

December 2014

Q&A on Alberta's climate strategy

Backgrounder

As Alberta prepares to renew its climate change strategy by the end of the year, this backgrounder aims to address some frequently asked questions about how greenhouse gas emissions are regulated in Alberta, and key considerations for building an effective climate change strategy for the province.

What are Alberta's current climate targets?

By 2020: Reduce emissions by 50 Mt from business as usual. Stabilize greenhouse gas emissions and begin reducing emissions levels.

By 2050: Reduce emissions by 200 Mt from business as usual. Target (50 per cent below business as usual) / 14 per cent below 2005 levels.

How do they compare to Canada's targets?

Alberta's current climate targets are not in line with Canada's targets. The Government of Canada's targets are:

By 2020: 17 per cent below 2005 levels

By 2050: 60 to 70 per cent reduction

How do Alberta's emissions compare to other provinces?

The figure below illustrates how Alberta's projected emissions growth (between 2005 and 2020) compares to other provinces.

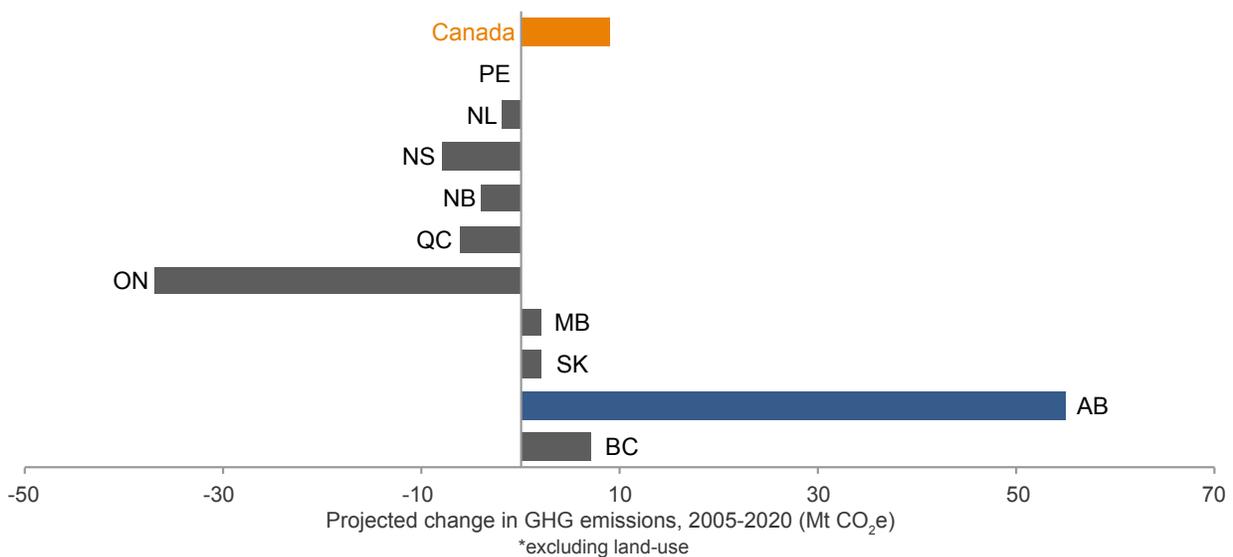


Figure 1. Many provinces are making progress on cutting carbon pollution, but that progress is being cancelled out by the rapid growth in Alberta's carbon pollution.

Data source: Environment Canada¹

Is Canada on track to meet its 2020 target?

No. Meeting Canada's target would require national economy-wide emissions to equal 611 Mt in 2020. Environment Canada projects Canada's emissions will exceed that target by 116 Mt. By 2020, Environment Canada predicts our national emissions will be just 1 per cent below 2005 levels, instead of 17 per cent below as our commitment requires.²

Is Alberta on track to meet its 2020 target?

No. Alberta's 2020 target relies heavily on carbon capture and storage (CCS) — a technology that has not yet reached the scale needed to create large-scale emission reductions.

What specific climate policies does Alberta currently have in place?

In 2007, the Government of Alberta introduced the Specified Gas Emitters Regulation (SGER).

