Alberta

The World's Carbon Markets: A Case Study Guide to Emissions Trading

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Brief History and Key Dates:

In 2002, Alberta completed a comprehensive climate change strategy outlining commitments to action including regulation of industrial emitters. In 2003, Alberta reaffirmed this commitment by passing the *Climate Change and Emissions Management Act*. The Act led to the development of a mandatory reporting program, established in 2004, for facilities in Alberta emitting over 100,000 metric tons of carbon dioxide equivalent per year (MtCO2e/yr) to submit an annual report on their previous year's greenhouse gas emissions. In 2007, Alberta passed the *Specified Gas Emitters Regulation (SGER)*, representing North America's first greenhouse gas regulation and compliance carbon pricing system. SGER required large-emitting Alberta facilities to reduce emissions through four distinct pathways. With the exception of SGER's first compliance period, which spanned only a half-year and ended on 1 December 2007,[1] all of Alberta's past compliance periods have been annual in length. 2014 represents the final year of SGER compliance before program modifications (if any) take effect.

Alberta emits the highest amount of greenhouse gases of any Canadian province; in 2011, Alberta accounted for roughly one-third, or 242 MtCO2e, of Canada's overall emissions of 702 $MtCO_2e$.[2] Similarly, Alberta has the second highest per-capital level of emissions in Canada, behind Saskatchewan.[3] This high level of emissions is not only indicative of Alberta's reliance on coal-fired electricity, but also Alberta's role as a global energy supplier.[4] Alberta has the world's third largest supply of proven crude oil reserves, behind Saudi Arabia and Venezuela.[5] Because of this role, Alberta's emissions profile is dominated by industrial activity (see Figure 1) and its economy has grown more rapidly than that of any other province. [6]

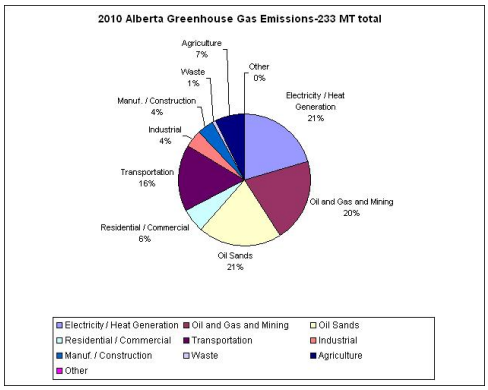


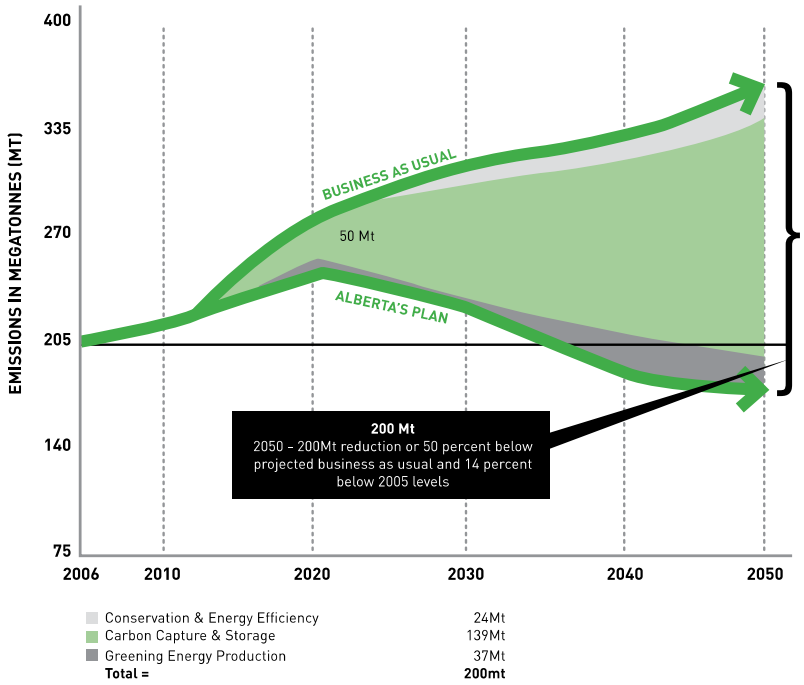
Figure 1: 2010 Alberta Greenhouse Gas Emissions, 233 Mt Total
Source: Environment Alberta[7]

Summary of Key Policy Features:

TARGET: Alberta's program sets a facility-level emissions intensity goal, as opposed to an absolute cap on aggregate pollution. For facilities existing in 2000, the goal is to reduce annual emissions intensity 12% below a baseline established using 2003-2005 averages for emissions and production.[8] The baseline for new facilities is established during its first three years of commercial operation.[9] The compliance obligation for these facilities begins at 2% per year, starting in the fourth year of commercial operation, and ramps up 2% each year until a 12% target is reached.[10] Importantly, *Alberta's SGER does not have a declining target for facilities over time, but instead requires facilities to meet a constant emissions intensity target each year*.

