

ENERGY MANAGEMENT THAT WORKS

10 COMPANIES THAT ARE MAKING A DIFFERENCE

CIPEC LEADERSHIP AWARDS

ISO 50001

Corporate Stewardship

Employee Awareness and Training

Process and Technology Improvements

Future Leaders

Monitoring and Tracking

Integrated Energy Efficiency Strategy

4.55

3.22

2.26

1.24

CIPEC ANNUAL REPORT 2012



Canadian
Industry
Program for
Energy
Conservation



ARMSTRONG 


ArcelorMittal
DOFASCO | HAMILTON

BROAN
NuTone


Cascades

 **Flakeboard**

IBM®

Mondelēz
International
Cadbury

 **Kruger**
Products


IRVING
IRVING PAPER LIMITED

SAVOIE 
GROUPE



**10 COMPANIES
THAT ARE MAKING A DIFFERENCE
CIPEC LEADERSHIP AWARDS**

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ABOUT CIPEC

The Canadian Industry Program for Energy Conservation (CIPEC) is a voluntary industry-government partnership established to improve Canada's industrial energy efficiency. CIPEC is funded under the [ecoENERGY Efficiency for Industry initiative](#).

The 26-member CIPEC Task Force Council includes volunteer representatives from each of CIPEC's 23 industrial sectors, which encompass more than 2400 facilities and over 50 trade associations. Each CIPEC Task Force represents companies engaged in similar industrial activities. The Task Force Council provides a forum for sectors to share ideas and recommend ways to address common needs and includes representatives from every CIPEC sector task force. Overall direction is provided by the CIPEC Executive Board, made up of private sector leaders who are champions of industrial energy efficiency and who provide advice on industrial energy efficiency programs and related issues to the Government of Canada.

In the CIPEC partnership, change emerges from consensus and joint action developed through open communication. CIPEC continues to be the focal point for industry's response to Canada's energy efficiency efforts.

CIPEC's role is to promote greater energy efficiency and to recognize and reward trendsetters. At its biannual industrial energy efficiency conferences, CIPEC presents the [CIPEC Leadership Awards](#) to honour Canadian companies that have demonstrated a significant and innovative contribution to energy efficiency. Ten companies that are setting the pace in industrial energy efficiency were honoured at the CIPEC Leadership Awards on November 29, 2011. For the first time, the awards show also featured [CIPEC Future Leaders Awards](#) to recognize exceptional students. Close to 300 industry leaders attended the ceremony at the Energy 2011 conference.

Part of CIPEC's mandate is a strong communications and awareness program anchored in its *Heads Up CIPEC* newsletter, which has a readership of more than 11 000 subscribers. CIPEC also raises awareness of the goals and benefits of improved energy use. The Task Force Council and sector task forces are constantly working toward broadening participation, encouraging information sharing and bolstering awareness of the role and achievements of CIPEC members.

CIPEC volunteers include successful business leaders and nationally recognized players. The profiles of these leaders and their strong belief in CIPEC's principles attract new members from industry, building on the successful partnership between industry and government.

Our mission

To promote effective voluntary action that reduces industrial energy use per unit of production, thereby improving economic performance while participating in meeting Canada's climate change objectives.

JOIN CIPEC

Participate in CIPEC by registering your company's commitment to energy efficiency improvements and greenhouse gas reductions. Signing up as a CIPEC Leader is free and provides eligibility for a broad range of benefits:

- cost-shared assistance:
 - implementation pilots for the International Organisation for Standardization's Energy Management Systems Standard (ISO 50001)
 - process integration (PI) studies
 - computational fluid dynamics (CFD) studies
- Natural Resources Canada's Dollars to \$ense Energy Management Workshops (including opportunities to have them delivered on-site and customized to meet specific company needs)
- free bimonthly webinars on innovative energy practices such as:
 - process integration
 - energy management information systems
 - ISO 50001 Energy Management Systems Standard
- eligibility to nominate your organization for a CIPEC Leadership award
- technical guidebooks
- *Heads Up CIPEC* – a monthly e-newsletter that provides the latest energy efficiency information
- opportunities to network with other industrial energy managers and practitioners

CONTACT CIPEC

cipec.gc.ca | info.ind@nrcan-rncan.gc.ca

MESSAGE FROM THE CHAIR

CIPEC members across Canada are making huge progress and have a lot of good ideas to be proud of. These ideas are using energy efficiency to build a lean and green future. In fact, many CIPEC Leaders are looking beyond energy efficiency to energy management, which is a way of looking at energy efficiency not just as a way to save costs but also as a way to promote business opportunities for industry.



I am also pleased that in January, the Honourable Joe Oliver, Minister of Natural Resources, announced additional funding to March 2016 for the [ecoENERGY Efficiency Initiatives](#). These initiatives will benefit Canadians directly by improving energy efficiency in industrial practices and a variety of other areas. This investment demonstrates the Government of Canada's continuing commitment to advance clean energy technologies and make Canada a world

leader in energy efficiency. Improving energy efficiency saves energy, creates jobs and increases energy security.

In November, over 300 participants attended CIPEC's Energy 2011 conference, which was jointly organized by CIPEC and Canadian Manufacturers and Exporters (CME).

This 2-day event featured workshops and panel sessions presented by industry leaders and energy experts. Participants learned about energy management, energy management information systems (EMIS), the ISO 50001 Energy Management Systems Standard and alternative energy solutions.

The conference also featured the Leadership Awards ceremony. Ten CIPEC Leaders were recognized for their commitment to improving industrial energy efficiency. The awards ceremony also featured the first CIPEC Future Leaders Awards honouring two students for their projects in energy efficiency. The event also featured poster sessions presented by the Leaders and Future Leaders awards winners.

This year, we built on the successful launch of the ISO 50001 Energy Management Systems Standard. ISO 50001 provides organizations with a structured energy management framework to help them increase energy efficiency, reduce costs and improve energy performance. It is a standard based on the common elements found in all of the ISO's management systems standards, thus ensuring a high level of compatibility with ISO 9001 (quality management) and ISO 14001 (environmental management). It integrates energy efficiency into management practices by making better use of existing energy-consuming processes.

Two CIPEC Leaders, St. Marys Cement (Canada) Inc.'s plant in Bowmanville and 3M's plant in Brockville, both in Ontario, were certified to the ISO 50001 standard this year. Several other CIPEC Leaders are working toward self-declaration, which means they are fully implementing ISO 50001. Their compliance with the standard will not be verified by a third party.

I am also proud that this year my fellow CIPEC Leaders recorded total annual energy savings of 0.6 petajoules – enough energy to power almost 7000 households. Estimated reductions in annual GHG emissions totalled 74 kilotonnes. One of the most significant things about these impressive numbers is the fact that they were achieved voluntarily – which is the foundation of CIPEC's success.

The CIPEC Leaders who have driven Canada's success on industrial energy efficiency all share this voluntary commitment. And the 15 new CIPEC Leaders we welcomed this year are now part of this proud volunteer tradition. Since 1975, CIPEC has grown to include more than 2400 CIPEC Leaders.

As I look forward to my sixth year as the Chair of the CIPEC Executive Board, I continue to be inspired by the extraordinary progress CIPEC continues to make and the remarkable voluntary partnership it remains. I wish to express my gratitude to CIPEC's Executive Board and Task Force Council and the many volunteers on the sector task forces for their continuing dedication to improving industrial energy efficiency in Canada. I am convinced that their leadership and our collective efforts will ensure CIPEC has a promising future as we lead the drive toward sustainable growth in the wider Canadian economy.

Sincerely,

Glenn Mifflin
Vice-president and CFO, North Atlantic Refining Limited
Chair, CIPEC Executive Board

THE RESULTS

The Canadian Industry Program for Energy Conservation (CIPEC) brings exceptional value to Canadian industry while supporting Canada’s drive to improve energy efficiency and reduce greenhouse gas (GHG) emissions. Its extraordinary impact is clear – CIPEC delivers results.

The share of Canada’s gross domestic product (GDP) created by CIPEC industries increased 31 percent between 1990 and 2010. With the help of effective energy management, energy consumption by these industries rose only 20.2 percent.

In 2010, CIPEC industries produced approximately 25 percent of the country’s GDP and provided jobs for approximately 3.5 million Canadians.

The more than 5300 facilities that CIPEC sectors represent reduced their combined energy intensity by 8.2 percent between 1990 and 2010, an average of 0.5 percent per year.

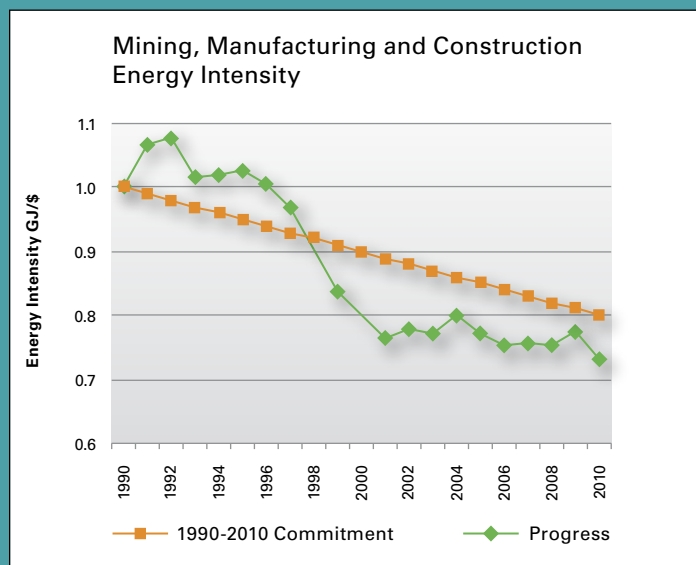
Improved energy efficiency enabled Canadian industry to avoid approximately \$6.1 billion in purchased energy in 2010 – enough energy to heat almost 8.4 million Canadian households for one year. Had energy intensity remained constant, GHG emissions from CIPEC industries would have been 34.2 megatonnes (Mt) higher.

From the fall of 1997 to March 31, 2012, the CIPEC Dollars to \$ense Energy Management workshops helped companies save an estimated 10 petajoules of energy and cut carbon dioxide emissions by more than 1000 kilotonnes.

The *Heads Up CIPEC* newsletter was distributed electronically twice per month and reached over 11 000 recipients across Canada.

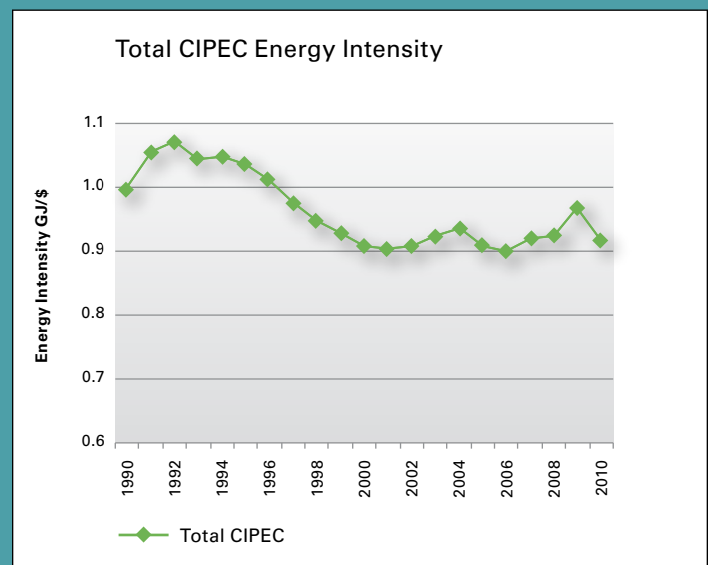
More than 2400 industrial facilities have signed on as CIPEC Leaders.

MINING, MANUFACTURING AND CONSTRUCTION ENERGY INTENSITY



The mining, manufacturing and construction sectors improved their energy intensity by an average of 1.4 percent per year between 1990 and 2010. This rate surpasses the public voluntary commitment made by these CIPEC members to achieve an average annual energy intensity improvement of 1.0 percent per year.

TOTAL CIPEC ENERGY INTENSITY



Between 1990 and 2010, all CIPEC industries improved their combined energy intensity by 8.2 percent, or an average of 0.5 percent per year. If energy intensity had remained constant, GHG emissions would have been 34.2 Mt higher in 2010.

CIPEC LEADERSHIP AWARDS –

10 companies that are making a difference

Every two years, innovative Canadian companies compete for the [CIPEC Leadership Awards](#). The winners must demonstrate a significant and innovative contribution to energy efficiency. Only 10 winners are chosen.

Award winners are honoured at the *CIPEC Leadership Awards* ceremony – the signature event at the CIPEC biyearly industrial energy efficiency conference. The Energy 2011 conference drew about 300 industry leaders to Toronto on November 24 and 25. The conference was co-hosted by CIPEC and Canadian Manufacturers and Exporters – a member of CIPEC and a leader in promoting energy-saving practices with industry.

To be eligible for the CIPEC Leadership Awards, all applicants had to register as CIPEC Leaders, and only projects begun after June 1, 2009 were eligible to qualify. The projects were evaluated by a panel of judges against five criteria:

1. **improved energy intensity** – reduced energy use per unit of production
2. **innovation** – creativity and ingenuity
3. **potential for broader use** – transferability to other companies or industry sectors
4. **contribution to the environment** – reduction in greenhouse gas emissions and improvement in environmental sustainability
5. **other benefits** – cost benefits, production, quality, maintenance, work environment, and improved competitiveness

FIVE AWARD CATEGORIES

Winning projects were as diverse as the products their companies produce, but they all had one thing in common – an outstanding commitment to improving industrial energy efficiency.

1. CORPORATE STEWARDSHIP

Winners in this category promoted energy efficiency at the corporate level by creating an energy management team or by developing a corporate energy management plan.

WINNERS

Broan-NuTone Canada Inc., Mississauga, Ontario

Winning edge: an energy management team that encourages employees to think of energy efficiency as part of their day-to-day work.

Mondelez Canada Inc. – Gladstone Manufacturing Site (Cadbury), Toronto, Ontario

Winning edge: an energy management team that could show senior management the potential savings from energy efficiency.

2. PROCESS AND TECHNOLOGY IMPROVEMENTS

These winning companies changed equipment and procedures to reduce the energy intensity of an industrial process.

WINNERS

ArcelorMittal Dofasco Inc., Hamilton, Ontario

Winning edge: simultaneously increasing production and decreasing specific energy consumption.

Kruger Products L.P., New Westminster, British Columbia

Winning edge: generating clean-burning syngas from wood waste.

3. MONITORING AND TRACKING

These winners enhanced their ability to provide accurate reports on facility- or company-wide energy consumption.

WINNERS

Flakeboard Company Ltd., St. Stephen, New Brunswick
Winning edge: making energy visible and saving money.

Group Savoie Inc., Saint-Quentin, New Brunswick
Winning edge: a sophisticated energy management information system (EMIS).

4. EMPLOYEE AWARENESS AND TRAINING

Award winners in this category helped their employees develop a broader awareness and understanding of energy efficiency opportunities, best practices, and the environmental and economic advantages of energy management.

WINNERS

Irving Paper Limited, Saint John, New Brunswick
Winning edge: an employee awareness and training program that focuses on a core group linked through an energy network.

S.A. Armstrong Limited, Toronto, Ontario
Winning edge: fostering a corporate culture that includes energy efficiency as a core operating principle.

5. INTEGRATED ENERGY EFFICIENCY STRATEGY

These winners used a combination of initiatives to reduce the overall energy consumption of their facility or company.

WINNERS

Cascades, Kingsey Falls, Quebec
Winning edge: their Energy Action Group, dedicated to improving energy efficiency in over 100 plants across Canada.

IBM Canada, Bromont, Quebec
Winning edge: a smart, continuous energy improvement plan.

CIPEC FUTURE LEADERS AWARD

The first [CIPEC Future Leaders Awards](#) honoured students whose projects or initiatives have affected industrial energy efficiency in a considerable way. The awards were given to projects that demonstrated energy efficiency improvements in industrial settings or applications. The projects fell into one of the following categories:

Leading-edge projects: These projects involved advanced technologies or approaches that apply or could apply in the future to an industrial setting.

Applied projects or initiatives: These practical projects were developed and implemented in an industrial setting.

The winners were selected by evaluating them against the same criteria used for the CIPEC Leaders awards:

1. **improved energy intensity** – reduced energy use per unit of production
2. **innovation** – creativity and ingenuity
3. **potential for broader use** – transferability to other companies or industry sectors
4. **contribution to the environment** – reduction in greenhouse gas emissions and improvement in environmental sustainability
5. **other benefits** – cost benefits, production, quality, maintenance, work environment, and improved competitiveness

WINNERS

Nathaniel Gosman – Master of Arts candidate in environmental studies at the University of Victoria

Winning edge: understanding the economic realities of industrial demand-side management of energy efficiency incentives.

Hossein Safaei – PhD candidate in mechanical engineering at the University of Calgary

Winning edge: extracting more value from an existing process.

CIPEC LEADERSHIP AWARD: CORPORATE STEWARDSHIP

BROAN-NUTONE CANADA INC.

Cross-functional team fans desire for energy saving

Broan-NuTone Canada Inc. is promoting energy efficiency with a cross-functional team tasked with implementing energy-saving projects. The ecoforward™ Green Team is helping energy conservation become part of Broan-NuTone's culture. The goal is for all employees to think of energy efficiency as part of their day-to-day work.

When it comes to motivating people, John Martinovic, Director of Operations at Broan-NuTone in Mississauga, Ontario, wants people to adopt the following mindset: "The difficult will be done immediately. The impossible may take a while." He and the ecoforward™ Green Team are encouraging people to never stop doing what's difficult so that they may eventually achieve what was once thought impossible. "In 2006, if you had told people we were going to reduce energy consumption by 45 percent by 2011, people would have said that's impossible. But we did it," Martinovic says.

Broan-NuTone is the world's largest producer of residential ventilation products. The Broan-NuTone Group is headquartered in Hartford, Wisconsin, and the Mississauga plant employs 193 people.

THE ECOFORWARD™ GREEN TEAM

Broan-NuTone's ecoforward™ Green Team is led by the Vice-President of Operations, along with a project champion and representatives from key departments like production, engineering, maintenance, customer service and purchasing. The team is responsible for identifying, evaluating, selecting and implementing new energy-saving opportunities. The energy team led a comprehensive study of two years' worth of energy bills. The results led to six key projects.

Integrating office baseboard heating into a centralized system is eliminating problems associated with baseboard heaters being left on in warm weather. Upgrading the lighting system and installing occupancy sensors has improved the quality of lighting and reduced the overall energy the system uses. Reducing oven and wash line temperatures and eliminating compressors has also yielded savings. Realigning the loading dock allowed the seals around the loading dock doors to be repaired.

The paint oven exhaust fan motor was replaced with a variable frequency drive. This has reduced venting from 3000 cubic feet per minute (cfm) over a 14-hour shift to 3000 cfm for the first hour and less than 1000 cfm for the remaining 13 hours. The team is also investigating new green technologies like destratification fans to reduce space-heating costs, as well as insulating painting and window coating technology.





IN 2006, IF YOU HAD TOLD PEOPLE WE WERE GOING TO REDUCE ENERGY CONSUMPTION BY 45 PERCENT BY 2011, PEOPLE WOULD HAVE SAID THAT'S IMPOSSIBLE.

GO GREEN EMPLOYEE INVOLVEMENT INITIATIVE

One of the ecoforward™ Green Team's signature achievements was to start the Go Green Employee Involvement Initiative. The initiative is designed to create an energy-saving culture, which will help reduce costs and lower Broan-NuTone's carbon footprint.

The Go Green team committee currently being established will have a charter, annual activity plans and a formalized submission review process to encourage employees to submit energy-saving ideas. Training and awareness activities will include encouraging employees to think about energy efficiency even when they aren't at work. Prizes will include temporary preferential parking in a special green spot, and team lunches.

"When we designed the employee initiative, we benchmarked ourselves against Husky and Molson Coors. They won the CIPEC Leadership Employee Awareness and Training Award in 2009," notes Martinovic.

"We sent five staff members for 12 weeks of training focused on leadership, team building and process building."

Staff ideas are already multiplying, with 45 new ideas submitted in the first three months of 2012, up from 25 ideas in all of 2011. And employees are taking the initiative on their own without asking for credit. Martinovic cites the example of two employees in the maintenance department who replaced 250-watt halogen shipping dock light bulbs with 16-watt LEDs.

"We all take a lot of pride in what we do. That's why we were so pleased to win our second CIPEC Leadership Award," Martinovic says. "We won in 2009 for integrated energy efficiency strategy. The ecoforward™ Green Team was a big part of that win, which is why it's nice to have it recognized explicitly this time around."

BROAN®

Fast FACTS

Broan-NuTone Canada Inc., Mississauga, Ontario

WINNING EDGE: AN ENERGY MANAGEMENT TEAM THAT ENCOURAGES EMPLOYEES TO THINK OF ENERGY EFFICIENCY AS PART OF THEIR DAY-TO-DAY WORK.

- Broan-NuTone is the world's largest producer of residential ventilation products.
- A cross-functional team promotes energy efficiency at the corporate level.
- Six key energy-saving projects were implemented in 2010.
- Energy consumption was reduced by 23 percent from 2009 to 2011 (and by 45 percent overall between 2006 and 2011).



CIPEC LEADERSHIP AWARD: CORPORATE STEWARDSHIP

MONDELEZ CANADA INC. (CADBURY)

FORMERLY KRAFT FOODS INC.

Energy team feeds hunger for energy efficiency at Mondelez

Mondelez Canada Inc. created an energy team at its Gladstone chocolate factory in Toronto with a plan to achieve major gains in reducing energy and water use and to cut down on wasted production. Known as the Gladstone Green Team, it received senior management's seal of approval after team leader Doug Dittburner made the case for how much money could be saved through energy efficiency.

Dittburner, Managing Chief Engineer at the Gladstone site, brings decades of energy efficiency experience to his role at Mondelez. He held similar roles at Molson Coors and Unilever, and he represents the food and beverage sector on the CIPEC Task Force Council. His reputation as an engineer who thinks like an environmentalist and an accountant made him the right choice to lead Mondelez's Gladstone Green Team.

SHOWING THE MONEY TO GET THE MONEY

Using dollar amounts to show how energy efficiency directly affects production is crucial when making the case with senior management for new energy projects. "Show them the money, and then you'll get the money," Dittburner says. "The first thing we did was ask 'Where do we spend the most money?' Ammonia compressors were the biggest energy users, so we concentrated on them and projected annual savings of \$111,000. That got the idea of an energy team off the ground."

The next step was to conduct a range of audits on everything from steam traps and lighting to refrigeration and process integration. The audits led to projects that delivered \$506,000 in annual energy and water savings in 2010–2011. At the same time, the Gladstone chocolate factory's carbon footprint was reduced by 18 percent.

➤ THE GREEN TEAM'S WORK WAS WELL RECEIVED. MONDELEZ HAS A HISTORY OF MARKET LEADERSHIP, SO BEING COMPETITIVE WHEN IT COMES TO ENERGY EFFICIENCY APPEALED TO SENIOR MANAGEMENT.



A MARKET LEADER THAT EMBRACES ENERGY EFFICIENCY

The Green Team's work was well received. Mondelez has a history of market leadership, so being competitive when it comes to energy efficiency appealed to senior management. Mondelez is the number-one packaged goods company in Canada. Almost 99 percent of Canadians consume Mondelez products at least once a year. The Gladstone chocolate factory in Toronto employs 423 people and makes the Cadbury Caramilk chocolate bar.

Globally, Mondelez is taking steps to reduce energy usage and identify other ways of meeting its energy needs. In addition to looking at waste streams as a potential source of energy, Mondelez is switching to more efficient lighting and exploring the use of solar and wind. In Canada, Mondelez is using Mega Fans – large high-volume, low-speed fans – in its distribution centres and warehouses to increase overall energy efficiency. In summer, the fans work to increase air velocity, which creates a wind chill effect. In winter, they provide destratification, driving warm air down and providing an energy savings of 25 percent.

Dittburner and the team are using Six Sigma as their chosen tool for improvement. Six Sigma seeks to improve the quality of outputs. It identifies and removes the causes of defects and minimizes variability in manufacturing processes and in business processes. It also includes a set of quality management methods.

SHARING SUCCESS THROUGHOUT THE MONDELEZ FAMILY

The Cadbury plant is also sharing its success with other Mondelez plants. "We arranged for an NRCan Dollars to \$ense Energy Management workshop. We hosted 25 health, safety and environment staff from Mondelez's plants across Canada," Dittburner says. "We want to lead by example and strive to be the most energy-efficient and environmentally friendly plant, people, and community in Mondelez."

Dittburner is also pleased about winning the CIPEC Leadership Award. "It's something for us to build on. It definitely gives us more traction with senior management."



Fast FACTS

Mondelez Canada Inc., formerly Kraft Foods Inc. (Cadbury), Toronto, Ontario

WINNING EDGE: AN ENERGY ACTION GROUP THAT IS INVOLVED IN ALL MAJOR INVESTMENTS MADE BY THE COMPANY.

- The chocolate factory created the Gladstone Green Team to reduce energy and water use and waste production.
- Key energy audits were conducted.
- The plant's carbon footprint was reduced by 18 percent (against a 2006 base year).
- Annualized savings of at least \$506,000 on energy and water costs were achieved in 2010-2011.



CIPEC LEADERSHIP AWARD: PROCESS AND TECHNOLOGY IMPROVEMENTS

ARCELORMITTAL DOFASCO INC.

Steelmaker delivers strong gains in energy efficiency and production

[ArcelorMittal Dofasco Inc.](#) has improved the energy efficiency and productive capacity of its hot strip mill reheat furnaces. The tough economic realities of the steel business were a big driver behind these process and technology improvements.

"Steelmaking is a very competitive global business. We also face other pressures: the dollar is rising along with the price of the raw materials we use," says Cameron Mitchell, Manager, Hot Mill Technology at ArcelorMittal Dofasco. "We all know innovation and energy efficiency is necessary to remain competitive."

About 5000 employees work at the company's 320-hectare complex in Hamilton at the western end of Lake Ontario on the St. Lawrence Seaway. ArcelorMittal Dofasco is a supplier of high-quality flat-rolled steel for a variety of customers including the oil industry, the auto sector, construction and consumer packaging makers.

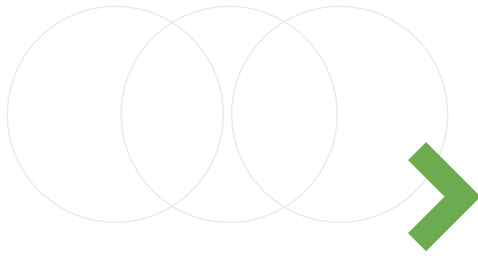
A technical team at ArcelorMittal Dofasco spearheaded efficiency gains that have boosted the furnace throughput by 12 tonnes per operating hour. At the same time, the plant decreased the amount of gigajoules of fuel required per tonne of production, resulting in total annual energy savings of approximately 200 terajoules. These gains

were driven by three major initiatives: reducing time spent reheating steel slabs; more precise control of reheat furnaces; and real time automation of how the slabs move through the furnace.

REHEATING SLABS

Slabs of steel are heated to 1200°C in the furnace. At this high temperature, the 216 millimetre-thick slabs can be rolled into sheets with an average thickness of 3 millimetres. One major initiative focused on increasing the number of slabs that entered the furnace above 400°C. This reduced the additional energy required to heat the slabs to the 1200°C target. Typically, 10 percent of the slabs went into the furnace charged above 400°C. This ratio was increased to 15 percent, leading to savings of about \$1 million. Changes were made to the scheduling software system to optimize the charging temperature.





THE PLANT DECREASED THE AMOUNT OF GIGAJOULES OF FUEL REQUIRED PER TONNE OF PRODUCTION, RESULTING IN TOTAL ANNUAL ENERGY SAVINGS OF APPROXIMATELY 200 TERAJOULES.

TEMPERATURE CONTROL OF REHEAT FURNACES

Processing steel slabs that enter the finishing mill when they are too hot or not hot enough wastes energy. In another energy efficiency initiative, software was used to manage slabs outside the acceptable temperature range. The software has allowed furnace temperature targets to be set 5°C lower.

AUTOMATED SLAB MANAGEMENT

Removing bottlenecks was another big part of the efficiency gains. "We needed to find a way to accurately measure the trade-off between throughput and energy cost so we could make the best business decisions," Mitchell says.

There are 30 to 40 slabs in the furnace at any one time. Each slab is in the furnace for about two and a half hours, passing through four different heating zones. The challenge is that slabs of different lengths and grades have to be charged at varying temperatures. "We developed a heating-curve strategy so we could use the minimum heat required," Mitchell says.

The software provided by the furnace manufacturer was upgraded to dynamically evaluate whether specific slabs should stay in longer, based on the overall requirements of the group of slabs in the furnace at any one time. Mitchell adds that the software is continually improved by the process automation group to wring out energy savings from the process.

LESSONS FOR THE LARGER ARCELORMITTAL FAMILY

"This project was undertaken by a team of 30 at ArcelorMittal Dofasco," says Kevin Hunt, Hot Mill Energy Team Leader. "We considered every option to improve our production and energy efficiency. The result is a win-win for both our business and our efforts to make steel more sustainable. We are very proud of the recognition from our colleagues at CIPEC."

The Hamilton plant is also sharing its success with the larger ArcelorMittal family. Every year, all hot strip mill facilities compare themselves across a series of broad metrics. "For similar mills we are the most energy efficient," Mitchell notes.

ArcelorMittal
DOFASCO | HAMILTON

Fast FACTS

ArcelorMittal Dofasco Inc., Hamilton, Ontario

WINNING EDGE: SIMULTANEOUSLY INCREASING PRODUCTION AND DECREASING SPECIFIC ENERGY CONSUMPTION.

- Energy savings goal: continually improve energy performance.
- The plant decreased gigajoules of fuel per tonne for total annual savings of almost 200 000 gigajoules.
- The Hamilton plant is also sharing its success with the larger ArcelorMittal family.
- About 4 million tonnes of steel are produced each year.



CIPEC LEADERSHIP AWARD: PROCESS AND TECHNOLOGY IMPROVEMENTS

KRUGER PRODUCTS L.P.

Generating value with wood waste biomass gasification

Canada's number-one maker of paper towels and tissues is cleaning up with energy savings. [Kruger Products L.P.](#)'s New Westminster, B.C. mill is generating energy with wood waste. Known as biomass gasification, this process is on track to reducing energy consumption and greenhouse gas emissions at the mill by 15 percent between 2010 and 2015. Fuel costs were reduced by \$1.8 million in 2010.

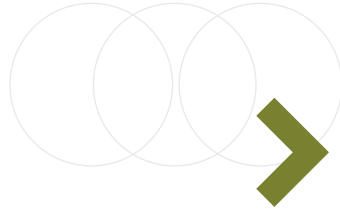
The biomass gasification system burns unprocessed bark and wood in a dome-shaped chamber to produce clean-burning syngas. This synthetic gas is used to produce steam for drying paper. The wood and bark used for fuel would otherwise be going to the landfill.

LOW EMISSIONS MAKE URBAN LOCATION FEASIBLE

Kruger's mill is on the Fraser River in a densely populated Vancouver suburb. "It had been more than 15 years since the Greater Vancouver Regional District had approved a wood-burning project so we had to be very careful in our choice of technology. The particulate emissions from our system are an order of magnitude lower than what a hog fuel boiler would produce," says Frank van Biesen, Vice President of Technology at Kruger. In a hog fuel boiler, when the usual feedstock of waste wood has a moisture content that's too high, or when steam demand exceeds the capacity of the boiler fired on wood alone, then natural gas or other fuel has to be burned.

