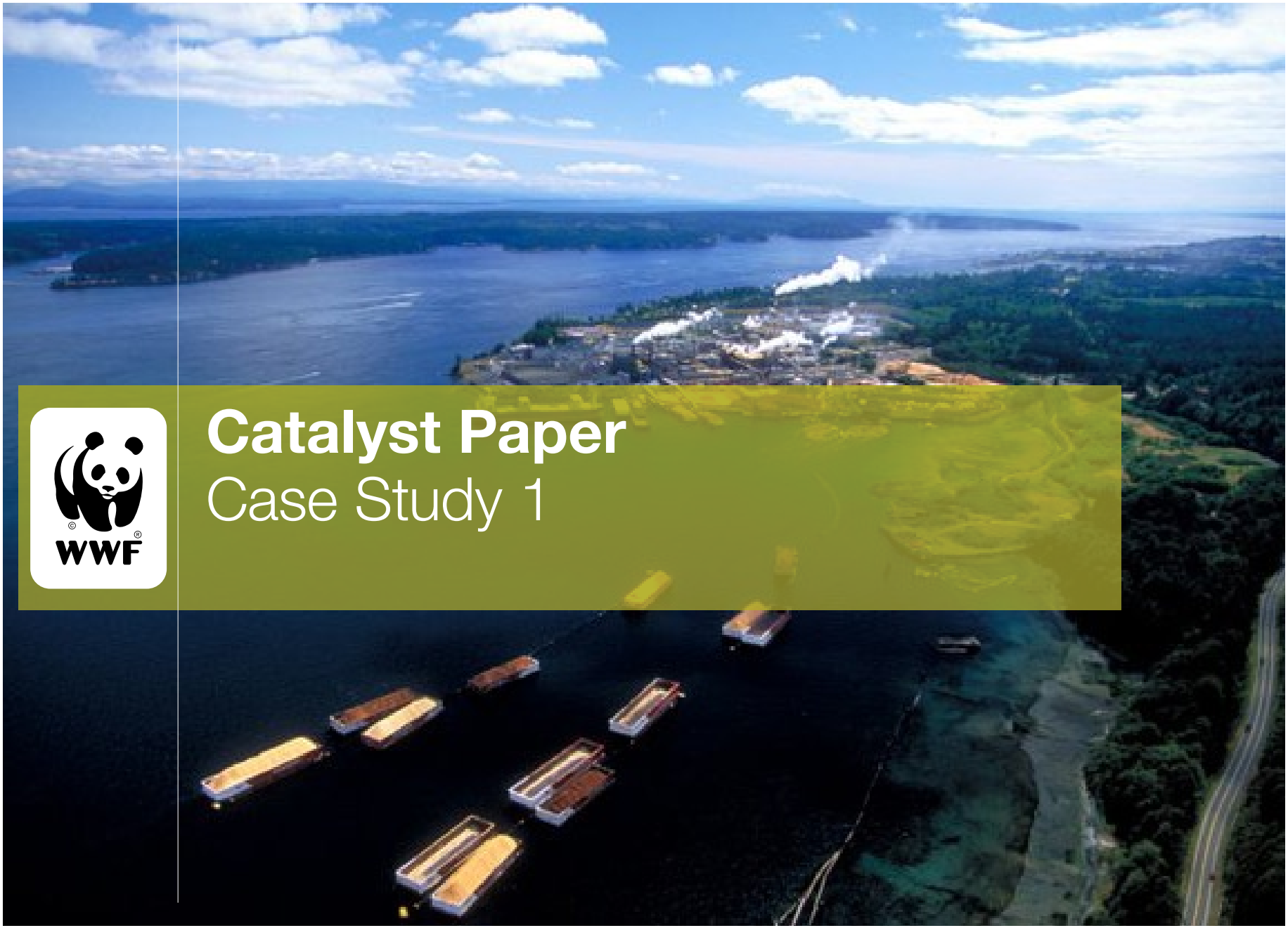

Catalyst Paper
Case Study 1

Catalyst Paper

Catalyst
Fresh thinking on paper

Setting a Canadian standard

COMPANY OVERVIEW

Catalyst Paper, based in Richmond, B.C., makes a diverse range of specialty printing papers, newsprint, and pulp. The company was created through various mergers and acquisitions over the years, but the main branch of its family tree was British Columbia Forest Products Limited, which was formed in 1946 as a logging and sawmilling company.

