PEMBINA institute

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BACKGROUNDER

Opportunities to improve Alberta's climate strategy

The COP21 climate summit is being held this December in Paris. In the lead-up to this global event, Alberta has committed to transforming its approach to dealing with climate change. There is strong support from a cross-section of Albertans for a meaningful strategy on this important issue. Over the next few months, Alberta's newly announced Climate Change Advisory Panel will review the province's climate change policy, consult stakeholders and develop advice on permanent policy options.

Canada in context

Canada submitted its new climate action plan to the United Nations Framework Convention on Climate Change in May of this year. Canada's stated intention is to reduce greenhouse gas (GHG) emissions by 30 per cent below 2005 levels by 2030.[1] This has significant ramifications for Alberta as the largest emitter among Canadian provinces.

The latest numbers from Canada's emissions inventory confirm Canada is far from meeting its existing emissions target of 17 per cent below 2005 levels by 2020. By contrast, the EU and the U.S. are projected to meet or exceed their commitments and are proposing more stringent targets beyond 2020.

Not only is Canada off-track to meet its commitments but, according to Environment Canada's Emissions Trends 2014 report, our emissions are actually projected to grow.[2]

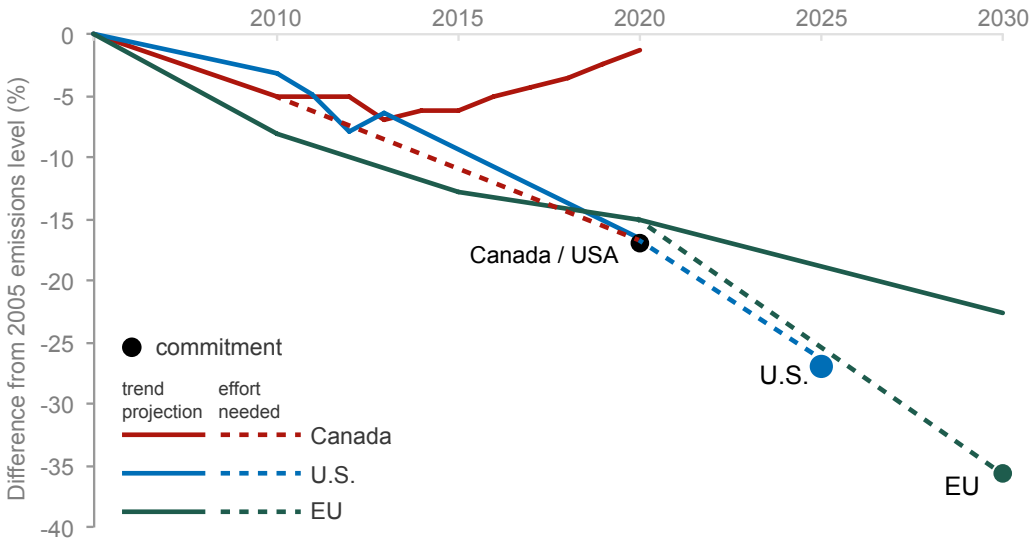

Figure 1: Canada, U.S. and EU emissions trends and targets relative to a 2005 baseline

[1] Government of Canada, *Canada's INDC Submission to the UNFCCC* (2015). http://www4.unfccc.int/submissions/INDC/Published%20Documents/Canada/1/INDC%20-%20Canada%20-%20English.pdf

[2] Environment Canada, *Canada's Emission Trends 2014*. https://ec.gc.ca/ges-ghg/default.asp?lang=En&n=E0533893-1

Provincial climate leadership

In the absence of federal action, provinces have assumed climate leadership with varying degrees of ambition and results. Ontario's 2013 emissions are 19 per cent below 2005 levels, Quebec's are 8.4 per cent below and B.C.'s are 2.5 per cent below. Alberta stands out as the province with both the highest overall emissions and highest growth in emissions.[3] If Canada is to be taken seriously on the global stage, action by Alberta is critical.