The SGER requires large greenhouse gas (GHG) emitters (those emitting more than 100,000 tonnes CO₂e per year) to reduce their GHG emissions intensity by 12 per cent. The SGER allows companies to comply with this intensity reduction in three ways:

- Making improvements to their operations to secure real, direct reductions at their facilities
- Purchasing offsets or emission performance credits
- Paying into the Climate Change and Emissions Management Fund (CCEMF or “tech fund”) at a rate of \$15 per tonne of CO₂e emitted over their facility limit

Since Alberta's regulation only applies to 12 per cent of the emissions, it is considered equivalent to a \$1.80-per-tonne carbon tax (\$15 x 0.12), when applied to all emissions, on large GHG emitters such as fossil fuel based power plants, oilsands facilities, refineries, large gas plants and other heavy industry sites. It does not apply to smaller oil and gas facilities, well sites and the like.

The government has also taken strong steps by committing \$1.3 billion over the next 15 years to two CCS facilities that are currently under development. It also set up the Climate Change and Emissions Management Corporation (CCEMC), which has committed \$213 million in accumulated tech fund payments towards the development of new technologies for reducing GHG emissions.³

How effective has Alberta's existing climate regulation been in reducing emissions?

Overall GHG emissions in Alberta have continued to rise since SGER was introduced. Government of Alberta reporting demonstrates emissions have grown at a rate that is slightly slower than business as usual. However, a closer look at the emission reductions claimed raises questions as to whether these emission reductions would have happened even without the SGER being put in place.⁴

The CCEMF is invested in projects to learn more about emission reduction technologies and practices, and some of the projects actually lead to emission reductions. The CCEMC estimates it will achieve an average of 1.3 Mt of emission reductions per year between 2012 and 2020 from the projects it has invested into so far.

To put that number into perspective, Alberta needs to achieve 27 Mt of emissions reductions in total between now and 2020 to meet its climate target, which allows for emissions to grow by 12 per cent above the provinces 2005 emission levels.

What would an effective climate strategy for Alberta include?

1. **A commitment to do Alberta’s share to reduce emissions.** A provincial climate strategy that achieves Alberta’s fair share of emissions reductions would need to align with Canada’s commitments to the rest of the world.
2. **Stronger climate regulations coming into effect by January 1, 2015.** Alberta’s SGER expires on December 31, 2014. To get Alberta on track for its fair share of emissions reductions, the province would need to significantly strengthen the SGER or introduce other stringent carbon pricing measures.
3. **Additional commitments on energy efficiency, retiring coal-fired power generation and increasing renewable energy supply in 2015.** Alberta’s premier has talked about a number of other opportunities for reducing greenhouse gas emissions, including retiring coal-fired power plants ahead of schedule, increasing the amount of renewable energy in the province, and increasing energy conservation and efficiency. The renewed climate strategy should clearly indicate when the Government of Alberta will take action in these areas.

What are the top sources of emissions in Alberta?

