Canada

Emissions targets and implications for business

Canada will reduce emissions by 30% on 2005 levels by 2030

What is Canada's contribution...

1. Regulations under the Canadian Environmental Protection Act set emissions intensity levels for new power plants equal to Natural Gas Combined Cycle (NGCC) technology, **ruling out new coal from 2015 without CCS**.
2. **Alberta's Climate Change and Emissions Management Act** charges covered facilities $11 ($15 CA) for each tonne of CO_2 above the intensity based targets emitted in a year. Installations covered are those emitting more than 100,000 tonnes CO_2e since 2003. The price will double to $22/tonne ($30 CA) in 2017.
3. Under the same regulation, **Alberta companies are required to reduce emissions intensity by 20% by 2017.**
4. **Ontario has joined the Western Climate Initiative's (WCI) cap-and-trade scheme,** the largest North American carbon market led by Quebec and California.
5. **Ontario's aviation fuel tax is increasing** from 3.6¢ to 5¢ (4.7¢ to 6.7¢ CA) per litre by 2017.
6. **Vehicle emissions standards are proposed** at US Environmental Protection Agency levels.

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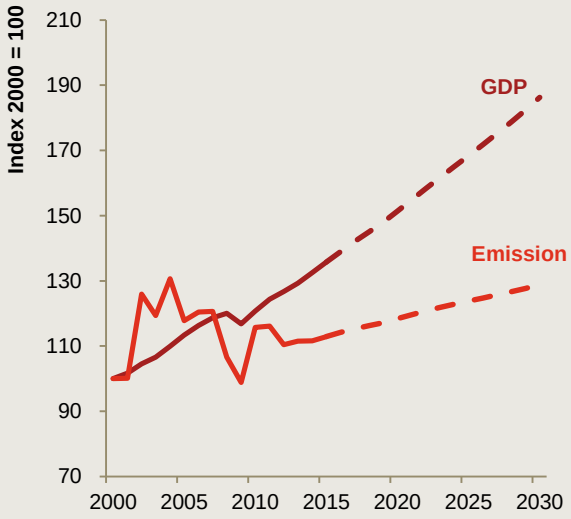
...and what are the implications for business

- The **WCI cap-and-trade scheme's eight auctions so far have generated $570m.** The August 2015 auction alone generated $150m for Quebec. This money is reinvested by the Green Fund in projects to reduce emissions, with a **focus on transport electrification**.
- **Auction revenues from Ontario's introduction to the WCI are estimated at $1.5bn in 2020.**
- The Climate Change and Emissions Management Corporation's (CCEMC), funded by the Alberta Specified Gas Emitter Regulation, has **$265m to spend on clean technologies.** When this funding is leveraged the total projects are estimated to be valued at $1.6bn.
- The Alberta government estimates that legislative burden and the planned increase in **Alberta corporate tax rate could add 30-40 cents to the cost of producing a barrel of oil sands by 2017.**
- Further exploitation of oil sands, primarily for the US market, will continue to suffer because of relatively high breakeven oil prices – Rystad Energy and Morgan Stanley estimate breakeven oil prices of $65 per barrel in Canada compared to $27 in the Middle East.
- **Alberta is looking to invest nearly $1bn between now and 2030 in two large oil sands CCS projects**: the Alberta Carbon Trunk Line and Quest Projects.

(All dollars are US dollars unless 'CA' stated for Canadian dollars)

GDP, energy and related emissions

GDP forecast: 2.2% per year
Emissions forecast: 0.9% per year



Our absolute emissions trend is based on combining the GDP forecast above with the average decarbonisation rate so far this century

GDP: Apart from early 2015 when it entered slight recession, Canada has managed a steady 2% per year average annual GDP growth rate this century, suffering in the 2009 recession with a -2.7% change but bouncing back in 2010 with a 3.4% increase. 2014 saw an above average increase of 2.5%, taking GDP to $1,567bn. In the coming 15 years, PwC's World in 2050 predicts a 2.2% average annual GDP growth rate.

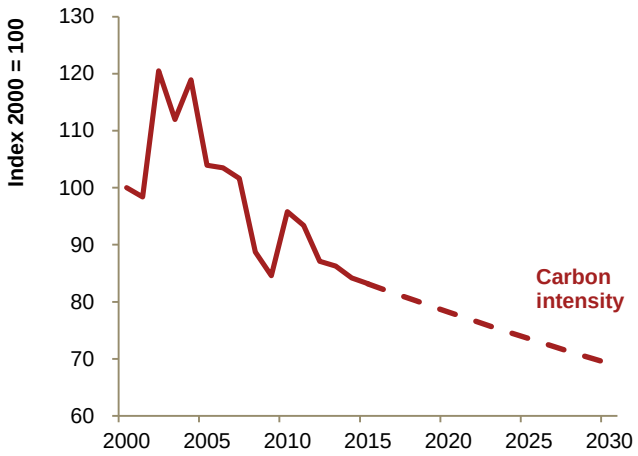
Renewable energy: The proportion of renewable energy in the energy mix has remained relatively steady since 2000, fluctuating between 27% and 28%. Hydro's large share, 26%, is supported by negligible contributions of 1% of wind and geothermal and biomass. Solar and biofuels remain at 0%.