Today, Catalyst is the largest producer of specialty printing papers and newsprint and the only producer of lightweight coated paper in western North America. Its customers include international retailers, publishers, commercial printers and paper manufacturers. With five facilities located in B.C. and one in Arizona, Catalyst has a combined annual production capacity of 2.5 million tonnes.

"Verified environmental performance is one of the best opportunities to differentiate our company and our suite of products in a crowded market, where demand has been trending down even as expectations continue to rise."

– Tom Crowley, Senior Vice President, Sales and Marketing

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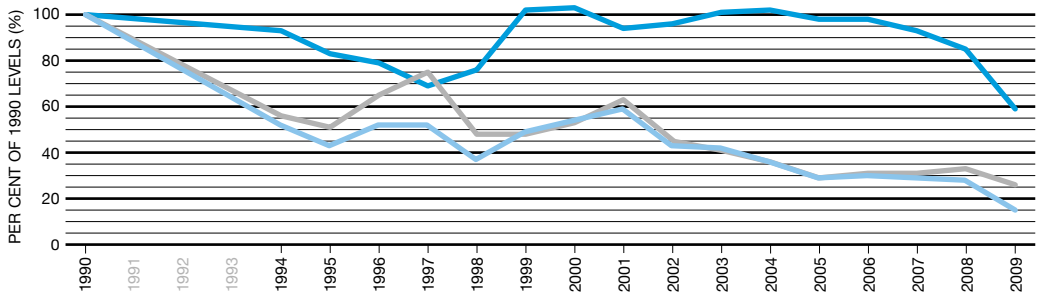
COMMITMENT TO ENVIRONMENTAL LEADERSHIP

Partnering with WWF has allowed Catalyst to further its commitment to the environment. Catalyst believes environmental leadership is integral to its business. Social responsibility is a core value of Catalyst, and as the largest purchaser of forest products in coastal B.C., the company understands that it has a responsibility to be a leader in the sustainability movement.

Catalyst recognized early that climate change was increasingly affecting business models, risks, and operations, and that is why it acted to reduce greenhouse gas (GHG) emissions. The company's low-GHG production platform placed it at the forefront of manufacturing-sector GHG-neutral product offerings. This is evident in its reputation as an environmental leader, recognized by organizations such as Corporate Knights, Jantzi Research, and BC Hydro, and in associated annual corporate social responsibility rankings.

Historical Emissions and Reductions

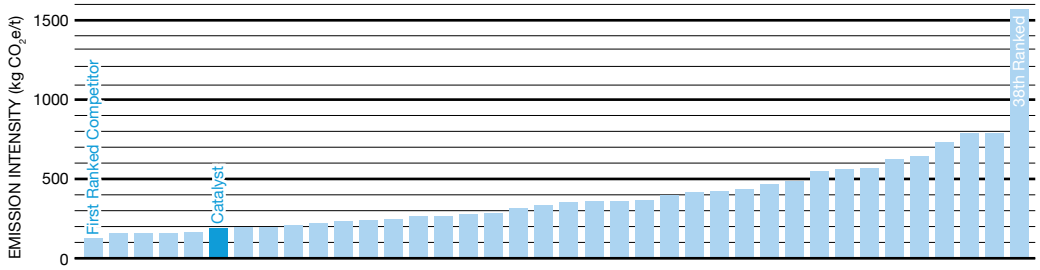
Production and CO_2e reductions for Canadian operations, 1990 to 2009 (some data years missing)



Year	Total Production (AD Tonnes)	**ABSOLUTE** Direct CO_2e (Tonnes)	**INTENSITY** CO_2e per tonne paper (kg/ADT)
1990	2,408,949	1,382,965	574
2009	1,423,627	213,110	150