The Kruger gasification system reduces greenhouse gas emissions and fuel costs and exceeds the stringent local regulations for air quality. The gasification control system allows the gasification plant to match the energy load better than the previous biomass boiler. The syngas replaces 400 terajoules in annual natural gas and oil use, and also generates 40 000 pounds per hour of steam. It reduced carbon dioxide emissions by about 16 kilotonnes in 2010, allowing carbon emission taxes to be reduced by about \$400,000 compared with those associated with the previous boiler. Maintenance and operation costs are also estimated to be \$300,000 less than for the old boiler.





THE SYNGAS REPLACES 400 TERAJOULES IN ANNUAL NATURAL GAS AND OIL USE, AND ALSO GENERATES 40 000 POUNDS PER HOUR OF STEAM.

NEW DIRECT-FIRED GASIFICATION SYSTEM

"The project is the first commercial demonstration of a new direct-fired boiler biomass gasification system," van Biesen says. The gasification plant opened in December 2009, the year after the company made energy management a permanent endeavour to reduce its dependence on fossil fuels and be proactive in complying with regulations. The New Westminster mill was also well-suited to a switch to biomass because of impending carbon taxes and the availability of biomass.

Kruger chose a turnkey gasification system from Nexterra Systems because of its low emissions and low life-cycle costs. "In an urban area and in a tough economy, we had to find the cleanest and most cost-competitive technology available," van Biesen says. The gasification system fits into available space at the mill and uses the existing biomass handling system, storage bin and electrostatic precipitator, which removes particulates.

Kruger is part of a project consortium that includes Nexterra and FPInnovations, which ran tests to verify and optimize the gasification system's performance. The multimillion-dollar project received support from CanmetENERGY, Western Economic Diversification Canada and the province of British Columbia.

MORE CAPACITY READY TO COME ON STREAM

The gasification system's output will eventually be increased by 50 percent because the boiler is already sized for a larger capacity. Kruger is also looking at how new developments in renewable energy could be incorporated into its operations. "The gasification project is just one component of our roadmap for continuous improvement," says van Biesen.

However, given the competition posed by cheap natural gas, he has been forced to temper his enthusiasm. "Our owner asks when we are going to reproduce this success. We're keen to replicate it but we can't right now because it hinges on the price of fossil fuels." He adds that natural gas would have to be in the \$8/GJ range to make the economics of expanding the system work.



Fast FACTS

Kruger Products L.P., New Westminster, B.C.

WINNING EDGE: GENERATING CLEAN-BURNING SYNGAS FROM WOOD WASTE.

- Kruger installed a biomass gasification system that produces syngas (synthetic gas).
- The system reduced carbon dioxide emissions by 16 kilotonnes in 2010.
- The company saved \$1.8 million in natural gas in 2010.
- Low emissions allow the system to operate in an urban area.



CIPEC LEADERSHIP AWARD: MONITORING AND TRACKING

FLAKEBOARD COMPANY LTD.

Energy Management Information System delivers big savings

Making energy visible at all levels of an organization is key to maximizing the benefits of energy efficiency. But to deliver this level of detail in real time requires real work. [Flakeboard Company Ltd.](#) is using a Real-Time Energy Management Information System (RtEMIS) to monitor energy consumption against performance targets.

"Our mill is composed of many sub-mills and has grown relatively slowly over time," says Pat Burke, Electrical Systems Coordinator at Flakeboard. "Because of this, many of the energy services overlapped, and it was difficult to allocate the costs for energy to our different mills. Our RtEMIS system was custom-developed by ADM Systems Engineering because we couldn't find a commercially available program at the time."

Flakeboard's operation in St. Stephen, New Brunswick, is one of the company's seven facilities that together manufacture a diverse line of composite panel products like particleboard and medium-density fibreboard. The plant employs 230 people. These staff members are now engaged and empowered by RtEMIS to spot energy savings and make operational changes. "When you think of energy as a fixed cost, you just pay the bills as they come in. RtEMIS showed us that energy is not a fixed cost. Energy is a variable operating cost," Burke says.

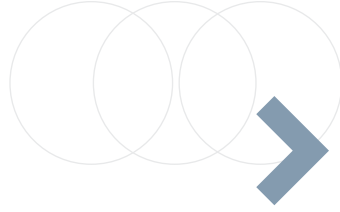
PLAN, MAKE DECISIONS AND TAKE ACTION WITH EMIS

An Energy Management Information System (EMIS) is a performance management system that enables individuals and organizations to plan, make decisions and take effective action to manage energy use and costs. It converts energy and utility driver data into energy performance information. This conversion is done using performance equations that are compared with dynamic energy targets. Flakeboard now has 33 energy account centres responsible for energy consumption. Managers and coordinators are challenged to meet or exceed energy management targets, while a company-wide energy team provides training and support.

"Having an energy team helps spread the workload of setting up EMIS. You can't leave it up to one person. To build this system requires a huge amount of time," says Burke, who led the commissioning of Flakeboard's RtEMIS in 2010. "It requires a dedicated group of people to complete the process. Everyone needs to buy into the process."

To realize the full potential of RtEMIS, Flakeboard installed electrical, gas, oil, steam, water and compressed air meters and an OSIsoft process information data historian, which turns raw data into actionable information. The company is also maintaining records in terms of energy consumption and energy-related expenses.





"HAVING AN ENERGY TEAM HELPS SPREAD THE WORKLOAD OF SETTING UP EMIS. YOU CAN'T LEAVE IT UP TO ONE PERSON. TO BUILD THIS SYSTEM REQUIRES A HUGE AMOUNT OF TIME."

SAVING AN ESTIMATED \$1 MILLION IN ENERGY COSTS OVER THREE YEARS

An initial EMIS audit revealed that the company could save about \$1 million in energy costs over three years. Burke is confident that RtEMIS is delivering a 3.2 percent cut in energy use. He estimates that the savings are greater, but he only likes to use numbers that he "can prove 100 percent." Based on the results of the EMIS audit and implementation plan, senior management committed a budget of \$270,000 to develop software, buy new meters and train employees.

Burke also stressed the positive role that government funding played in the decision to adopt EMIS. Efficiency New Brunswick is working with about two dozen facilities that are interested in or actively pursuing EMIS implementation. Natural Resources Canada, through its Office of Energy Efficiency, also has EMIS resources for industry. "We have participated in an EMIS webinar hosted by NRCan. It was a good opportunity for us to spread the EMIS message and to give back to the NRCan program," Burke says.

The RtEMIS-led changes at Flakeboard have reduced peak demand from a 2011 high of 13 megawatts to an average of 11.7 megawatts since October 2011. The goal is to reduce total energy consumption costs by \$250,000 per year. Flakeboard is on track to do this after recording \$270,000 in savings in 2011. In the first two months of 2012, Flakeboard recorded savings of \$102,000 and is expected to exceed 2011 savings.

SHARING THE EMIS EXPERIENCE

The St. Stephen plant's RtEMIS approach is being copied by other Flakeboard facilities in North America and the system is being used as a model for other New Brunswick industrial companies through Efficiency NB programs.

RtEMIS has put Flakeboard on the path to making energy visible and saving money. Burke can't imagine operating without it. "Trying to save energy without a systematic approach to energy information is like finding your way around a strange city without a map. You will get lost."



Flakeboard

Fast FACTS

Flakeboard Company Ltd., St. Stephen, New Brunswick

WINNING EDGE: MAKING ENERGY VISIBLE AND SAVING MONEY.

- Composite wood panel producer deployed a fully integrated real-time energy management information System (RtEMIS).
- The mill reduced peak demand by 1.2 megawatts (MW) in 2011.
- The goal is to reduce energy consumption by \$250,000 per year.
- Senior management committed a budget of \$270,000 to get EMIS off the ground.



CIPEC LEADERSHIP AWARD: MONITORING AND TRACKING

GROUPE SAVOIE INC.

Fifty-one ways to track energy

When it comes to tracking energy, [Group Savoie Inc.](#) does it 51 different ways. That adds up to a lot of monitoring, tracking and reporting. This hardwood products producer in Saint-Quentin, New Brunswick, has adopted a sophisticated energy management information system (EMIS) for its two sawmills, one pallet plant, one component plant, one pellet plant and a dry kiln. Groupe Savoie is a family business with over 500 employees; 274 work in Saint-Quentin, while the rest work in the company's other operations in New Brunswick and Nova Scotia.

EMIS IS A GAME CHANGER

Data from 51 various kinds of meters and other measurement tools is collected over a fibre optic network connecting each of the plants. EMIS software validates the data, creates graphics showing power consumption and sends e-mail alarms or text messages when peak power use is exceeded.

"The alarms are very useful to identify and raise opportunities for improvement. We have alarm set-points on each meter. So if a piece of equipment, like a compressor, doesn't perform as usual, the alarm tells us to go onto the floor and fix it," says Toby Leclair, the plant's Service Manager.

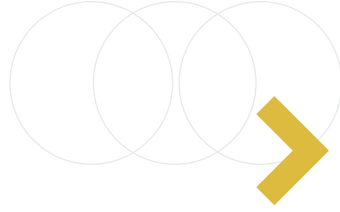
IMPRESSIVE ENERGY SAVINGS

Initially, the company aimed to reduce energy consumption by 2 percent per year and cut carbon dioxide emissions by more than 1100 tonnes. Energy savings are projected to be worth about \$125,000 per year on a company-wide energy bill of about \$2 million – mainly for electricity, the primary energy source for the company. The company has a 3 percent energy reduction target for 2012.

Groupe Savoie grew so quickly over the last 10 years that Leclair says "we used motors that were available at the time without worrying too much if they were sized properly." Now, with EMIS to guide them, Leclair and the energy group are right-sizing motors to particular tasks so that, in many cases, the same functions can be performed with smaller horsepower motors. All of the plant's old compressors are also being upgraded with variable frequency drives.

"One of the other big benefits of EMIS is that it gives us the data we need to identify and justify energy projects. We can give management the budget numbers they need," Leclair says. EMIS is also allowing the energy group to audit past projects and demonstrate how they are stacking up in real time compared to the results that were projected.





"ONE OF THE OTHER BIG BENEFITS OF EMIS IS THAT IT GIVES US THE DATA WE NEED TO IDENTIFY AND JUSTIFY ENERGY PROJECTS. WE CAN GIVE MANAGEMENT THE BUDGET NUMBERS THEY NEED."

SKILLED PEOPLE ARE STILL KEY

Nevertheless, Leclair is quick to point out that data and systems can only take energy efficiency so far. Skilled people are still key. Getting the EMIS up and running by the end of 2009 took a year of hard work. A team of 10 people each averaged about three to four hours on the project every week.

"You have to involve a lot of different people on your energy team. We have people from every sector – from management, to accounting and engineering. Our next step is to engage all our employees." Leclair is also working with management to see if a full-time energy champion can be hired by the end of 2012.

TAKING ADVANTAGE OF NRCAN PROGRAMS

To motivate employees, Leclair is relying in part on the Team Up for Energy Savings guide from Natural Resources Canada's Office of Energy Efficiency. It is based on an easy three-step approach to help industrial users build an energy-saving culture in the workplace.

"Winning the Energy 2011 Award was good for our team spirit. It showed that we can be leaders and it reinforced how useful CIPEC is when we want to find out about things like motivating employees," Leclair says.

Leclair and the energy group are already giving back to CIPEC. They have participated in EMIS webinars so other CIPEC Leaders can learn from Group Savoie's experience.

GROUPE
SAVOIE



Fast FACTS

Group Savoie Inc., Saint-Quentin, New Brunswick

WINNING EDGE: A SOPHISTICATED ENERGY MANAGEMENT INFORMATION SYSTEM (EMIS).

- A hardwood products producer that implemented EMIS in multiple facilities.
- The system tracks energy use in 51 different ways.
- Energy-saving projects can be identified and justified.
- EMIS helped saved \$125,000 on energy costs in 2010-2011.



CIPEC LEADERSHIP AWARD: EMPLOYEE AWARENESS AND TRAINING

IRVING PAPER LIMITED

Energy matters at Irving Paper

Energy matters at [Irving Paper Limited](#). In fact, it matters so much that its employee awareness program is called "Energy Matters." The corporate branding was adopted in 2010 to increase the visibility of energy management opportunities across the J.D. Irving group of companies. Irving Paper supports a user group of 20 employees who are linked through an energy network, driven by a core team of six people.

"Energy Matters is a branded energy awareness campaign that includes a Web portal with tools and best practices. Employee learning and training plans are also integrated with energy efficiency objectives," says Darwin Parker, Director of Project Engineering, who leads the energy team within the pulp and paper division.

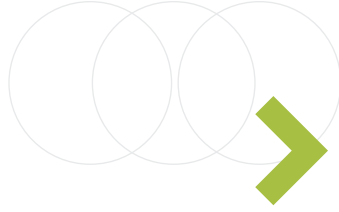
As part of the push to make energy matter, staff also attend Natural Resource Canada's Dollars to \$ense energy management workshops and are encouraged to take the Efficiency NB Certified Energy Management Course. An energy management newsletter celebrates success so others can learn from it.

CELEBRATING A SUCCESS STORY

The members of the energy network who work at Irving Paper's mill in Saint John, New Brunswick, have a lot of success to celebrate. They've played an important role in helping Irving's pulp and paper division reduce its carbon footprint and fossil fuel consumption by 50 percent over the last five years. By focusing on employee awareness, training and technology, Irving is leveraging investments of \$13 million that have resulted in annual energy reductions of 5 percent per year. Irving has also cut 50 000 tonnes of carbon dioxide per year. Energy costs account for up to 30 percent of Irving Paper's manufacturing costs – the most significant portion being electricity.

"These reductions translate to a reduction of 168 000 tonnes of greenhouse gas – the equivalent of taking 32 000 cars off the road," says Mark Mosher Vice-President of the pulp and paper division at J.D. Irving.





"ENERGY MATTERS IS A BRANDED ENERGY AWARENESS CAMPAIGN THAT INCLUDES A WEB PORTAL WITH TOOLS AND BEST PRACTICES. EMPLOYEE LEARNING AND TRAINING PLANS ARE ALSO INTEGRATED WITH ENERGY EFFICIENCY OBJECTIVES."

ENERGY MATTERS SUPPORTS AN ENERGY MANAGEMENT INFORMATION SYSTEM

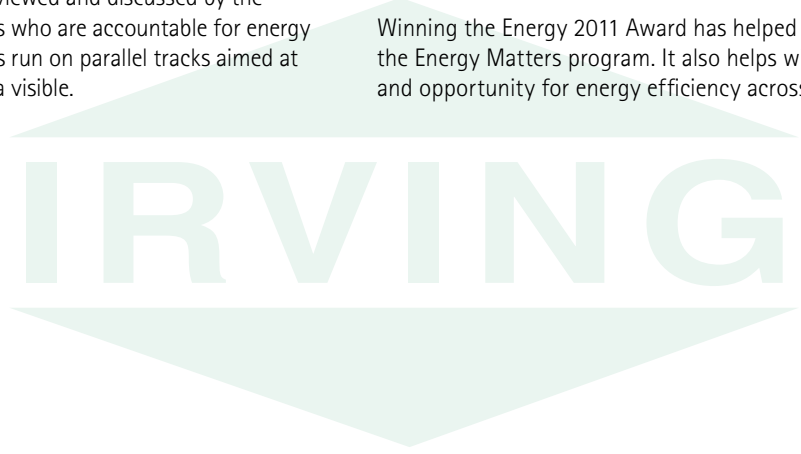
A large measure of these impressive results is driven by EMIS, making energy visible for employees. EMIS is being used at the Saint John mill and it is being rolled out at other Irving sites.

EMIS is a performance management system that enables individuals and organizations to plan, make decisions and take action to manage energy use and costs. EMIS converts energy data into energy performance information. This conversion is done using performance equations that are compared with dynamic energy targets. EMIS data also yields key performance indicators that are reviewed and discussed by the management team and line supervisors who are accountable for energy consumption. EMIS and Energy Matters run on parallel tracks aimed at the same goal. EMIS makes energy data visible.

THE ENVIRONMENTAL AND ECONOMIC ADVANTAGES OF ENERGY MANAGEMENT

"Using the data from our EMIS, our team has developed and implemented an energy management strategy that has resulted in several large-scale heat recovery projects," says Mark Mosher, Vice President of the Pulp and Paper Division. "Our team is focused on achieving the environmental and economic advantages of energy management. This investment in people and technology is good for the environment and key to securing jobs at the mill. Improving energy costs and reducing our carbon footprint is part of our culture, and the lessons learned are delivering benefits throughout our organization."

Winning the Energy 2011 Award has helped to validate the work of the Energy Matters program. It also helps with the level of visibility and opportunity for energy efficiency across J.D. Irving.



J.D. IRVING, LIMITED

Fast **FACTS**

Irving Paper Limited, Saint John, New Brunswick

WINNING EDGE: AN EMPLOYEE AWARENESS AND TRAINING PROGRAM THAT FOCUSES ON A CORE GROUP LINKED THROUGH AN ENERGY NETWORK.

- J.D. Irving launched an energy awareness campaign called "Energy Matters."
- The program includes integrated employee learning plans with energy efficiency objectives.
- Energy Matters is helping to make energy visible through EMIS implementation.
- Irving Paper has reduced total energy use by 5 percent per year and carbon dioxide emissions by 50 kilotonnes.



CIPEC LEADERSHIP AWARD: EMPLOYEE AWARENESS AND TRAINING

S.A. ARMSTRONG LIMITED

Powerbreak awareness campaign boosts energy efficiency

Family owned since 1934, [S.A. Armstrong Limited](#) has relied on best practices to grow from a Toronto-based company into a global leader in the design and manufacture of pumps and integrated cooling and energy management systems in North America, Europe and Asia. Part of this success rests on fostering a corporate culture that includes energy efficiency as a core operating principle. "Our goal is to reduce overall energy use by at least 5 percent per year," says Gaby Haddad, Manufacturing Engineering Manager at Armstrong. "We will accomplish this by undertaking new projects from our list of 50-plus future projects."

So it was only natural that Armstrong initiated the Powerbreak awareness campaign to boost energy efficiency. Aimed at the 320 employees in the Toronto plant, Powerbreak has four major elements designed to reduce energy consumption:

1. employee energy efficiency awareness days and publicity campaigns
2. employee learning plans integrated with energy efficiency objectives
3. incentive programs to reward employee efforts to improve energy efficiency
4. ongoing employee training to increase energy efficiency awareness and practices

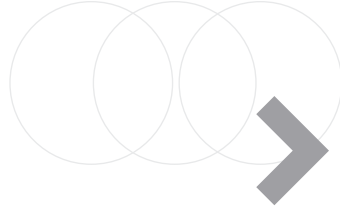
The Powerbreak campaign was spearheaded by the Green Team, which is made up of champions who undertake energy conservation and retrofit projects at the Canadian head office. The company saved over \$77,000 in annual energy costs in 2010–2011, and is now developing new projects to improve energy efficiency.

ENERGY EFFICIENCY AWARENESS DAYS AND PUBLICITY

Awareness days are often centred on lunch and learn sessions to promote activities like powering down workstations. These efforts are backed by announcements in the employee newsletter. In essence, communications are key to sustaining Armstrong's culture of energy efficiency.

"We always keep the employees informed so they can make the connection between company changes and energy efficiency. When we installed a solar wall, we explained what it was for. And when we planted trees in the parking lot, we wanted people to understand that it was to reduce the heat-island effect," says Margaret Logan, Senior Project Manager and Green Team member.





THE POWERBREAK CAMPAIGN WAS SPEAR-HEADED BY THE GREEN TEAM, WHICH IS MADE UP OF CHAMPIONS WHO UNDERTAKE ENERGY CONSERVATION AND RETROFIT PROJECTS AT THE CANADIAN HEAD OFFICE.

LEARNING PLANS AND ENERGY EFFICIENCY OBJECTIVES

Employees are given ongoing training to help them understand and support energy efficiency objectives.

INCENTIVE PROGRAMS

The company holds contests for staff members to see who can save the most energy. Winners are expected to document how they achieved energy savings so they can learn from one another about new environmentally friendly solutions and practices. Prizes and other incentives reinforce the commitment to energy efficiency. For example, winners of \$200 Home Depot gift cards have to report the energy-efficient purchases they make.

In the summer of 2011, the company launched the "Start saving at home today" contest. This contest was repeated in the summer of 2012. The largest percentage reduction over a three-month period earns the winner \$10 for each percentage point they save on their electricity bill compared with the previous year. The prize goes towards an energy-saving purchase, and the winner has to share how energy savings are achieved. Engaging employees in projects outside the workplace like this one is proving to be a popular way to increase overall energy efficiency awareness.

TRAINING

Training opportunities are designed to improve employee skills. In 2012, the focus is on preparing eight staff members to become Leadership in Energy and Environmental Design Accredited Professionals (LEED AP). Logan and three other accredited staff members are coaching their colleagues. The LEED AP credential signifies advanced knowledge in green building practices.

It's these kinds of skills that are helping S.A. Armstrong Limited leverage its employee awareness and training efforts to help customers. The company reaches out to customers through sponsored sustainability roundtables focused on emerging trends and opportunities in sustainable energy management in the commercial and institutional building sector.

Haddad, Logan and their colleagues plan to launch Powerbreak II to help galvanize staff to take on some of the more than 50 energy saving projects on the company's agenda. "Our CIPEC award is nice to have as we work to motivate people to prioritize energy efficiency. It makes all of us proud to be recognized," Logan says.

ARMSTRONG



Fast **FACTS**

S.A. Armstrong Limited, Toronto, Ontario

WINNING EDGE: FOSTERING A CORPORATE CULTURE THAT INCLUDES ENERGY EFFICIENCY AS A CORE OPERATING PRINCIPLE.

- Energy savings goal: reducing total energy use by at least 5 percent per year.
- In 2010–2011, the company saved over \$77,000 in annual energy costs.
- The company reaches out to customers through sponsored sustainability roundtables.



CIPEC LEADERSHIP AWARD: INTEGRATED ENERGY EFFICIENCY STRATEGY

CASCADES ENERGY ACTION GROUP

Energy Action Group spearheads efficiency efforts

Energy Action Group (EAG) is at the heart of Cascades' success in reducing energy consumption. Cascades, which produces packaging and tissue products made mainly of recycled fibres, describes itself as "Green by Nature." In fact, Cascades is so serious about pursuing an integrated energy efficiency strategy that its Energy Action Group is involved in all major investments made by the company.

The company's focus on this strategy is paying off as Cascades pursues its goal of reducing energy consumption by 3 percent per year. Audits, energy reduction targets and performance monitoring saved over \$60 million in energy costs from 2004 to 2012. The Energy Action Group, which is dedicated to improving energy efficiency in more than 100 plants across Canada and the United States, has implemented more than 200 projects company-wide from 2004 to 2012.

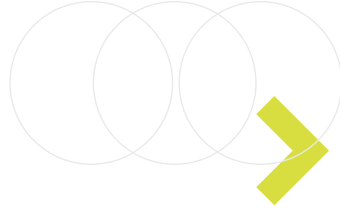
ENERGY ACTION GROUP DRIVEN BY ENGINEERS

The Energy Action Group is made up mainly of engineers who carry out energy audits and identify energy reduction targets for all plants. The group also recommends and validates actions for the implementation of energy-saving projects. The group has spearheaded a wide range of projects that have touched virtually every corner of the company. Examples include projects to optimize boilers, motors, industrial ovens and dryers, refrigeration, compressed air, water networks, heating, ventilation and air conditioning (HVAC), building envelope, lighting and production processes. Cascades also has a corporate policy that requires any equipment that is nearing the end of its life – like compressors, motors or lighting – to be replaced by more efficient technologies.

In the late 1990s, Cascades set up its Energy Action Group in Kingsey Falls, Quebec, with one employee. Now there are 20 staff members in the group. "We operate like an external consulting firm. Plant managers have to pay for our services," says Émilie Allen, Corporate Energy Director at Cascades. The group is also branching out to offer its services to other industrial energy users. Rio Tinto Alcan, the global aluminum producer, and Bombardier, a world leader in train and airplane manufacturing, have worked with the group, helping to develop its position as a profit centre within Cascades.



● CASCADES ENERGY ACTION GROUP,
KINGSEY FALLS, QUEBEC



FROM 2004 TO 2012, CASCADES INVESTED \$32 MILLION THROUGH THE ENERGY FUND TO FINANCE ENERGY PROJECTS THAT GENERATED \$61 MILLION IN ENERGY SAVINGS.

SHARING BEST PRACTICES COMPANY-WIDE

The success of their mission to deliver an integrated energy efficiency strategy at Cascades can be seen in how plant managers now approach energy efficiency. "Before the energy group got started, there was no sharing or cooperation between plant managers. Each unit was competing against the other," Allen says. Today, EAG engineers are in constant contact with plant managers and supervisors who form internal energy committees. Cascades publishes monthly, quarterly and annual reports that compare the energy performance of its plants, so best practices are shared company-wide.

CORPORATE ENERGY FUND FINANCES PROJECTS

The Energy Action Group can also turn to a corporate energy fund established solely for energy efficiency projects. The fund ensures that energy projects do not get overlooked or lose out because of competition for capital with production-related investments. The fund, not the mills, assumes the costs and risk of energy projects, which means the mills are more willing to make changes. The fund is replenished based on savings generated by energy efficiency projects.

From 2004 to 2012, Cascades invested \$32 million through the energy fund to finance energy projects that generated \$61 million in energy savings.

EMIS PROVING TO BE A KEY TOOL

The Energy Action Group also relies on an Energy Management Information System (EMIS) to measure energy consumption in real time. This allows Cascades to compare plants with each other and target the least efficient plants in order to focus on them and correct discrepancies. "EMIS is definitely helping us maximize integration. We recently began using a new chemical, but it had a bad reaction with another chemical. This affected the energy we needed for the dryer process. EMIS helped us spot and fix the problem," Allen says.

Thanks to EMIS and a tradition of delivering on the promise of energy efficiency since EAG was founded, Allen and her colleagues are looking forward to more success in the future. "I was happy we won the CIPEC award. Very often you hear that energy efficiency success comes mainly in the early days. We've been at this for 15 years and we're still making good progress. The award was nice recognition of that," Allen says.



Fast **FACTS**

Cascades Energy Action Group, Kingsey Falls, Quebec

WINNING EDGE: AN ENERGY ACTION GROUP THAT IS INVOLVED IN ALL MAJOR INVESTMENTS MADE BY THE COMPANY.

- Energy savings goal: reducing total energy use by at least 3 percent per year.
- Cascades implemented over 200 energy efficiency projects since 2004.
- The Energy Action Group has 20 staff members; most are engineers.
- From 2004 to 2012, Cascades invested \$32 million through a corporate energy fund to finance energy projects that generated more than \$60 million in energy savings.



CIPEC LEADERSHIP AWARD: INTEGRATED ENERGY EFFICIENCY STRATEGY

IBM CANADA

Taking a smart approach to integrated energy efficiency

IBM Canada is inviting its customers to join in on building a smarter planet. This corporate credo is reflected in IBM Canada's approach to energy efficiency. The company is using a smart continuous improvement strategy to deliver integrated energy efficiency. IBM is also offering intelligent building management solutions to its clients – solutions that help them lower building operating costs and identify energy optimization opportunities.

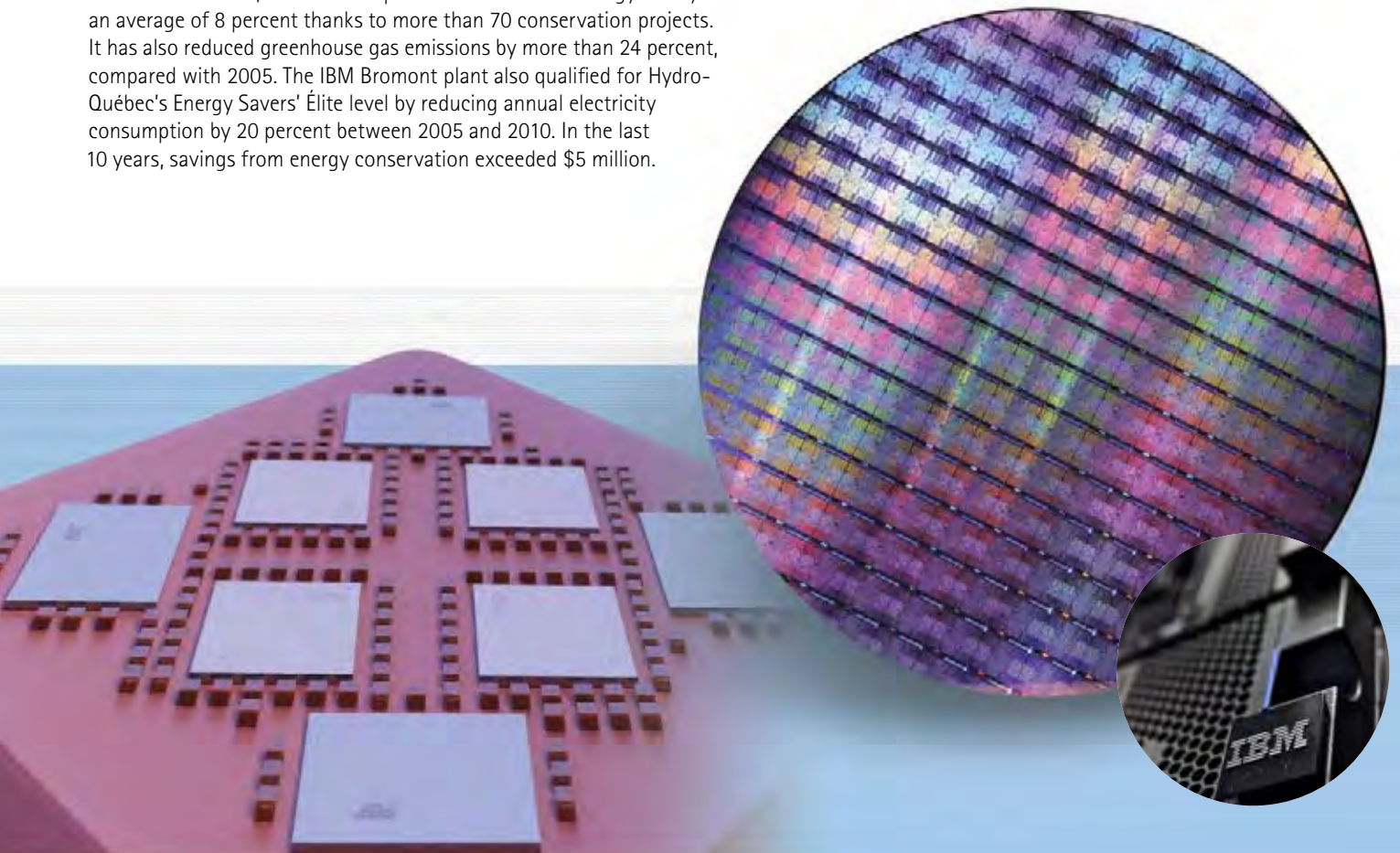
Some of the smart things IBM has accomplished over the years are on display at its Bromont, Quebec plant. The plant is the company's largest semiconductor assembly and testing facility in the world. It's also IBM's only manufacturing plant in Canada. Each year, the plant exports about \$700 million in products. Every system produced worldwide by IBM uses at least one Bromont-manufactured component. And the three most popular game consoles in the world – Microsoft Xbox 360, Sony PlayStation 3 and Nintendo Wii – all contain processors from Bromont.

