

WALKING THE WALK ON CLIMATE CHANGE: A BUSINESS CASE STUDY

Daniel Gagnier

Industry is clearly a major part of the problem on global warming and climate change. But, equally clearly, there is no solution without the pro-active participation of industry, particularly companies in emissions sensitive industries. One such company is Alcan, a Canadian-based aluminum firm with operations in more than 61 countries and regions around the world. In this business case study, Alcan senior vice president Daniel Gagnier tells how one company has made a difference in reducing its global emissions by 3.5 million metric tonnes relative to 1990 levels, with smelter emissions reduced by 30 percent in Canada and 25 percent worldwide.

À l'évidence, le secteur industriel contribue largement au réchauffement planétaire et aux changements climatiques. Mais il est tout aussi clair qu'on ne trouvera aucune solution sans la participation active de l'industrie, et notamment des entreprises productrices d'émissions. Basée au Canada et présente dans plus de 61 pays, la multinationale de l'aluminium Alcan compte parmi ces entreprises. Son premier vice-président, Daniel Gagnier, explique comment Alcan a contribué à la solution en réduisant ses émissions mondiales de 3,5 millions de tonnes métriques par rapport aux niveaux de 1990, et ses effluents de fonderie de 35 p. cent au Canada et de 25 p. cent à l'échelle mondiale.



Climate change is one of the great challenges of our era, demanding the attention and actions of governments, business, and civil society throughout the world. Global warming is primarily driven by greenhouse gas (GHG) emissions from industry and consumers. If there is to be a solution, then industry must be one important part of it, and behaviour modification by engaged citizens must be another. The targets established in the Kyoto Protocol — to reduce emissions to 6 percent below 1990 levels by 2008-12 — can never be achieved without the engagement and commitment of industry. But many companies in emissions sensitive industries, such as petroleum and forestry, have achieved significant success stories. For example, Canadian forestry giant Abitibi-Consolidated has reduced GHG emissions to 37 percent below 1990 levels, even as Canada's emissions have risen 24 percent above them. In the oil and gas sector, BP met and exceeded its emissions reductions targets and did so years ahead of schedule.

I've been asked to share the experience of another company, my own, in one of the most emissions sensitive industries of all — aluminum. Let's call it a business case

study on climate change. The Alcan case. Long story short: we've reduced emissions by 3.5 million metric tonnes (MT) in our operations at over 400 sites in 61 countries and regions on five continents around the world. Bottom line: From 1990 to 2005, smelter emissions have been reduced by 30 percent in Canada and 25 percent worldwide. These efficiencies have not only improved our environmental performance, they have generally contributed to increased profitability.

The aluminum industry is challenged by the large amount of GHG emissions associated with aluminum production and conversely by the even larger benefits in terms of GHG reductions and benefits in the day to day use of this ubiquitous metal. Alcan contributes to solutions through its leadership in the development and marketing of state-of-the-art smelting technology and our expertise in process and emission control. In addition, Alcan is a leading advocate of the product life cycle approach, demonstrating and improving aluminum's contribution to the reduction of GHG emissions in various product applications — such as transportation — and through recycling.

The reason that we have have paid so much attention and invested so much effort into dealing with climate change and reducing our emission footprint is

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linked to our desire to both be economically successful today and tomorrow and to meet the expectations of our employees, stakeholders and shareholders on the environment and society. Thomas Berry in *The Legal Foundation for Earth Survival* captured a fundamental truth for all of us: “We cannot have well humans on a sick planet. We cannot have a viable economy by devastating the Earth’s economy.”

In the early 1990s, climate change issues were growing in importance following the 1992 Rio Earth Summit. At this time, Alcan took a closer look at how society’s response could significantly impact operations, the acceptability of aluminum products, and our competitiveness. We became an industry leader in identifying and quantifying the sources of its emissions, researching ways to address CO₂ emissions (particularly those related to PFCs), and taking measures to improve process and product efficiency. This was an early learning phase, which proved useful in raising the awareness of this important work in the company and proving to executives that doing so was not tantamount to destruction of economic value.

In 1997, with the international negotiations on the Kyoto Protocol, Alcan, under a mandate recommended by its executive committee and endorsed by its board of directors, accelerated its work on GHG reduction by setting targets for itself and investing in a dedicated unit of technical managers whose objective was to further educate

employees on how to monitor, measure and set objectives on the reduction of emissions. This work and investment led to the establishment of our TARGET

Program and to the inclusion of GHG reduction targets in each business annual operational plan and objectives.