Source: Catalyst Paper

Catalyst's footprint in comparison to its peers



Source: Catalyst Paper Greenhouse Gas Reduction Performance and Outlook – June 28, 2007: Catalyst vs Competitors (FPAC Data)]

Catalyst Paper

COMMITMENT TO ENVIRONMENTAL LEADERSHIP

EARLY RECOGNITION OF LINKAGE BETWEEN EMISSIONS FOOTPRINT AND COSTS

Catalyst started tracking and managing its GHG emissions back in 1993 and recognized at that time the direct linkage between fossil fuel expenditure and its emissions footprint. Premised on that fact, the company has spent the past 15 years focusing on reducing fossil fuels through fuel-switching, energy reduction initiatives, and use of recycled fibre in its products. Fuel-switching activities have centred around elimination of fossil fuels in favour of GHG neutral wood wastes through the expenditure of about $250 million on boiler upgrades. Energy reduction initiatives have included installation of high efficiency equipment, better reuse of waste heat and improved management of systems for compressed air, steam, and water. Strategic inclusion of recycled fibre, which requires less energy to convert into paper, guarantees below average energy consumption. While it has exhausted its fuel-switching opportunities, Catalyst still believes that further energy reduction work will create more GHG savings.

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CATALYST AND THE CLIMATE SAVERS PROGRAM

REINFORCING COMMITMENT TO SUSTAINABILITY

Catalyst joined WWF's Climate Savers program to reinforce the company's commitment to environmental sustainability and gain expertise that could translate into distinct brand positioning. As part of its Climate Savers commitment, Catalyst set one of the most ambitious emissions reductions goals of any large corporation worldwide – a sustained 70 per cent reduction in greenhouse gas emissions by 2010 relative to 1990 levels.[1] The company has maintained or exceeded the 70 per cent reduction annually since 2005, with the exception of 2007 when its reduction was 69 per cent. In 2008, Catalyst's absolute levels of CO_2 emissions were 73 per cent below 1990 levels. This achievement has coincided with an intense period of industry restructuring and transformation.

Due to its commitment to Climate Savers targets, between 2002 and 2005, Catalyst cut the use of fossil fuels by 46 per cent, resulting in a total savings of $18 million. The reduced reliance on fossil fuel and improved energy efficiency have been particularly important in recent years as the paper industry suffered major setbacks and the world economy shifted into recession.

Catalyst's partnership with WWF and its Climate Savers commitment is helping the company develop a unique brand position and value proposition through its low-GHG footprint products.

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"We see good value in looking to the expertise of credible and science-based groups such as WWF, which can engage with us both critically and constructively as we strive to make better business decisions and improve our sustainability performance."

– Lyn Brown, Vice President Corporate Relations and Social Responsibility, Catalyst Paper

1: Catalyst's engagement with Climate Savers and its commitment to this target pre-date the 2008 acquisition of its recycled paper mill at Snowflake, Arizona. References to emission reductions and energy mix in this case study therefore encompass only its Canadian operations, which account for 86 per cent of its total production capacity.

Catalyst Paper

THE CATALYST STRATEGY

Sustainability is ingrained in Catalyst's business approach and operations. The company's low-GHG paper production strategy was founded on three business pillars:

1. **FUEL SWITCHING**
2. **ENERGY EFFICIENCY**
3. **RECYCLING**

Reduced energy use and conversion to renewable fuels are key aspects of Catalyst's GHG-management strategy, which serves to significantly reduce fossil fuel reliance and energy costs. The company also has a significant stake in the recovery and recycling of paper, helping to further reduce energy use and GHG emissions.