Figure 2 depicts Alberta's planned emissions path relative to business as usual (BAU). At present, Alberta does not have a policy in place to steer it towards achieving its "planned" reductions, and the province is currently not on track to achieve its 2020 targets.

Figure 2: Alberta's Planned Emissions Reductions 2006-2050



Source: IETA Greenhouse Gas Market 2012

SCOPE/COVERAGE: Alberta's program covers any industrial facility—including emissions from: chemical and fertilizer manufacturers; coal mines; forest product producers; gas plants; mineral processors; oil sand miners, upgraders and extractors; petroleum refiners; pipeline transportation; power plants; and, waste management—that has emitted over 100,000 tons of carbon dioxide equivalent in 2003 or any subsequent year.[11] The province's industrial process emissions and CO_2 from biomass are exempt from compliance requirements, although reporting is required. Alberta's program covers direct emissions of six gases: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perflurorocarbons (PFCs) and sulphur hexafluoride (SF6).[12]

In 2011, there were 106 facilities covered by the SGER totaling 108.3 MT CO2e.[13] In terms of the Alberta economy, this represents about 45% of total emissions.

COMPLIANCE: As an intensity-based program, there are no allowance distribution or auctioning rules in place. Instead, each covered facility is obligated to achieve a 12% reduction below its 2003-2005 average net emissions intensity baseline *each year* through one of four compliance pathways.[14] Baselines can be revised if: 1) the director believes original baselines are inaccurate; 2) the facility has undergone an expansion or significant change; and 3) for additional reasons at the director's discretion. The director can also suspend a facility's compliance obligation for up to one year.[15]

Facilities have four compliance pathways:[16]

1. **Reduce emissions** through improvements in facility operations and efficiency.
2. **Pay a fee** of CA$15 per tonne of CO2e per year to Alberta's technology fund, called the Climate Change and Emissions Management Fund (CCEMC). For each payment to the fund, a facility obtains one fund credit equal to one tonne reduction in CO2e. This fund creates a pool of resources that enables additional investments in reducing emissions or adapting to climate change.
3. **Purchase an emissions offset** generated from non-covered facilities in Alberta. A one tonne reduction in CO2e from a non-covered facility constitutes one emissions offset.[17]
4. **Purchase Emissions Performance Credits (EPCs)** from covered facilities that have reduced their emissions intensity below their target and want to sell any extra reductions.

Net emissions intensity is calculated using the following equation:

Net Emissions Intensity = Emissions Intensity of Covered Facility's Operations – (Fee + Offsets + Credits Production)

Where fee equals the number of credits received from paying into the CCEMC; offsets equals the number of credits received from purchasing qualified emissions offsets; and, credits equals the number of EPCs purchased from over-achieving entities or banked from previous years at an over-achieving facility.

Requirements for Fund Payment: Credits received from funds paid to the CCECMC cannot be banked for future use. Specifically, a technology fund credit obtained before the annual compliance deadline (on March 31st) can only be used in meeting a facility's net emissions intensity limit for the previous year. Similarly, a fund credit obtained after the annual compliance deadline can only be used for compliance in that year.[18]

Requirements for Emissions Offsets: The SGER details the following general prerequisites for an offset reduction to be eligible for compliance use: the reduction must have occurred in Alberta; the reduction must result from actions taken on or after January 1 2002, and must occur on or after January 1 2002; the reductions must be real, demonstrable, quantifiable and measurable; and reductions must be from an action that is not required by law at the time of its initiation.[19]

There is no independent validation required by the Alberta government. Without a government issuance or certification process in place, the liability falls on the project developer or buyer. Currently, oversight occurs through AESRD tracking verified offsets used for compliance and conducts audits randomly to ensure requirements have been met. The government is planning to adopt requirements for verifier accreditation, but this has not yet been passed.

