companies’ access to each of these options as a means of compliance. This creates a cost ceiling for facilities for making internal improvements that reduce emissions. At the current technology fund payment rate, any reductions costing more than \$15 per tonne are unlikely to be pursued since doing so would cost more than the other compliance options.

Whether physically reducing emissions or using the alternative compliance options available, companies can therefore meet their regulated obligations. Naturally they would choose the lowest-cost option available. For the SGER system to generate emission reductions, the technology fund contribution rate must be high enough to motivate making internal reductions rather than paying for compliance.

⁴ Based on: Environment Canada, *National Inventory Report (1990-2012)*, 2014; and data provided by the Government of Alberta, Department of Environment and Sustainable Resource Development, May 12, 2014.

⁵ Offsets are emission reductions that are generated from projects that are not subject to Alberta’s climate regulation. Projects that generate offsets must adhere to Alberta’s approved protocols, which identify types of projects that can generate credits and how to quantify the amount generated. Offset projects include such activities as wind electricity generation, waste-heat recovery, reduced tilling agricultural practices, and energy efficiency improvements.

⁶ Emission performance credits are credits that are generated by facilities that go beyond the reduction target of the regulation. For example, under a 12 per cent reduction obligation, a facility that reduces its emission intensity by 20 per cent would generate emission performance credits. The quantity of credits generated depends on the specific intensity metric of the reporting facility.

As of May 2014, the Government of Alberta collected \$404 million from companies in technology fund payments,⁷ accounting for 51 per cent of industry's total (cumulative) compliance with the regulation since it came into effect.⁸ This high reliance on the technology fund for compliance indicates that the technology fund price is likely insufficient to motivate internal reductions. Strengthening this price could unlock the next tier of internal reduction opportunities.

Cost of compliance

The costs of compliance using either emission performance credits or offsets are not publicly disclosed. There is therefore no method to determine the actual cost that was borne by industrial facilities. However, because the technology fund contribution rate is known and this price limits the cost of reduction opportunities undertaken, a maximum cost of compliance can be determined.

Although the technology fund contribution rate is \$15 per tonne, only 12 per cent of emissions from a facility are subject to this carbon price. Whereas a carbon tax (like B.C. has) would apply to all emissions from a facility, Alberta's carbon levy actually works out to much less than \$15 per tonne because it only applies to a portion of a facility's emissions. So in effect, assuming that a facility operates at the same intensity as in its baseline year, the maximum cost of complying with the regulation would be only \$1.80 per tonne, were it applied to all emissions produced.

Further, the technology fund contribution rate within the regulation is static, and does not incorporate an adjustment for inflation. The result of this is that the price signal has actually weakened over time.

It is also important to note that these compliance costs are deductible for tax purposes (and in the case of oilsands projects, for royalty calculation purposes). For a typical in situ oilsands facility, the \$1.80 per tonne cost translates into approximately \$0.08 per barrel if tax and royalty implications are considered.⁹

Progress to date

Emissions were first subject to regulation in Alberta in 2007. This was before the global economic recession, which caused annual emissions to fall substantially due to reduced economic activity across the economy. Emissions reached a low in 2009, but since that time have continued to increase on the same trajectory (see Figure 2). As of 2012, emissions from Alberta have surpassed their pre-recession high, reaching 249 Mt.

⁷From data provided by the Government of Alberta, Department of Environment and Sustainable Resource Development, May 12, 2014.

⁸Ibid., Based on cumulative SGER compliance from 2007-2012, from data provided by the Government of Alberta, Department of Environment and Sustainable Resource Development, May 12, 2014.

⁹P.J. Partington, Matt Horne, and Clare Demerse, "Getting on Track for 2020: Recommendations for greenhouse gas regulations in Canada's oil and gas sector," Pembina Institute, April 2013.

Due to the complexity of the Alberta system, results are difficult to interpret and summarize. There is a need to make a distinction between the compliance that is submitted under the regulation and the actual emissions avoided due to the regulation.