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Catalyst Paper

THE CATALYST STRATEGY

FOCUS ON GREATEST EMISSIONS

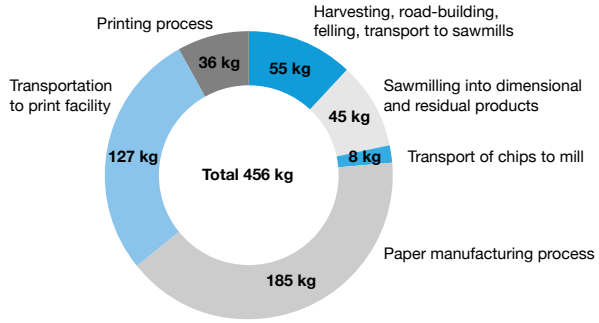
Although GHG emissions occur at every step of the paper supply chain, from the forest floor to the customer's door, the largest single component of Catalyst's GHG footprint lies within its manufacturing process. Thus, Catalyst's main focus is on reducing direct GHG emissions. Until domestic and global GHG regulations are clarified and harmonized, Catalyst has deferred GHG accounting for emissions beyond its direct control, such as those associated with sourcing and transporting raw materials to the mill or printing finished products.

KEY INITIATIVES TO REDUCE IMPACT

Fuel-switching is one of the biggest drivers for GHG emissions reduction, followed by increased energy efficiency, and shutdown of old, inefficient machines and facilities. Fuel-switching accounts for approximately 66 per cent of Catalyst's GHG reduction. Energy efficiency accounts for 24 per cent of the reduction, and closing of assets for another 10 per cent.

GHG Emissions by Activity

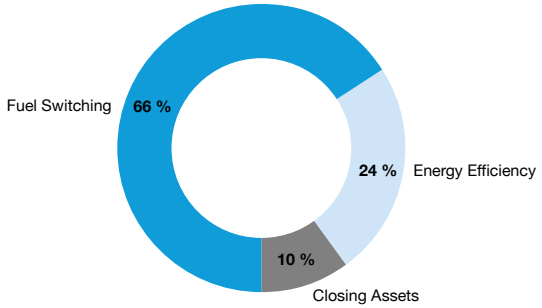
(CO_2e/ADt)[2]



Source: Towards a Common Cause: The Embrace of Carbon Along a Supply Chain by J.G. Bull, G. Kissack, C. Elliott, R.A. Kozak and G.Q. Bull

Emission Cuts per Initiative

(as per cent of the overall reduction)



Source: Catalyst Paper

Catalyst Paper

INITIATIVE 1: FUEL SWITCHING

BACKGROUND

The majority of Catalyst's GHG emissions come from fossil fuels used to generate steam and electricity. The company significantly reduced its GHG emissions by switching to cleaner energy.

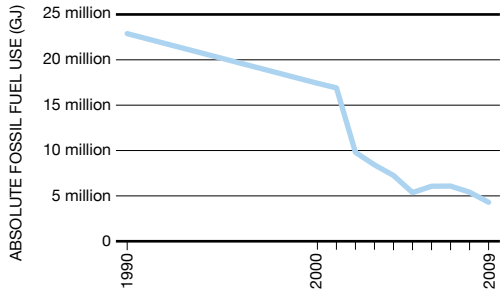
PROCESS

Catalyst focused on reducing its plants' reliance on fossil fuels and converting to renewable energy sources such as biomass. Over the years, Catalyst has been using more biomass energy, obtained from wood waste such as bark, wood shavings, and sawdust. Biomass fuel is clean and it is Canada's second-largest renewable energy source.

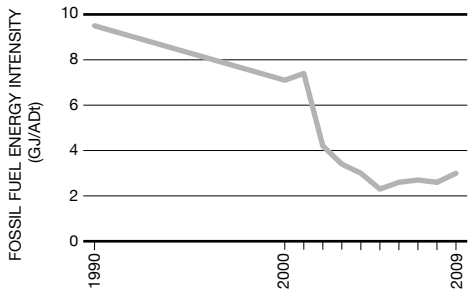
Fossil fuel data for Canadian operations 1990 to 2009

(Some data years missing)