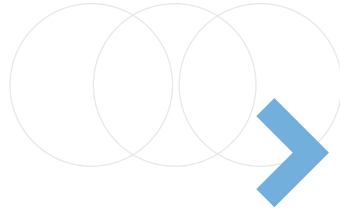
From 2009 to 2011, the Bromont plant reduced annual energy use by an average of 8 percent thanks to more than 70 conservation projects. It has also reduced greenhouse gas emissions by more than 24 percent, compared with 2005. The IBM Bromont plant also qualified for Hydro-Québec's Energy Savers' Élite level by reducing annual electricity consumption by 20 percent between 2005 and 2010. In the last 10 years, savings from energy conservation exceeded \$5 million.

REGULARLY SURPASSING CORPORATE ENERGY REDUCTION TARGETS

"For the last 15 years, Bromont has always beaten our corporate energy reduction target of 4 percent. We've ranged from 4.1 to 13.8 percent annual reductions," says Yves Veilleux, Manager, Energy and Environmental Affairs. Projects like replacing some compressed air systems with a central vacuum system have reaped a tenfold gain in efficiency.

This success is due in large part to the Energy Management Team, which develops an annual energy management plan. This integrated five-point plan is based on the principle of continuous improvement. After being submitted to the plant's senior management for approval, the plan facilitates the sharing of ideas between sectors or buildings and the standardization of operations to maximize energy efficiency.





THE BROMONT SITE IS ALSO INTRODUCING AN ENERGY MANAGEMENT INFORMATION SYSTEM (EMIS) CALLED SMARTER BUILDING.

ENERGY MANAGEMENT PLAN COMPONENTS

1. annual objectives
2. energy checklists for all mechanical and chemical systems and for infrastructure
3. regular monitoring of all conservation projects
4. energy team visits to manufacturing sectors
5. sharing information with partners

The energy team is staffed by full-time professionals led by Yves Veilleux, who works for IBM across Canada. The team also includes senior energy coordinators and energy efficiency specialists. In the manufacturing plant, the team is further supported by an energy committee made up of ISO 14001 representatives who cover all sectors.

ENCOURAGING EMPLOYEE INVOLVEMENT

The idea of integration extends beyond the energy management plan to IBM staff members themselves. "It's part of our culture. The environment and energy efficiency are part of our new employee orientation process. And twice a year, the plant manager meets all employees and discusses energy efficiency targets and results," says Jean-Pierre Boulianne, Senior Energy Coordinator.

The energy team also plans to involve employees more closely in energy management decisions by giving them greater control over equipment. "We want them to do things like turning a furnace to off instead of leaving it idling for a whole shift," Boulianne says.

The Bromont site is also introducing an energy management information system (EMIS) called Smarter Building. Smarter Building collects energy and utility driver data, and generates automatic alerts and work orders to respond to the alerts. It allows building systems to be managed against dynamic performance rules and helps improve overall operational performance while reducing energy use.

"We participated in a CIPEC EMIS webinar and we were able to compare improvement approaches associated with energy management information systems. It was worthwhile, and we expect to learn more as we move forward and implement and improve our Smarter Building system," Veilleux says.



Fast FACTS

IBM Canada, Bromont, Quebec

WINNING EDGE: A SMART CONTINUOUS IMPROVEMENT PLAN.

- Energy savings goal: Conserve energy by at least 4 percent per year.
- Annual energy savings have exceeded \$5 million since 2000.
- The Energy Management Team is staffed by full-time professionals.
- Bromont is the company's largest semiconductor packaging facility in the world.



CIPEC FUTURE LEADERS AWARD

NATHANIEL GOSMAN

Maximizing the impact of industrial energy efficiency incentives



Nathaniel Gosman wants governments, utilities and industry to make the most of industrial incentive programs designed to manage industrial demand for energy. He is completing a Master of Arts in Environmental Studies at the University of Victoria and working as an energy efficiency standards analyst for the Ministry of Energy and Mines in British Columbia.

Gosman looked specifically at how to optimize incentive program design to minimize risks that affect the development and performance of energy efficiency measures. Project development risks can be loosely defined as financial and human resource constraints that prevent industrial firms from participating in incentive programs. Project performance risks are those associated with an incentive program failing to deliver planned benefits over time.

His findings suggest that utilities and governments can mitigate these risks and achieve a high degree of energy savings reliability through two primary approaches. One is to match incentive offers to industrial business cycles. The other is to rely on energy management software tools that provide energy performance feedback to industrial firms and provide a platform for measurement and verification of energy saving measures.

MATCHING INCENTIVES TO INDUSTRIAL BUSINESS CYCLES

Matching incentives to business and investment cycles means understanding how energy efficiency improvements will be viewed by industrial players based on how their business is performing and where their investment priorities lie. "Consider a sector that's booming, like copper. For an incentive to work, the operational savings from the energy efficiency measure will have to compete successfully with the returns a copper mining company would receive from investing in measures that increase output and market share," Gosman says.

At the opposite end of the spectrum, a sector that is not performing well, like pulp and paper, would view upfront investments tied to an incentive program as unaffordable.

To make an incentive program work in either case would involve providing targeted incentives that are sufficient to overcome capital barriers or providing incentives for measures that don't require large capital investment on the part of industry, like operations and maintenance improvements.

RELYING ON ENERGY MANAGEMENT SOFTWARE TOOLS

Gosman sees a growing role for energy management software tools to encourage the uptake of incentives. These tools should help ensure the sustainability of energy savings from efficiency measures and streamline the measurement and verification process. "EMIS offers a double benefit. It provides energy performance feedback to industrial firms and gives utilities an avenue to measure and verify energy savings in a relatively non-invasive manner."

Gosman's recommendations for industrial demand-side management programs could contribute significantly to helping utilities and governments design and deliver incentive programs and meet increasing requirements for energy efficiency. Gosman will likely be in a position to influence the demand for industrial demand-side management incentive programs. He plans to earn his Certified Energy Management designation and pursue a full-time position with B.C.'s Ministry of Energy and Mines. "The Energy 2011 Award helped validate my work. It has definitely opened doors for me," Gosman says.

Fast **FACTS**

Nathaniel Gosman, Master of Arts candidate in environmental studies at the University of Victoria

WINNING EDGE: UNDERSTANDING MARKET, TECHNOLOGICAL AND OPERATIONAL FACTORS AFFECTING INDUSTRIAL ENERGY EFFICIENCY INCENTIVE PROGRAMS.

- Nathaniel Gosman wants governments, utilities and industry to make the most of industrial incentive programs designed to manage industrial demand for energy.
- He has conducted graduate research on how incentive program design can be optimized to reduce risks that affect the development and performance of energy efficiency measures.
- Matching incentive offers to industrial business cycles could improve incentive program uptake.
- Encouraging the use of energy management software tools like EMIS could improve the sustainability of energy savings from efficiency measures and provide a streamlined platform for measurement and verification.

CIPEC FUTURE LEADERS AWARD

HOSSEIN SAFAEI

Waste heat recovery from compressed air energy storage plants

Compressed air energy storage plants use comparatively inexpensive off-peak electricity to compress air into underground or above-ground reservoirs. The stored air is then expanded in modified gas turbines to generate high-value peak electricity during periods of high electricity demand. Hossein Safaei, a PhD candidate in mechanical engineering at the University of Calgary, has plans to make this process even more attractive.

"The compressors produce waste heat. If this heat is captured, it could be used for space and water heating applications through district heating networks," Safaei says. District heating is making inroads in Canadian cities – Montréal, Toronto, Calgary and Vancouver all have district heating systems. The systems often generate thermal energy through heat recovery from gas turbines called combined heat and power facilities, or from combustion of fuel in boilers. This happens in a central location and then heat is distributed through outbound and inbound pipes. Some systems also include heat storage facilities to even out peak load demands.

CHALLENGES OF HEAT RECOVERY FROM COMPRESSED AIR ENERGY STORAGE

Safaei's research is focused on assessing the technical and economic challenges and potential of heat recovery options from compressed air energy storage plants. Currently, two utility-scale compressed air energy storage plants are in operation – a 290-megawatt facility in Huntorf, Germany and a 110-megawatt unit in McIntosh, Alabama. Several more are in the design stage.

Safaei is evaluating the opportunity to add a heat recovery unit to the compression facility of the plants. This facility would be paired with a conventional district heating network. It would reduce fuel consumption by the boilers in the district heating plant by recovering waste heat from the air compressors. The additional revenue from the sale of wasted heat would enhance the economics of compressed air energy storage plants.

Another key component of a compressed air energy storage plant is the storage facility for the compressed air. A naturally-occurring formation, like a depleted natural gas reservoir, or a relatively inexpensive man-made underground cavern is ideal, but above-ground storage tanks can also be used. Safaei is studying the suitability of depleted natural gas reservoirs outside Calgary. Safaei and his academic supervisors, David Keith and Ronald Hugo, have filed a patent on their work.

BETTER INTEGRATION OF RENEWABLE ENERGY

Safaei acknowledges that today's low prices for natural gas make the idea of generating heat and power from stored compressed air uneconomical for now. But rising fuel prices or regulation favouring cleaner heat and power generation would change the equation. He is also encouraged by the growth of renewable energy, especially wind and solar, in the electric grid. "High penetration levels of wind and solar-based electricity into the generation mix often imply substantial fluctuations in electricity prices. Compressed air energy storage can mitigate these fluctuations by storing excess off-peak energy to be used during peak-demand times."

While Safaei continues to work on his idea, he plans to pursue a position as an energy analyst for a government department or a research and development firm working to reduce greenhouse gas emissions in the electricity sector. He is currently employed part time at Carbon Engineering in Calgary, a private firm working to commercialize direct air capture of carbon dioxide. "Winning the Energy 2011 award is a nice addition to my resume. It was also excellent to be able to network with a wide range of delegates from industry, government and research institutes."

Fast FACTS

Hossein Safaei – PhD candidate in mechanical engineering at the University of Calgary

WINNING EDGE: EXTRACTING MORE VALUE FROM AN EXISTING PROCESS.

- Researcher Hossein Safaei is studying how to recover waste heat from compressed air energy storage plants.
- Waste heat from compressed air energy storage plants could power district heating networks.
- Compressed air energy storage plants could help integrate renewable energy into electricity grids.
- Depleted natural gas reservoirs could be used to store compressed air at attractive capital costs.

ENERGY EFFICIENCY PROGRAMS AND TOOLS FOR INDUSTRY

NATURAL RESOURCES CANADA (NRCAN) OFFERS SEVERAL ENERGY EFFICIENCY AND RENEWABLE ENERGY PROGRAMS AND SERVICES TO MEET THE NEEDS OF CANADIAN INDUSTRY

NETWORKING OPPORTUNITIES

- Canadian Industry Program for Energy Conservation (CIPEC)

EMPLOYEE-TRAINING ASSISTANCE

- Dollars to \$ense Energy Management Workshops

FINANCIAL SUPPORT

- Cost-shared assistance: To perform ISO 50001 implementation pilots and energy assessments
- Tax savings: Classes 43.1, 43.2 and 29 and Canadian Renewable and Conservation Expenses (CRCE) tax savings program

TECHNICAL SUPPORT

- Canadian Industry Program for Energy Conservation (CIPEC)
- Technical guides, benchmark studies, tools and equipment

ISO 50001 – ENERGY MANAGEMENT SYSTEMS STANDARD

Published in June 2011, the [ISO 50001 Energy Management Systems Standard](#) establishes an energy management framework for all types of organizations and companies. This new voluntary standard could quickly become a de facto requirement for businesses competing in today's globalized world.

ISO 50001 IMPLEMENTATION WILL:

- assist organizations in making better use of their existing energy-consuming assets
- create transparency and facilitate communication on the management of energy resources and the promotion of energy efficiency throughout the supply chain
- lead to significant reductions in energy cost, GHG emissions and other environmental impacts
- promote energy management best practices and reinforce good energy management behaviours

- assist facilities in evaluating and prioritizing the implementation of new energy-efficient technologies
- allow integration with other organizational management systems, like environmental and health and safety systems. It is compatible with other performance improvement approaches and EnMSs (Superior Energy Performance, Lean, Theory of Constraints, Six Sigma, 5S, etc.)

COST-SHARED ASSISTANCE

The people behind CIPEC know how to implement energy management programs. Performance measurement, baselines and best practices are what CIPEC is all about. So it was only natural that CIPEC representatives were involved in the negotiations for ISO 50001.

CIPEC members can begin to leverage CIPEC resources now to implement ISO 50001. The ecoENERGY Efficiency for Industry program is offering [cost-shared assistance](#) to industrial companies to perform ISO 50001 implementation pilots and energy assessments.

NRCAN will provide up to 50 percent of the cost, to a maximum of \$25,000, for:

- [ISO 50001 Energy Management Systems Standard implementation pilots](#)
- [Process integration \(PI\) studies](#)
- [Computational fluid dynamics \(CFD\) studies](#)

To be eligible, a company must have written approval of its technical proposal from NRCAN before beginning the project.

For more information on the ISO 50001 Energy Management System Standard, visit oe.nrcan.gc.ca/industrial/cipec/4101.

Or send an e-mail to info.ind@nrcan-rncan.gc.ca.

WEBINARS

Free online workshops for CIPEC Leaders featuring real-world examples. Topics include ISO 50001 Energy Management Systems Standard, Energy Management Information Systems (EMIS), employee awareness, energy metering, students and their added-value, biomass gasification and more to follow. Webinars are offered on a bi-monthly basis.

For more information send an e-mail to info.ind@nrcan-rncan.gc.ca.

DOLLARS TO \$ENSE ENERGY MANAGEMENT WORKSHOPS

Hundreds of organizations have reduced operating costs by adopting energy-saving practices offered through [Dollars to \\$ense Energy Management Workshops](#). The workshops are facilitated by leading experts in energy efficiency. The workshops give owners, managers and operators of industrial facilities a competitive edge in managing energy costs.

THE SIX ONE-DAY DOLLARS TO \$ENSE WORKSHOPS ARE:

- [Energy Management Information Systems \(EMIS\)](#) – makes energy performance visible and helps organizations apply a systematic approach to energy efficiency
- [Recommissioning for Buildings](#) – increases awareness and knowledge of the fundamentals of building recommissioning
- [Energy Management Planning](#) – how to plan ahead to realize the benefits of energy management
- [Spot the Energy Savings Opportunities](#) – shows how to identify, and capitalize on, immediate savings opportunities through practical exercises and hands-on demonstrations
- [Energy Monitoring](#) – shows companies how to measure and analyze energy use
- [Energy Efficiency Financing](#) – improves awareness of financing options and skills in obtaining financing for energy efficiency projects

The workshops can also be customized to meet the needs of industrial sector organizations and companies. Professional instructors will consult with the company to identify specific requirements and then assemble the information and resource materials for the target audience.

Register online by visiting the workshop Web site at oee.nrcan-rncan.gc.ca/industrial/training-awareness.

Or contact NRCan to find out more about workshop customization.

Fax: 613-943-5380

E-mail: [Dollarsto\\$enseworkshops@nrcan-rncan.gc.ca](mailto:Dollarsto$enseworkshops@nrcan-rncan.gc.ca).

CLASSES 29, 43.1, AND 43.2 AND CRCE TAX SAVINGS

For a limited time, companies that invest in manufacturing and processing equipment may take advantage of Class 29 in Schedule II of the *Income Tax Regulations (the Regulations)*. It provides a 50 percent, straight-line Accelerated Capital Cost Allowance (ACCA) for certain manufacturing and processing equipment. Proposals in Budget 2011 to extend this temporary incentive for two years to eligible machinery and equipment acquired before 2014 were enacted December 15, 2011.

Canadian tax law makes specified clean energy generation and conservation equipment, such as photovoltaic panels, wind turbines and bio-fuel production equipment more fiscally attractive for industry.

Under Classes 43.1 and 43.2 of *the Regulations*, certain capital expenditures on systems that produce heat or electric power efficiently from fossil fuels or from alternative renewable energy sources are eligible for ACCA of 30 percent and 50 percent respectively on a declining balance basis.

Without the accelerated write-offs, many of these assets would be depreciated at annual rates of only 4, 6, 8 or 15 percent.

NRCan is the technical authority for Classes 43.1 and 43.2.

Budget 2012: Jobs Growth and Long-Term Prosperity proposed to expand Class 43.2 with respect to waste-fuelled thermal energy equipment, and equipment of a district energy system that uses thermal energy provided primarily by eligible waste-fuelled thermal energy equipment. It also proposed to expand Class 43.2 to include equipment that uses the residues of plants—generally produced by the agricultural sector—to generate electricity and heat.

In addition to Class 43.1 or Class 43.2 capital cost allowance, *the Regulations* allow expenses incurred during the development and start-up of renewable energy and energy conservation projects—*Canadian Renewable and Conservation Expenses (CRCE)*—to be deducted fully or financed through flow-through shares.

To qualify as CRCE, expenses must be incurred for a project in which it is reasonable to expect at least 50 percent of the capital costs incurred would be for equipment described in Class 43.1 or Class 43.2.

For more information on tax savings for industry, visit oee.nrcan-rncan.gc.ca/industrial/financial-assistance/tax-incentives.cfm.

ENERGY MANAGEMENT INFORMATION SYSTEMS – PLANNING MANUAL AND TOOL

The [Energy Management Information Systems Tool](#) makes energy performance visible to different levels of the organization so that actions can be taken to create financial value for the company. The tool is also a performance management system that helps reduce energy consumption and cost.

For more information on the Energy Management Information Systems – Planning Manual and Tool, visit oee.nrcan.gc.ca/industrial/cipec/tools/10926.

Or send an e-mail to info.ind@nrcan-rncan.gc.ca.

THE YEAR IN REVIEW

CIPEC members continued to make advances in energy efficiency during the past year. These impressive gains were realized thanks to strong leadership and dedication from the CIPEC Executive Board, the Task Force Council and the 26 Task Forces, together with support from the Office of Energy Efficiency.

- Two CIPEC Leaders, St. Marys Cement (Canada) Inc.'s plant in Bowmanville and 3M's plant in Brockville, were certified to the ISO 50001 Energy Management System Standard.
- St. Marys Cement's implementation of processes to achieve ISO 50001 since 2005 has seen electricity consumption cut by over 10.3 million kilowatt hours (approximately the same amount of energy used by 880 Canadian homes in one year).
- An ISO 50001 pilot with 3M uncovered savings worth 12 percent of annual energy use, the equivalent of 120 000 gigajoules of energy and 12 780 equivalent tonnes of greenhouse gas emissions.
- The total number of CIPEC Leaders rose to more than 2400.
- Dollars to \$ense Energy Management Workshops were delivered to more than 1750 people, bringing the total to more than 23 500 attendees since the workshops were first offered in 1997.
- More than 5537 publications were distributed.
- CIPEC's estimated total annual energy savings exceeded 0.6 petajoules.
- CIPEC's estimated reductions in annual GHG emissions totalled 64 kilotonnes.

INDUSTRY SECTOR PROFILES

ENERGY MANAGEMENT THAT WORKS

Accurate measurement and meaningful data are fundamental to measuring energy improvements. Data used in this annual report are collected by Statistics Canada, with funding from Natural Resources Canada (NRCan) and Environment Canada, and supplemented by information received from associations that participate in the Canadian Industry Program for Energy Conservation (CIPEC), as well as other private and government organizations. The data represents entire industrial sectors, not just CIPEC members.

Statistics Canada data for the manufacturing sector are collected through the annual Industrial Consumption of Energy (ICE)¹ survey, which covers approximately 4300 establishments in the manufacturing sector. For each establishment, the survey gathers information on energy fuel consumption for 13 fuel types. Survey results are used to track energy efficiency improvements, calculate carbon dioxide emissions and inform Canadians about energy conservation.

Statistics Canada began streamlining the questionnaire and data collection process in 2004. The changes included standardizing some special industry questionnaires, making provisions for respondents to explain any major changes in energy consumption and thus minimize follow-up inquiries, and converting fuels to a standard unit of measure.

Data analysis and interpretation involves the collective effort of NRCan's Office of Energy Efficiency (OEE), CIPEC trade associations and the Canadian Industrial Energy End-Use Data and Analysis Centre (CIEEDAC) at Simon Fraser University in Burnaby, British Columbia. The CIEEDAC produces energy intensity indicators for each sector based on production and gross domestic product.

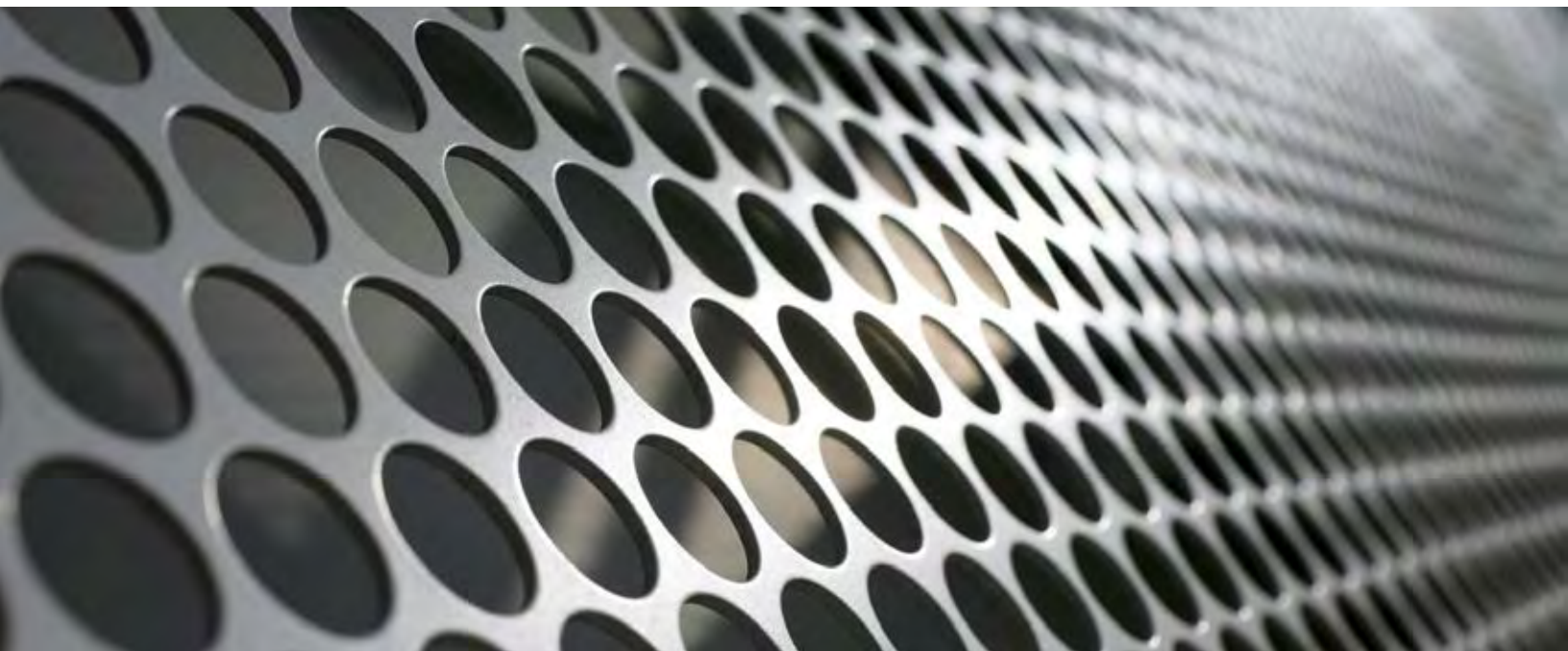
Much of the ICE data is available online. Statistics Canada data are published in CANSIM table 128-0005 – Energy fuel consumption of manufacturing industries in natural units, using the North American Industry Classification System (NAICS); and CANSIM table 128-0006 – Energy fuel consumption of manufacturing industries in gigajoules, also using the NAICS.

For more information, see the Statistics Canada Web site at cansim2.statcan.ca.

The OEE publishes *Energy Efficiency Trends in Canada* annually at oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/publications.cfm.

Data from the CIEEDAC are available at www.cieedac.sfu.ca.

¹ The data from the ICE survey are for the 2010 calendar year.



ALUMINUM

The aluminum sector comprises companies engaged primarily in extracting alumina from bauxite ore, producing aluminum from alumina, refining aluminum by any process, and rolling, drawing, casting, extruding and alloying aluminum and aluminum-based alloy basic shapes. Canada's aluminum sector is ranked fourth in the world in annual primary aluminum production after the United States, Russia and China and is the second largest exporting country after Russia. The combined output of the aluminum plants in Canada is a major contributor to Canada's national and local economies. There are 9 aluminum smelters in Quebec and one in British Columbia. As for Alumina refining, there is one site in Arvida and a total of 3 coke calcination plants located in Arvida, Quebec, Kitimat, B.C. and Strathcona, B.C. Although production growth caused an increase in the industry's total energy use, energy intensity continues to improve compared with 1990 benchmark levels.

ACHIEVEMENTS

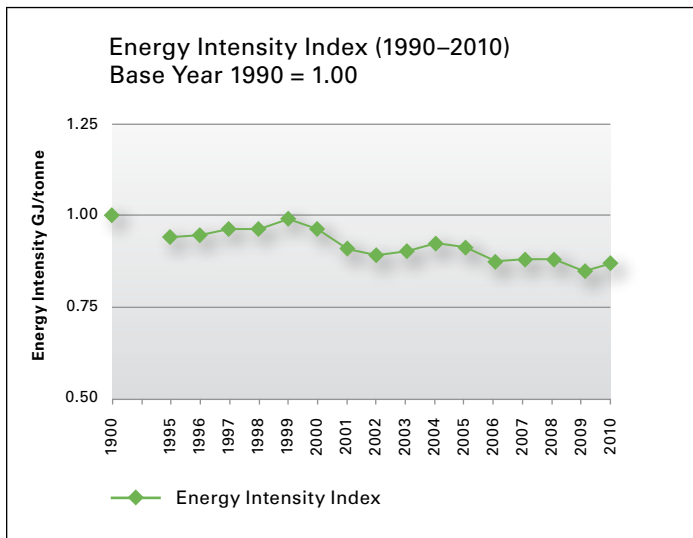
Aluminum-producing companies continue their efforts to reduce energy consumption. For example, between 1999 and 2010, members of the Aluminum Association of Canada reduced their consumption of electricity used for aluminum electrolysis by 19 percent; and in 2010, 97.6 percent of electricity used by smelters came from renewable energy.¹

In 2011, Hydro-Québec promoted Alcoa's Deschambault smelter to Elite status in its Energy Savers' Circle, which is comprised of corporate leaders in energy efficiency from across the province; they also welcomed Alcoa's Baie-Comeau smelter as a new member, making all three of the company's Quebec smelters part of the Energy Savers' Circle network. During the period from 2007 to 2010, Alcoa's Quebec plants posted total cumulative energy efficiency gains of more than 600 GWh, just one of the company's many energy efficiency efforts.

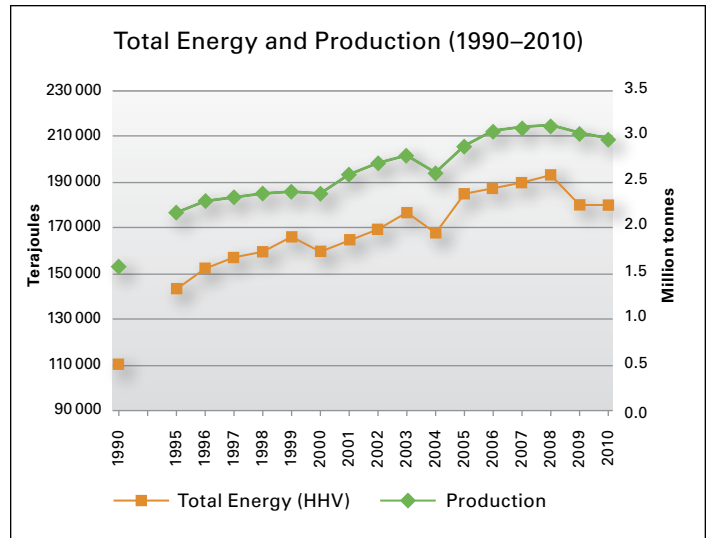
For more information on the sector, visit oee.nrcan.gc.ca/industrial/aluminum.

HIGHLIGHTS

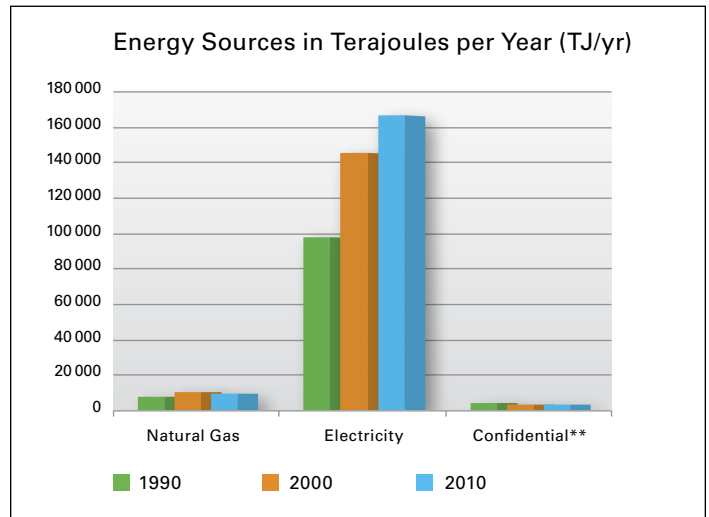
Aluminum Sector – NAICS 331313



Energy intensity increased by 2.6 percent between 2009 and 2010.



Total energy consumption increased by 0.3 percent and total production decreased by 2.2 percent between 2009 and 2010.



While most of the sector uses electricity, electricity consumption increased by 1.1 percent while natural gas consumption increased by 21.3 percent between 2009 and 2010, representing 1773 terajoules.

** Confidential includes: Heavy Fuel Oil (HFO), Middle Distillates (LFO) and Propane (LPG).

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa. January 2012.
Production – Natural Resources Canada, [Production of Canada's Leading Minerals](#), January 2012.

¹ Aluminum Association of Canada – 2010 Sustainability Report



BREWERY

The Canadian brewery industry is the largest component of the alcoholic beverage sector, followed by distillery products and the wine industry. This industry brews beer, ale, malt liquors and non-alcoholic beer. Approximately 160 breweries, large and small, operate in Canada. The majority of the establishments are located in Ontario, followed by British Columbia and Quebec, with the remaining located across Canada. The Brewers Association of Canada, established in 1943, is a voluntary association of 23 brewers that represents 97 percent of the beer brewed in Canada.

The Canadian brewery industry has experienced considerable transformation and continues to do so. Over the years, the structure of the industry has changed through mergers and acquisitions, along with considerable growth in microbreweries. According to the Canadian Business Patterns database, the largest firms could have over 500 employees at a single establishment, while a small microbrewery might consist of one establishment with fewer than 50 employees. The production, marketing and sale of Canadian beer generate more than 205 000 jobs, with about 13 000 people working directly for Canada's brewers.¹ The typical costs of energy and utilities vary between 3 percent and 8 percent of a brewery's budget, depending on its size and production variables.

¹ [Brewers Association of Canada](#)

ACHIEVEMENTS

Many breweries have been exploring new opportunities for energy efficiency. They are also introducing water optimization processes and technologies. The industry also continues to invest heavily in new, more efficient technology that will ultimately improve energy and water usage, as well as the amount of materials required for packaging.