Requirements for Emissions Performance Credits: For facilities that reduce net emissions intensity levels below their limits, the resulting EPCs can be kept or sold. If kept, the facility can bank these surplus credits for use in a later year. If sold to another facility, the purchasing facility must use the EPCs for compliance in that same compliance year.[20]

Exemptions: Calculations of net emissions intensity exclude emissions from industrial processes (chemical reactions other than combustion). In addition, emissions from biomass are considered neutral. Lastly, additional emissions from cogeneration of electricity are not placed under a target.[21]

MARKET REGULATION AND OVERSIGHT: On March 31 of each year, covered facilities must submit a report confirming whether the net emissions intensity limit has been met or provide an acknowledgment, explanation and proposal to address non-compliance. In addition, each report must be verified by a third party auditor.[22] In order to qualify, auditors must: be a professional engineer under the *Engineering, Geological and Geophysical Professions Act* or a chartered accountant under the *Regulated Accounting Profession Act*; and, have technical knowledge of specified gas emission quantification methodologies and audit practices. Auditors cannot be associated or affiliated with the reporting facility or be an employee or agent of the Alberta Government.[23]

If a facility is found to be non-compliant, the director may issue an order to the facility to minimize or remedy the effects of noncompliance. Moreover, the director may require the facility to obtain emissions offsets or performance credits, make contributions to the CCEMC or take any other measure the director considers advisable. Further, a facility in non-compliance can be assessed a fine of no more than $200 per every tonne of CO2e by which the total release of specified gases exceeds its net emissions intensity limit.[24] If a facility is found to hire an unqualified auditor, it can be fined up to $500,000. Similarly, if a person is found to function as a qualified auditor without the necessary qualifications, the individual can be fined up to $50,000.[25]

To ensure accuracy and completeness, all Alberta Compliance Reports must be in conformance with SGER and verified by a third-party verifier. 2013 marked the first year that Alberta regulators have required these report to be verified to a "Reasonable Level of Assurance", meaning that compliance information must be reviewed by a third-party verifier to a higher level of assurance than in previous years which only required the verification of Compliance Reports to a "Limited Level of Assurance". This transition to "Reasonable" from "Limited" levels of assurance has resulted in more extensive verification procedures during the quantification and verification of Alberta compliance submissions. The transition also results in more standardized verification procedures, more reliable and complete reports, and now Alberta is basically reporting at the same level of assurance as other North American jurisdictions.

COMPLEMENTARY POLICIES: In addition to its carbon pricing system, Alberta has at least two complementary policies for reducing greenhouse gases: a renewable fuel standard, mandating a 5% blend of ethanol and 2% blend of biodiesel; and incentives for energy efficiency. Alberta has also made significant contributions to carbon capture and storage (CCS) ($2 billion had been committed to one electricity, two oil sand projects, and one syngas project, however, only the oil sand projects are still alive), public transit ($2 billion has been committed), and bio-energy.[26] The CCECMC, to which covered entities can contribute in order to comply with the SGER, raises money geared towards research and demonstration of transformative technologies such as CCS.[27]

RESULTS: For 2007-2011, Alberta's carbon pricing system had achieved 32.3. million tons of reductions in CO2e (not including tech fund payments) and raised nearly $312 million for the CCEMC, $167 million of which had already been channeled into Alberta-based low-carbon projects and supporting activities, including R&D.[28] In 2010, approximately 42% of compliance in Alberta was met through technology fund payments, while 14%, 16% and 28% of compliance was met through improvements to operations, EPCs, and emissions offsets.[29] Regarding the usage of compliance mechanisms, Table 1 provides more information on the breakdown among offset credits, fund payments, and EPC credits for 2007-2011.

Table 1: Operational Results for SGER (2007-2011)

SPECIFIED GAS EMITTERS REGULATION (SGER) OPERATIONAL RESULTS (SELECTED)			
Compliance Cycle	Offset Credits (in megatonnes)	Fund Payments (Cdn $)	EPC Credits Retired (in megatonnes)
2007 (half year)	1	$43 Million	0.25
2008	2.7	$82 Million	0.57
2009	3.8	$63 Million	1.2
2010	3.9	$70 Million	1.9
2011*	5.3	$55 Million	1

** Unaudited*

Source: IETA Greenhouse Gas Market 2012

What Distinguishes this Policy?

UNIQUE ASPECTS:

1. Alberta was the first North American jurisdiction to regulate greenhouse gas emissions and implement a compliance carbon pricing program.
2. Alberta uses a unique carbon pricing system, based on greenhouse gas emissions rates and featuring intensity targets, tradable compliance units (EPCs and offsets) measured in tCo2e, and a first-of-its kind technology fund.
3. Due to the fixed-price ($15/t) and unlimited nature of Alberta's CCEMC (technology fund), Alberta's program essentially features a price ceiling, with trading and offsets allowed. This feature leads some to inaccurately believe that Alberta currently has a carbon tax in place.