Absolute use



Intensity



Source: Catalyst Paper

COST

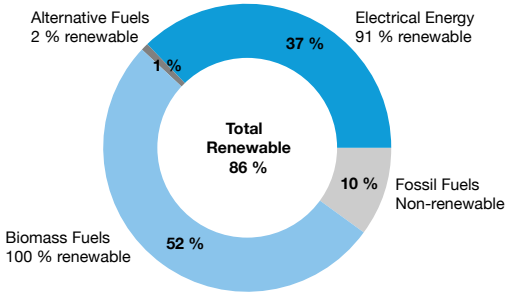
Catalyst has invested approximately $250 million in capital investments since the late 1990s to switch from fossil fuels to GHG-neutral biomass fuels at its Canadian operations.

OUTCOME

Catalyst was very successful in its fuel-switching efforts. By 2009, fossil fuel use was down over 50 per cent relative to 2003 and the energy mix was 86 per cent renewable. Most of the self-generated green energy is EcoLogo certified. As with any energy source, the challenge is the company's dependence on the energy inputs and their variability. Thus, Catalyst's ability to use biomass fuels is greatly dependent on the availability of biomass inputs. Over the past two years, upheaval in the forest products industry has impacted supply of biomass fuels. This has hurt Catalyst's ability to maximize its use of biomass energy.

Energy Mix and Renewability

Canadian Operations, 2009 data



Source: Catalyst Paper

Catalyst Paper

INITIATIVE 2: ENERGY EFFICIENCY

BACKGROUND

Catalyst works continuously to reduce and optimize its purchased energy use. This improves energy efficiency, saves money, and minimizes the need for BC Hydro to import electricity from non-renewable sources.

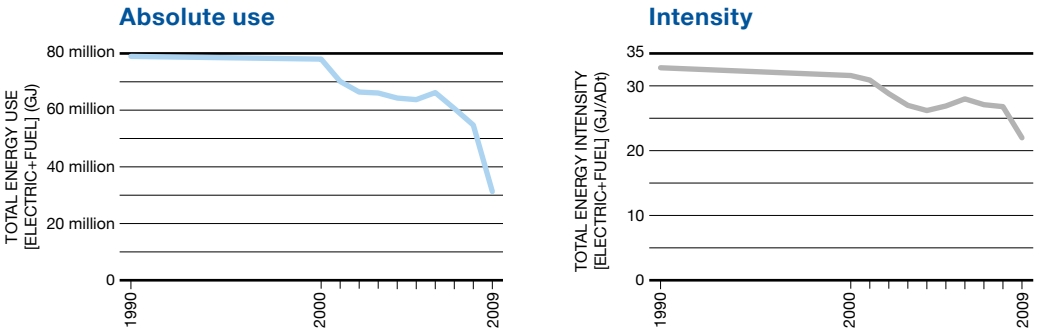
PROCESS

The company implemented processes that increase paper production with less energy. Examples of energy efficiency programs include installations of upgraded motors, lighting, and a shutdown of unnecessary motors and equipment.

Pulp and paper mills are tremendously complex operations with long lifespans and their equipment configurations don't necessarily remain in complete alignment with evolving raw materials, processes, and product specifications. This realization was the starting point for a kraft mill simplification project at Crofton Division in 2007, which resulted in removal of about 2,500 horsepower of unnecessary energy use and annual savings of approximately $1 million. An operating specialist identified redundancies and simplifications that would not compromise key performance indicators.

Total energy data for Canadian operations 1990 to 2009

(Some data years missing)



Source: Catalyst Paper

COST

Tens of millions of dollars have been invested across all mills for energy projects. The most recent conservation initiatives have been small-scale, involving moderate or no capital investments relating to, for example, lighting, compressed air, pumping, and metering.

OUTCOMES

Recent conservation initiatives enabled Catalyst to reduce its purchased energy requirements by a further 1.9 per cent (relative to a target of two per cent) or 86,000 MWh in 2007. The above initiatives resulted in a savings of about 47,300 tonnes of GHG emissions. Reducing the energy used to manufacture products accounts for 24 per cent of the overall GHG emission reductions. In 2009, there were substantial changes to the company's Canadian operations with production curtailments that materially impacted the use of energy. This change is also reflected in temporary anomalies in its intensity measures.