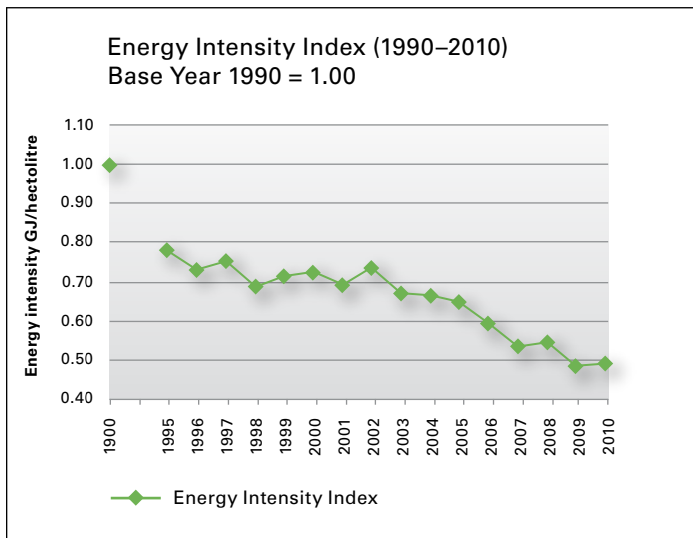
Labatt Breweries of Canada's Energy Cup Challenge is making significant contributions towards achieving overall environmental targets. The company launched a comprehensive, six-week initiative to reduce energy consumption at every brewery in Canada. The initiative focused on identifying and correcting utilities leaks and misuse, identifying and communicating effective process and lighting shutdown, creating awareness of energy consumption and costs within employees' area of influence, and creating a sustainable mechanism for ongoing employee engagement in energy use reduction. The project was extended by two weeks as a result of widespread and overwhelmingly positive response. The results were impressive, with a total year-over-year reduction in energy consumption of 8 percent and a reduction in water consumption of 17.8 percent.

In addition to brewing certified organic and extract-free beer, Beau's Brewery in Vankleek Hill, Ontario, was the first company in Eastern Ontario to engage the Guelph Food Technology Centre's sustainability division for an energy audit. The brewery also has an impressive commitment to sustainability. They produce 100 percent post-consumer recycled posters, brochures and coasters as well as environmentally friendly packaging.

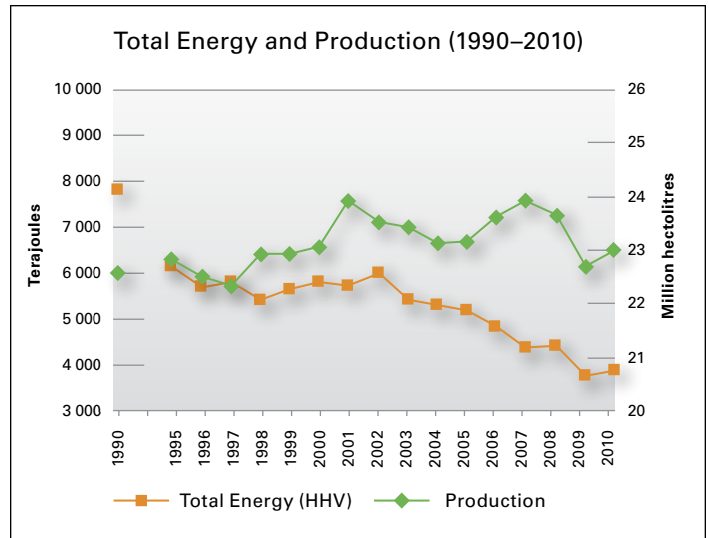
For more information on the sector, visit oe.nrcan.gc.ca/industrial/brewery.

HIGHLIGHTS

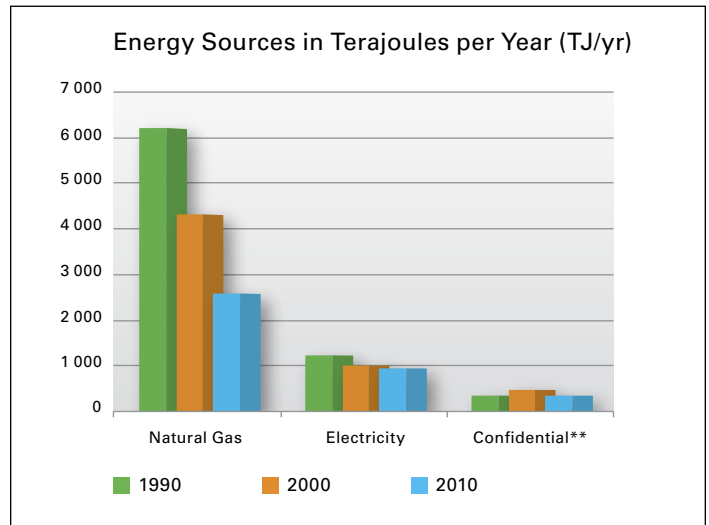
Brewery Sector – NAICS 31212



Energy intensity increased by 1.4 percent between 2009 and 2010.



Total energy consumption increased by 2.8 percent and total production increased by 1.4 percent between 2009 and 2010.



Natural gas consumption increased by 7.4 percent and electricity consumption decreased by 4.2 percent between 2009 and 2010.

** Confidential includes: Propane (LPG), Heavy Fuel Oil (HFO) and Middle Distillate (LFO).

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa. January 2012.

Production – [Brewers Association of Canada](#), Ottawa. January 2012.



CEMENT

The cement industry is a key player in Canada's domestic construction industry and a large exporter that contributes substantially to the country's economy. The industry employs more than 27 000 Canadians for the production of cement, ready mix concrete and concrete construction materials. The industry's eight cement companies operate 15 processing facilities that produced 15 million tonnes of cement in 2008. Approximately 27 percent of this production was exported to the United States.¹ Cement manufacturing is energy-intensive, with energy costs accounting for approximately 40 percent of input costs in the manufacturing process. The relatively low cost of the thermal (fossil-fuel based) energy that supplies over 89 percent of its total energy needs is fundamental to the competitiveness of the industry.

ACHIEVEMENTS

The Canadian cement industry is committed to improving the social and environmental performance of its operations, and will continue to work on reducing the environmental footprint of cement. The industry's focus is on reducing CO₂ emissions and promoting the use of different types of fuels. Approximately 60 percent of greenhouse gas (GHG) emissions associated with the industry is irreducible because they are released during cement production as part of the calcination process. Innovation will be key to the viability and competitiveness of the sector.²

¹ [Cement Association of Canada](#)

² [2010 Canadian Cement Industry Sustainability Report](#)

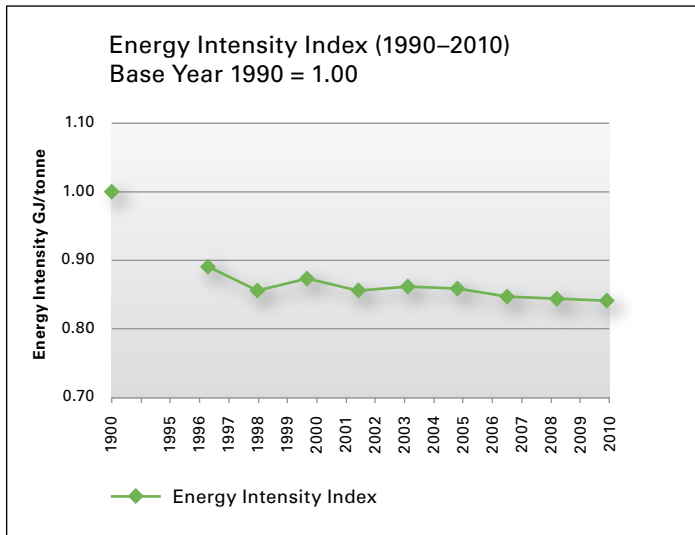
The [2010 Canadian Cement Industry Benchmarking Summary Report](#) concluded that the overall energy efficiency of the cement sector was relatively high, with a median energy efficiency index of 76 compared to a theoretical best practices plant with a value of 100. Nine of the 15 facilities achieved a "good practice rating" index of at least 75. Despite this strong performance, the study identified areas that have the potential to yield further energy efficiency improvements and cost savings for the sector. Further improvements are likely as a result of the industry's positive response to the energy benchmarking study, the December 2008 suspension of production at Canada's last remaining wet kilns and the anticipated modernization of another plant in the coming years. The dry process avoids the need for water evaporation and is much less energy intensive than the wet process.

St. Marys Cement's plant in Bowmanville was the first Canadian facility to be certified CAN/CSA-ISO 50001 – Energy Management Systems Standard compliant. Important steps towards this certification included raising employee awareness of the costs of various operations and procedures, implementing training programs and establishing an energy management and conservation committee, called E=MC². With representatives from Finance, Human Resources, Environment, Quality Control, Maintenance, Mining and Production departments, the Committee identified and acted upon more than 100 separate energy efficiency initiatives. Much of the energy savings required little capital expenditure or were accomplished at no cost.

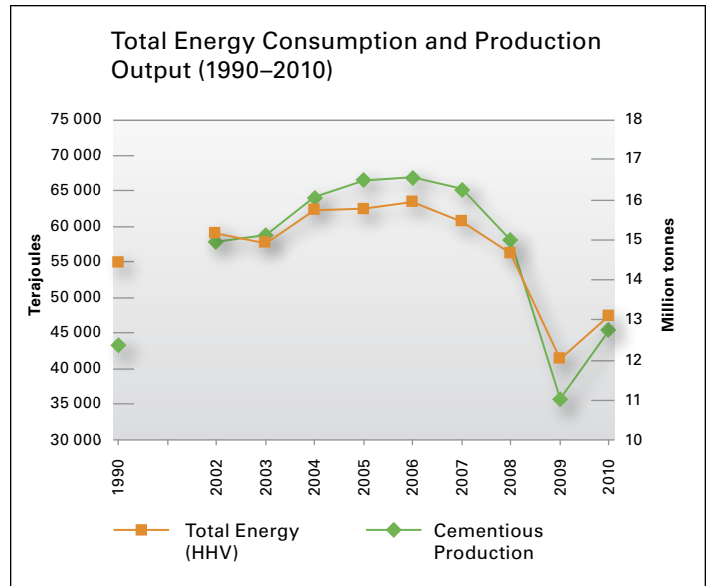
For more information on the sector, visit oee.nrcan.gc.ca/industrial/cement.

HIGHLIGHTS

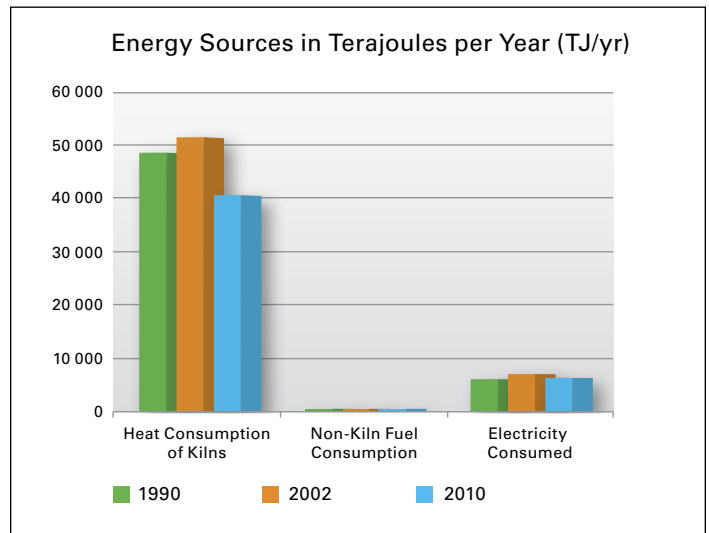
Cement Sector – NAICS 327310



The sector's energy intensity decreased by 0.4 percent between 2009 and 2010.



Total energy consumption increased by 14.7 percent and total production (GDP) increased by 15.1 percent between 2009 and 2010.



The heat consumption of kilns decreased by 14.8 percent between 2009 and 2010.

Data Sources: [Fuel Consumption and Cementitious Production – Portland Cement Association \(PCA\)](#), Spring 2011.
[Cement Association of Canada](#), Spring 2011.



CHEMICALS

The Canadian chemical sector encompasses more than 2700 manufacturing locations, employing 80 000 Canadians and producing a diverse range of chemicals and chemical products. There are manufacturing sites in all provinces, with the highest concentration located in Ontario (41 percent), followed by Quebec (27 percent), British Columbia (12 percent) and Alberta (11 percent). Industry shipments in 2011 were valued at \$47 billion and exports reached \$31 billion, ranking chemicals 5th among all manufacturing industries in terms of shipments, and 3^d in terms of exports.

The [Chemistry Industry Association of Canada](#) is the trade association that represents the manufacturers of industrial chemicals which include petrochemicals, inorganic chemicals, specialty chemicals and synthetic resins and rubbers. These companies transform raw resources like natural gas, crude oil, minerals and metals into high value-added products that are critical inputs used by almost all other manufacturing industries. Industrial chemicals represent more than half of the overall industry, with sales of \$25 billion and exports of \$19 billion in 2011. Of these shipments, 75 percent were exported to foreign markets, mainly to the United States, with the next-largest shares going to the United Kingdom, China and Mexico. The industrial chemical industry employs about 15 000 Canadians at an average salary of about \$83,000, which is much higher than the all-manufacturing average and reflects the highly skilled nature of the labour force.

ACHIEVEMENTS

The Chemistry Industry Association of Canada released its 19th consecutive *Reducing Emissions report* in March 2012. The report summarizes the overall environmental performance of its member-companies' manufacturing operations, and documents the consistent progress that members have made in reducing their emissions since 1992 (the first year that the association began gathering emissions data). Since that time, association members have:

- Reduced releases of known and probable carcinogens by 96 percent
- Eliminated 73 percent of emissions of 13 high-priority substances targeted by Canada's Chemicals Management Plan
- Reduced the global warming potential of their operations by 63 percent
- Decreased the ozone-depleting potential of their operations by 99 percent

For more information on the sector, visit oee.nrcan.gc.ca/industrial/chemical.

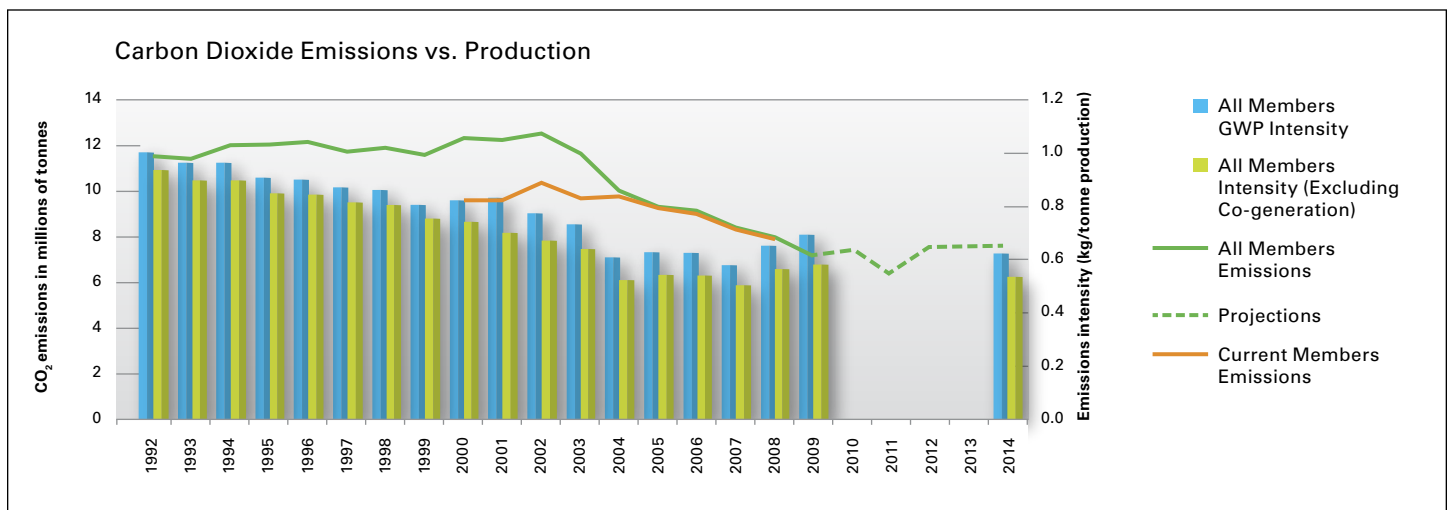
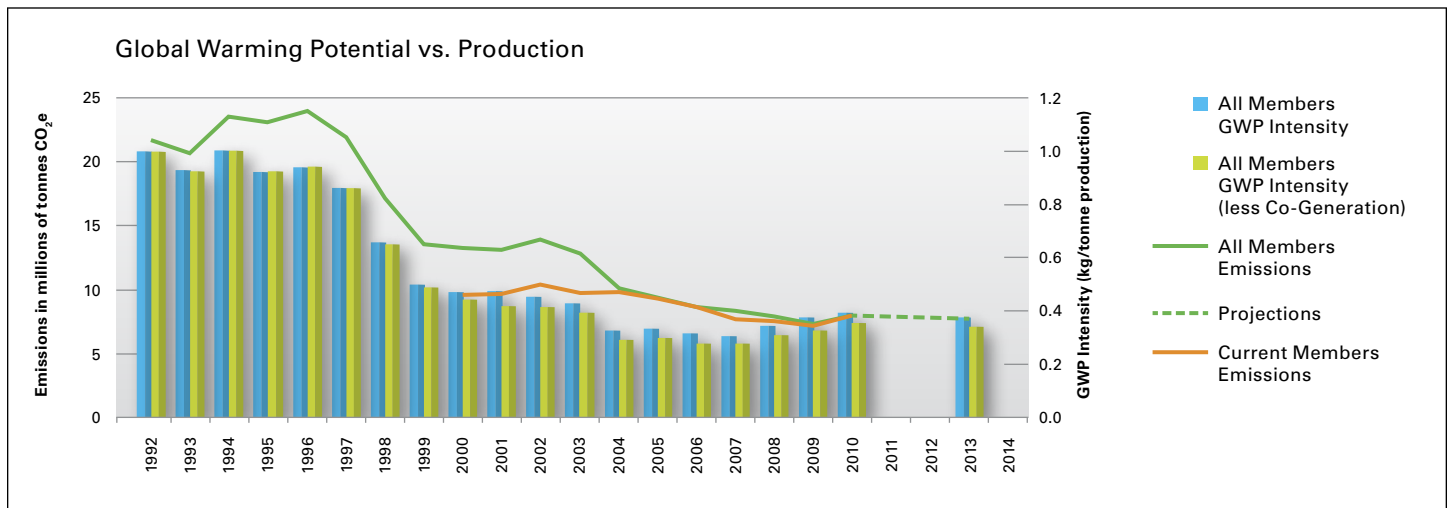
HIGHLIGHTS

Chemical Sector – NAICS 325

The total CO₂ emissions for all members from 1992 to 2010 decreased by 37 percent. However, the total CO₂ emissions for all members from 2009 to 2010 increased by 5 percent.

In terms of global warming potential, member companies' GHG emissions (millions of tonnes of CO₂ emissions) declined by 63 percent in 2010 when compared to 1992. However, global warming potential for all members' GHG emissions increased by 9 percent from 2009 to 2010.

There were several factors at play which resulted in this increase: increased demand for member company products, improvements in emission estimation methodologies, changes in processes and products and the addition of several new companies to CIAC membership.





CONSTRUCTION

The Canadian construction industry represents a major component of Canada's economy. Statistics Canada data indicated that the industry provided 1.36 million direct jobs in 2010 in more than 280 000 firms, produced nearly \$193 billion in goods and services and contributed about \$74 billion to Canada's GDP.¹

The construction sector is represented within CIPEC by the [Canadian Construction Association \(CCA\)](#), the national voice of the construction industry, with a membership of more than 17 000 across Canada. CCA members represent all segments of the industry and are responsible for the construction of industrial, commercial, institutional and civil engineering projects.

¹ Data are from Statistics Canada: CANSIM Table 383-0009 (Labour statistics), Canadian Business Patterns database (establishments), Table 379-0027 (GDP). Gross output value from Informetrica Ltd.

ACHIEVEMENTS

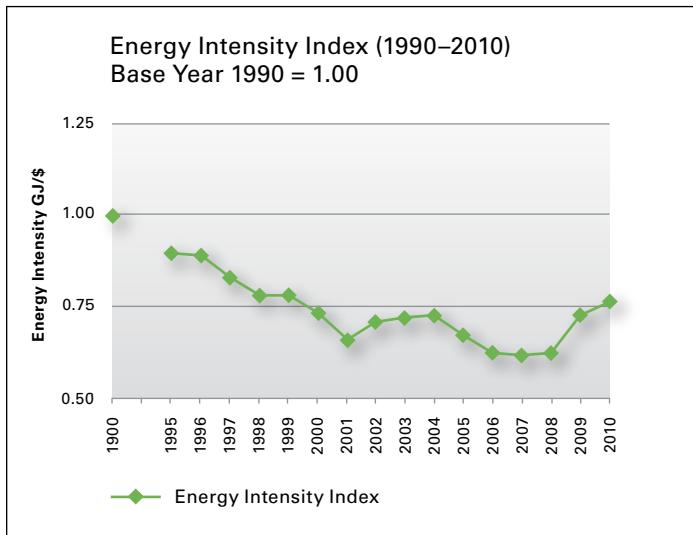
Since 1990, the construction industry has made considerable strides to reduce its environmental footprint and greenhouse gas emissions, while at the same time increasing its gross output by more than 60 percent. Today, many companies regularly upgrade their equipment to ensure they are using the most fuel-efficient engines available. A number of construction companies have also switched their fuel use to less harmful fuel types, and will soon be operating on B2 biodiesel across Canada. Other important innovations within the construction sector include:

- Many contractors target and obtain 50 percent recycling rates on all of their projects, which is remarkable considering virtually nothing was recycled only 20 years ago.
- New technologies and construction innovations are contributing to reduce end-use energy consumption and building emissions. Many new buildings are incorporating these design improvements to help lower their operating costs and environmental footprint.
- Certification systems are increasingly being used to test, measure and assign a rating to new construction based on its sustainability and eco-friendliness.
- Energy retrofits reduce a building's energy use by as much as 50 percent in some cases.

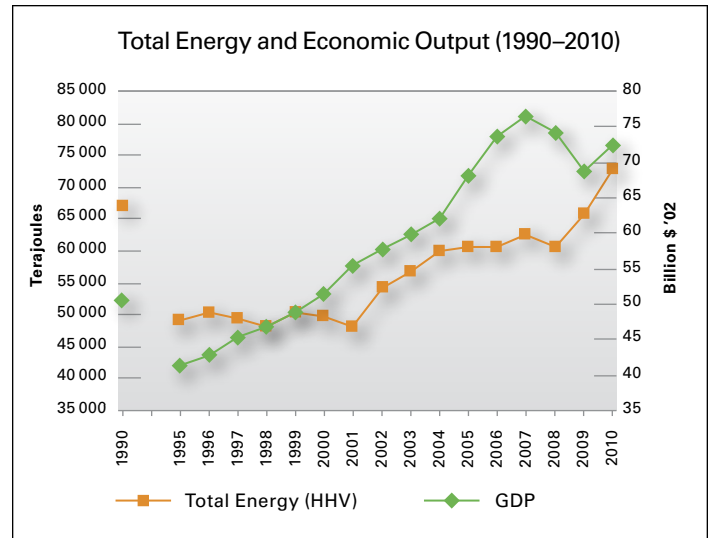
For more information on the sector, visit oee.nrcan.gc.ca/industrial/construction.

HIGHLIGHTS

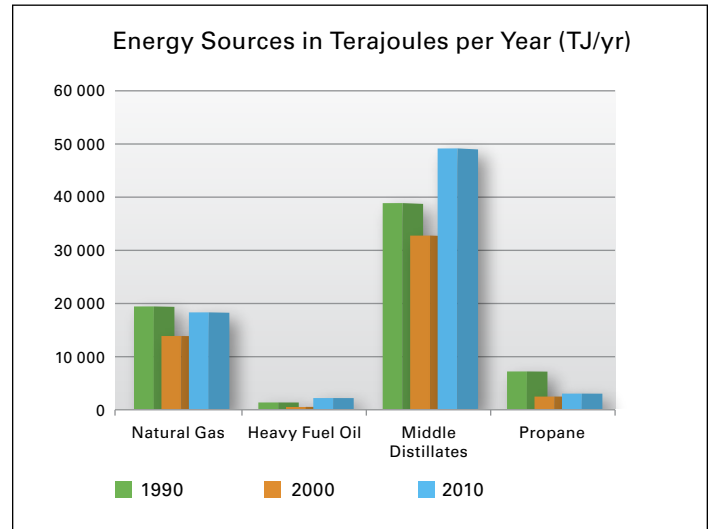
Construction Sector – NAICS 23



Energy intensity increased by 4.5 percent between 2009 and 2010. Based on GDP growth, energy intensity in the construction sector has fallen since 1990.



Between 2009 and 2010, total energy consumption increased by 10.48 percent while GDP increased by 5.72 percent.



Middle distillates are the preferred fuel at 63 percent, followed by natural gas at 25 percent.

While diesel emissions are up, the introduction of new Tier 4 engines in 2012 should help bring about further fuel efficiency and declines in both CO₂ and particulate emissions.

Data sources: [Energy Use – Canadian Industrial Energy End-Use Data and Analysis Centre \(CIEEDAC\)](#), Simon Fraser University, February 2012.
 Output – [Informetrica Limited, T1 Model and National Reference Forecast](#), March 2012.



DAIRY

The dairy industry ranks third in the Canadian agricultural sector following grains and red meats. In 2010, dairy production in Canada generated total net farm receipts of \$5.5 billion and sales of \$13.7 billion, representing 15 percent of the Canadian food and beverage sector. About 81 percent of Canadian dairy farms are located in Ontario and Quebec, 13 percent in the western provinces and 6 percent in the Atlantic provinces.

The Canadian dairy cattle population totals 1.4 million and the typical Canadian dairy farm has 72 cows. There are 455 milk processing plants (including 274 federally inspected) contributing to more than 22 650 jobs across Canada. The Canadian dairy sector operates under a supply management system based on planned domestic production, administered pricing and dairy product import controls.

The Canadian dairy industry is currently developing a comprehensive strategy on environmental sustainability related to climate change, aimed at reducing greenhouse gas emissions (GHG) in an increasingly efficient Canadian dairy industry.¹

¹ [Canada's Dairy Industry at a Glance](#), 2010.

ACHIEVEMENTS

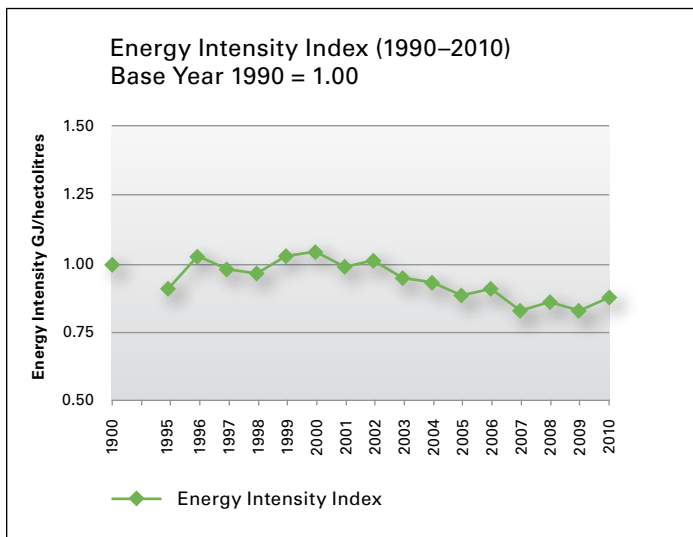
The concentrated nature of Canada's dairy industry makes it easier to investigate and implement innovative energy efficiency options. CanmetENERGY is bringing its technical support and expertise to optimize the energy consumption of a Parmalat dairy plant in Laverlochère, Quebec. The project includes a process integration study in partnership with the plant's staff and recommendations for a new refrigeration and heat pump system. The process integration study aims to identify the best solutions to optimize waste heat use and upgrading. Thanks to the support provided by the *Bureau de l'efficacité et de l'innovation énergétiques* to develop the process energy integration market in Quebec, CanmetENERGY will provide Parmalat's staff with technical support during the study.

Another leader on energy efficiency, La Fromagerie Polyethnique in Saint-Robert, Quebec, no longer needs to heat any of its process water with a propane furnace. All thermal pumps – four dedicated to heating and cooling the facility and two to process heating and cooling – function in conjunction with heat exchangers that capture waste heat from various equipment and processes including air compressors, whey production, and preheating wash water. With its integrated technology, the company is not only saving heating costs but also diverting the equivalent of 156 tonnes of carbon dioxide annually.

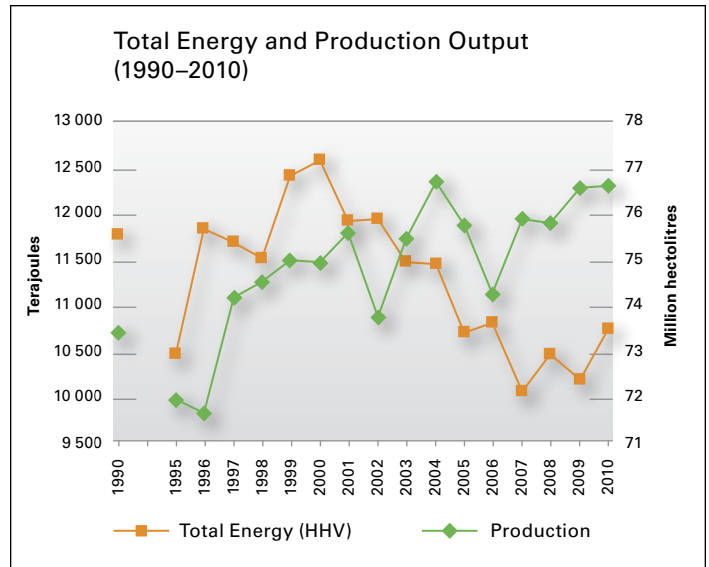
For more information on the sector, visit oee.nrcan.gc.ca/industrial/dairy.

HIGHLIGHTS

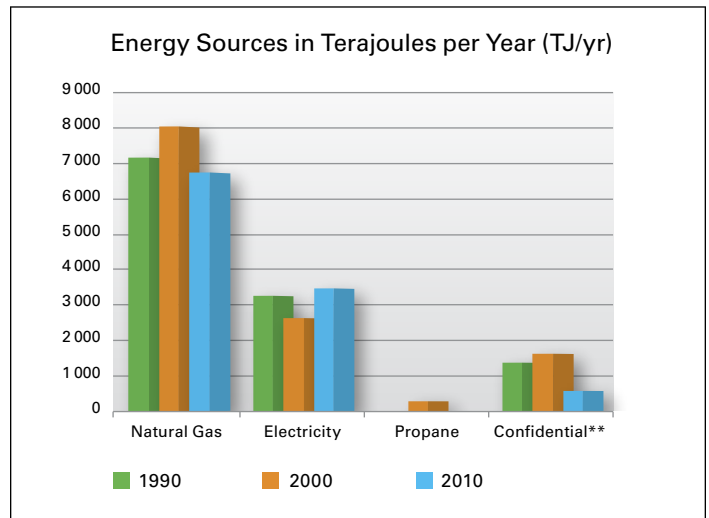
Dairy Sector – NAICS 3115



Energy intensity increased by 5.42 percent between 2009 and 2010.



Production increased by 0.09 percent and energy consumption increased by 5.52 percent between 2009 and 2010.



Natural gas consumption increased by 0.8 percent and electricity consumption increased by 12.4 percent between 2009 and 2010.

** Confidential includes: Heavy Fuel Oil (HFO), Propane (LPG) and Middle Distillates (LFO).

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa, January 2012.

Production – GDP – [Informetrica Limited, T1 Model and National Reference Forecast](#), March 2012.