Consequently, managing CO₂ emissions quickly became a key component of the company’s overall environmental commitment.

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The learning in this approach has been rich and highly motivating. My colleagues worldwide consider this part and parcel of one of Alcan’s greatest strengths — its approach to an integrated business model includes Environment, Health and Safety First (EHS First). The basis of this approach includes our commonly held values as a company and sustainability as a driv-

er fundamentally focused on how we execute and operationalize our plans and priorities worldwide.

Alcan is an action- and performance-based business culture tested many times over the last 104 years. As such, gloom and inaction are not options — we prefer to be proactive and to seek solutions in all fields where we operate. As for climate change, we would endorse the position outlined by Gregg Easterbrook in the September 2006 issue of

Atlantic Monthly: “Greenhouse gases are an air pollution problem — and all previous air pollution problems have been reduced faster and more cheaply than predicted without economic harm. Acid rain and chemical engineering plus a credit trading system that gave power plant managers a profit incentive to reduce pollution helped deal with acid rain.”

More importantly, we need to ask ourselves the question posed by Easterbrook: Is the only reason that global warming seems unstoppable the fact that we have not yet tried to stop it?

Since the 1990s, Alcan has been highly engaged in the reduction of GHG emissions through the management of process emissions and improvements in the energy efficiency of global operations. Between 1990 and 1999, we reduced annual emissions by over 3 Mt of CO₂ (measured on the basis of current holdings), which was achieved despite a 40 percent production increase in primary aluminum. As well, our initiatives had reduced smelter GHG intensity by over 30 percent per tonne of aluminum produced, including the impact of reduced anode

TABLE 1. SMELTER EMISSIONS, 1990-2005 (PERCENT)

	Worldwide	Canada
Total emissions	-25	-30
Production	+35	+50
Intensity	-45	>-50

Source: Alcan

effects, which lowered PFC emissions by 50 percent (see table 1).

GHG reduction achievements between 1990 and 2005 are as follows:

- Alcan’s total emission intensity reduced by 25 percent (based on current holdings)
- Overall perfluorocarbon (PFC) emissions per unit of production reduced by 80 percent (based on current holdings) (see table 2)

In 2001, Alcan developed and launched TARGET, a voluntary company-wide initiative to address GHG emissions and the framework for setting and implementing Alcan’s goals related to GHG emission reductions. It builds on our vision to be a recognized leader in environment, health and safety.

The 2001-05 objectives of TARGET were met and surpassed. And this, while overall primary metal production increased by 40 percent (see table 3).

Roughly 75 percent of the company’s direct and indirect GHG emissions come from smelting activities in the primary metal business group, while indirect emissions come from a variety of sources including electricity,

TABLE 2. PERFLUOROCARBON (PFC) EMISSIONS RATE, 1990-2005 (TONNES OF CO₂ EQUIVALENT PER TONNE OF HOT METAL)

Year	PFC emissions
2005	1.1
2004	1.6
2003	1.1
2002	1.1
2001	1.4
2000	2.1
1999	2.4
1990	5.1

Source: Alcan

TABLE 3. TARGET OBJECTIVES FOR 2001-05

Objective	Achievement
0.5% emissions reduction per year 0.8 Mt of CO ₂ equivalent of cumulative GHG reduction	2% emissions reduction per year 3.5 Mt of CO ₂ equivalent of cumulative GHG reduction

Source: Alcan

transportation of products and maintenance of office buildings, etc.

Over the next five years, Alcan is committed to further reduce its specific direct emissions by 10 percent above and beyond the outstanding reductions achieved since the early 1990s. Our objectives are aligned with government expectations and our commitment to substantially support the objectives of the global aluminum industry.

Our priorities and strategy going forward are:

- Continued reduction in process-related GHG emissions
- Commitment to accountability and transparency
- Exploration and promotion of pragmatic and cost-effective reduction opportunities.
- Promoting aluminum’s contributions to reduce GHG emissions.
- Engagement in the development of a global policy framework.