Catalyst Paper

INITIATIVE 3: RECYCLING

BACKGROUND

With the Paper Recycling Division (PRD) in B.C. and the 2008 purchase of a recycled fibre mill in Arizona, Catalyst is one of the leading recycled paper operations in North America. Catalyst acquired a 100 per cent recycled newsprint mill in Snowflake, Arizona as part of its ongoing effort to develop a more cost-effective operation platform to enhance the company's position in the North American market. Snowflake is one of the lowest-cost newsprint mills in North America and it is located close to growth markets that offer access to good-quality recovered paper supplies and a natural hedge against currency fluctuations. It has recently expanded its production capacities to include specialty papers.

PROCESS

The recycling divisions use newspapers and magazines to produce valuable de-inked pulp that can be used to manufacture various paper grades with recycled content. Operational changes at PRD resulted in a 1 per cent increase in yield and an associated 7 per cent reduction in energy consumption in 2008. Additionally, Catalyst's 2008 acquisition of the Snowflake mill added 347,000 tonnes of capacity, representing nearly 15 per cent of Catalyst's total production capacity.

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COST

Acquisition of the Snowflake recycling facility cost $161 million and the PRD cost approximately $60 million when acquired in 2003.

OUTCOMES

The use of recovered paper decreases demands on virgin fibre supplies, facilitates less energy-intensive production, and prevents carbon dioxide releases that would occur from paper decomposing in landfills. Each tonne of paper kept out of a typical landfill avoids about 720 kg CO_2 emissions.

The production of de-inked pulp at PRD and recycled paper at Snowflake resulted in recovered paper making up 19 per cent of Catalyst's total fibre supply in 2008 (up from six per cent in 2007, prior to the Snowflake acquisition), and increased the average recycled content in the company's products from six per cent in 2007 to 17 per cent in 2008.

Catalyst Paper

OVERALL OUTCOMES

Fuel switching, energy efficiency and recycling initiatives enabled Catalyst to reduce its GHG emissions from its Canadian operations by 85 per cent below 1990 levels on an absolute basis and 74 per cent below on an intensity basis in 2009.

Catalyst's commitment to reducing its footprint has been greatly successful, enabling it to achieve significant reductions ahead of schedule. The company achieved an additional 3 per cent reduction two years ahead of its self-imposed deadline and its emissions continue to be at or significantly below the Canadian industry average (246 kg CO_2e per tonne).

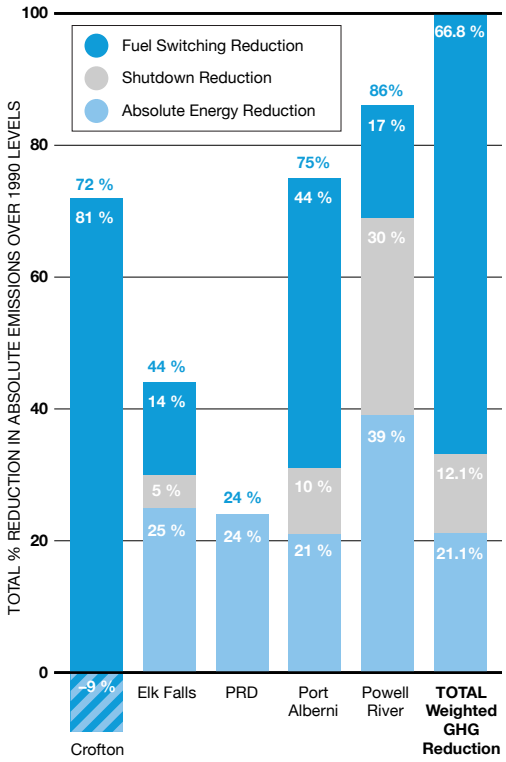
SECURING FURTHER GHG REDUCTIONS

Improvements in internal operations are an extremely important component of any company's sustainability strategy but they're only one part of the larger sustainability journey. In order to clearly evaluate a product's GHG footprint, businesses need to examine GHG, sustainability, and supply chains in parallel. Trade-offs between manufacturing, modes of transport, and distances traveled must be understood in terms of the product's total GHG impact.