ELECTRICAL AND ELECTRONICS

The electrical and electronics sector includes a diverse array of companies that produce electrical appliances, lighting, consumer electronics, communications and electronic equipment, cabling, office equipment, industrial equipment and other electrical products. These companies operate more than 1400 facilities and employ over 130 000 workers across Canada. The sector is a major exporter and a vital, growing contributor to the national economy. It contributes more than \$50 billion to Canada's economy.¹

Profile

¹ Source: [Electro-Federation Canada](#)

ACHIEVEMENTS

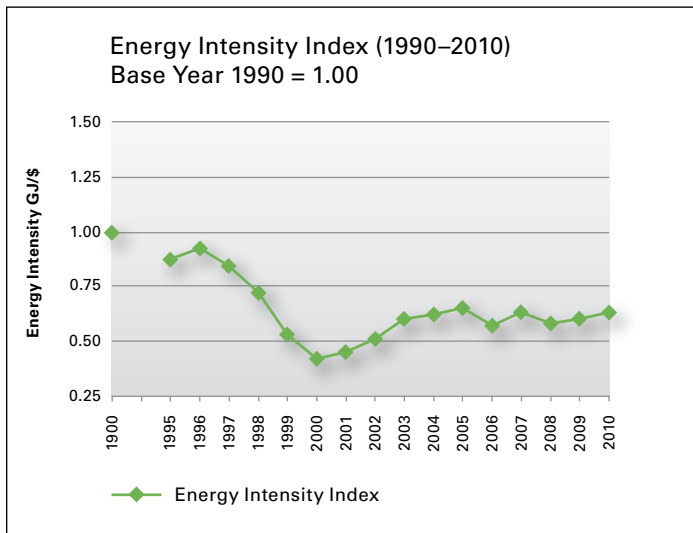
The industry is committed to reducing its impact on the environment through energy-efficient processes and practices. General Dynamics Canada, located in Ottawa, Ontario, is a sector leader on energy efficiency. The General Dynamics Advanced Information Systems Energy Team is executing a plan that is driving energy efficiency through all levels of the organization. Notable advances include:

- The company restructured its portfolio from more than 70 offices to just over 50 offices around the country today, totalling over 3 million square feet. Effective use of real estate space is critical to conserving energy.
- Thanks to energy-saving initiatives, General Dynamics experienced its lowest level of energy consumption in three years.
- The energy team is also working on converting from desktops to laptops and from CRT monitors to LCD monitors, both of which contribute to energy conservation.
- General Dynamics' manufacturing plant is registered to the ISO 14001 and OHSAS 18001 standards. As part of this registration, the affected buildings establish environmental impact objectives and targets each year.

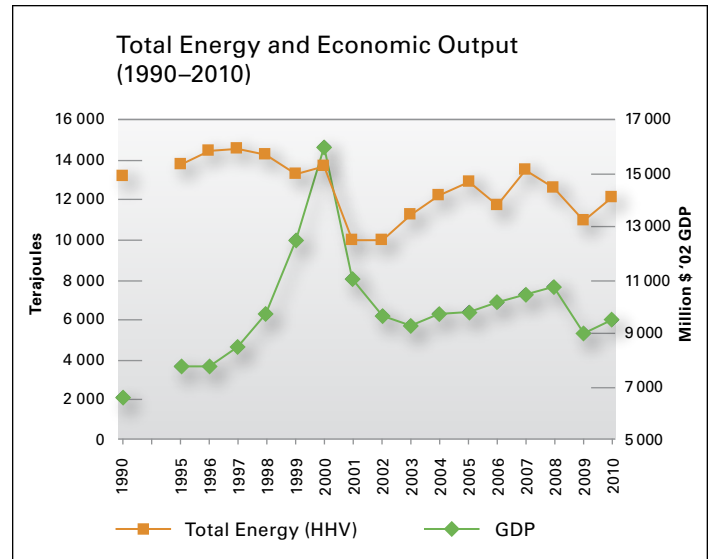
For more information on the sector, visit oee.nrcan.gc.ca/industrial/electricalandelectronics.

HIGHLIGHTS

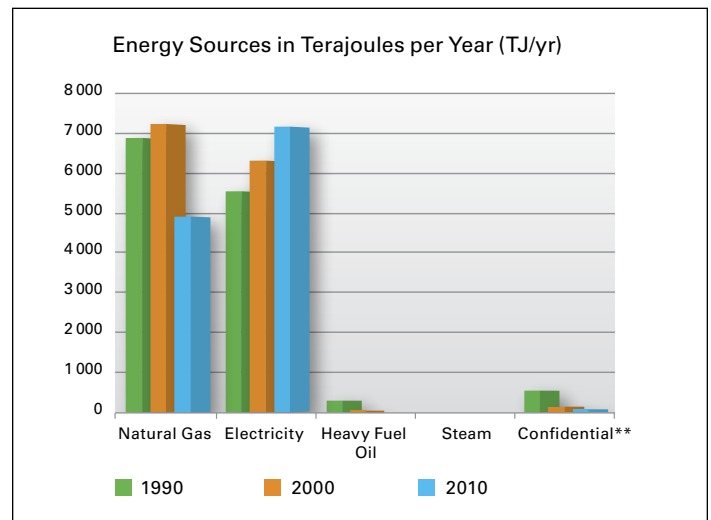
Electrical and Electronics Sector – NAICS 334 and 335



Energy intensity increased by 5.20 percent between 2009 and 2010.



Total energy consumption increased by 10.59 percent while total production (GDP) increased by 5.13 percent between 2009 and 2010.



** Confidential includes: Middle Distillates (LFO), Propane (LPG) and Wood Waste.

Data source: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa, January 2012.
Production – GDP – [Informetrica Limited](#), T1 Model and National Reference Forecast, March 2012.



ELECTRICITY GENERATION

Electricity is a major driver of the Canadian economy and a fundamental requirement for the prosperity and quality of life of all Canadians. From health services to communication requirements, Canadians depend on reliable, cost-effective electricity. [Canadian Electricity Association \(CEA\)](#) members strive to provide this essential service as reliably as possible, but appropriate conditions for investment will be essential in the years ahead to ensure continued system reliability. While CEA members work toward delivering on this key mandate, they also contribute to the economy in many other ways, including employee compensation, payments to investors and governments, donations to local charities, and other long-term community investments.

Association members generate, transmit and distribute electrical energy to industrial, commercial, residential and institutional customers across Canada every day. From vertically integrated electric utilities, to power marketers, to the manufacturers and suppliers of materials, technology and services that keep the industry running smoothly – all are represented by this national industry association.

ACHIEVEMENTS

Sustainable Electricity is an industry-wide sustainability program developed and implemented by the electric utility members (generation, transmission and distribution) of the Canadian Electricity Association. Participation in Sustainable Electricity is a condition of membership. The third [Sustainable Electricity Annual Report](#), released in June 2011, outlined the environmental, social and economic performance of its member companies in 2010 and highlighted a variety of energy efficiency projects.

Hydro One initiated lighting and heating, ventilation and air conditioning (HVAC) retrofit projects at ten of its service centres and related facilities. The 14 400 square metre Central Maintenance Services facility in Pickering underwent a complete lighting retrofit. This resulted in an initial reduction of more than 230 000 kilowatt hours (kWh) per year.

Maritime Electric introduced an LED Holiday Lighting Rebate Program for its residential customers. More than 6400 customers participated in the program, resulting in 110 000 kWh of annual energy savings and the achievement of 71 kilowatts of savings in peak demand for electricity.

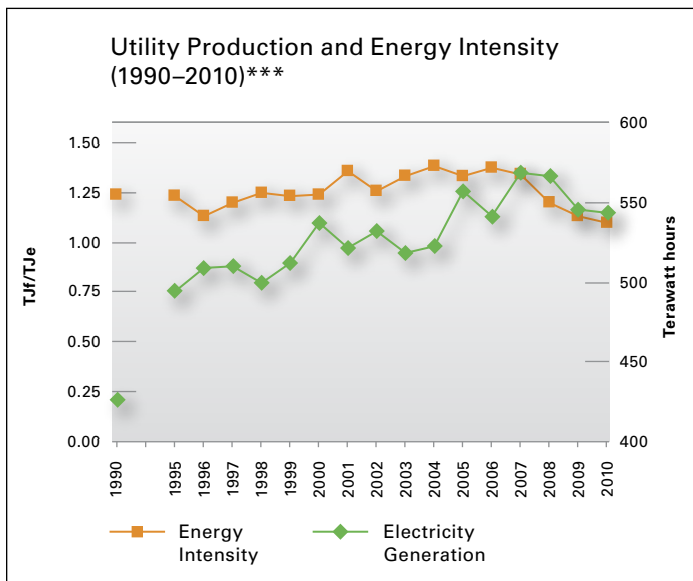
Hydro Ottawa presented the University of Ottawa with \$136,000 for its participation in the Electricity Retrofit Incentive Program. The upgraded cooling plant at the University will reduce electricity consumption by 25 percent.

Source: [Investing in our Sustainable Future – 2010 Sustainability Annual Report](#). Canadian Electricity Association.

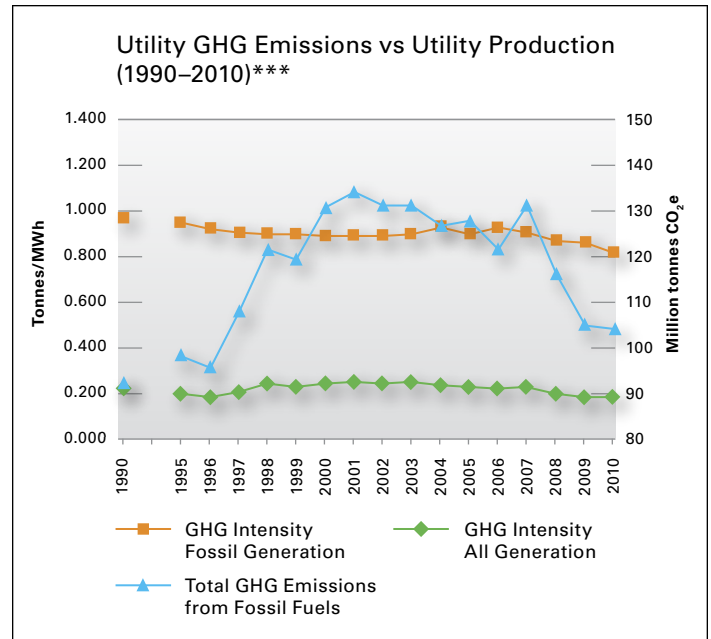
For more information on the sector, visit oee.nrcan.gc.ca/industrial/e.generation.

HIGHLIGHTS

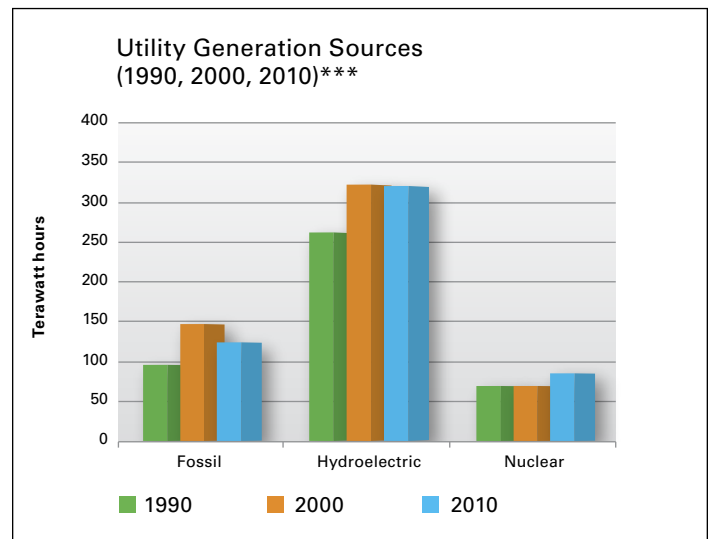
Electricity Generation Sector – NAICS 22111



Energy intensity decreased by 2.65 percent and electricity generation decreased by 0.55 percent between 2009 and 2010.



GHG intensity from fossil generation decreased by 5.01 percent between 2009 and 2010. GHG intensity for total generation decreased by 0.53 percent between 2009 and 2010. Total GHG emission decreased by 0.67 percent between 2009 and 2010.



*** This sector excludes industrial electricity generation.

Data Source: Energy Use – [Canadian Industrial Energy End-Use Data and Analysis Centre \(CIEEDAC\)](#). Simon Fraser University, February 2012.



FERTILIZER

Canada supplies approximately 12 percent of the world's fertilizer materials, and our fertilizer industry plays an essential role in ensuring that world food needs can be met economically and sustainably. Canada is the world's largest exporter of potash and elemental sulphur. In addition, the industry contributes more than \$12 billion annually to the Canadian economy.

ACHIEVEMENTS

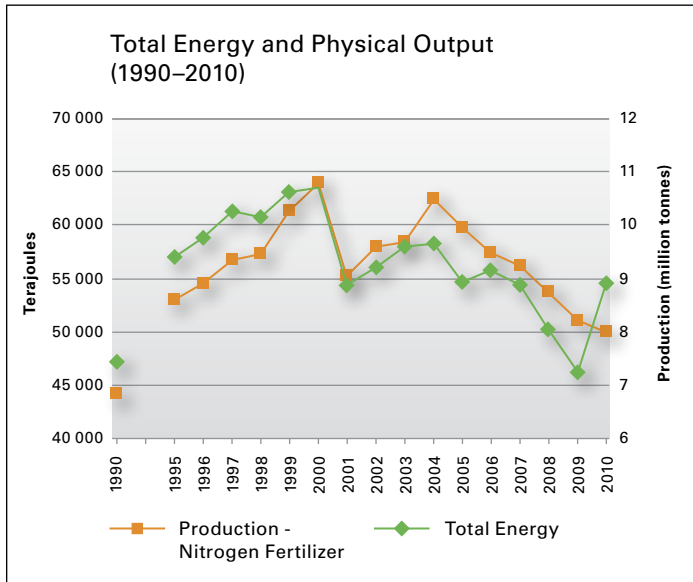
[Canadian Fertilizer Institute \(CFI\)](#) member companies have made significant investments over the years to improve manufacturing energy efficiency and to reduce air emissions. The CFI works diligently to ensure that its voluntary efforts to improve energy efficiency and reduce emissions are recognized by the federal and provincial governments.

Energy efficiency initiatives are driven in part by the Institute's drive to comply with the Nitrous Oxide Emissions Reduction Protocol (NERP). A web-based seminar called a NERPinar was held on March 29, 2012 and focused on past NERP-related accomplishments, present applications, and future innovations. A strong emphasis was placed on the scientific rigour and technical feasibility of the 4R NERP. The goal of the NERPinar was to demonstrate the comprehensive suite of benefits achieved by implementing NERP practices and procedures and it provided a compelling business case.

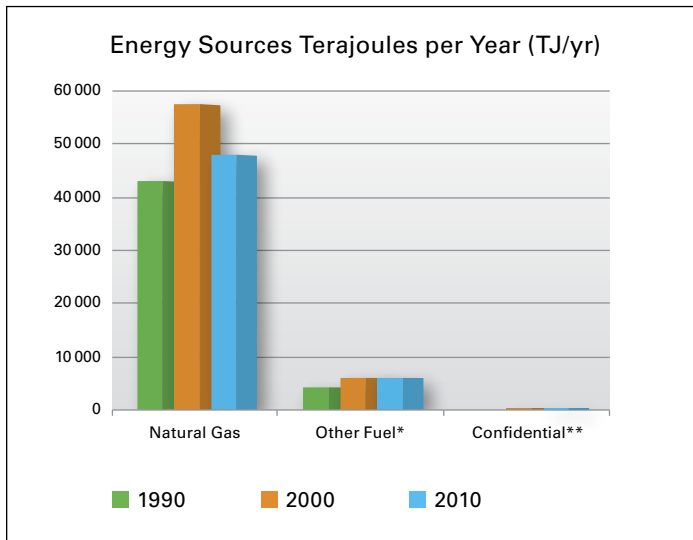
For more information on the sector, visit oee.nrcan.gc.ca/industrial/fertilizer.

HIGHLIGHTS

Fertilizer Sector (Nitrogenous) – NAICS 325313



Between 2009 and 2010, production decreased by 2.52 percent while energy consumption increased by 18 percent.



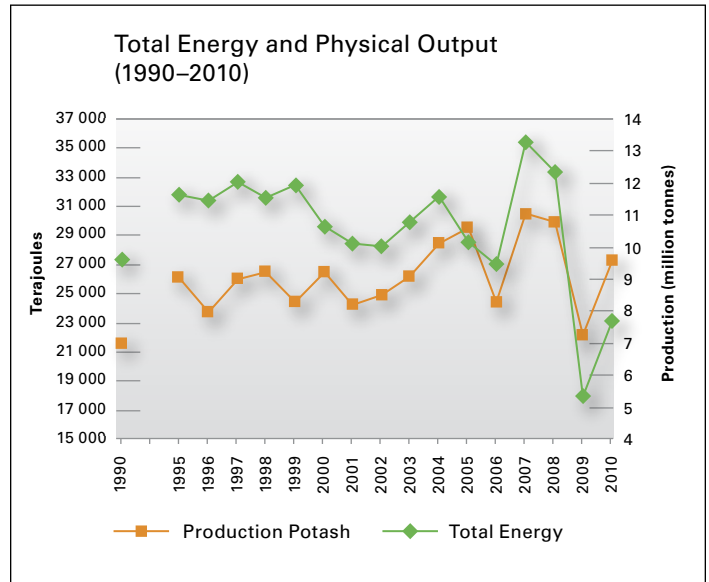
* Other Fuel includes: Electricity, Middle Distillates (LFO) and Propane (LPG).
 ** Confidential includes: Heavy Fuel Oil (HFO) and Steam.

Natural gas consumption increased by 17.6 percent between 2009 and 2010.

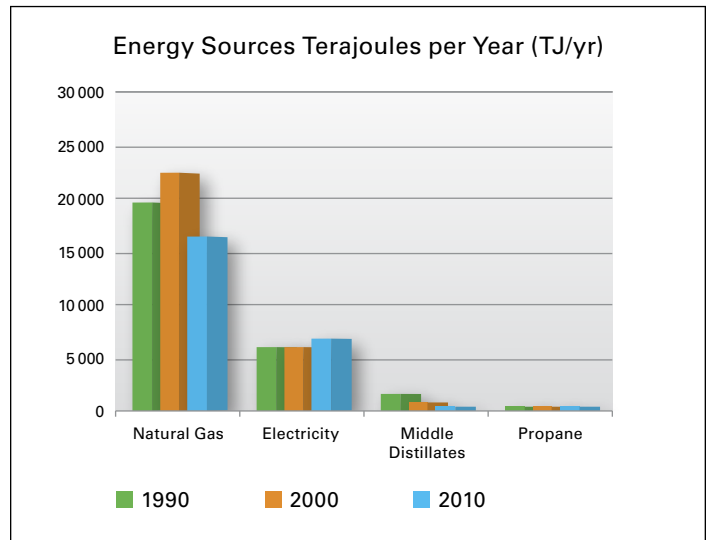
Data Sources: Energy Use – Statistics Canada, *Industrial Consumption of Energy Survey, 1990, 1995-2010*. Ottawa. January 2012.

Production – GDP – *Informetrica Limited, T1 Model and National Reference Forecast*, November 2010.

Fertilizer Sector (Potash) – NAICS 212396



Production increased by 31.7 percent while energy consumption increased by 28.7 percent between 2009 and 2010.



Between 2009 and 2010, natural gas consumption increased by 25.9 percent while electricity consumption increased by 32 percent.

Data Sources: [Canadian Fertilizer Institute \(CFI\)](#), 1990, 1999-2009, November 2010.

Canadian Fertilizer Institute (CFI), 1995-1998, March 2006.

Energy Use – [Canadian Industrial Energy End-Use Data and Analysis Centre \(CIEEDAC\)](#), Simon Fraser University, February 2012.

(1) Natural Gas – 1990, 1999-2006, Canadian Fertilizer Institute, November 2010.

Natural Gas – 1995-1998, Canadian Fertilizer Institute, March 2011.

(2) Other Fuels 1990-2005. Canadian Industrial Energy End-Use Data and Analysis Centre (CIEEDAC). *Development of Energy Intensity Indicators for Canadian Industry 1990-2010*. Simon Fraser University. March 2011.



FOOD AND BEVERAGE

Canada's food and beverage sector includes manufacturers who produce meat, poultry, fish, fruit and vegetables, flour and bakery products, oils and sugars, coffee, snack foods, soft drinks and confectionery. It is the second largest manufacturing industry in Canada after transportation equipment.

ACHIEVEMENTS

The food-processing industry is not considered energy intensive by other industrial/processing standards. However, it still represents a significant cost of business and there are opportunities to be more energy efficient. One example is biodiesel, the refining of vegetable oil to make it run as efficiently as biodiesel fuel. It burns cleaner and completely, and emits significantly less sulphur, carbon monoxide and particulate than conventional fossil fuels. Biodiesel is also more environmentally sound. If it happens to leak or spill, it can be neutralized without the detergents needed for conventional fuels because it readily breaks down.

Additionally, food and beverage companies are finding and implementing many cost-effective solutions to reduce energy use and generate important energy cost savings. The following are successful CIPEC Leader projects:

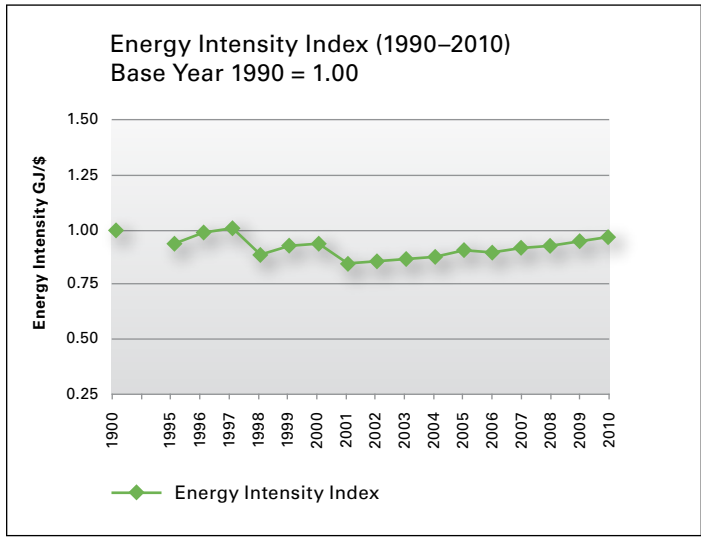
- Over 619 food and beverage employees have attended a customized NRCan Dollars to \$ense Energy Management workshop tailored for the specific facility.
- Between 2005 (base year) and 2011, Mondelez Canada Inc., formerly Kraft Foods achieved some aggressive sustainability goals, including a 25 percent reduction in both manufacturing-related energy consumption and energy-related CO₂ emissions from manufacturing.

- Cargill Foods' goal is to improve energy efficiency by 5 percent over their fiscal year 2010 baseline by 2015. The company made strong progress toward this goal during 2011 with an improvement in energy efficiency of more than 3 percent over this same baseline.

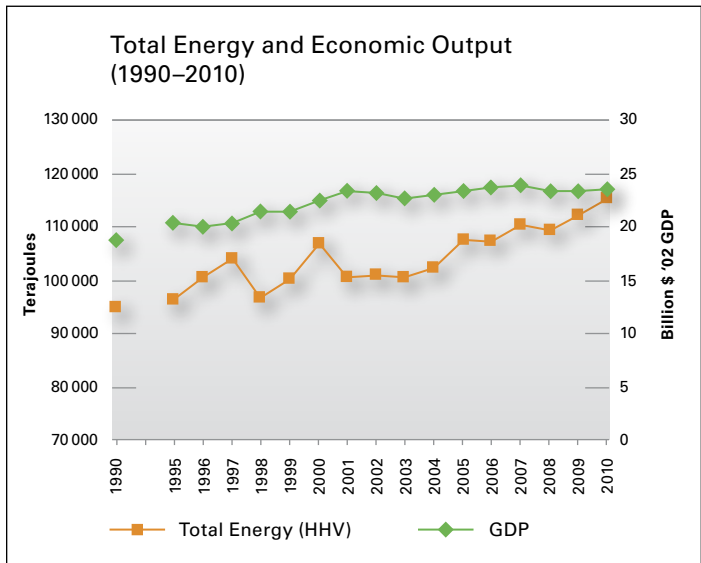
For more information on the sector, visit oee.nrcan.gc.ca/industrial/foodandbeverage.

HIGHLIGHTS

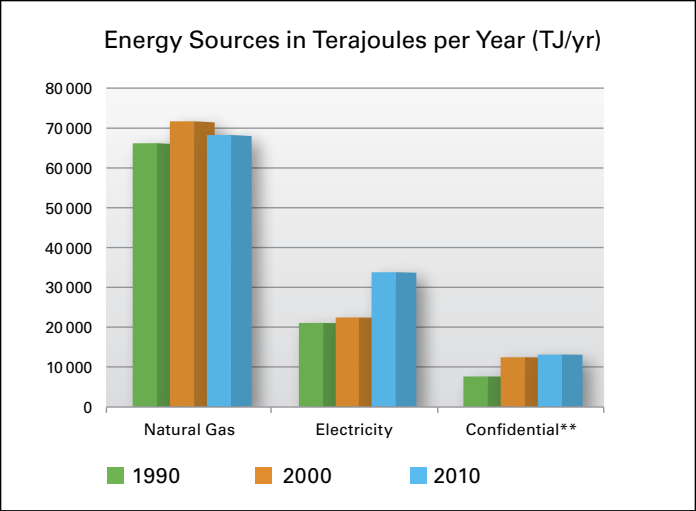
Food and Beverage Sector – NAICS 3121



The sector's energy intensity increased by 2.1 percent between 2009 and 2010.



The GDP increased by 0.6 percent while energy consumption increased by 2.7 percent between 2009 and 2010.

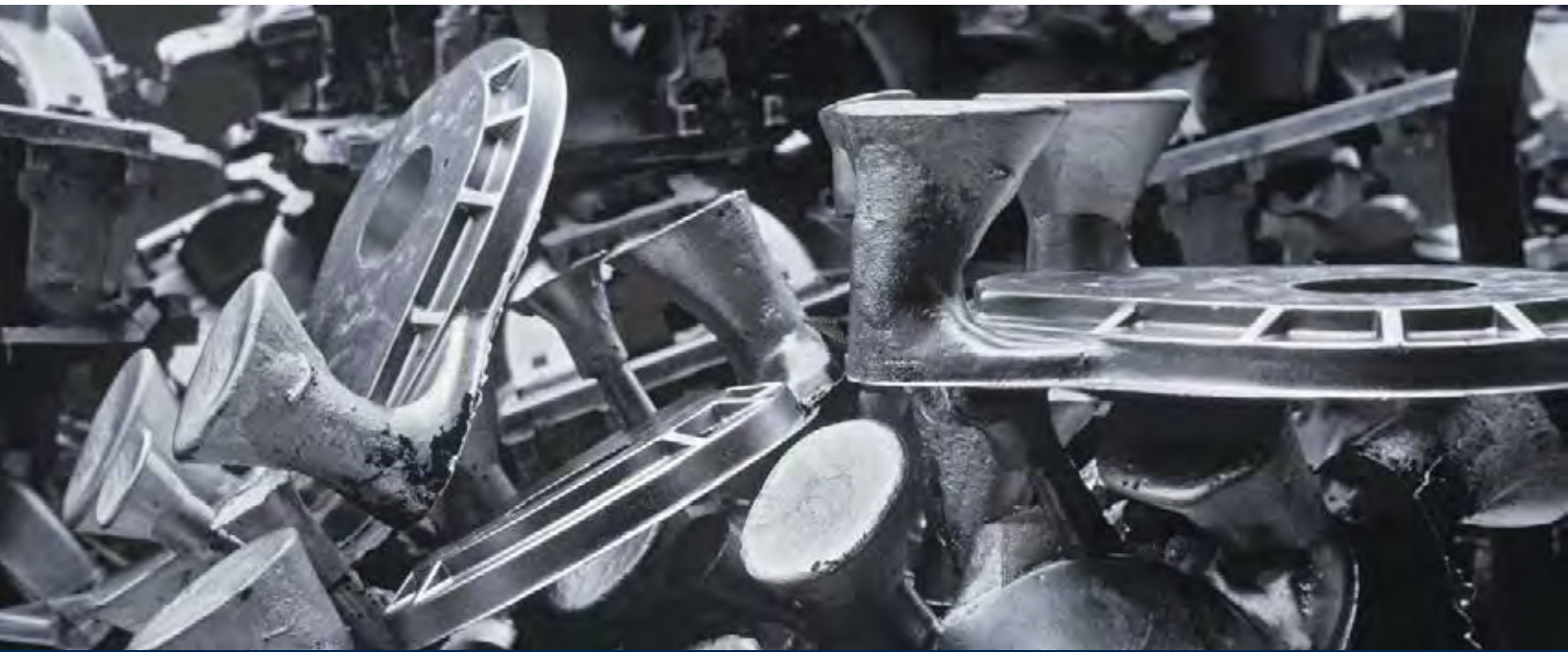


Natural gas consumption increased by 3.2 percent and electricity consumption decreased by 10.7 percent between 2009 and 2010.

** Confidential includes: Heavy Fuel Oil (HFO), Middle Distillates (LFO), Propane (LPG), Wood Waste and Steam.

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa, January 2012.

Production – [Informetrica Limited](#), T1 Model and National Reference Forecast, March 2012.



FOUNDRY

Profile

The Canadian foundry industry is comprised of more than 150 small, medium and large facilities that produce metal castings. Molten metal is poured into forms made of sand or metal and allowed to cool. The resulting castings are then used in a myriad of industries and industry specialty markets, including forestry, mining, automotive, construction, pulp and paper, heavy industrial machinery and equipment, aircraft and aerospace, petroleum and petrochemical, agricultural, municipal and defence sectors. The raw material used in this industry is typically recycled metal. The industry employed about 8000 people in 2009, down from about 19 660 in 2000.¹

¹ [Canadian Industry Statistics – Employment Foundries NAICS 3315](#). Industry Canada

ACHIEVEMENTS

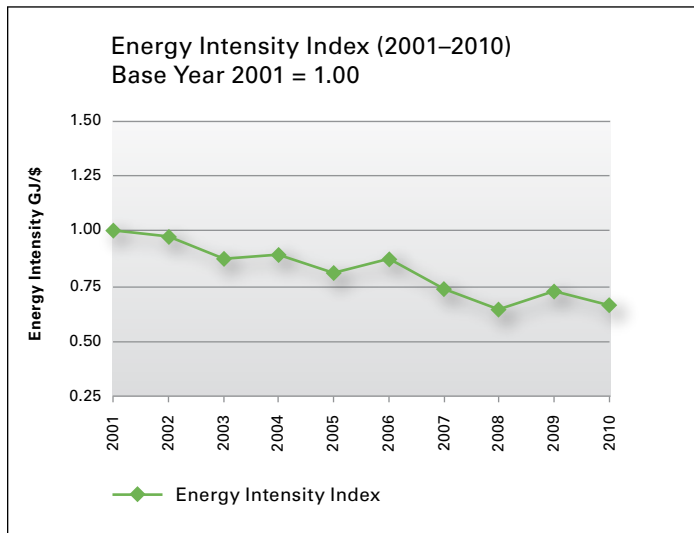
The Energy Benchmarking Study for Canadian Foundries published by the [Canadian Foundry Association](#) in March 2011 speaks directly to the progress this sector is making on energy efficiency. The study shows:

- Typical energy benchmarks for each foundry operation, on a per tonne basis.
- Benchmarks for each metal type for the entire foundry on a per tonne basis.
- That participants can gauge their performance against their peers on a total foundry basis and on a department-by-department basis.
- Dozens of practical energy improvement ideas that have been successfully accomplished by peer foundries and could be launched by any interested foundry.