CHALLENGES:

1. A major challenge for Alberta's SGER will be how it will interact with future federal Canadian government oil and gas sector regulations, expected to be drafted over the coming year(s). Alberta facilities want long-term price signals and flexible compliance pathways afforded by Alberta's carbon price dictated through the SGER. However, it is uncertain at this point how the federal government's sectoral regulation will be designed, or how future provincial-federal greenhouse gas equivalency agreements might play-out. This is particularly true regarding proposed levels of stringency and target-setting under the yet-to-be defined federal oil and gas rules.
2. As of May 2013, Alberta has yet to define: core proposed amendments (including revised targets, technology fund pricing/structure changes, offset system changes etc.); or clear steps and timelines for stakeholder review and consultations. The delayed process and increasing uncertainty about the shape of Alberta's future program is prompting concern across industry, investors, and other affected stakeholders. In September 2014, the SGER faces a sunset clause, where Alberta's program can be continued, modified, or terminated.
3. Alberta is not on track to meet its targets, yet the province remains committed to them.

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Disclaimer: The authors encourage readers to please contact the EDF or IETA contacts with any corrections, additions, revisions, or any other comments, including any relevant citations. This will be invaluable in strengthening and updating the case studies and ensuring they are as correct and informative as possible.

[1] *Annual Summary of Specified Gas Emitters Regulation: 2007-2008*. Rep. Government of Alberta, 16 Mar. 2011. Web. 29 May 2012. <http://environment.alberta.ca/documents/SGER_Summary_Report_2007-2008.pdf>.
[2] Government of Canada, Environment (2013). "National Inventory Report: Greenhouse gas sources and sinks in Canada". Available at http://www.ec.gc.ca/ges-ghg/
[3] http://www.ec.gc.ca/Publications/253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5/793-Canada's-Emissions-Trends-2012_e_01.pdf pp.34
[4] *Supra,* Note 1.
[5] http://www.energy.alberta.ca/oilsands/791.asp
[6] Alberta's GDP growth as a percentage of its 1990 GDP levels was 88.3%, the highest of any province. See: *National Inventory Report 1990-2008: Part 3, Greenhouse Gas Sources and Sinks in Canada, The Canadian Government's Submission to the UN Framework Convention on Climate Change*. Rep. Environment Canada, 2010. Web. 29 May 2012. <http://www.ec.gc.ca/Publications/492D914C-2EAB-47AB-A045-C62B2CDACC29/NationalInventoryReport19902008GreenhouseGasSourcesAndSinksInCanadaPart3.pdf>.
[7] environment.alberta.ca/0915.html
[8] For the equation that establishes baseline reference Note 7, see section 21.
[9] Facilities that began operation after January 1 2000 and that have completed less than eight years of commercial operation follow the same rules as new facilities.
[10] *Supra,* Note 1.
[11] Alberta Regulation 139 / 2007. Climate Change Emissions Act: Specified Gas Emitters Regulation. Accessed on 5/29/2012 at: http://www.qp.alberta.ca/documents/Regs/2007_139.pdf.
[12] *Supra,* Note 1.
[13] Update on Alberta's Specified Gas Emitters Reduction, Presentation to IETA in Calgary, May 8 2012
[14] The compliance obligation for new facilities is different, and discussed in the "Scope" section above.
[15] *Supra,* Note 7. See section 24.
[16] *Supra,* Note 1.
[17] *Supra,* Note 7. See section 7(1.4).
[18] *Supra,* Note 7. Generally, see section 8.
[19] *Supra,* Note 7. Generally, see section 7(1).
[20] *Supra,* Note 7. Generally, see section 9.
[21] *Supra,* Note 1.
[22] *Supra,* Note 7. Generally, see section 11.
[23] *Supra,* Note 7. Generally, see section 18.
[24] *Supra,* Note 7. Generally, see section 27.
[25] *Supra,* Note 7. Generally, see section 28.
[26] *Supra,* Note 1.
[27] IETA Greenhouse Gas Market 2012, Alberta's GHG Emissions Control System: A Model for Others? pp.54
[28] Government of Alberta, Environment and Sustainable Resource Development (2013). "2011 Greenhouse Gas Emission Reduction Program Results". Available at http://environment.alberta.ca/04059.html
[29] IETA calculations and data from environment.alberta.ca