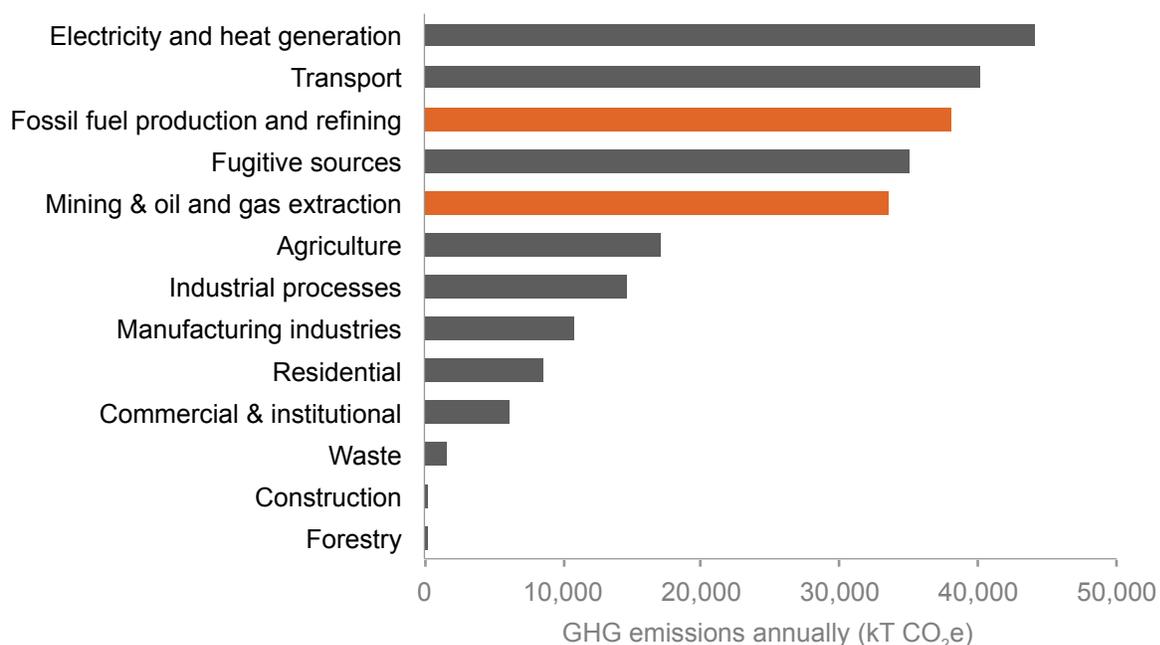


Figure 2. In 2012, emissions from all fossil fuel extraction, production, and refining was already above any other economic sector in Alberta and is the fastest growing source of emissions in the province, primarily due to oilsands development.

Data source: Environment Canada⁵

Where are the best opportunities for Alberta to reduce its emissions?

Alberta has four major opportunities for emissions reductions:

- Early retirement of coal-fired power plants
- Increase renewable energy generation
- Increase energy efficiency in buildings, transportation and industry
- Strengthen Alberta's carbon regulation (SGER)

What policy or regulatory tools would the province need to act on those opportunities?

Early retirement of coal-fired power plants

- As recently as 2008, representatives of the coal-fired electricity sector accepted 40 years as sufficient lifespan for their power plants.⁶ When Alberta Premier Jim Prentice was a federal environment minister, he proposed 45-year lifespan limits. Instead, the final federal coal regulations allow coal-fired units to operate for up to 50 years without any GHG reductions.
- The province possesses a variety of tools to reduce GHGs from coal-fired power. The most direct approach would be to formalize earlier end-of-life dates, implementing the 40 year lifespans suggested in 2008 by industry.

Increasing renewable energy generation

- A number of policy tools have been used in other jurisdictions with open electricity markets to increase the complement of renewables in their energy markets. The most common in North America is the renewable portfolio standard, which ensures that a certain proportion of the electric energy supply is met by renewables, which can increase over time.⁷ A similar policy innovation proposal specifically for Alberta is the clean electricity standard, which would set the GHG reduction target for electricity, then let the market find the best supply options.⁸

Increasing energy efficiency in buildings, transportation and industry

- The most common ways to increase energy efficiency are incentives and regulations. Examples of incentives include rebate programs for energy efficiency upgrades or funding for transit. Examples of regulations include minimum energy efficiency standards within the building code.

If Alberta were to implement energy efficiency opportunities that are currently economic, annual emission reductions could be 26 Mt by 2020.

Strengthening Alberta's carbon regulation

- The SGER should be strengthened by:
 - Increasing the emission reduction target for large industry (currently at 12 per cent) and/or the levy (currently at \$15 per tonne).
 - Increasing the number of facilities covered by SGER. (By reducing the coverage threshold from 100 kilotonnes (kt) annually to include facilities with emissions over

50 kt. This change would mean 40 per cent more facilities would be covered under the regulation).

- Including industrial processes in emission calculations. (Currently, GHGs generated through a chemical process, which typically contain high concentrations of CO₂ and are particularly amenable to CCS, are included in intensity calculations but excluded from reduction requirements).
- Broadening the use of the CCEMF to include short-term emission reductions and reduce energy end use, in addition to the technology development projects currently funded by CCEMC.
- Limiting the use of offsets for compliance purposes, given the previous challenges⁹ with the offset system in Alberta.
- Reevaluating cogeneration credits. (Facilities with cogeneration can produce credits that can limit further emission reductions beyond business usual).
- Setting a sector-based emissions intensity baseline, rather than facility-based. (Facility-based baselines provide incentives for higher emissions during a facility's initial operation or baseline setting years).
- Reevaluating the transition period provided to new facilities. (Currently SGER requirements ramp up for new facilities over their first seven years of operation).

What would it cost to make these changes?