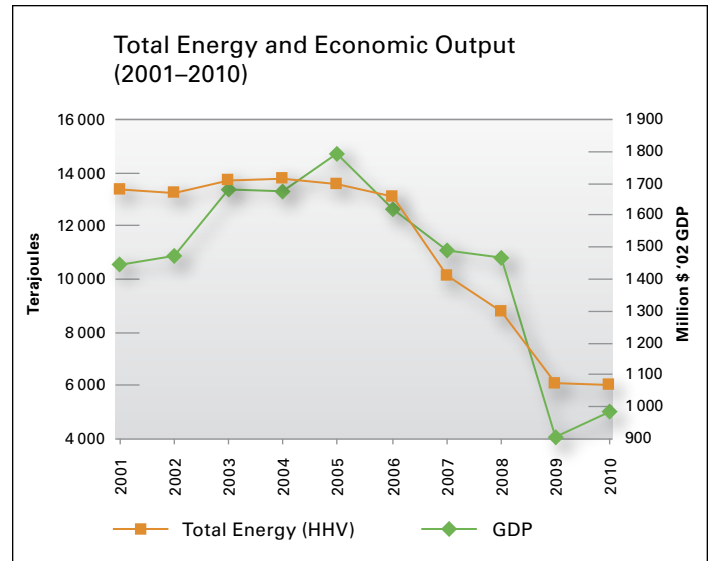
For more information on the sector, visit oee.nrcan.gc.ca/industrial/foundry.

HIGHLIGHTS

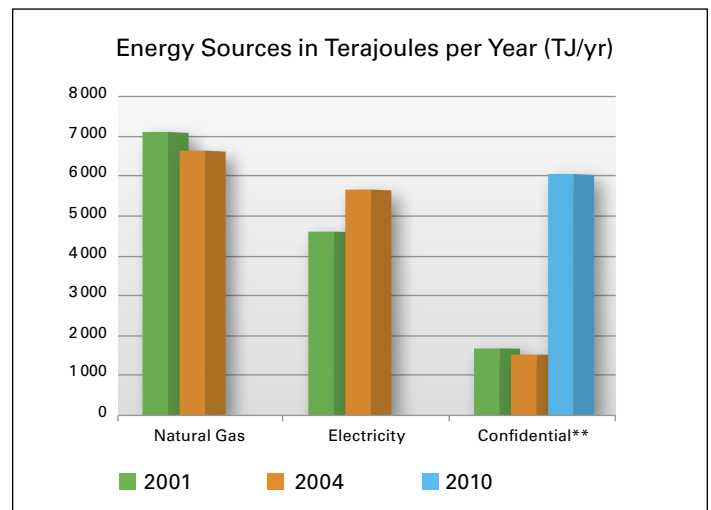
Foundry Sector – NAICS 3315



The energy intensity decreased by 9.2 percent between 2009 and 2010.



The GDP increased by 9 percent and energy consumption decreased by 1.1 percent between 2009 and 2010.



** Confidential includes: Electricity, Natural Gas, Coal Coke, Heavy Fuel Oil (HFO), Middle Distillates (LFO) and Propane (LPG).

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey, 1990, 1995-2010](#). Ottawa. January 2012.
 Production – [Informetrica Limited, T1 Model and National Reference Forecast, March 2012](#).



GENERAL MANUFACTURING

Ontario and Quebec have sizable manufacturing sectors, and there is a strong sectoral presence in the Atlantic provinces, the Prairies and the west coast region of Canada. The general manufacturing sector includes a variety of industries not otherwise covered in the sector descriptions of this report, including leather, clothing, furniture, printing activities, glass and glass products, adhesives, tobacco products and pharmaceuticals, as well as construction materials like floor coverings and insulation. The sector also includes rubber products, textiles and wood products like furniture, kitchen cabinets, containers and pallets.

More than 1.8 million Canadians are employed in manufacturing – about 15 percent of the Canadian workforce. Manufacturing accounts for 12 percent of the total Canadian gross domestic product.¹

¹ Source: [Canadian Manufacturers and Exporters](#)

ACHIEVEMENTS

A stable, secure supply of energy at the lowest possible cost is essential to manufacturers. Energy costs can constitute up to 30 percent or more of total plant expenditures. Deregulation has left many electricity and natural gas business consumers at the mercy of price increases and decreases, uncertain as to where to turn for energy expertise. Considering the high cost, uncertainty and the need to reduce greenhouse gas emissions, it is important for manufacturers to be as energy efficient as possible.

The Quinte Manufacturing Sustainability Network Group (SNG) in eastern Ontario holds monthly meetings, each focusing on a different sustainability theme. Past themes have included lighting retrofits, creating a company culture of sustainability and using a metric to establish energy, water and waste baseline and targets. Ideas for future meetings include tours of solar-powered facilities and exploring the application of the recently published ISO 50001 Energy Management Systems Standard to increase efficiency.

The CIPEC General Manufacturing Sector Task Force in New Brunswick focuses on a collaborative approach. For members who have challenges in implementing energy management, the Task Force offers proven business cases and access to practical information. An energy management information system (EMIS) is an example of an innovative solution that is emerging in New Brunswick.

CIPEC Leaders in the rubber industry have implemented some energy-saving projects. For example, AirBoss Rubber Compounding made major strides over the past few years minimizing the waste they send to landfill. They achieved a 92 percent recycling target in 2009 and set a target of 95 percent for 2010. Cooper-Standard Automotive continually searches for ways to help improve a vehicle's overall carbon footprint. They supply products that help reduce greenhouse gas emissions, increase recyclability and improve a vehicle's fuel economy. In addition to improving vehicles, Cooper Standard actively explores and implements new ways to enhance its manufacturing processes, enabling increased recyclability and reducing company emissions.

The [Textiles Human Resources Council](#) conducted an 18-month initiative on green manufacturing and technical textiles which led to a number of achievements.

Perhaps the most significant was the Eco-Innovation and Sustainable Manufacturing Program. Through a combination of webinars, online training programs and eco-innovation workshops centered on topics such as eco-design best practices and life-cycle analysis, the Eco-innovation and Sustainable Manufacturing program promotes the acquisition and development of key knowledge and skills necessary for the successful implementation of sustainable manufacturing initiatives. Developed and delivered in partnership with the Institute for Product Development (IDP), Ellipso inc., and the National Research Council of Canada (NRC), this program offers participants the opportunity to network and collaborate with industry peers and leading sustainable development experts as they conceive and develop an eco-innovation project for implementation within their workplaces.¹

The wood products industry, for their part, continued to push the energy efficiency envelope this year. Over the past decade, Canada's forest products industry has invested over \$8 billion in facility upgrades and innovative processes in a continued effort to improve its environmental performance.

Two CIPEC sector members, Flakeboard Company Ltd. and Groupe Savoie, were awarded CIPEC Leadership Monitoring and Tracking awards in 2011.

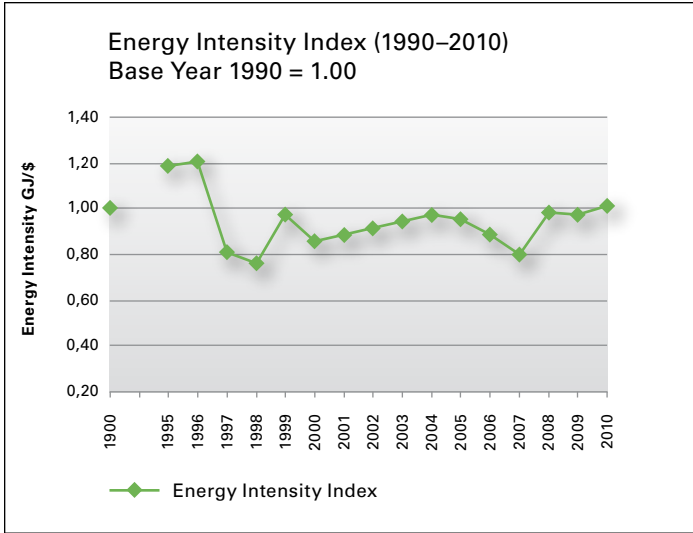
For more information on the sector, visit oeenrcan.gc.ca/industrial/generalmanufacturing.

HIGHLIGHTS

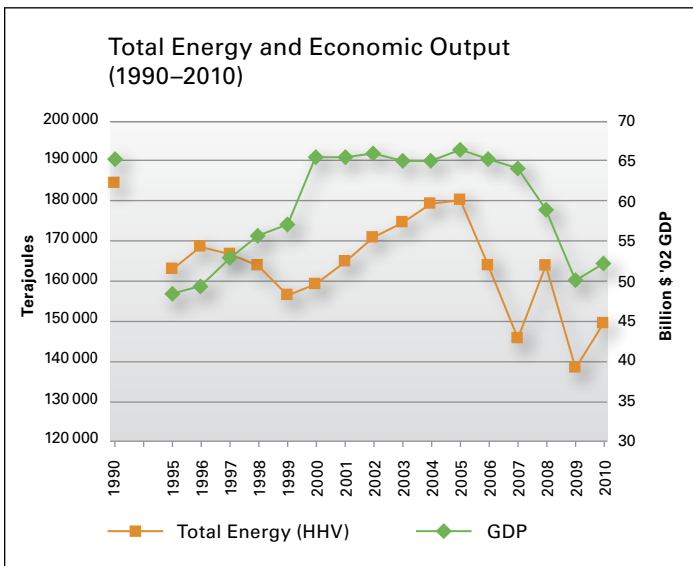
General Manufacturing Sector – NAICS***

*** NAICS Category Name	
Textiles	313 and 314
Clothing and Manufacturing	315
Leather and Allied Product	316
Wood Products	321
Rubber Products	3262
Printed and Related Support Activities	323
Fabricated Metal Product	332
Machinery	333
Furniture and Related Product	337
Miscellaneous Manufacturing	339
Tobacco Product Manufacturing	3122
Converted Paper Product Manufacturing	3222
Non-metallic Mineral Product not Elsewhere Classified	3271, 3272, 32732, 32733, 32739, 32742 and 3279
Chemical Manufacturing not Elsewhere Classified	32522, 325314, 32532, 3254, 3255, 3256 and 3259

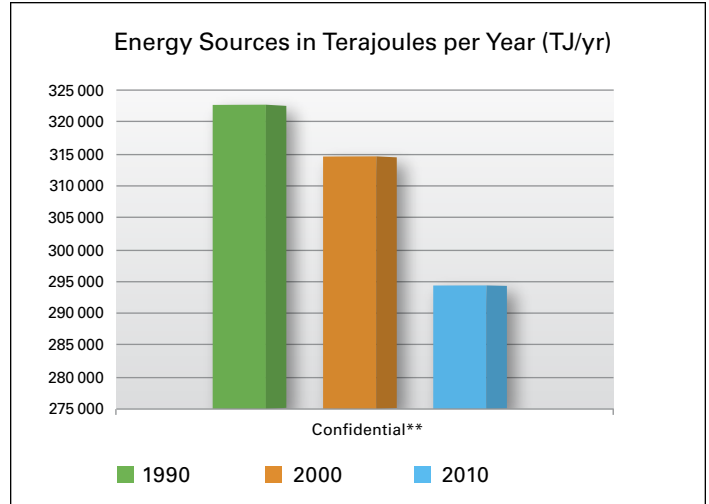
¹ Source: [Textiles Human Resources Council](#)



The reopening of facilities had an impact on the energy intensity of the sector. It lowered the capacity utilization rate and increased the energy intensity by 4.2 percent over the 2009 level.



Due to improvement in the economic environment, the energy consumption in the general manufacturing sector increased by 10.3 percent from 2009 to 2010. This is mostly attributable to the reopening of industrial facilities that had been closed during the economic crisis. 2010 energy consumption is 4.8 percent below the 2008 level.



** Confidential includes: Coal, Coke, Petroleum Coke, Heavy Fuel Oil (HFO), Middle Distillates (LFO), Propane (LPG), Wood Waste, Steam, Natural Gas and Electricity.

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey](#), Ottawa, January 2012.

Production – [Informetrica Limited, T1 Model and National Reference Forecast](#), March 2012; Statistics Canada National Accounts: Industry-based.





LIME

Canada's merchant lime sector supplies essential raw materials for the steel and mining industry, the pulp and paper industry, water treatment, environmental management and other basic industries. It manufactures quicklime, hydrated lime and dead burned dolomite by crushing, screening and roasting limestone, dolomite shells or other sources of calcium carbonate. The [Canadian Lime Institute](#) represents all merchant lime manufacturers in Canada. The sector's four companies operate 17 facilities and employ over 750 people.

ACHIEVEMENTS

The industry's heavy dependence on fuel makes energy efficiency a top priority and a major challenge. Although incremental improvements are continually made to existing manufacturing equipment, large-scale gains require substantial capital investments in new, more efficient kiln installations. Unfortunately, excess capacity and low capital turnover within the industry limit the ability of lime manufacturers to make such investments.

However, despite these challenges there were a number of energy efficiency highlights to report from the year.

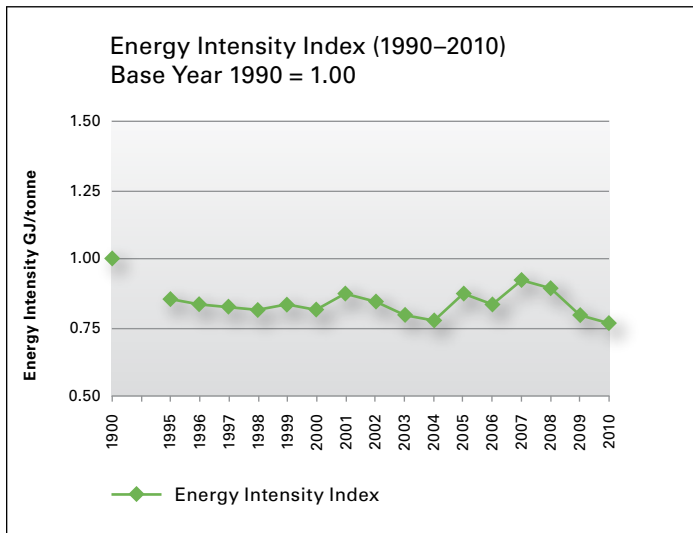
Carmeuse, with locations in Blind River, Dundas and Ingersoll, Ontario, uses natural resources such as stone, energy, and water in its production and uses the most efficient processes to avoid waste. Carmeuse is deeply involved in the reduction of emissions and improving its fuel efficiency.

Graymont, with locations in Havelock, New Brunswick, Bedford, Quebec, and Calgary, Alberta, is committed to protection of the environment, whether through the use of their products for environmental remediation or by controlling the impact of their operations on the environment. For example, plant emissions are sent through baghouses or scrubbers to meet air quality emissions standards.

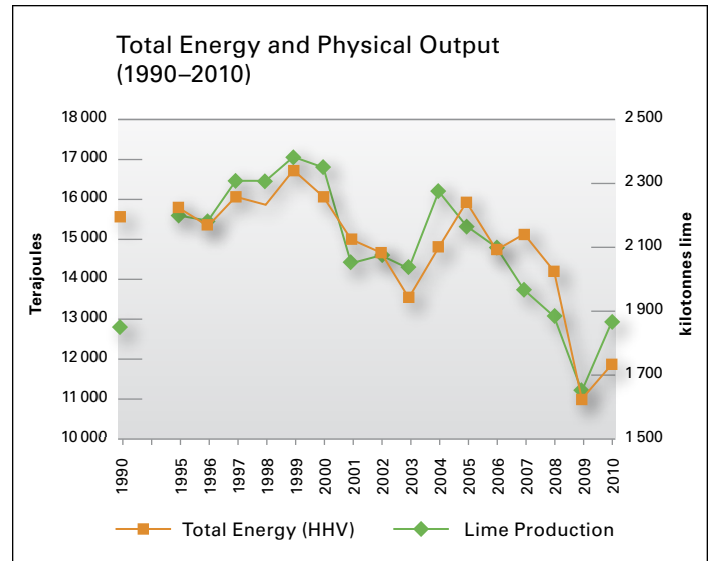
For more information on the sector, visit oee.nrcan.gc.ca/industrial/lime.

HIGHLIGHTS

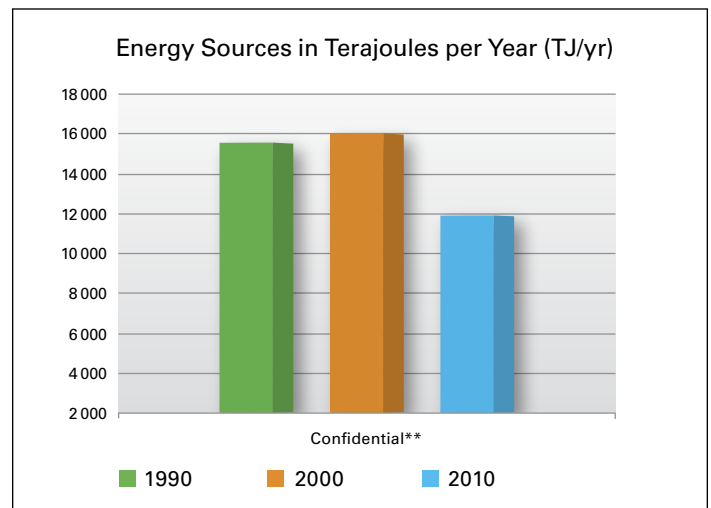
Lime Sector – NAICS 327410



Energy intensity in the sector decreased by 4.4 percent between 2009 and 2010.



Total energy consumption increased by 8 percent and total production increased by 13 percent between 2009 and 2010.



** Confidential includes: HFO (Heavy Fuel Oil), LFO (Middle Distillates), LPG (Propane), Coal Coke, Petroleum Coke, Coal, Electricity and Natural Gas.

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey 1990, 1995-2010](#). Ottawa. January 2012.

Production – [Minerals and Metals Sector, Natural Resources Canada](#), 2012



MINING

Mining is one of Canada's most important economic sectors and is a major contributor to our country's prosperity. In 2011, the industry contributed \$36 billion to our gross domestic product (GDP) and employed 320 000 workers in the mineral extraction, processing and manufacturing sectors. This industry stimulates and supports economic growth both in large urban centres and in remote rural communities, including numerous First Nations communities; mining is a major employer of Aboriginal Canadians.

Mining accounts for 21 percent of Canadian goods exports. The industry also generates considerable economic spin-off activity: There are over 3200 companies that provide the industry with services ranging from engineering consulting to drilling equipment.¹

¹ F&F 2011 – Facts and Figures of the Canadian Mining Industry, [The Mining Association of Canada](#)

ACHIEVEMENTS

The [Green Mining Initiative \(GMI\)](#) represents a change in paradigm for the mining industry in the sense that ways to minimize impacts on the environment are put in place at the front end of mine project development. The intent of the initiative, officially launched in May 2009, is "to minimize industry's footprint, to support innovation in mining and to raise the profile of proactive measures that companies are already taking."

Led by NRCan, the GMI is a multi-stakeholder initiative with collaboration and funding opportunities. Participants include mining companies, mining equipment manufacturers, all levels of government, regulators, academia and non-governmental organizations.

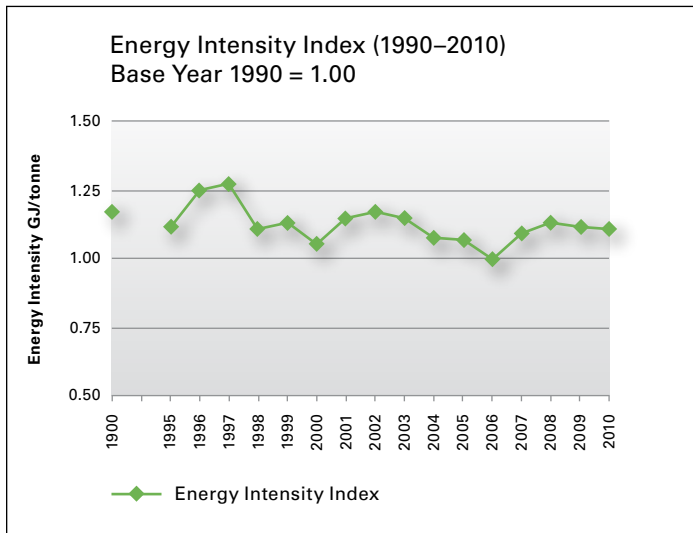
Focused on four research and innovation themes, the GMI is a comprehensive program that seeks to move the Canadian mining industry into a leadership position in the development and adoption of green technologies, both nationally and internationally.

The ecoENERGY Efficiency for Industry program aligns with the GMI by offering Dollars to \$ense customized workshops at remote mine sites, and by making financial incentives available for process integration and computational fluid dynamics studies as well as the implementation of ISO 50001.

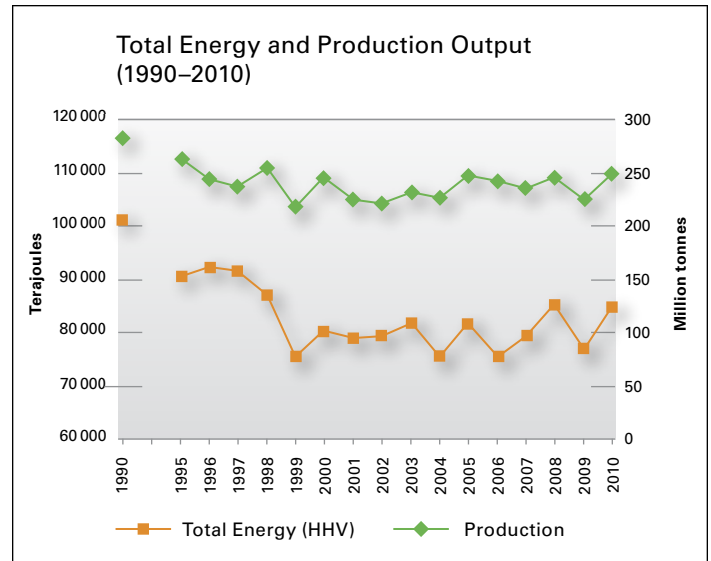
For more information on the sector, visit oee.nrcan.gc.ca/industrial/mining.

HIGHLIGHTS

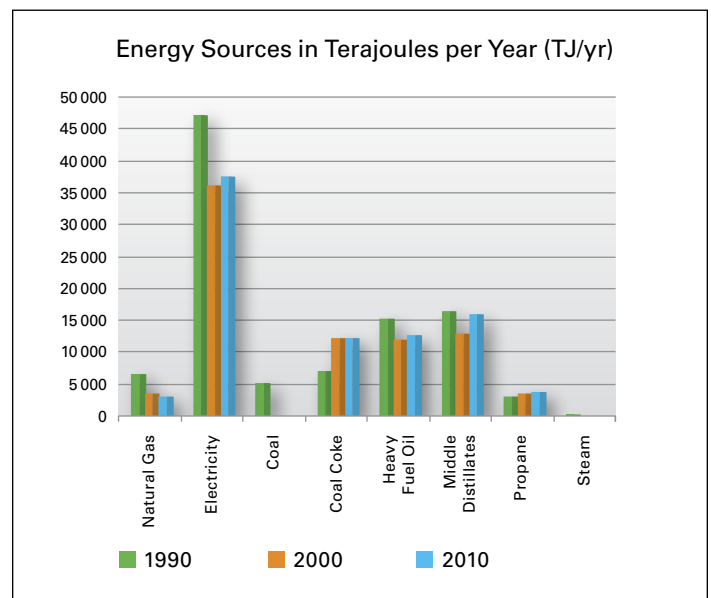
Metal Mining Sector – NAICS 2122



Energy intensity in the sector decreased by 0.4 percent between 2009 and 2010.



The GDP increased by 10.8 percent while energy consumption increased by 10.4 percent between 2009 and 2010.



Electricity consumption increased by 6.6 percent, heavy fuel oil consumption increased by 20.1 percent and middle distillates consumption increased by 15.7 percent between 2009 and 2010.

Data source: Energy Use – [Canadian Industrial Energy End-Use Data and Analysis Centre \(CIEEDAC\)](#), Simon Fraser University, January 2012.



OIL SANDS

Alberta's oil sands are the third-largest proven crude oil reserve in the world, next to Saudi Arabia and Venezuela. Through responsible development, advancement of technology and significant investment, the Government of Alberta is working in conjunction with industry to enhance Alberta's role as a world-leading energy supplier. New projects are being added every year and production is expected to increase from 1.31 million barrels per day in 2008 to 3 million barrels per day in 2018, keeping pace with demand and providing a sound economic basis for the future.¹

¹ Source: [Government of Alberta – Oil Sands](#)

ACHIEVEMENTS

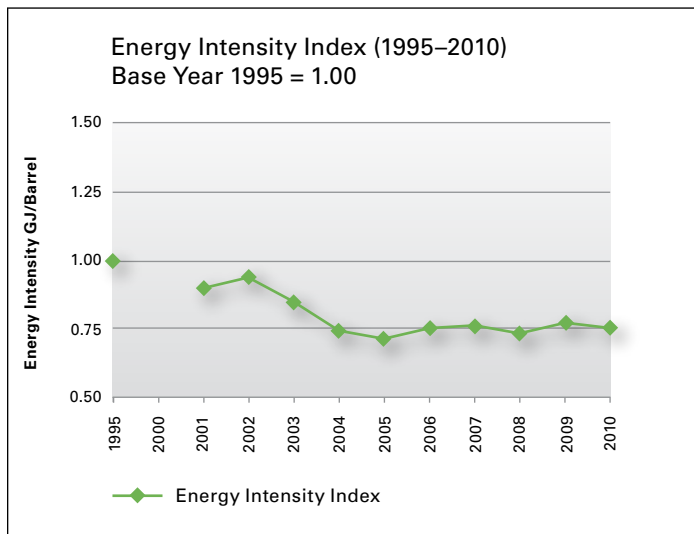
The oil sands industry is actively working toward more energy efficiency in order to support priority actions on environmental stewardship.

- Explore common methodologies to evaluate the economic, social, and environmental impacts of oil sands development.
- Revise the current environmental impact assessment process to support cumulative effects management.
- Create economic, social, and environmental performance measures and report progress regularly.
- Continue to commit to carbon capture and storage projects to reduce the impacts of industrial greenhouse gas emissions.²

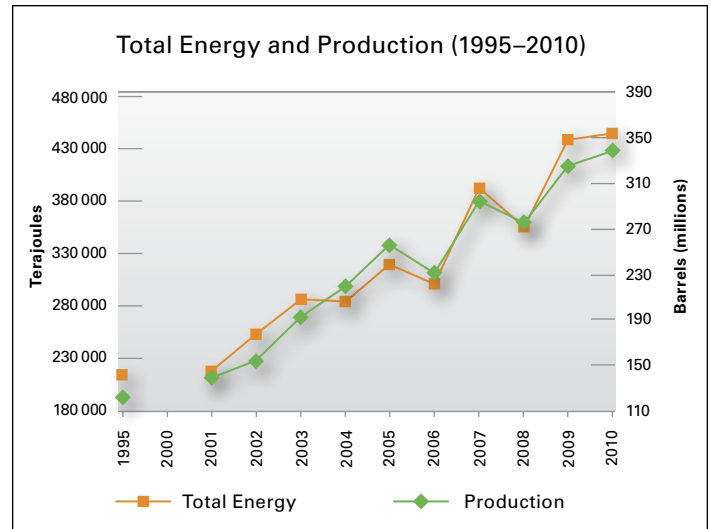
For more information on the sector, visit oee.nrcan.gc.ca/industrial/oilsands.

HIGHLIGHTS

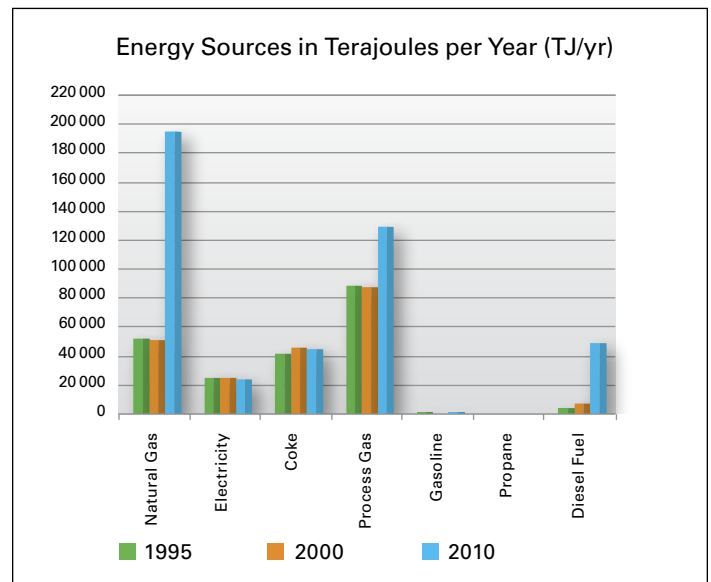
Oil Sands Sector – NAICS 211114



The energy intensity in the sector decreased by 2.97 percent between 2009 and 2010.



Total energy consumption increased by 1.36 percent while total production increased by 4.46 percent between 2009 and 2010.



Natural gas consumption decreased by 9.13 percent and process gas increased by 12.04 percent between 2009 and 2010.

Data Source: Alberta Energy and Utilities Board 2010.

² Source: Responsible Action: A Plan for Alberta's Oil Sands, Treasury Board and Enterprise, Government of Alberta.



PETROLEUM PRODUCTS

Canada's petroleum products sector manufactures and markets the fuels that drive the Canadian economy. From transportation fuels, to heating oil, chemicals and asphalt, its products are present in many aspects of Canadian daily activities. The petroleum sector contributes \$2.5 billion to Canada's GDP and employs 17 500 professional, highly-educated refinery workers. There are 19 refineries in eight Canadian provinces with an aggregate production capacity of about two million barrels per day (bpd). To round out the value chain, there are 70 distribution terminals and some 12 000 retail sites across Canada that employ 82 000 workers.¹

ACHIEVEMENTS

The [Canadian Fuels Association](#) is an association of major Canadian companies involved in the refining, distribution, and/or marketing of petroleum products. Canada is home to one of the world's most efficient refining industries, processing 2 million barrels every day.

Canadian Refineries have reduced CO₂ emissions by implementing energy-efficient refining processes and practices throughout their facilities. Energy efficiency of oil refineries has improved by over 1 percent each year, aiding in an overall reduction of greenhouse gas emissions.

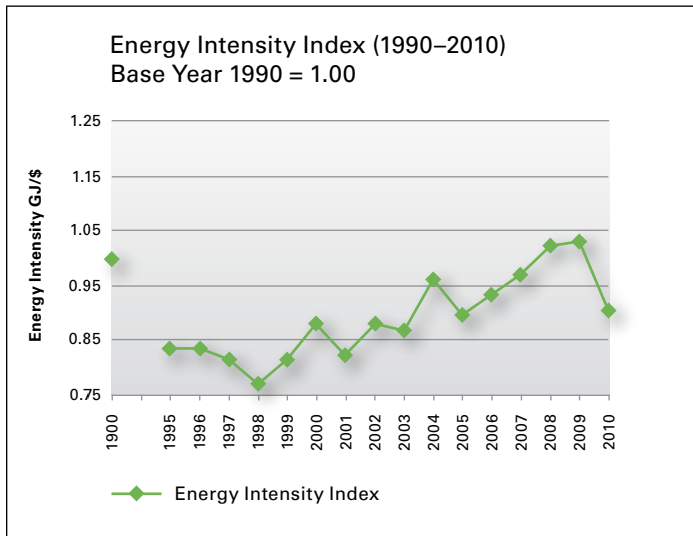
¹ Source: Canada's Downstream Petroleum Industry, [Canadian Fuels Association](#)

To achieve these results, the industry has taken wide-ranging measures to recover residual energy and focus increasingly on energy and operational reliability issues. As a result, the total energy consumption of the sector in 2010 was 1.6 percent below the 1990 level, despite the implementation of numerous energy-intensive processes to remove sulphur from its products, in order to improve the environment.

