

From carbon steam to cash flow

Companies implementing new technologies could see a profit in a cap-and-trade system

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The enormous aluminum smelters at Alcan Inc.'s Kitimat operations are one of the single biggest sources of greenhouse gases in British Columbia.

Each day, the sprawling industrial facility emits nearly 4,000 tonnes of greenhouse gases, nearly as much as the average individual Canadian accounts for in an entire year.

Alcan might seem like a company that should be worried -- very worried -- about the idea of British Columbia cracking down on carbon hogs as the province seeks to slash emissions of greenhouse gases in the next decade.

The Kitimat facility is the second-biggest source of greenhouse gases in the province. And heavy industrial operations face the near certainty of having to pay for the right to emit greenhouse gases, although the precise form of new environmental rules could range from a tax on emissions to new regulations.

Instead of trying to oppose climate-change regulations, Alcan is busily figuring out how to transform its carbon stream into cash flow. "There are people looking at that very, very closely indeed," Alexis Segal of Alcan said.

The reason: The company has a \$2-billion modernization project in the works to increase its efficiency and, as a side effect, also reduce its emissions of greenhouse gases by as much as a half-million tonnes every year.

By itself, that reduction doesn't make Alcan any money. But the company and others like it actually stand to profit if the push to regulate greenhouse gases takes the form of a cap-and-trade system. In that type of regulation, limits are placed on the amount of emissions that an industry can generate, and permits are issued to individual firms.

But after that point, companies are free to buy and sell credits. Companies that implement new technologies, such as Alcan, will have credits to sell to firms that aren't as efficient.

Over time, the rising cost of those credits will -- at least in theory -- spur the creation of technologies that allow firms to reduce their emissions more cheaply.

In a world where carbon costs real money, Alcan's reductions would become an asset. Those half-million tonnes could translate into \$15-million (U.S.) a year for Alcan if greenhouse gases end up costing around \$30 a tonne. (That is the cost that economists say governments should charge in such a system, since anything lower doesn't give businesses much of an incentive to adopt new technologies.)

There are many complexities in setting up such a system, centring on what point in time is used as a base against which to measure emissions reduction.

Alcan could live with its current output being used as that yardstick, since it has new technology that can pare greenhouse gases, assuming that it goes ahead with the project. The \$2-billion initiative has been in limbo since December, when the British Columbia Utilities Commission quashed a power deal between Alcan and B.C. Hydro. However, a firm such as Teck Cominco -- which improved its energy efficiency and reduced emissions in the 1990s at its Trail smelter -- doesn't want to be penalized for acting earlier.

Spectra Energy, which is the single largest private-sector source of greenhouse gases in the province, is convinced that it will soon have to operate under a cap-and-trade system. "There's definitely a system coming in place," said Sarah McCullough of Spectra, formed this January from the B.C. assets of Duke Energy.

Unlike Alcan, Spectra does not foresee dramatic reductions in its emissions. What the two companies have in common, however, is an acceptance that, very soon, industry will have to start paying for its emissions of greenhouse gases, and a willingness to start preparing for that.

"We have been looking at ways to manage the emergence of a carbon-constrained economy," Ms. McCullough said.

The cap-and-trade system is a proven tool for reducing pollution, says economist Jeffrey Rubin, chief strategist at Canadian Imperial Bank of Commerce.

Rather than dictating each step on the path to reducing greenhouse gases, governments should simply set up a trading system, and let the profit motive take care of the rest.

He points to the use of such a system in the 1990s to reduce emissions of sulphur dioxide, which virtually eradicated acid rain. "Prices went up and emissions went down. It wasn't coincidence."

The European Union's attempt to set up a cap-and-trade system has been a bit of a flop, with prices for carbon credits so low that there is no real pressure to reduce greenhouse gases. Mr. Rubin acknowledges that failure, but blames faulty design, not the concept.

But some critics of the cap-and-trade system argue that it has not worked, will not work -- and that if British Columbia moves in that direction, it will end up hurting any business that exports to the U.S. market.

Vancouver environmental consultant Aldyen Donnelly flatly rejects the idea that the cap-and-trade system curbed acid rain by spurring technological innovation. Companies did invest to modernize outdated plants, she says, but after that there was little reduction. The same results could have been achieved much more effectively through regulation.

Ms. Donnelly was once a fan of the cap-and-trade approach, but she now views it as not only inefficient, but skewed toward large firms that can cut backroom deals. "The quota system is highly political," she said.

And she warns that if B.C. and Canada adopt a cap-and-trade system, domestic businesses will be out of step with the direction of U.S. regulation. California is pushing a far different approach, called emissions performance standards.

Under that system, firms aren't assigned quotas. Instead, they will have to account for the greenhouse gases emitted from products they sell -- not just from their own operations.

That means, for instance, that automakers might have to include emissions from the steel they use in vehicles. The government would then set a ceiling for the amount of greenhouse gases for any given unit of output within an industry. So, there might be one limit for a megawatt of electricity, a different limit for a barrel of oil and a target for a passenger vehicle.

The goal would be the same as with the cap-and-trade approach, but under emissions performance standards, companies would not benefit simply because they replaced badly outdated equipment with modern technology, Ms. Donnelly said.

Beyond the theoretical attractions, however, she has a practical warning. Once California adopts this approach, other U.S. states are likely to follow. Canadian businesses may be at a serious disadvantage if a climate-change strategy in this country sends them off in a different direction.

"This is the real environmental standard," she said.

The dirty dozen

Just 12 industrial operations account for nearly three-quarters of the greenhouse gas-emissions recorded for major emitters in British Columbia, 2005.

Plant	Company	Location	Emissions (tonnes)	
12	Kitimat Methanol Plant	Methanex Corp.	Kitimat	367,181
11	Burnaby Refinery	Chevron Canada Ltd.	Burnaby	428,790
10	Fording River Operations	Elk Valley Coal Corp.	Elkford	450,713
9	McMahon Cogen Plant	Spectra Energy Transmission	Taylor	516,544
8	McMahon Gas Plant	Spectra Energy Transmission	Taylor	518,935
7	Calpine Canada - Island Cogeneration	Calpine Canada	Campbell River	767,749
6	Richmond Cement	Lafarge Canada Inc.	Richmond	863,390
5	Delta Cement Plant	Lehigh Northwest Cement Ltd.	Delta	1,012,815
4	Pipeline Transmission	Spectra Energy Transmission	Prince George	1,063,606
3	Pine River Gas Plant	Spectra Energy Transmission	Chetwynd	1,124,146
2	Alcan Inc., Kitimat Works	Alcan Inc.	Kitimat	1,457,641
1	Fort Nelson Gas Plant	Spectra Energy Transmission	Fort Nelson	1,623,028

SOURCE: FACILITY GREENHOUSE GAS REPORTING, ENVIRONMENT CANADA