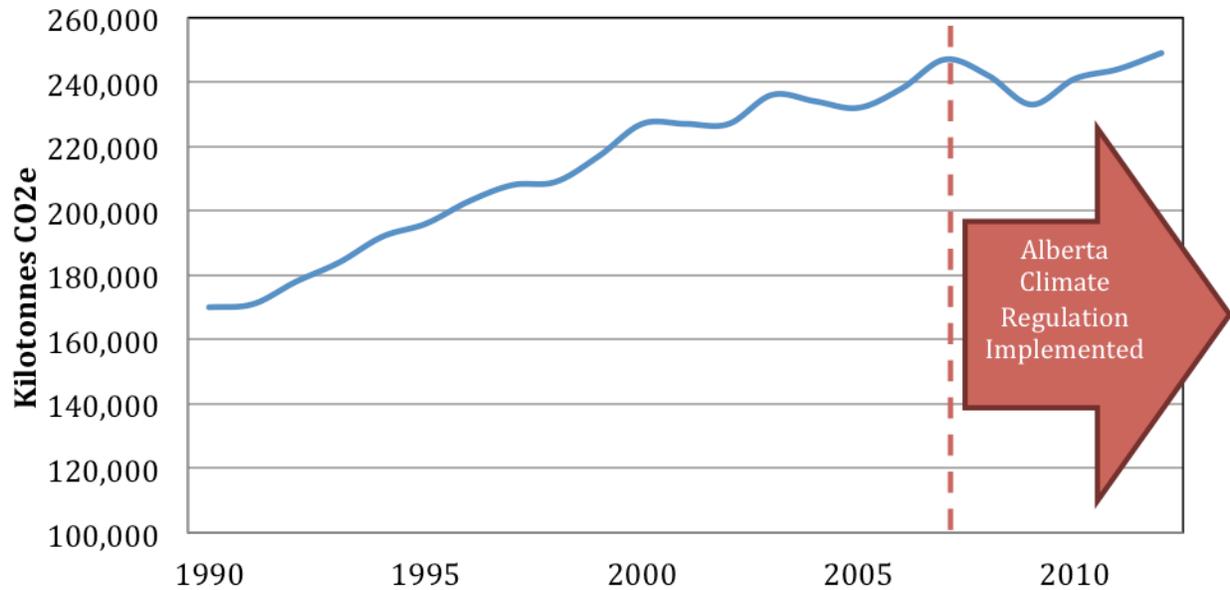


Figure 2: Alberta's greenhouse gas emissions trends (1990-2012).¹⁰

Compliance

Since implementation, approximately half of the reduction obligation has been covered by contributions to the technology fund (see Figure 3). An additional 38 per cent of the reduction obligation was made by offset projects. Emissions performance credits (which represent emission reductions at a regulated facility) only contributed to 11 per cent of the reduction obligation. The high reliance on the technology fund and offsets for compliance indicates that those options are the lowest-cost options that are available.

¹⁰ Data source: Environment Canada, *National Inventory Report (1990-2012)*, 2014.

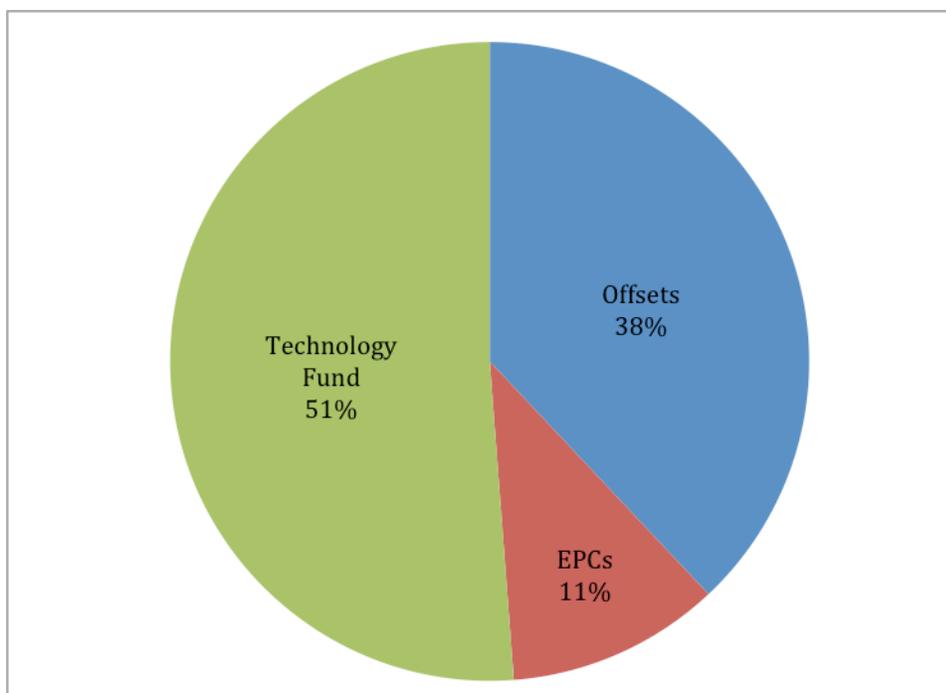


Figure 3: Total Compliance Methods used since implementation of the Specified Gas Emitters Regulations.¹¹