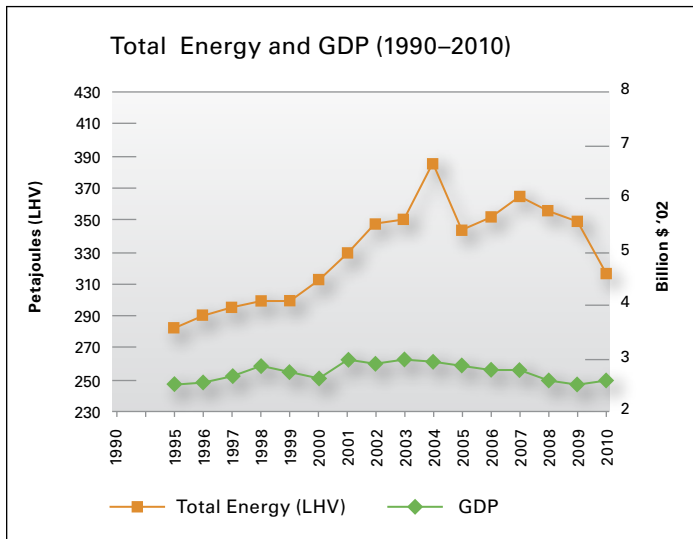
For more information on the sector, visit oee.nrcan.gc.ca/industrial/petroleumproducts.

HIGHLIGHTS

Petroleum Products Sector – NAICS 324110

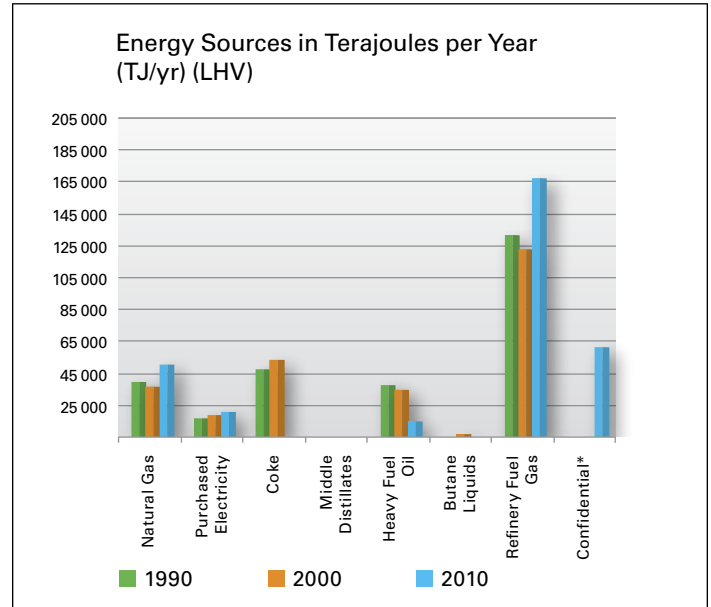


The energy intensity of the sector improved by 12.23 percent in 2010 (1.39 in 2009 and 1.22 in 2010 – a 12.23 percent decrease), as a result of reduced energy use, increased production and GDP.



Energy consumption of the sector fell approximately 10 percent compared to 2009 and is now 1.6 percent below the 1990 level. Total CO₂ emissions are 5 percent below 1990, following a 2 percent decline in 2010 over 2009.

After two years of decline, production increased by 2.5 percent in 2010. Later the same year, one of Montréal's refineries was permanently shut down and converted to a terminal operation. 2010 also marked the first year the industry was subject to the 5 percent renewable fuel mandate for gasoline, which expanded to a 2 percent biofuel mandate for diesel and heating oil in Ontario and the west coast in 2011, and will extend to Quebec and the eastern provinces in 2013.



* Confidential includes: Butane, Coke, Middle Distillates (LFO), Propane (LPG) and Steam.

In 2010, refinery fuel gas represented 53 percent of energy used, followed by natural gas (16 percent), coke and liquid fuels. Improvement in use of available energy sources such as refinery fuel gases, natural gas contributes to lowering the overall intensity of refining. Other improvements include fugitive release recovery, leak repairs, energy audits, EMIS and ISO 50001 implementations and electricity use replaced by cogeneration in some refineries.

Data source: *Review of Energy Consumption in Canadian Oil Refineries: 1990, 1994 to 2010.* Prepared for the Canadian Petroleum Products Institute (CPPI) and Canadian Industry Program for Energy Conservation. [Energy Use – Canadian Industrial Energy End-Use Data and Analysis Centre \(CIEEDAC\)](#), Simon Fraser University, March 2012.



PLASTICS

The [Canadian Plastics Industry Association \(CPIA\)](#) is the voice of the Canadian Plastics Industry. With almost 3200 companies employing 91 530 workers, Canada's \$26.3 billion plastics industry is a sophisticated, multi-faceted sector encompassing plastic product manufacturing, machinery, moulds, and resins.¹

The CPIA is a dynamic, member-driven organization dedicated to the growth of plastics businesses and helping the industry reach its full potential. It is an advocacy association, and it speaks with one powerful voice. Its three priorities are:

Just the facts: The CPIA prides itself on communicating the facts behind plastics manufacturing and use – from the material's economical, social and environmental contributions to the size and strength of the Canadian manufacturing sector.

Second lives: The CPIA is committed to increasing the amount of plastic and the different types of plastic waste being diverted from landfill through the use of various waste management options, such as reuse, recycle and energy recovery.

New opportunities: The CPIA remains committed to building upon the industry's long history of innovation and achievement by taking advantage of new opportunities and meeting industry challenges as they arise.

¹ Statistics Canada, June 2011

ACHIEVEMENTS

The plastics industry is focused on energy recovery because approximately 13 percent of plastics packaging waste in Canada is considered unsuitable for recycling. Plastics are high-value captured energy. Many people often confuse energy recovery with the old-fashioned incinerators of 50 years ago. The rudimentary incineration that was practiced from 1910 to the 1950s was not a form of energy recovery – it was simply an attempt to reduce the amount of waste going to landfill.

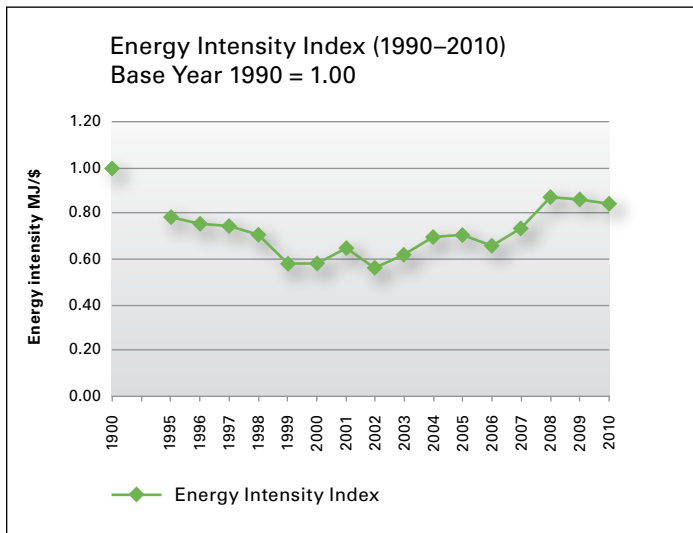
Today's energy recovery technologies "transform" the inherent value of municipal waste into renewable energy. There are several different types of technologies currently available, but all use sophisticated pollution control technologies to ensure that emissions meet strict government air quality control standards.

Through energy recovery, approximately one tonne of waste can produce the equivalent of 550 net kilowatt hours of energy. A typical energy recovery facility can process approximately 2000 tonnes of waste per day, which can generate about 50 net megawatts of electricity. This is enough to power about 60 000 homes.

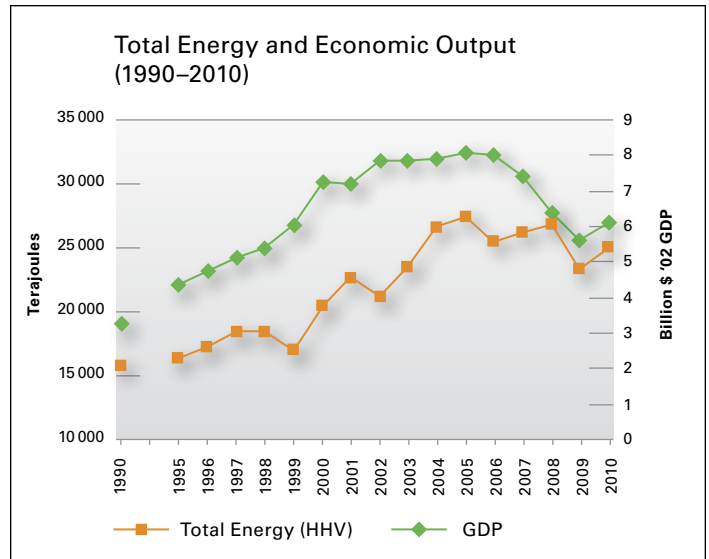
For more information on the sector, visit oee.nrcan.gc.ca/industrial/plastics.

HIGHLIGHTS

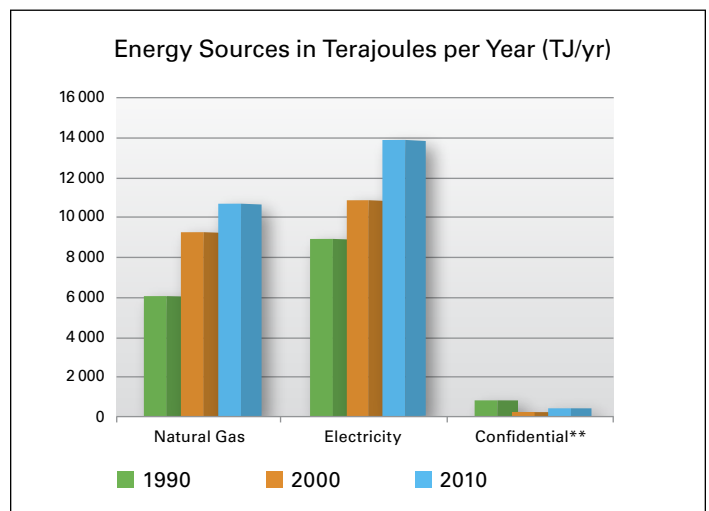
Plastics Sector – NAICS 3261



The sector's energy intensity decreased by 2 percent between 2009 and 2010.



GDP increased by 9.3 percent while energy consumption increased by 7.1 percent between 2009 and 2010.



Between 2009 and 2010, natural gas consumption increased by 18.9 percent.

** Confidential includes: Heavy Fuel Oil (HFO), Middle Distillates (LFO), Propane (LPG) and Steam.

Data Sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey, 1990, 1995-2010](#), Ottawa, January 2012.

Production – GDP – [Informetrica Limited, T1 Model and National Reference Forecast](#), March 2012.



PULP AND PAPER

Although Canadian pulp is renowned and preferred by many for its high-quality, long fibre length, eucalyptus-producing nations continue their scientific research to try to extend the length of their pulp. In the coming decades, the competitive advantages that the pulp industry currently holds may no longer be found exclusively in Canadian products.

As for the paper sector, the advancement in electronic communication and the arrival of handheld tablet computers will continue to lower the consumption of paper products, particularly newsprint, and even printing and writing papers to some degree. While this reduction is predicted in developed nations, opportunities might be possible in developing countries. On the other hand, other paper products such as wrapping and packaging papers, and household and sanitary paper products are in battle with substitute products made with non-wood fibre – in addition to offshore competition.

The provinces of Quebec and Ontario continue to account for more than half of the nation's pulp and paper exports. While sales by the two eastern provinces remained unchanged in 2010, products shipped from British Columbia recovered by 16 percent to settle at \$4.04 billion. It is worth mentioning that eastern Canada is responsible for producing paper products, while western Canada is known for its pulp production. As a whole, Canada's sales of pulp and paper products recovered by 6.7 percent in 2010 to \$17.3 billion.

ACHIEVEMENTS

The [Pulp and Paper Technical Association of Canada \(PAPTAC\)](#) operates an Energy Cost Saving Community. It consists mainly of mill employees involved with energy management, researchers, electricity and natural gas company representatives and consultants. It operates in a very open manner and membership is acquired by participation. At any time, the membership of the group consists of PAPTAC members who have attended any of the prior three community activities and/or demonstrate active participation.

Goals

- To exchange practical and technical energy efficiency information
- To promote the application of better energy technologies and practices
- To organize sessions for the Pulp and Paper Technical Association of Canada Annual Meeting (PaperWeek Canada)

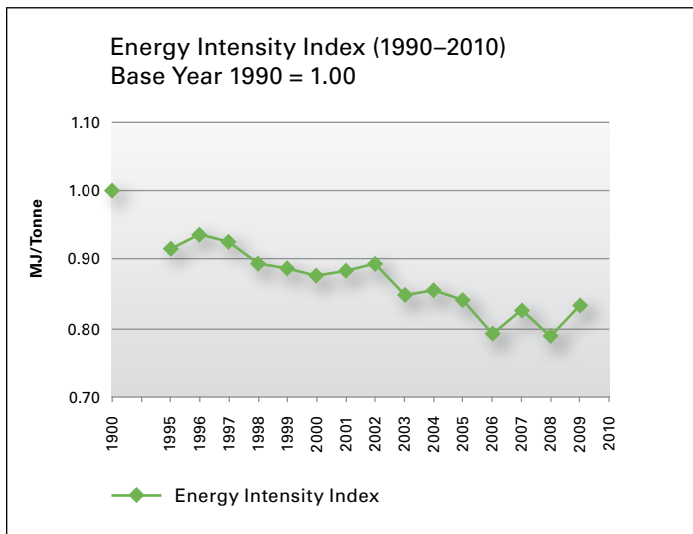
The Energy Cost Reduction Community organized a very successful webinar on the ISO 50001 Energy Management Systems Standard on October 12, 2011. Forty-three members from across Canada participated in the event. Speakers from CSA, NRCAN and EPS gave an overview of the Standard.

In addition, three CIPEC sector members were awarded CIPEC Leadership awards in 2011: Cascades GIE Inc., who won the Integrated Energy Efficiency Strategy award, Irving Paper Limited, who received the Employee Awareness and Training award, and Kruger Products L.P., who won the Process and Technology Improvements award.

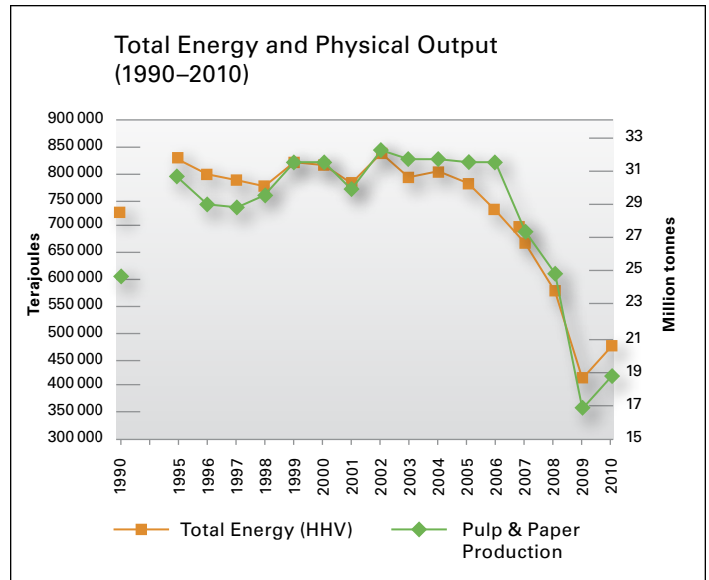
For more information on the sector, visit oee.nrcan.gc.ca/industrial/pulpandpaper.

HIGHLIGHTS

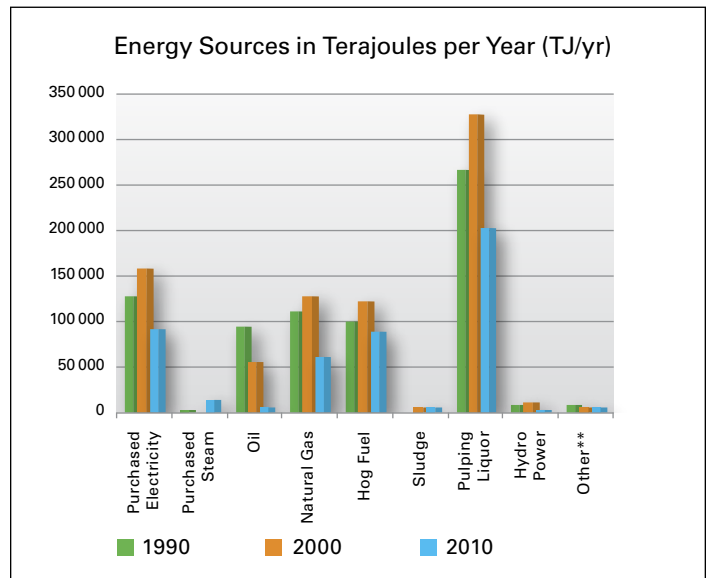
Pulp and Paper Sector – NAICS 3221



Energy intensity increased by 3.3 percent between 2009 and 2010. Continued production curtailment (e.g. extended shutdown) and an increase in self-generation of electricity were a contributing factor to the energy intensity increase.



Total energy consumption increased by 15.8 percent while total production increased by 12.2 percent between 2009 and 2010.



Use of oil and coal continues to decline while the use of biomass and renewables continues to increase.

** Other includes: Coal, Middle Distillates (LFO), Diesel, Propane (LPG), other purchased energy and other self-generated energy.

Data Source: [Forest Products Association of Canada – Annual Energy Survey, 1990-2010.](#)



STEEL

With \$12 to \$14 billion in annual sales, Canada's steel industry is at the root of the Canadian industrial tree, providing the key material for many industries including automotive, construction, energy, packaging and advanced manufacturing. Steel is also an important customer for many other industries, including raw materials and transportation.¹

There are two major ways to produce steel in Canada: the basic oxygen furnace (BOF) process and the electric arc furnace (EAF) process. These two processes have different energy profiles. The BOF process uses raw materials (notably iron ore and coal), combined with 25 to 35 percent recycled steel to make new steel. The EAF process uses almost 100 percent recycled steel to make new steel. Both processes produce different products for a wide spectrum of applications. While the steel industry maximizes its consumption of available recycled steel to make new steel, additional demand for steel products cannot be fully met through finite scrap steel supplies. In 2010, Canadian steel producers recycled 7 million tonnes of steel.

¹ Canadian Steel Producers Association – [Steel Facts](#)

ACHIEVEMENTS

Members of the [Canadian Steel Producers Association \(CSPA\)](#) strive for continual environmental improvement in every phase of steel production. Energy efficiency plays a key role in these efforts.

In 2010, the steel industry was recovering from the global economic crisis that began in late 2008. In 2010, the production levels of steel plants in Canada were improving from the historically low levels experienced in 2009, but were still lower than in 2007 and 2008. As a result, the steel industry's 2010 energy performance improved from the previous year, returning back towards 2008 levels.

In 2010, energy conservation and efficiency achievements by CSPA member companies included:

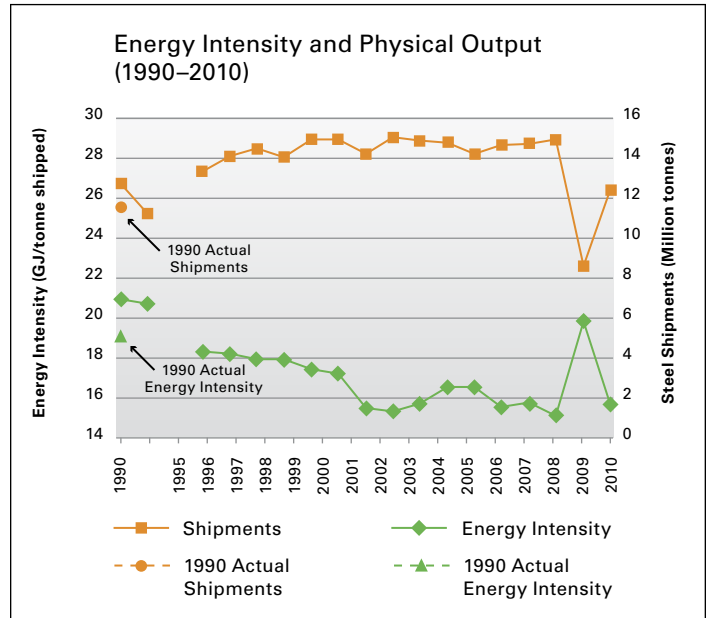
- The first full year of operations of a 70 MW cogeneration facility at Essar Steel Algoma, where by-product gas from the integrated steel plant is used to generate electricity. This is the first cogeneration plant to be constructed at a steel plant in Canada. The facility reduces Essar Steel Algoma's reliance on the provincial power grid by 50 percent on average, freeing up this capacity for the rest of Ontario.
- Development of energy management programs at several CSPA member companies, such as:
 - Energy management information systems (EMIS)
 - Energy monitoring and targeting programs to enhance energy "visibility" for engineers and plant operators

These energy management tools are assisting facilities and management to make decisions that will improve the energy performance of plant operations, thus reducing energy costs.

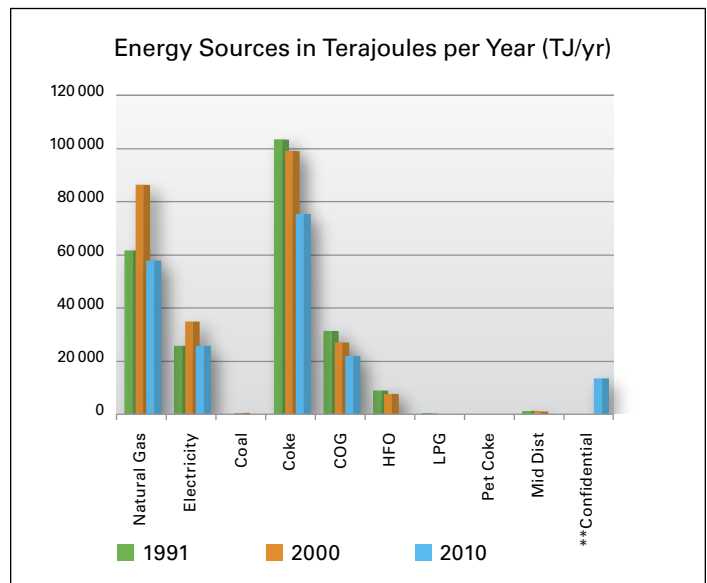
For more information on the sector, visit oee.nrcan.gc.ca/industrial/steel.

HIGHLIGHTS

Steel Sector – NAICS 331100



Steel product shipments increased by 44.2 percent in 2010 compared to 2009 while energy intensity decreased by 21.1 percent within the same time frame. The most significant factor affecting these changes was the gradual recovery of steel production levels from the global economic crisis.



Natural gas consumption increased by 3 percent, electricity consumption increased by 10 percent and COG consumption increased by 10 percent between 2009 and 2010.

** Confidential includes: Coal, Coke, Middle Distillates (LFO), Propane (LPG) and Others.



TRANSPORTATION EQUIPMENT MANUFACTURING

The Canadian transportation equipment manufacturing sector includes companies that manufacture aircraft, aircraft parts, automobiles, motor vehicle parts, trucks, buses, trailers, railroad rolling stock, ships and pleasure boats. The sector is a major contributor to the GDP of the Canadian economy. When dealers and parts and distribution networks are included as well as manufacturers, the sector employs more than 500 000 people across Canada.

Profile

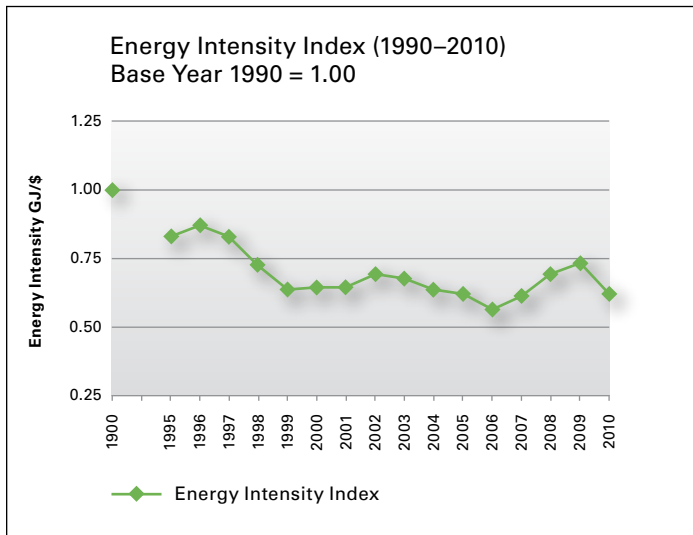
ACHIEVEMENTS

NRCan and the [Automotive Parts Manufacturers' Association \(APMA\)](#) celebrated their three-year partnership program in 2011. A key component of this program is providing experience for engineering co-op students on completing energy inventories and identifying savings opportunities at APMA member facilities. Through this program, co-op students identified \$300,000 worth of energy savings.

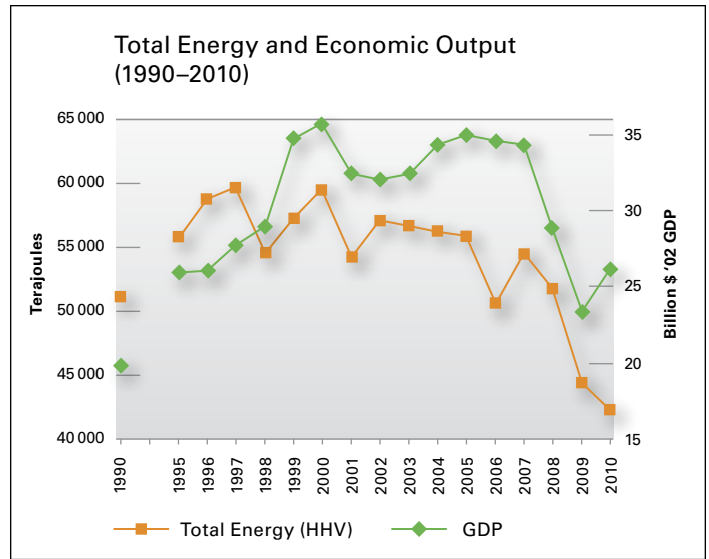
For more information on the sector, visit oee.nrcan.gc.ca/industrial/transportationequipmentmanufacturing.

HIGHLIGHTS

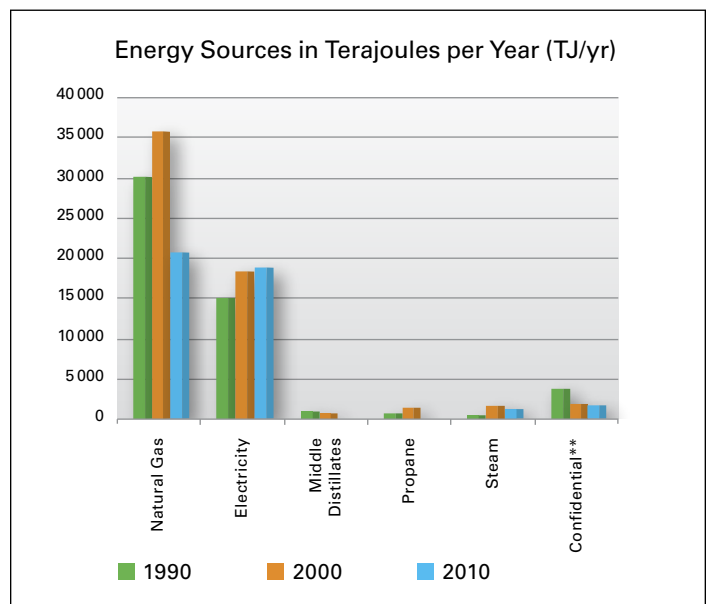
Transportation Equipment Manufacturing – NAICS 336



Energy intensity in the sector decreased by 15 percent between 2009 and 2010.



GDP increased by 11.7 percent while energy consumption decreased by 5 percent between 2009 and 2010.



Natural gas consumption decreased by 14 percent, steam consumption decreased by 6 percent and electricity consumption increased by 7.9 percent between 2009 and 2010.

** Confidential includes: Coal, Coal Coke, Heavy Fuel Oil (HFO) Middle Distillates (LFO), Propane (LPG) and Wood.

Data sources: Energy Use – Statistics Canada, [Industrial Consumption of Energy Survey, 1990, 1995-2010](#). Ottawa. January 2012.

Production – GDP – [Informetrica Limited, T1 Model and National Reference Forecast](#), March 2012.



UPSTREAM OIL AND GAS

The upstream oil and gas sector includes companies that find and develop Canada's vast oil and gas resources. The sector is broadly divided between conventional oil and gas production and oil sands production and upgrading. This section discusses the conventional oil and gas sector. The oil sands sector is covered separately in this report. Products and services derived by downstream sectors from the output of this industry include heating and transportation fuels, building supplies and materials, clothing, and medicines.

The exploration and production industry is represented by the [Canadian Association of Petroleum Producers \(CAPP\)](#) and the [Small Explorers and Producers Association of Canada \(SEPAC\)](#). CAPP represents both large and small companies that explore for, develop and produce natural gas and crude oil throughout Canada. CAPP's member companies produce more than 90 percent of Canada's natural gas and crude oil. CAPP's associate members provide a wide range of services that support the upstream crude oil and natural gas industry. Together, CAPP's members and associate members are an important part of a national industry with revenues of about \$100 billion per year.

ACHIEVEMENTS

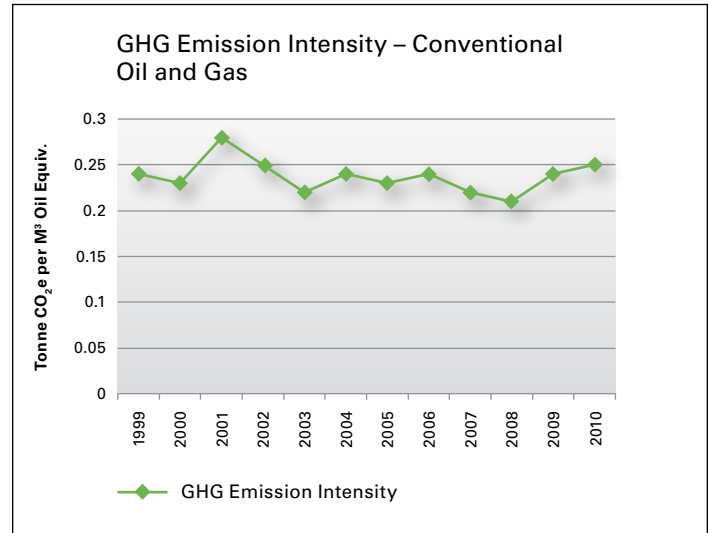
The oil and gas industry is a big investor in research and development into new, better ways of protecting the environment. Along with improved efficiencies in production, the industry is using innovations to help reduce its GHG emissions, including:

- **Turning Waste into Fuel:** Nexen and OPTI Canada are turning a heavy oil waste product into a synthetic gas to help fuel their steam-assisted gravity drainage operation (SAGD) at Long Lake.
- **Using Waste Heat to Reduce Emissions:** Talisman Energy Inc. has introduced a Waste Heat Recovery Unit (WHRU) in its Bigstone Plant near Fox Creek, Alberta. The Bigstone Plant WHRU was designed to transfer waste heat produced by gas turbine compressors and use it to heat liquids required to process gas. By transferring and re-using the waste heat, Talisman is able to reduce its fuel gas consumption.
- **Carbon Capture and Storage (CCS)** is a process that captures carbon dioxide (CO₂) emissions and stores them in geological formations deep inside the earth. Industry is investigating its potential.¹

For more information on the sector, visit oee.nrcan.gc.ca/industrial/upstreamoilandgas.