Early retirement of coal-fired power plants

- There is no reliable analysis that estimates the electricity price impacts of accelerated coal power plant shutdowns. We do know that the pollution from existing coal plants results in considerable costs to human health¹⁰ and the environment. When the federal government set the end-of-life limits for coal plants at 50 years, they found that the benefits of reduced pollution by limiting the lifespan of Alberta's coal plants outweighed the costs.¹¹

Increasing renewable energy generation

- Alberta's current trend is toward very heavy reliance on natural gas for its electricity supply.¹² Because this allows natural gas to set the price of energy in Alberta's market, future natural gas fuel price increases will be passed on to consumers. As renewable energy provides fuel-free energy to the grid, we can expect that renewable energy will decrease the average electricity price in Alberta's market. Indeed, the data available today suggests it already is.¹³

Increasing energy efficiency in buildings, transportation and industry

- Energy efficiency regulations are set so any increase in the cost of a product is more than offset by the energy savings achieved.
- Energy efficiency programs can run from tens of millions of dollars a year to hundreds of millions of dollars, but are designed to save consumers twice as much as the cost of the upgrades.

Strengthening Alberta's carbon regulations (SGER)

- The most stringent proposal outlined so far to strengthen the SGER would include an emission reduction target of 40 per cent and a fund cost of \$40 per tonne (the so-called

40/40 scenario previously under consideration by the Government of Alberta). It is estimated to create a maximum net cost of 25 cents per barrel of bitumen produced from the oilsands.¹⁴

- While the 40/40 plan would be a clear improvement on Alberta's current policy, it should be viewed as a starting point that can be built on, rather than an endpoint. To help Alberta get on track to its fair share of Canada's climate change target, SGER should be strengthened by moving to 40/40 in 2015 and then increasing the technology fund price at a predictable rate to reach \$100 a tonne by 2020 (referred to as a "40/40-plus" scenario). By 2020, this approach would be comparable to having an effective price of \$40 if applied to all emissions. Moreover, 40/40-plus is expected to result in about 38 Mt of emission reduction while having a marginal impact on project economics. Analysis by Suncor (a major oilsands player) has found that a carbon tax of \$40 per tonne applied to all emissions of its Fort Hills oilsands mining project would have less than half a per cent impact on its internal rate of return.

¹ Environment Canada, *Canada's Emissions Trends* (2014). http://ec.gc.ca/Publications/E998D465-B89F-4E0F-8327-01D5B0D66885%5CETR_E-2014.pdf

² *Canada's Emissions Trends*.

³ CCEMC, "Climate Change and Emissions Management (CCEMC) Corporation Releases Annual Report," media release, December 23, 2013. <http://www.marketwired.com/press-release/climate-change-and-emissions-management-ccemc-corporation-releases-annual-report-1865050.htm>

⁴ For more details, see: Andrew Read, *Climate change policy in Alberta* (Pembina Institute, 2014.) <http://www.pembina.org/docs/oil-sands/sger-climate-policy-background.pdf>

⁵ Environment Canada, *National Inventory Report 2012*.

⁶ Government of Canada, *Canada's clean coal technology roadmap* (2008). http://publications.gc.ca/collections/collection_2014/rncan-nrcan/M154-17-2008-eng.pdf

⁷ Database of State Incentives for Renewables and Efficiency, "Renewable portfolio standard policies," http://www.dsireusa.org/documents/summarymaps/RPS_map.pdf

⁸ See: Tim Weis, "Setting a clean electricity standard in Alberta," *Pembina Institute*, July 24, 2013. <http://www.pembina.org/blog/738>

⁹ *Climate change policy in Alberta*.

¹⁰ See: Asthma Society of Canada, Canadian Association of Physicians for the Environment, Lung Association of Alberta & NWT, Pembina Institute, *A Costly Diagnosis: Subsidizing coal power with Albertans' health* (2013). <http://www.pembina.org/reports/pi-costly-diagnosis-26032013.pdf>

¹¹ Canada Gazette, "Reduction of carbon dioxide emissions from coal-fired generation of electricity regulations," Government of Canada, August 30, 2012. <http://www.gazette.gc.ca/rp-pr/p2/2012/2012-09-12/html/sor-dors167-eng.html>

¹² Benjamin Thibault and James Glave, *Power to Change: How Alberta can green its grid and embrace clean energy* (Pembina Institute and Clean Energy Canada, 2014.) <http://www.pembina.org/pub/power-to-change>

¹³ Benjamin Thibault, "How solar lowers your power bills," *Pembina Institute*, November 12, 2014. <http://www.pembina.org/how-solar-and-wind-lower-Alberta-power-bills>

¹⁴ Aaron Wherry, "Want a discussion about climate change policy? Here's a start," *Maclean's*, July 16, 2014. <http://www.macleans.ca/politics/want-a-frank-discussion-about-climate-change-heres-a-start/>