Energy: Canada's electricity production is varied by province, from Quebec being second only to Iceland in terms of its renewable share for electricity (97.3%) to Alberta, where electricity generation is largely dominated by coal and natural gas (89.7%). At a national level, after a drop in 2009, energy consumption now totals 333Mtoe - a 10% increase on 2000 levels. Oil at 31%, gas at 28% and Hydro at 26% in 2014 have powered most of Canada consistently this century, fluctuating by only 1 to 2 percentage points (pp) each over the century. Coal declined from 10% in 2000 to 6% in 2014, balanced by nuclear increasing from 5%-7%, wind adding 1% since 2010 and a 1pp increase from oil.

Emissions: By Sector, electricity contributed to 12% of emissions, the oil and gas sector and industry 35%, transport 23%, buildings 12%, and agriculture, waste and others contributed 18% in 2013.

Carbon intensity

Carbon intensity forecast: -1.2% per year



- Canada's steady GDP and energy trends would provide for a virtually straight line carbon intensity decline, but land use emissions adds some variety.
- There were sharp increases in the early 2000s (22% in a single year in 2002) and a large drop in the 2009 recession (17% over two years since 2007).
- On average, carbon intensity fell by 1.2% per year this century.
- We use this 1.2% trend as our business as usual forecast below.

How ambitious is Canada's 30% target?

Contrary to other commentary, our Low Carbon Economy Index model shows that Canada's target is more ambitious than the EU and US targets. This is because it requires a greater shift from its business as usual carbon intensity reductions than the shift required by the EU and US to achieve their targets.

Canada's carbon intensity, or emissions per million dollars of GDP, has fallen by 1.2% per year on average since 2000. Adopting the 30% target (and sticking to it) will require a cut in carbon intensity of 3.9% per year given our GDP growth projections for Canada. This is close to what France achieved when it switched to nuclear power in the eighties. The shift in decarbonisation required to meet the EU and US targets is less than 2% compared with Canada's 2.7% change. But the targets proposed by countries fall far short of the 6.3% average decarbonisation rate needed globally to limit warming to two degrees.

Canada will need a significant shift in effort to tackle emissions if it is to more than double its current decarbonisation rate. So business can expect a step change in climate policy and regulation in the short term to achieve this goal.

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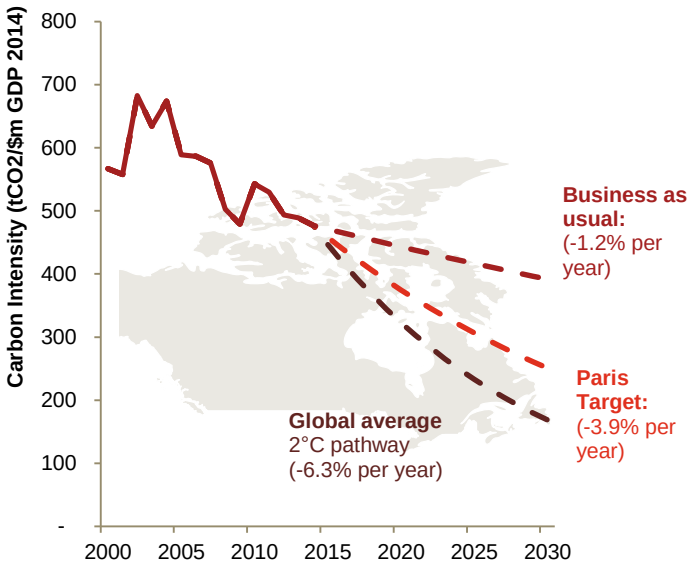

Sources:
Historic GDP: World Bank, 2014
GDP Forecasts: PwC World in 2050, 2015
Energy data: BP, Statistical Review of World Energy, 2015
Historic emissions data: UNFCCC
Rystad Energy, Morgan Stanley Commodity Research estimates, 2014
Government of Canada, 2013, Greenhouse Gas Emissions by Economic Sector
Enviroeconomics, The Cost and GHG Implications of WCI Cap and Trade in Ontario, 2015
Climate Change and Emissions Management Corporation, 2015
Alberta government budget, 2014

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