Catalyst has begun to focus on its supply chain to realize further GHG reductions. The company has been actively communicating with its supply chain partners on GHG issues, and is undertaking a number of initiatives including optimal use of low-GHG modes of transportation such as sea-based shipping for its products. The company also uses EPA SmartWay partners for the majority of its freight shipping, ensuring maximum energy efficiency, and reducing energy costs and GHG emissions. Catalyst became a registered SmartWay partner itself during 2009. Catalyst's sales force is also educating customers on the benefits of low-GHG transportation and just-in-time delivery that allow for rail and marine shipping. By achieving significant internal GHG emission reductions and focusing on supply chain emissions, Catalyst sets an example as a sustainability leader, taking into consideration the overall GHG impact of its products.

GHG Reductions per Plant in Canada

Compared to 1990 levels (based on 2005 data)



Source: GHG reduction and performance PDF, 2007

Catalyst Paper

EFFECTIVE MECHANISMS FOR COMPANY DIFFERENTIATION

Catalyst's focus on the three main environmental initiatives – fuel-switching, energy efficiency, recycling – enabled it to translate its gains into product offerings for its customers. The consequent reduction of paper's GHG footprint gave Catalyst an opportunity to competitively differentiate itself from the interchangeable commodities market. Catalyst brought to market its Catalyst Cooled manufactured GHG-neutral paper and its lighter basis-weight paper.

CATALYST COOLED MANUFACTURED CARBON-NEUTRAL PAPER

Catalyst Cooled manufactured GHG-neutral paper was introduced in 2007, making Catalyst the first company to mass-market manufactured GHG-neutral paper. This product addresses customers' concerns by ensuring no net increase in GHG emissions results from manufacturing the paper they purchase (i.e., zero net Scope 1 manufacturing-related GHG emissions).

The GHG-neutral promise means that Catalyst accounts for and offsets emissions that are within the company's direct control. Emissions originated further up or down the supply chain (e.g., relating to forest harvesting and product transportation) are not accounted for, given the complexity of the calculations involved. Because paper-manufacturing accounts for the largest single component of the total GHG footprint over the lifecycle of paper products, the Catalyst Cooled product enables customers to significantly improve their GHG performance.

As the concern over climate change and GHG emissions grows, so does consumer interest in GHG-neutral products. Given this developing trend, Catalyst Cooled manufactured GHG-neutral paper not only builds on the company's steady reduction of GHG emissions but also positions Catalyst to differentiate itself from its competitors and take advantage of evolving consumer preferences.

LIGHTER BASIS-WEIGHT PAPER

Catalyst also pioneered the production of high-quality, lighter basis-weight papers, which deliver a larger printing surface per unit of product weight. These papers require less fibre and fewer raw materials and chemicals for the manufacturing process, and also less energy throughout the production, shipping, and printing stages. Lighter basis-weight paper addresses individuals' environmental concerns in addition to being a cost-competitive product.

As outlined above, Catalyst's three main environmental initiatives decreased operational costs and enabled the company to develop a unique product line for its customers.

Catalyst Paper

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Benefits of partnering with WWF

Through its partnership with WWF, Catalyst has been able to stay alert so it can anticipate issues, manage risk, mobilize resources, address credibility and capacity gaps, reconcile global and local perspectives, resolve tensions around natural resource conservation and management issues, and grow the network of values-driven allies.