Avoided Emissions

Avoided emissions by definition are quantified by contrasting the emissions actually produced with the amount of emissions that would have been produced had the measures to reduce emissions not been in place. Under Alberta’s system, this means avoided emissions¹² are quantified by the difference between a facility’s baseline emissions and the emissions generated in any given year (see Figure 4). Alberta claims avoided emissions from three main activities under the regulation: facility reductions, carbon offsets, and the operation of cogeneration facilities.

Since avoided emissions are claimed for both cogeneration systems and offset credits, application of the related technology or practice is not considered “business-as-usual”.

Our examination of Alberta’s offset registry in 2011 showed that more than 82 per cent of the offset credits submitted for compliance with the SGER from 2008 to 2010 came from projects that operated between 2002 and 2007 – before the SGER was launched. Clearly these credits do not represent emission reductions attributable to the SGER. Developers would not have committed to projects without a future revenue stream from offset credit sales that depended on

¹¹ Based on data provided by the Government of Alberta, Department of Environment and Sustainable Resource Development, May 12, 2014.

¹² There is some debate regarding how avoided emissions are presented by the Alberta government as reductions in emissions. Further discussion can be found here: <http://www.macleans.ca/economy/business/how-not-to-be-fooled-by-statements-on-emission-reductions/>.

government regulations that were not yet drafted and whose implementation was uncertain. In 2012, Alberta moved to “go-forward” crediting, closing this loop-hole and restricting offset credits to only projects that develop reductions during the compliance period.

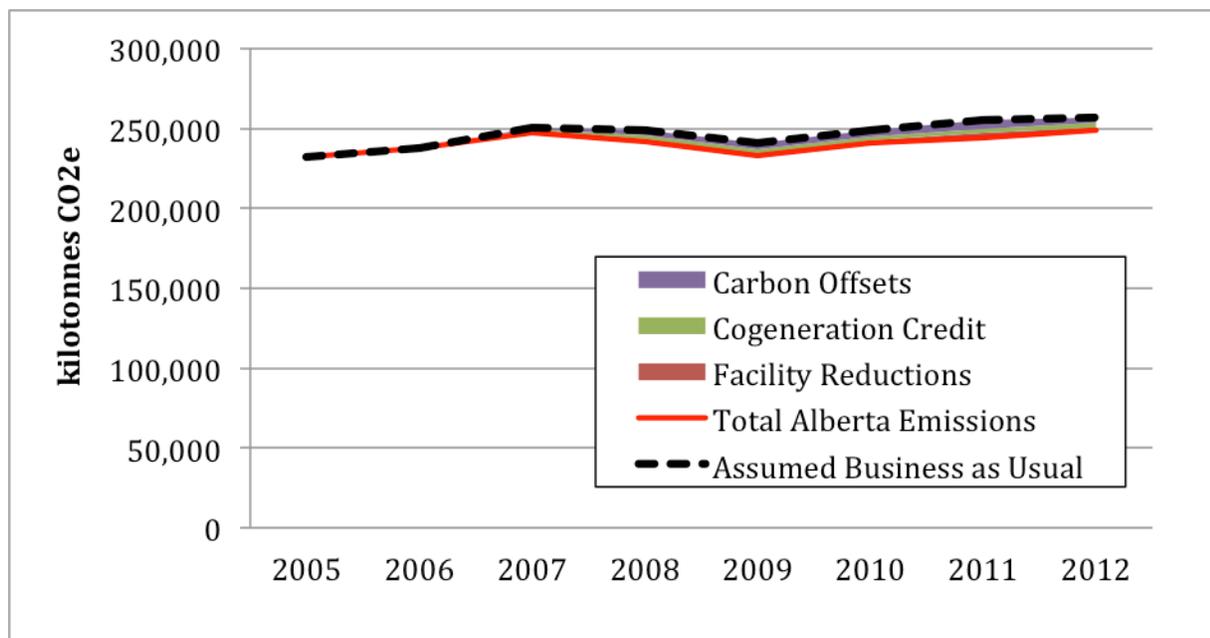


Figure 4: Avoided Emissions from Specified Gas Emitters Regulation, as reported by Alberta.¹³

Cogeneration, also referred to as combined heat and power systems, is the process by which an industrial system simultaneously generates electricity and heat energy. These systems typically use fuel more efficiently than generating the same amount of electricity and heat separately. However, in practice the use of cogeneration increases the emissions generated at a facility. Alberta allowed existing facilities with cogeneration to use an artificial baseline emission intensity. As a result, cogeneration was excluded from business-as-usual practices, despite many of the systems being in place before the regulation.