Our commitment to the reduction of GHG emissions in a cost-effective way includes:

- Accelerating real GHG reductions, with existing technology
- Stimulating the development of new emissions abatement solutions, including the development of new technologies and supporting research in sequestration projects
- Giving business the flexibility to adapt its GHG reduction plans in time and in geographical implementation
- Using global market mechanisms, including emission trading, to achieve reductions in the most effective way and to unlock the economic value in reductions
- Effectively managing Alcan’s company-owned power resources

Our commitment to accountability and transparency is backed by concrete actions, such as:

- All major installations to have GHG emission figures verified externally
- Annual external reporting of absolute and specific intensity emissions, both direct and indirect
- Disclosure to different worldwide monitoring bodies such as the Carbon Disclosure Project and the World Economic Forum GHG register

Our commitment permeates all levels of the organization, specifically:

- All Alcan sites are to continue reporting data that is required to assess the direct and indirect GHG emissions per unit of production.
- Bauxite and Alumina facilities are to continuously assess opportunities to reduce emissions per tonne of alumina produced and pursue operational energy efficiency in line with site-specific EHS First action plans.
- Primary metal facilities are to continuously improve operational performance and R&D efforts toward zero-anode effects. They will replace older operations with new ones using the best available technology, in line with the group’s planning.
- Engineered products and packaging facilities are to pursue operational energy efficiency in line with site-specific EHS First action plans.

Parallel with direct reduction efforts, a significant opportunity also exists for Alcan to contribute globally to the reduction of GHG emissions by promoting the increased use of aluminum in a variety of applications. One such application is the transportation industry, where the potential of reducing emissions by light-weighting is by far not exhausted. Alcan believes that by increasing the use of aluminum in this industry, the emissions avoided through the use of aluminum will more than offset the emissions created in the production of primary aluminum.

In addition to promoting the well-documented GHG-reducing benefits of using aluminum — including light-weighting automobiles, trucks, railcars, aircraft and other forms of transportation — Alcan is implementing process-related improvements, installing state-of-the-art equipment, developing innovative products and

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working with stakeholders such as industry groups, companies, governments and NGOs.

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Alcan is understandably an engaged participant in the international aluminum association, the International Aluminium Institute, and its regional sister organizations in Europe, Australia, the United States, Brazil and Canada. More importantly, Alcan has invested in multi-governmental initiatives fielding technical and business expertise for Kyoto, COP/MOP, the G8 and AP6.

Company representatives are active with the governments of Canada, Europe (France, the UK, Germany, Netherlands), Australia, the United States and China. By engaging in these international activities we have enhanced our knowledge and appreciation of both policy and regulatory issues of concern being implemented in different regions of our planet. This has enabled us to not only share our learning but to identify areas where we want to gain additional

experience. An example would be investing in offsets in wind generated power in the UK or engaging in the European Emissions Trading System.

In addition, our executives are involved in and sought after by think tanks such as the Center for European Policy Studies, in which I lead a task-force on "Strategic Implications of the

EU ETS Review in a Post-2012 Perspective," the PEW Center, where Alcan is a member of the Business Environmental Leadership Council, and the Global Roundtable on Climate Change at Columbia University in New York. Through our executives, we also chair the International Emissions Trading Association, the ISO's Technical Committee on Environmental Management Systems (ISO 14,000) and the Canadian Standards Association.

As a result, Alcan is a member of the World Economic Forum register on GHG and participates in the Carbon Disclosure Project, in addition to undertaking voluntary commitments in France (AERES), the US (VIAP), and in Quebec, with a voluntary executive and externally audited Protocol on GHG Reductions, which involves voluntarily negotiated targets and binding performance levels.

In his recent book, *Capitalism — As If the World Matters*, Jonathon Porritt synthesizes the issue in terms we can understand:

All calculations boil down to one simple fact — with a population expected to reach 9 billion by 2050 — each and every one of us will have to emit one tonne of carbon per annum to achieve stabilized emission levels. Today the average per person in the US is 7 tonnes.

The challenge is simple — how do we get to a one tonne world?

We can view this (as some do) as a sackcloth and ashes scenario where we will have to make constant sacrifices and greatly reduce either our existing material well-being, or our aspirations, to reach an improved state of well-being in the developed and developing regions of our planet.

The other view is to set targets backed by policy, legislation, regulation and personal choices that aim to continue to generate economic resources by getting better value for money, improving health, generating jobs in new and leading-edge industries, improving air quality, using water better and making food and other basic necessities safer and more available.

Last November, a group of Canadian executives met as a forum and recommended to government that we set targets and objectives for 2020 and 2050, and that we move on energy efficiency, the effective use of market mechanisms, innovation and research and development, the education of consumers on how they can contribute, securing the potential contribution of urban and municipal communities — including investment in carbon efficient infrastructure — and other practical initiatives for a "made in Canada" approach.

This debate on what to do and how to do it is reflected in the US, Europe, China and other countries as we come to grasp with the existing and projected impacts of global warming. The debate is as heated and diverse in business, industry, research think-tanks and international institutions. This dynamic is healthy and can lead to action if we have the political will to be proactive.

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