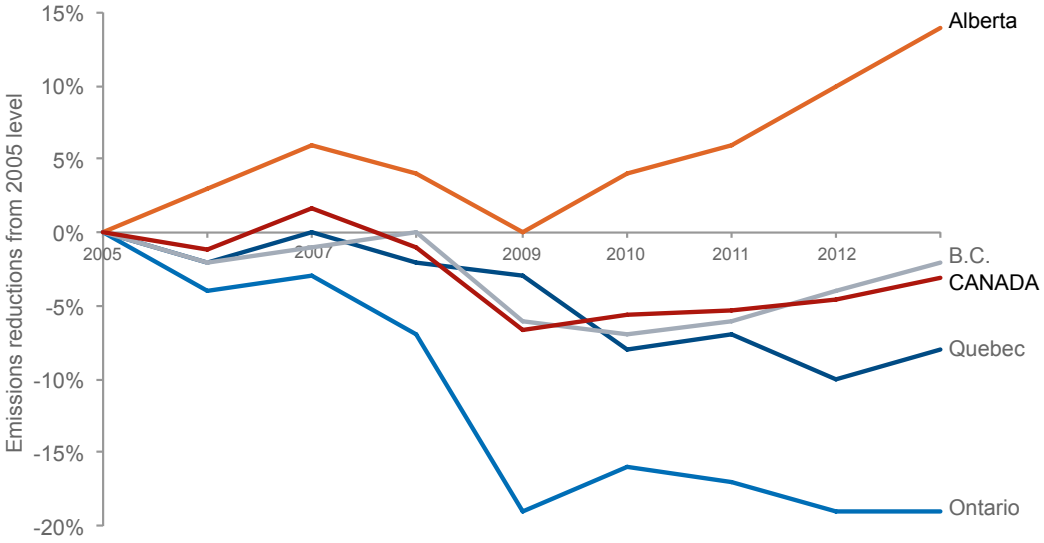

Figure 2: National and provincial emissions trends since 2005

Data source: Government of Canada[4]

Climate change policy in Alberta

Previous Alberta governments have expressed a desire to tackle climate change. In 2008 a climate plan was announced that targeted emission reductions of 50 Mt compared to business as usual by 2020 — representing a peak in absolute emissions — and then future reductions after that. Unfortunately, the province is not on track to meet that target. The 2008 plan relied heavily on carbon capture and storage technologies and did not place a high enough price on carbon to drive emissions reductions. The Specified Gas Emitters Regulation (SGER) introduced in 2007 targets only large emitters — those producing more than100,000 tonnes CO_2e per year — at a price of $15/tonne applied to an intensity reduction of 12 per cent. This approach has resulted in minimal net reductions in emissions.[5]

Based on the most recent publicly available data (2013), the pie chart below shows Alberta's emissions by sector.

[3] Environment Canada, *National Inventory Report 2013*. Available at http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php

[4] Government of Canada, *Canada's Sixth National Report on Climate Change* (2014), Table 5.5, 94. https://www.ec.gc.ca/cc/0BA54AAB-6E8E-4D48-B42C-DCBB09B27D10/6458_EC_ID1180-MainBook_high_minFINAL-s.pdf

[5] Pembina Institute, *Climate Change Policy in Alberta* (2014). http://www.pembina.org/reports/sger-climate-policy-backgrounder.pdf

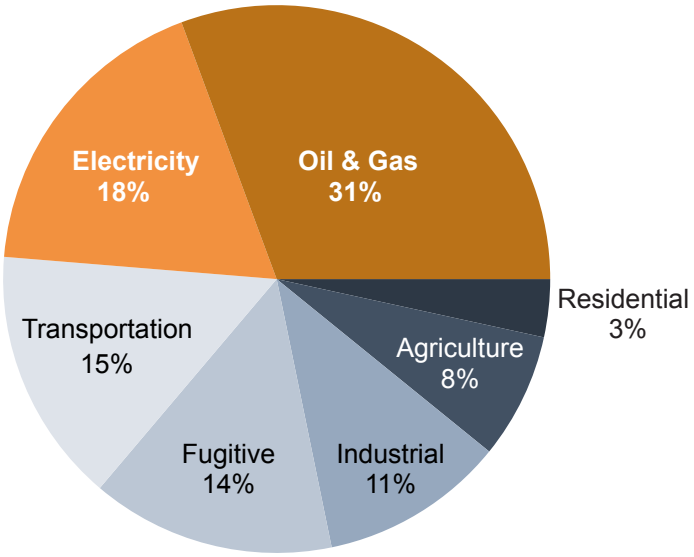

Figure 3: Alberta GHG emissions by sector

Data source: Environment Canada[6]

Emissions from Alberta's oil, gas and electricity sectors represent just under of 50 per cent of the greenhouse gases in this province. Despite historic improvements in emissions intensity in the oilsands, projected growth in the sector — in the absence of climate action — means absolute emissions in Alberta are expected to continue growing. Achieving real reductions in Alberta will require a climate strategy based on concrete policies and actions with a reasonable probability of success.

Climate opportunities in Alberta

Alberta's new government has committed to developing a climate change plan that will:

- result in real reductions to greenhouse gases;
- make use of technology and innovation; and
- address emissions from all sources whether they are from industry or our families.[7]

But first, how should Alberta define what is an appropriate target for real reductions? There are several defensible ways a target could be formulated for Alberta, such as:

- Reductions necessary for Alberta to contribute fairly to a global emissions budget that results in less than two degrees Celsius of warming.
- Reductions necessary for Alberta to deliver its "fair share" of Canada's 2030 commitment to reduce emissions by 30% below 2005 levels by 2030.

The stricter the target, the stronger the suite of policies Alberta will need to achieve its goals. Regardless of the target chosen, the following three opportunities likely represent some of most effective means of creating real greenhouse gas reductions while providing cost benefits to consumers, driving innovation, stimulating job growth and fostering a more diversified economy:

- Reducing emissions in the electricity sector through early retirement of coal-fired power plants and increased renewable energy generation.