Accounting for cogeneration is a growing concern every year in which the stringency of the regulation is not increased. With only a 12 per cent reduction requirement, most facilities with cogeneration have been producing credits that can be banked for compliance in the future.

This concern is illustrated best by the in situ oilsands compliance results in 2012. For that year overall in situ oilsands facilities generated 789 kT of credits from their cogeneration systems.¹⁴ This amount was greater than the entire reduction obligation of the in situ oilsands sector (611 kT). In other words, the rapidly growing and carbon-intensive in situ oilsands sector was

¹³ Based on Environment Canada, *National Inventory Report (1990-2012)*, 2014; and data provided by the Government of Alberta, Department of Environment and Sustainable Resource Development, May 12, 2014.

¹⁴ “Alberta’s Climate Change Strategy and Regulations – A review of the first six years of the Specified Gas Emitters Regulation,” Alberta Environment and Sustainable Resource Development. http://www.cmc-nce.ca/wp-content/uploads/2014/01/J_Wheeler-CMC-Workshop-SGER-Renewal-2014_01_27_v2.pdf (Accessed May 13, 2014)

effectively paid 178 kT of compliance credits by the government of Alberta in 2012. These credits can also be banked for future years, reducing the obligation for making any reductions in emissions at a facility in subsequent years.

Overall, there remains some question about how many emissions have been avoided due to Alberta's climate regulation and whether they reflect a true avoidance. According to data reported by the Government of Alberta, the regulation has only reduced 3.2 per cent of Alberta's total emissions from their business-as-usual expectations.

A further challenge

An essential factor to consider when evaluating the effectiveness of Alberta's climate regulations is how those regulations contribute to Canada's emissions reductions efforts overall.

Unfortunately, a lack of alignment between Alberta's 2020 greenhouse gas reduction target and the federal 2020 target means that Alberta is not on track to deliver its fair share of emissions reductions relative to other provinces.

Canada's climate target

In early 2010, the Canadian government adopted a national emissions target for 2020. This target is a 17 per cent reduction from 2005 emissions by 2020 – the same commitment as the United States. This target equates to national annual emissions of 612 Mt in 2020.

Since then, Canada has reaffirmed that it intends to hit its 2020 target¹⁵ but has yet to identify a plan to reach that emissions level. Environment Canada's most recent projections conclude that under current conditions Canada's annual emissions will reach 734 Mt by 2020.¹⁶ Without additional actions, Canada will miss its 2020 target by 122 Mt – an amount almost equivalent to the current emissions from all passenger transportation in Canada, and greater than all emissions from electricity generation in Canada.

In contrast, U.S. Department of State analysis indicates that existing and planned action on climate change will put the U.S. on a track expected to achieve its emission reduction goal by 2020.¹⁷ Although the ability of the U.S. government to implement all planned action is uncertain, the government has at least identified the path to achieving its target. The U.S. government is now working on implementation of these plans and reporting on progress. This provides much needed clarity to industrial developers as they work within changing regulatory environments.

¹⁵ Shawn McCarthy, "Environment Minister Aglukkaq vows to fulfill 2020 carbon promise," *Globe and Mail*, November 18, 2013. <http://www.theglobeandmail.com/news/politics/environment-minister-aglukkaq-vows-to-fulfill-2020-carbon-promise/article15483071/>

¹⁶ Environment Canada, "Canada's Emissions Trends," October 2013.

¹⁷ U.S. Department of State, "First Biennial Report of the United States of America," January 2, 2014. <http://www.state.gov/documents/organization/219039.pdf>.

Alberta's climate target

In 2008, Alberta released its climate change strategy, which identified emissions targets for 2020 and 2050. To meet these targets, Alberta identified three reduction strategies: energy efficiency and conservation, carbon capture and storage, and greening energy production. The 2020 target requires limiting annual emissions to 260 Mt by 2020. This target is equivalent to an increase of 12 per cent from the province's 2005 emission levels (in contrast, the federal goal requires emissions to be 17 per cent lower than 2005 levels in 2020).