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KEY COMPETITIVE ADVANTAGES

- **Low fossil fuel cost exposure** (86 per cent renewable usage in 2009)
- **Low carbon footprint** (85 per cent absolute reduction in 2009 relative to 1990)
- **Market leadership** with launch of Catalyst Cooled manufactured carbon-neutral paper
- **Extensive paper recycling** capacity and expertise
- **Diversified products** with emphasis on environmentally preferred lower basis weights
- **Largest producer** of specialty printing papers and newsprint in western North America, and only producer of lightweight coated paper
- **Third party certifications**, including FSC Certified Fibre, PEFC Certified Fibre, ISO 9000 Certified Facilities and ISO 14000 Certified Facilities

Catalyst Paper

CHALLENGES

Some of the challenges that Catalyst is facing, directly and indirectly tied to its GHG emissions reductions, are the economic downturn, the paper-industry downturn, additional future regulations, and lack of Scope 3 calculations. As the world economy and paper markets encountered difficult times, Catalyst struggled to make a profit. In fact, the company has not turned a profit in more than five years. However, its focus on energy and cost efficiency has helped preserve its viability in a demand-constrained industry during a worldwide recession.

ECONOMIC DOWNTURN

Catalyst and the entire forest products industry have faced very difficult market conditions in the last few years. The economic downturn exacerbated significant industry challenges already created by demand declines, input shortages, and cost increases. As the world economy shifted into recession, Catalyst's energy-efficiency initiatives and cost-efficiency focus became even more prudent and critical to its survival.

PAPER INDUSTRY DOWNTURN

The paper industry has been suffering from declining demand and input shortages. Demand has declined in part due to the increased production of content into digital formats.

REGULATIONS

Catalyst was early to adopt measures to reduce GHG emissions, but under Canada's proposed regulatory regime it will be worse off than companies that have done little or nothing. As part of its Climate Savers program, Catalyst reduced emissions by 70 per cent from 1990 levels, more than 10 times the six per cent commitment under the Kyoto Protocol. If allowances under a cap and trade system are calculated using an average of the previous 10 years' emissions, the company will find itself in a position where further reductions to comply with shrinking allowances are impossible to achieve in an economically viable manner. Under Canada's proposed emissions plan, companies will have to cut emissions 20 per cent below 2006 levels by 2020. This means that the early adopters, such as Catalyst, which made the most aggressive reductions prior to 2006, will be worse off than those companies that have done little. The key issue is switching the base year from which emissions cuts are calculated. The federal plan suggests using 2006 as baseline rather than 1990 as specified in the Kyoto Protocol.

"Finding new ways forward often begins by challenging and setting aside outdated assumptions … we want to ensure that additional regulatory measures account adequately for the significant GHG reductions we have already achieved."

– Richard Garneau, President and Chief Executive Officer, Catalyst Paper

LACK OF SCOPE 3 CALCULATIONS

Catalyst currently tracks Scope 1 emissions, and Scope 2 emissions associated with its purchased electricity and steam consumption. Scope 3 emissions might become more important for Catalyst to meet Canada's proposed emissions plan. Currently, the company does not have systems in place to measure Scope 3 emissions.

Catalyst Paper

CONCLUSION AND OUTLOOK

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All future commerce will eventually include GHG costs. Climate change is an environmental issue that has heightened consumer awareness. Regulatory, policy, and advertiser demands will enforce or reward reduced footprints. By addressing climate change concerns early through fuel-switching, energy efficiency, recycling, and its product offerings, Catalyst has positioned itself to compete in a GHG-constrained market. With the introduction of GHG regulations and heightened consumer demand for greener products, Catalyst's low–GHG products are expected to increase in competitive appeal.

As companies move forward in reducing GHG emissions, additional initiatives should be considered. On the procurement side, supply chain studies for Catalyst have shown that there is a great deal of unseen GHG in procurement and shipping practices. Companies should review the GHG footprint of products consumed, including footprints created to deliver consumable products. On the shipping front, the use of sea and rail shipping produces the lightest GHG footprint, but results in slower delivery times compared to road and air shipping. Companies must make customers aware of the importance of lighter footprints for them to accept slower shipping.

Once companies have made all the GHG reductions they can, they need to consider what else can be done by working together with suppliers and other stakeholders. Areas of excellence and innovation spring up when associated organizations work together. The successful relationship between Catalyst and WWF is proof of that.