[6] *National Inventory Report 2013,* Part 3, Table A10-18, 60.

[7] "Climate Change Strategy," *Alberta Environment and Parks.* http://esrd.alberta.ca/focus/alberta-and-climate-change/climate-change-strategy/default.aspx

- Increased energy efficiency in buildings, transportation and industry.
- Implementing an economy-wide price on carbon.

Reducing emissions in the electricity sector

Alberta's electricity mix is predominantly sourced from fossil fuel combustion. Under business-as-usual policies, this is expected to remain the case for the next 20 years and beyond. Because there are readily available commercial alternatives for electricity generation, the electricity sector offers some of the best cost-effective opportunities for greenhouse gas reductions.

Under existing policies, projections see a gradual replacement of coal-fired power with natural gas generation. Electron-for-electron natural gas electricity comes with around half the carbon of coal power. After emissions are projected to hit record levels between now and 2019, they are expected to fall as old coal units close between 2020 and 2029. From there, Alberta's increasing electricity demand will be met primarily by new natural gas generation of various forms — predominantly cogeneration and combined-cycle. As such, absolute emissions are projected to rise from 2030 onward, breaking new emissions records by mid-century.[8]

Given the commercial availability of lower- or non-emitting alternatives, numerous jurisdictions in North America and around the world have undertaken changes to electricity generation as a key opportunity for emissions reductions. However, industry analysis indicates moderate increases to the ceiling carbon price under the SGER intensity approach do not lead to greenhouse gas reductions over the long term.[9]

There are two major, technically feasible opportunities to reduce emissions from the electricity sector in Alberta: reducing the use of high-emitting coal power capacity for generation, and displacing a proportion of expected future natural gas capacity investments with non-emitting, renewable sources.

Increasing energy efficiency

Energy efficiency is widely recognized as the lowest-cost approach to reducing the environmental impact of energy production and use. Every province in Canada and state in the U.S. undertake initiatives to increase energy efficiency. Unfortunately, Alberta is currently the only province without any investments in residential or commercial energy efficiency programs.

The 2013 *Energy Efficiency Market Report* by the International Energy Agency estimates the energy efficiency gains achieved by 11 member countries since the 1970s to be greater than any single fuel source currently consumed in those countries. It goes on to state that energy efficiency investments in those countries over the past five years have largely been stimulated by policy interventions.[10]

The policy interventions typically undertaken to increase energy efficiency beyond business as usual are fairly similar from jurisdiction to jurisdiction. These interventions generally fall into the categories of regulations or programs. Energy efficiency regulations, or setting new energy efficiency standards, typically occurs once a higher efficiency product is available in a marketplace and provides a positive return on investment, but has yet to fully displace less efficient versions. Energy efficiency programs typically include a combination of information, incentives and capacity building, and are used to increase the uptake of energy efficient products and services where regulatory options are not available.

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[8] EDC Associates Ltd., *Trends in GHG Emissions in the Alberta Electricity Market - Impact of fuel switching to natural gas,* prepared for Independent Power Producers Society of Alberta (2013) 10. http://www.ippsa.com/IP_pdfs/Analysis%20of%20GHG%20Emissions%20in%20the%20Alberta%20Electricity%20Market%20-%20May%202,%202013.pdf

[9] *Trends in GHG Emissions in the Alberta Electricity Market,* 10.

[10] International Energy Agency, *Energy Efficiency Market Report 2013.* https://www.iea.org/publications/freepublications/publication/energy-efficiency-market-report-2013.html

Pricing carbon pollution

Economists have long recognized the flexibility and efficiencies provided by carbon pricing policies. As of recently, an increasing number of industry and environmental organizations are calling on governments to put an effective price on carbon.

Most recently, 43 CEOs across 20 economic sectors — with operations in 150 jurisdictions and $1.2 trillion in revenue in 2014 — called for an explicit or implicit price on carbon as part of their vision of a global climate deal.[11] Similarly, Europe's largest oil and gas companies — while accepting cost implications — jointly called on governments to price carbon for its benefits in providing "a clear roadmap of future investment, a level playing field for all energy sources across geographies and a clear role in securing a more sustainable future."[12]

A growing number of federal- and state-level governments are adopting carbon pricing — such as a carbon tax/levy or cap-and-trade policies — to reduce emissions and guide investment decisions. This trend is likely to continue into future years, and jurisdictions with strong policies will be better positioned to compete in a changing world.

[11] *Open Letter from Global CEOs to World Leaders Urging Concrete Climate Action*. Available at https://www.oximity.com/article/Open-Letter-from-Global-CEOs-to-World-1

[12] UN Framework Convention on Climate Change Newsroom, "Six Oil Majors Say: We Will Act Faster with Stronger Carbon Pricing: Open Letter to UN and Governments," June 2015. http://newsroom.unfccc.int/unfccc-newsroom/major-oil-companies-letter-to-un/