The inconsistency between Canada's and Alberta's targets has never been addressed by either level of government. The implication is that Canada's national commitment will be out of reach unless other provinces collectively reduce their emissions by *more than* 17 per cent below 2005 levels, overcompensating for the additional emissions from Alberta. This will be especially necessary if Alberta's emissions continue to climb as projected, given the province's heavy reliance on coal to generate electricity and the rapid growth planned by the fossil fuel industry.

As Figure 5 illustrates, it remains unclear how Alberta's and Canada's climate targets could both be met without putting undue burden on other provinces.

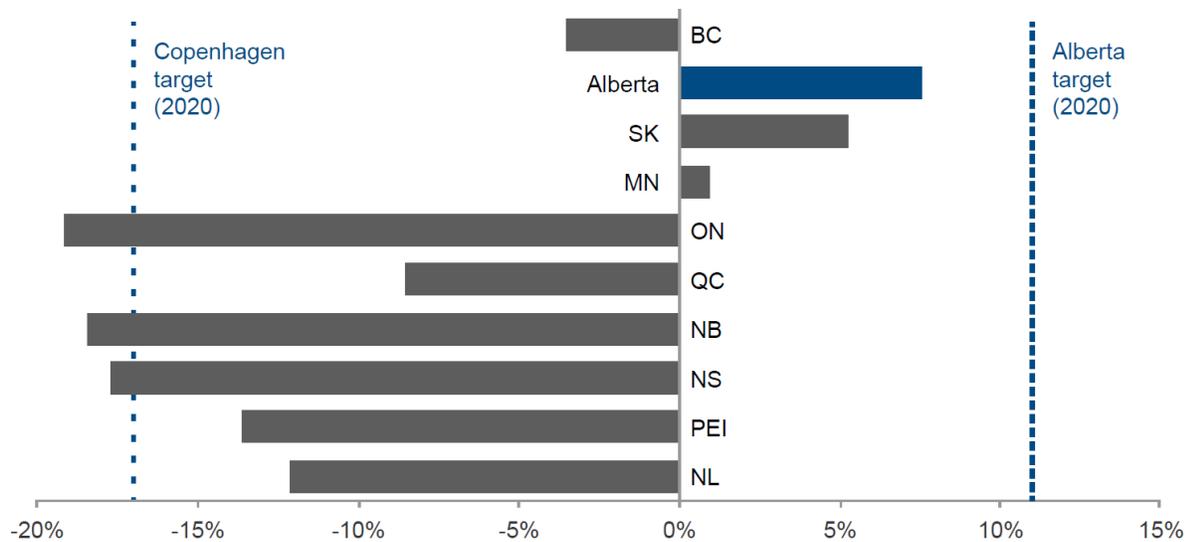


Figure 5: Canada's and Alberta's climate targets compared to 2012 provincial emissions.¹⁸

Conclusions

While Alberta was the first jurisdiction in North America to regulate greenhouse gas emissions with the *Specified Gas Emitters Regulation*, its initial momentum has subsequently lagged and the province is now falling short. After more than six years in operation, the regulation has not

¹⁸ Data source: Environment Canada, *National Inventory Report (1990-2012)*, 2014.

resulted in a reduction of Alberta's total emissions, and the province remains on a track to miss its 2020 climate change target.

There is a need to update and refine Alberta's approach to curbing GHG emissions in line with Alberta's objectives. Using the current intensity-based approach as a starting point, our analysis indicates that Alberta should enhance the regulation by:

- increasing greenhouse gas reduction requirements in line with Canada's and Alberta's climate change targets;
- increasing total coverage of Alberta's climate policy to enable emission reductions across the entire Alberta economy;
- reevaluating the technologies and practices considered to be "business as usual" and ensure they reflect the 2005 reference year on which climate change targets are based;
- increasing the technology fund price to a level that will provide an economic incentive for a facility to reduce its emissions onsite rather than paying for compliance;
- limiting the quantity of technology fund contributions, offsets, or emission performance credits that can be used for compliance to ensure all facilities must consider facility improvements; and,
- providing clarity and assurance that the regulation will be strengthened on an ongoing basis, by outlining long-term plans for increasing fund contribution rate and reduction obligations.

Due to Alberta's significant and growing contribution to climate change, the approach that Alberta takes will ultimately determine whether Canada can stay on track to meet its international climate change obligations.