HIGHLIGHTS

Upstream Oil and Gas Sector – NAICS 211113



GHG emissions intensity increased by 4.2 percent between 2009 and 2010.

This was a result of overall production growth in oil sands and unconventional gas, as well as production shifting from conventional to unconventional reserves.

Unconventional reserves often require enhanced production techniques, which use more energy and consequently generate more GHGs than would be generated through the production of conventional reserves.

Data Source: CAPP Responsible Canadian Energy Report 2010 – Canadian Association of Petroleum Producers

¹ Canadian Association of Petroleum Producers (CAPP) – [CAPP on climate – what we're doing](#)

CIPEC WHO'S WHO

CIPEC EXECUTIVE BOARD MEMBERS

The executive board provides leadership for CIPEC's task forces, associations and companies. The board's 13 members are all volunteers with senior management responsibilities and expertise in energy efficiency. They are drawn from across the 23 CIPEC sectors. The executive board has regular teleconferences and meetings throughout the year.

CIPEC TASK FORCE COUNCIL MEMBERS

The 26-member CIPEC Task Force Council includes volunteer representatives from each of CIPEC's 23 sectors. Members of the Task Force Council benefit from the energy efficiency expertise offered by their council peers. They meet regularly to exchange ideas and recommend ways to address the challenges associated with improving energy efficiency and sustainability reducing greenhouse gas emissions.

CIPEC LEADERS

CIPEC Leaders are drawn from CIPEC member companies and trade associations. Every member has access to tools and services offered by Natural Resources Canada's Office of Energy Efficiency. CIPEC Leaders support voluntary initiatives that lead to energy cost savings and assist the Government of Canada in meeting its objectives to save energy and reduce greenhouse gas emissions and air pollution. Every two years, member companies are invited to compete in the CIPEC Leadership Awards showcasing their energy efficiency achievements. The awards are presented during CIPEC's biennial conference.

NATURAL RESOURCES CANADA INDUSTRY AND TRANSPORTATION DIVISION CONTACTS

Contact information for the Program's director, chiefs, general enquiries and Dollars to \$ense Energy Management Workshops program.

CIPEC EXECUTIVE BOARD MEMBERS

Glenn Mifflin (Chair)

Executive Vice President and CFO
North Atlantic Refining

Mike Cassaday

Director
National Fuel Quality & Environmental
Planning
Suncor Energy Company

John Coyne

*Vice-President, General Counsel & Corporate
Secretary*
Unilever Canada Inc.

Wayne Kenefick

Vice-President
Sustainable Development
Graymont Western Canada Inc.

Peter Kinley

President & CEO
Lunenburg Industrial Foundry & Engineering

Richard Lamarche

Vice-President
Energy Division
Alcoa Canada Primary Metals

Yves Leroux

Vice-President
Regulatory & Government Affairs
Parmalat Dairy & Bakery Inc.

Andy Mahut

Manager
Energy Practices
U.S. Steel Canada Inc.

Ronald C. Morrison

Treasurer of the Board
Canadian Manufacturers & Exporters (CME)

Susan Olynyk

Senior Specialist, Climate Change
Environmental Department
ArcelorMittal Dofasco Inc.

George T. Partyka

Vice-President
Partner Technologies Incorporated

Tor Eilert Suther

President and General Manager
NewPage Port Hawkesbury Ltd.

John R. Vickers

Sales Manager
Hopper Foundry Limited

CIPEC TASK FORCE COUNCIL

CIPEC TASK FORCE COUNCIL CHAIR

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Environmental Department
ArcelorMittal Dofasco Inc.

ALUMINUM SECTOR TASK FORCE

Lorraine Rouisse
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Aluminium Association of Canada (AAC)

BREWERY SECTOR TASK FORCE

Edwin Gregory
Manager
Research and Analysis
Brewers Association of Canada (BAC)

CEMENT SECTOR TASK FORCE

Martin Vroegh
Environment Manager
St. Marys Cement Inc.

Adam Auer

Director
Sustainability, Business Development & Stakeholder Relations
Cement Association of Canada (CAC)

CHEMICAL SECTOR TASK FORCE

Fiona Cook
Director
Business and Economics
Chemistry Industry Association of Canada

CONSTRUCTION SECTOR TASK FORCE

Bill Ferreira
Director
Government Relations & Public Affairs
Canadian Construction Association (CCA)

ELECTRICAL AND ELECTRONICS SECTOR TASK FORCE

Wayne Edwards
Vice-President
EEMAC Council
Electro-Federation Canada

ELECTRICITY GENERATION SECTOR TASK FORCE

Channa S. Perera
Manager
Sustainable Electricity Program
Canadian Electricity Association (CEA)

FERTILIZER SECTOR TASK FORCE

David M. Finlayson
Vice-President
Science and Risk Management
Canadian Fertilizer Institute (CFI)

FOOD AND BEVERAGE SECTOR TASK FORCE

CIPEC Task Force Council Vice-Chair
Doug Dittburner
Managing Chief Engineer
Mondelez Canada Inc. – Gladstone Manufacturing Site (Cadbury)

FORESTRY SECTOR TASK FORCE

Jan Michaelsen
Program Leader
Transport & Energy
FPInnovations – Division Feric

FOUNDRY SECTOR TASK FORCE

Judith Arbour
Executive Director
Canadian Foundry Association (CFA)

GENERAL MANUFACTURING SECTOR TASK FORCE – ATLANTIC REGION

John Woods
Vice-President
Energy Development
Minas Basin Pulp & Power Company Limited

GENERAL MANUFACTURING SECTOR TASK FORCE – CENTRAL REGION

Jim Armstrong

EHS Specialist

Crown Metal Packaging Canada LP

GENERAL MANUFACTURING SECTOR TASK FORCE – NEW BRUNSWICK

Mike Bujold

Corporate Energy Manager

J.D. Irving Limited

LIME SECTOR TASK FORCE

Christopher Martin

Regional Environmental Manager

Carmeuse Lime (Canada) – Beachville Operation

MINING SECTOR TASK FORCE

Brendan Marshall

Director

Economic Affairs

The Mining Association of Canada (MAC)

OIL SANDS SECTOR TASK FORCE

Alisa M. Caswell

Energy Conservation Leader

Syncrude Canada Ltd.

PETROLEUM PRODUCTS SECTOR TASK FORCE

Gilles Morel

Director, Fuels

Canadian Fuels Association

PIPELINES SECTOR TASK FORCE

Bill Tubbs

Climate Change and Energy Efficiency Specialist

Spectra Energy

PLASTICS SECTOR TASK FORCE

Dr. Graham Knowles

Consultant

Canadian Plastics Industry Association (CPIA)

PULP AND PAPER SECTOR TASK FORCE

Bob Larocque

Director, Environment, Energy, Economics and Climate Change

Forest Products Association of Canada (FPAC)

STEEL SECTOR TASK FORCE

Chris Della Mora

Management Associate

Rolling Mill

Gerdau Amrasteel

TRANSPORTATION EQUIPMENT MANUFACTURING SECTOR TASK FORCE

Michael O'Meara, P. Eng., C.E.M.

Senior Specialist

Environmental Compliance and Energy

Magna International Inc.

UPSTREAM OIL AND GAS SECTOR TASK FORCE

Elise Bieche

Manager

National Air Issues

Canadian Association of Petroleum Producers (CAPP)

CIPEC LEADER COMPANIES BY SECTOR

ALUMINUM

Alcan inc. – *Montréal*
 Alcan Specialty Aluminas – *Brockville*
 Alcoa Canada Première fusion – *Montréal*
 Alcoa Ltée – Aluminerie de Baie-Comeau – *Baie-Comeau*
 Alcoa – Aluminerie de Deschambault S.E.C. – *Deschambault*
 Alcoa Ltée – Alcoa-Usine de Tige – *Bécancour*
 Aluminerie de Bécancour inc. – *Bécancour*
 Almag Aluminum Inc. – *Brampton*
 Alumicor Limited – *Toronto*
 Aluminerie Alouette inc. – *Sept-îles*
 Novelis Inc. – *Toronto*
 Recyclage d'aluminium Québec inc. – *Bécancour*
 Universal Stainless & Alloys Inc. – *Mississauga*

BREWERY

Big Rock Brewery Ltd. – *Calgary*
 Columbia Brewery – *Creston*
 John Allen Brewing Company (The) – *Halifax*
 Labatt Breweries of Canada – *Toronto, Edmonton, London, St. John's*
 La Brasserie Labatt – *LaSalle*
 Les Brasseurs du nord inc. – *Blainville*
 Molson Coors Canada – *Edmonton, Moncton, Montréal, Ontario, Vancouver*
 Moosehead Breweries Limited – *Saint John*
 Pacific Western Brewing Company – *Prince George*
 Rahr Malting Canada Ltd. – *Alix*
 Sleeman Brewing and Malting Co. Ltd. – *Guelph*
 Sleeman Maritimes Ltd. – *Dartmouth*
 Sleeman Unibroue Quebec – *Chambly*
 Sleeman Breweries Ltd. of Okanagan Spring Brewery – *Vernon*

CEMENT

Advanced Precast Inc. – *Bolton*
 Arriscraft International – *Saint-Étienne-des-Grès, Cambridge*
 ESSROC Canada Inc. – *Pictou*
 Gordon Shaw Concrete Products Ltd. – *Windsor*
 Groupe Permacon inc. – Div. des Matériaux de Construction
 Oldcastle Canada Inc. – *Ville d'Anjou, Québec*
 Permacon Group Inc. – *Milton*
 Permacon Ottawa – *Stittsville*
 Permacon Group Inc. – *Bolton, Oshawa*
 Groupe Permacon inc. – Division Trois-Rivières – *Trois-Rivières*
 Groupe Permacon (Sherbrooke) – Div. des Matériaux de Construction Oldcastle Canada inc. – *Sherbrooke*
 Decor Precast – Div. of Oldcastle Building Products Canada – *Stoney Creek*
 Holcim (Canada) Inc. – *Mississauga, Joliette*
 Dufferin Concrete – *Concord*
 International Erosion Control Systems – *West Lorne, Rodney*
 Lafarge Canada inc. – *Montréal*
 Lehigh Inland Cement Limited – *Edmonton*
 Lehigh Northwest Cement Limited – *Richmond*
 Pre-Con Inc. – *Brampton*
 St. Marys Cement Inc. – *Bowmanville*

CHEMICALS

Abrex Paint & Chemical Ltd. – *Oakville*
 Apotex Pharmachem Inc. – *Brantford*
 Arclin Canada Ltd. – *North Bay*
 Avmor Ltée – *Laval*
 Banner Pharmacaps (Canada) Ltd. – *Olds*
 Bartek Ingredients Inc. – *Stoney Creek*
 Becker Underwood – *Saskatoon*
 Benjamin Moore & Cie Limitée – *Montréal*
 Big Quill Resources Inc. – *Wynyard*
 BioVectra Inc. – *Charlottetown*
 BOC Gaz – *Magog*
 Celanese Canada inc. – *Boucherville*
 Charlotte Products Ltd. – *Peterborough*
 Church & Dwight Canada – *Mount Royal*
 Colgate-Palmolive Canada Inc. – *Mississauga*
 Collingwood Ethanol L.P. – *Toronto, Collingwood*
 Commercial Alcohol Inc. – *Chatham, Tiverton, Varennes*
 Diversey Canada, Inc. – *Edmonton*
 Dominion Colour Corporation – *Ajax, Toronto*
 Dyno Nobel Nitrogen Inc. – *Maitland, North Bay*
 Eka Chimie Canada inc. – *Salaberry-de-Valleyfield, Magog*
 Eli Lilly Canada Inc. – *Scarborough*
 Emery Oleochemicals Canada Ltd. – *Toronto*
 Estée Lauder Cosmetics Ltd. – *Scarborough*
 Evonik Degussa Canada Inc. – *Brampton, Burlington, Gibbons*
 Fibrex Insulations Inc. – *Sarnia*
 Fielding Chemical Technologies Inc. – *Mississauga*
 Galderma Production Canada inc. – *Baie d'Urfé*
 Germiphene Corporation – *Brantford*
 Grace Canada inc. – *Valleyfield*
 GreenField Ethanol Inc. – *Tiverton*
 Honeywell – *Amherstburg*
 Hostmann-Steinberg Limited – *Brampton*
 HP Polymers Ltd. – *Puslinch*
 ICI Canada Inc. – *Concord*
 International Group Inc. (The) – *Toronto*
 Jamieson Laboratories Ltd. – *Windsor*
 Kronos Canada Inc. – *Varennes*
 Lanxess Inc. – *Sarnia*
 L'Oréal Canada inc. – *Montréal*
 Les Emballages Knowlton inc. – *Knowlton*
 Mancuso Chemicals Limited – *Niagara Falls*
 Nalco Canada Co. – *Burlington*
 Nordion Inc. – *Ottawa*
 NOVA Chemicals Corporation – *Corruna, Joffre, Moore Township, St. Clair River*
 Oakside Chemicals Limited – *London*
 OmegaChem inc. – *Lévis, Saint-Romuald*
 Orica Canada Inc. – *Brownsburg*
 Osmose-Pentox Inc. – *Montréal*
 Oxy Vinyls Canada Inc. – *Niagara Falls*
 Pharmascience inc. – *Montréal*
 PolyOne Canada Inc. – *Orangeville*
 Powder Tech Ltd. – *Brampton*
 PPG Canada Inc. – *Beauharnois*
 Procter & Gamble Inc. – *Brockville*
 Prolab Technologies Inc. – *Thetford Mines*
 Purdue Pharma – *Pickering*

Rhema Health Products Limited – *Coquitlam*
 Rohm and Haas Canada Inc. – *Scarborough*
 Sanofi Pasteur Limited – *North York*
 Saskatchewan Minerals Inc. – *Chaplin*
 Sifto Canada Corp. – *Goderich, Unity*
 Solucor Ltd. – *Bradford*
 Soucy Techno inc. – *Sherbrooke*
 Tech Blend s.e.c. – *Saint-Jean-sur-Richelieu*
 Technical Adhesives Ltd. – *Mississauga*
 Tri-Tex Co. Inc. – *Saint-Eustache*
 Trillium Health Care Products Inc. – *Perth, Brockville, Prescott, Newmarket*
 Westbrook Technologies Inc. – *Scarborough*
 Wyeth-Ayerst Canada Inc. – *Saint-Laurent*

CONSTRUCTION

AnMar Mechanical & Electrical Contractors Ltd. – *Lively*
 ATCO Structures Inc. – *Calgary, Spruce Grove*
 Basin Contracting Limited – *Enfield*
 Battle River Asphalt Equipment Ltd. – *Cut Knife*
 Construction DJL Inc. – *Saint-Philippe-de-Laprairie*
 Denko Mechanical Ltd. – *Springfield*
 Lockerbie & Hole Industrial Inc. – *Edmonton*
 M J Roofing & Supply Ltd. – *Winnipeg*
 Mira Timber Frame Ltd. – *Stony Plain*
 Moran Mining & Tunnelling Ltd. – *Lively*
 Northland Building Supplies Ltd. – *Edmonton*
 Pavages Beau-Bassin, division de Construction DJL Inc. – *Gaspé*
 Production Paint Stripping Ltd. – *Toronto*
 Taggart Construction Ltd. – *Ottawa*
 Whitemud Ironworks Group Ltd. – *Edmonton*

ELECTRICAL & ELECTRONICS

ABB Inc. – *Lachine, Québec, Saint-Laurent, Varennes*
 ABB Bomem Inc. – *Québec*
 Alstom Hydro Canada Inc. – *Sorel-Tracy*
 Apollo Microwaves – *Pointe-Claire*
 ASCO Valve Canada – *Brantford*
 Best Theratronics Ltd. – *Ottawa*
 C-Vision Limited – *Amherst*
 Candor Industries Inc. – *Toronto*
 Circuits GRM Enr. – *Ville Saint-Laurent*
 Crest Circuit Inc. – *Markham*
 Cogent Power Inc. – *Burlington*
 DALSA Semiconducteur Inc. – *Bromont*
 DRS Technologies Canada Ltd. – *Carleton Place*
 Duke Electric Ltd. – *Hamilton*
 Dupliron Corporation – *Thornhill*
 Eaton Yale Company – *Milton*
 Éclairages PA-CO inc. (Les) – *Laval*
 Ecopower Inc. – *London*
 Electrolux Canada Corp. – *L'Assomption*
 Energizer Canada Inc. – *Walkerton*
 EPM Global Services Inc. – *Markham*
 Firan Technology Group – *Scarborough*

General Electric Canada – *Peterborough*
 General Dynamics Canada – *Ottawa, Calgary*
 GGI International – *Lachine*
 Honeywell – *Mississauga*
 IBM Canada Ltd. – *Bramont, Markham*
 Ideal Industries (Canada) Corp. – *Ajax*
 Master Flo Technology Inc. – *Hawkesbury, North Vancouver*
 MDS Nordion Inc. – *Kanata*
 Milplex Circuit (Canada) Inc. – *Scarborough*
 Moloney Electric Inc. – *Sackville, Spruce Grove, Toronto*
 Nexans Canada Inc. – *Fergus*
 Osram Sylvania Ltd. – *Mississauga*
 Osram Sylvania Ltée – *Drummondville*
 Pivotal Power Inc. – *Bedford*
 Powersmiths International Corp. – *Brampton*
 Proto Manufacturing Ltd. – *Oldcastle*
 Prysman Systèmes et Câbles – *Saint-Jean-sur-Richelieu*
 Purifics ES Inc. – *London*
 Ralston Metal Products Ltd. – *Guelph*
 Real Time Systems Inc. – *Toronto*
 Remco Solid State Lighting – *Toronto*
 Rheinmetall Canada inc. – *Saint-Jean-sur-Richelieu*
 Rockwell Automation Canada Inc. – *Cambridge*
 S&C Electric Canada Limited – *Toronto*
 Southwire Canada – *Stouffville*
 Surrrette Battery Company Limited – *Springhill*
 Systèmes Électroniques Matrox Ltée – *Dorval*
 Tyco Electronics Canada Ltd. – *Markham*
 Tyco Safety Products – *Toronto*
 Tyco Thermal Controls Canada Limited – *Trenton*
 Ultra Electronics Maritime Systems – division of Canada
 Defence Inc. – *Dartmouth*
 Vansco Electronics Ltd. – *Winnipeg*

ELECTRICITY GENERATION

Ontario Power Generation – *Toronto*
 Quilliq Energy Corporation – *Iqaluit*

FERTILIZER

Agrium Inc. – *Redwater*
 Canadian Fertilizers Limited – *Medicine Hat*
 Fafard et Frères Ltée – *Saint-Bonaventure*
 Mosaic Potash Belle Plaine – *Belle Plaine*
 Mosaic Potash Colonsay – *Colonsay*
 Mosaic Potash Esterhazy – *Esterhazy*
 Profid'Or Coopérative Agricole – *Joliette*
 Sherritt International Corporation – *Fort Saskatchewan*
 Tourbières Berger Ltée (Les) – *Baie Sainte-Anne, Baie-du-Vin, Saint-Modeste*

FOOD & BEVERAGE

A. Harvey & Company Limited – *St. John's*
 Argentia Freezers – *Dunville*
 Browning Harvey Limited – *St. John's, Corner Brook, Grand Falls-Windsor*
 Abattoir Saint-Germain inc. – *Saint-Germain-de-Grantham*
 AgEnergy Co-operative Inc. – *Guelph*
 Agri-Marché Inc. – *Saint-Isidore*
 Alberta Processing Co. – *Calgary*
 Alex Coulombe Ltée – *Québec*
 Aliments Lucyporc – *Yamachiche*
 Aliments Ouimet-Cordon Bleu inc. – *Anjou*
 Aliments Ultima Foods inc. – *Granby*
 Andrés Wines Ltd. – *Grimsby*
 Aliments ED Foods inc. – *Pointe-Claire*
 Aliments Multibar inc. (Les) – *Montréal*
 Aljane Greenhouses Ltd. – *Pitt Meadows*
 Alkema Greenhouses Ltd. – *Grimsby*

Allen's Fisheries Limited – *Benoit's Cove*
 Amco Farms Inc. – *Leamington*
 Andrew Hendriks and Sons Greenhouses – *Beamsville*
 Freeman Herbs – *Beamsville*
 Andrew's Greenhouses Inc. – *Ruthven*
 Antigonish Abattoir Ltd. – *Antigonish*
 Antonio Bajar Greenhouses Limited – *Newmarket*
 Arnold Meat Packers Inc. – *Kitchener*
 Atrahan Transformation Inc. – *Yamachiche*
 Balfour Greenhouses Ltd. – *Fenwick*
 Bayview Greenhouses (Jordan Station) Inc. – *Brantford, Jordan Station*
 Belgian Nursery Limited – *Breslau*
 Beothic Fish Processors Limited – *Badgers Quay*
 Bevo Farms Ltd. – *Milner*
 Black Velvet Distilling Company – *Lethbridge*
 Boekestyn Greenhouses – *Jordan Station*
 Bonduelle Canada Inc. – *Bedford, Sainte-Cécile-de-Granby, Saint-Césaire, Saint-Denis-sur-Richelieu, Sainte-Martine*
 Bonduelle Ontario Inc. – *Ingersoll, Stratroy, Tecumseh*
 Border Line Feeders Inc. – *Ceylon*
 Boulangerie St.-Méthode inc. – *Adstock*
 Boulart inc. – *Lachine*
 Breakwater Fisheries Limited – *Cottlesville*
 Bridgeview Greenhouses – *Niagara-on-the-Lake*
 Brookdale Treeland Nurseries – *Niagara-on-the-Lake*
 Brookside Cold Storage Ltd. – *Chilliwack*
 Brookside Poultry Limited – *Bridgetown*
 Browning Harvey Limited – *St. John's, Corner Brook, Grand Falls, Windsor*
 Brunato Farms Limited – *Leamington*
 Bunge Canada – *Montréal*
 Burnbrae Farms Limited – *Lyn, Brockville, Calgary, Mississauga, Pandora, Winnipeg*
 Ferme St.-Zotique – *Saint-Zotique*
 Island Egg – *Westholme*
 Maple Lyn Foods Ltd. – *Strathroy*
 Oeufs Bec-O inc. (Les) – *Upton*
 C & M Seeds – *Palmerston*
 Café Vittoria inc. – *Sherbrooke*
 Campbell Company of Canada – *Listowel, Toronto*
 Canada Bread Company Ltd. – *Beaumont, Calgary, Chicoutimi, Concord, Delta, Edmonton, Etobicoke, Grand Falls, Hamilton, Langley, Laval, Levis, London, Moncton, Mont-Laurier, Montréal, North Bay, Quebec, Scarborough, Saint-Côme-Linière, St. John's, Toronto, Woodstock*
 Canada Malting Co. Ltd. – *Montréal*
 Canadian Organic Maple Co. Ltd. – *Bath*
 Cantor Bakery – *Montréal*
 Canyon Creek Soup Company Ltd. – *Edmonton*
 Cargill Animal Nutrition – *Camrose, Lethbridge*
 Cargill Foods – *High River, Toronto*
 Cargill Limited – *Winnipeg, Sarnia*
 Cargill Aghorizons – *Melbourne, Albright, Brandon, Canora, Dauphin, Edmonton, Elm Creek, Lethbridge, Nicklen Siding, North Battleford, Princeton, Rosetown, Rycroft, Shetland, Staples, Strathroy, Talbotville, Vegreville, Winnipeg, Yorkton*
 Cargill Meats Canada – *London*
 Cargill Meat Solutions – *Guelph*
 Casa Italia Ltd. – *Brampton, Port Colborne*
 Cavendish Farms – *New Annan*
 Cedar Beach Acres Ltd. – *Kingsville*
 Cedar Field Greenhouses Ltd. – *Freelton*
 Cedarline Greenhouses – *Dresden*
 Central Alberta Greenhouses Ltd. – *Blackfalds*
 Cericola Farms Inc. – *Bradford*
 Sure Fresh Foods Inc. – *Bradford*
 Champion Feed Services Ltd. – *Barrhead*
 Champion Petfoods Ltd. – *Morinville*
 Charles A. Heckel Holdings Ltd. o/a Johnston Greenhouses & Garden Centre – *Peterborough*

Clearwater Seafoods Limited Partnership – *Bedford*
 Clearwater Lobsters Ltd. – *Arichat, Clark's Harbour*
 Continental Seafoods – *Shelburne*
 Grand Bank Seafoods – *Grand Bank*
 Highland Fisheries – *Glace Bay*
 Pierce Fisheries – *Lockeport*
 St. Anthony Seafoods Limited – Partnership – *St. Anthony*
 Coca-Cola Refreshments Canada – *Toronto, Calgary*
 Cold Springs Farm Limited – *Thamesford*
 Colonial Florists Ltd. – *St. Catharines*
 Commercial Alcohols Inc. – *Toronto, Brampton*
 Compagnie Allan Candy (La) – *Granby*
 Conestoga Meat Packers Ltd. – *Breslau*
 Connors Bros. – *Blacks Harbour*
 Continental Mushroom Corporation (1989) Ltd. – *Metcalfe*
 Cornies Farms Limited – *Kingsville*
 CosMic Plants Inc. – *Beamsville*
 County Grower Greenhouse – *Medicine Hat*
 Cristofari Farms Inc. – *Leamington*
 Crust Craft Inc. – *Edmonton*
 Crowley Farms Norwood Ltd. – *Norwood*
 Dallaire Spécialités inc. – *Rouyn-Noranda*
 Dare Foods Limited – *Toronto*
 Dainty Foods – Division of MRRM (Canada) Inc. – *Windsor*
 Dairytown Products Ltd. – *Sussex*
 Debono Greenhouses Limited – *Waterford*
 Del Sol Greenhouses Inc. – *Kingsville*
 Devan Greenhouses Ltd. – *Abbotsford*
 Diageo Canada Inc. – *Gimli*
 Domic International Ltd. – *Ruthven*
 Don Chapman Farms Ltd./Lakeview Vegetable Processing Inc. – *Queensville*
 Dr. Oetker Canada Ltd. – *Mississauga*
 Dykstra Greenhouses – *St. Catharines*
 E.D. Smith and Sons LP – *Saferorth, Winoma*
 East Side Acres – *Leamington*
 Ed Sobkowich Greenhouses – *Grimsby*
 Elmira Poultry Inc. – *Waterloo*
 Enniskillen Pepper Co. Ltd. – *Petrolia*
 Erieview Acres Inc. – *Kingsville, Leamington*
 Exceldor Coopérative Avicole – *Saint-Anselme*
 Family Muffins & Desserts Inc. – *Sherwood Park*
 Fancy Pokket Corporation – *Moncton*
 Federated Co-operatives Limited – *Saskatoon*
 Ferme Daichemin s.e.n.c. – *Saint-Damase, Saint-Pie*
 Ferme La Rouquine inc. – *Chicoutimi*
 Fermes Loufa inc. (Les) – *Montréal*
 Fernlea Flowers Limited – *Delhi*
 Fishery Products International Limited – *St. John's, Port Union, Triton*
 Five Star Farms – *Ruthven*
 Fleischmann's Yeast – *Calgary*
 Flower Ranch (The) – *Strathroy, London*
 Fresh Sprout International Ltd. – *Mississauga*
 Freshwater Fisheries Society of BC – *Victoria*
 Clearwater Trout Hatchery – *Clearwater*
 Fraser Valley Trout Hatchery – *Abbotsford*
 Kootenay Trout Hatchery – *Fort Steele*
 Summerland Trout Hatchery – *Summerland*
 Vancouver Island Trout Hatchery – *Duncan*
 Freybe Gourmet Foods Ltd. – *Langley*
 Frisia Flora Greenhouses – *Beamsville*
 Frito Lay Canada – *Mississauga, Ancaster, Cambridge, Lethbridge, Lévis, New Minas, Pointe-Claire, Taber*
 Froese Vegetables Inc. – *Vienna*
 Furlani's Food Corporation – *Mississauga*
 G.E. Barbour Inc. – *Sussex*
 Ganong Bros. Limited – *St. Stephen*
 General Mills Canada Corporation – *Midland, Saint-Hubert, Winnipeg*
 George Sant & Sons Greenhouses – *Kleinburg*

Good Taste Food Products Inc. – Scarborough	Les Viandes du Breton inc. – Rivière-du-Loup	Unidindon inc. – Saint-Jean-Baptiste
Green Mountain Gardens – Stoney Creek	Lilydale Cooperative Ltd. – Edmonton	Omstead Foods Limited – Wheatley
Greenfield Gardens (Niagara) Inc. – Fenwick	Lindy's Flowers – Dunnville	Orangeline Farms Limited – Leamington
Greenwood Mushroom Farm – Ashburn, Greenwood	Link Greenhouses – Bowmanville	Orchard Park Growers Ltd. – St. Catharines
Gregory Greenhouses Inc. – St. Catharines	Linwell Gardens Ltd. – Beamsville	Otter Valley Foods Inc. – Tillsonburg
Griffith Laboratories Ltd. – Toronto	Lucerne Foods – Calgary	Oxford Frozen Foods Limited – Oxford
Gull Valley Greenhouses – Blackfalds	Lyalta Gardens – Lyalta	Hillaton Farms – Port Williams
H.J. Heinz Company of Canada Ltd. – Leamington	Lyo-San inc. – Lachute	P. Ravensbergen & Sons Ltd. – Smithville
Handi Foods Ltd. – Weston	Madelimer inc. – Grande-Entrée	Palmerston Grain – Palmerston
Hanemaayer Greenhouses – Vineland Station	Maidstone Bakeries Co. – Brantford	Paradise Hill Farms Inc. – Nanton
Hans Dairy Inc. – Toronto	Maison des Futailles – Saint-Hyacinthe	Paradise Island Foods Inc. – Nanaimo
Harster Greenhouses Inc. – Dundas	Malteurop Canada Ltd. – Winnipeg	Parrish & Heimbecker Limited – Glencoe
Heritage Frozen Foods Ltd. – Edmonton	Maple Leaf Consumer Foods Inc. – Hamilton, Laval, Lethbridge, Mississauga, North Battleford, Surrey, Weston, Winnipeg	Parkway Gardens Ltd. – London
Hillside Hothouse Ltd. – Ruthven	Maple Leaf Foods Inc. – Burlington, Kitchener	Pelee Hydroponics – Leamington
Hiram Walker & Sons Limited – Windsor	Maple Leaf Fresh Foods – Brandon, Burlington, Charlottetown, Lethbridge, Stoney Creek, New Hamburg, Toronto, Wataskiwin	Pepe's Mexican Foods Inc. – Etobicoke
Homeland Grain Inc. – Burgessville	Maple Lodge Farms Ltd. – Norval	Peppertree Greenhouses Ltd. – Tupperville
Houweling Nurseries Ltd. – Delta	Marcel Depratto inc. – Saint-Louis-de-Richelieu	Pepsi-Cola Canada Beverages – Mississauga
HQ Fine Foods – Edmonton	Marish Greenhouses – Dunnville	PepsiCo Foods Canada Inc. – Peterborough, Trenton
HSF Foods Ltd. – Centreville	Mars Canada Inc. – Bolton, Newmarket	Petite Bretonne inc. (La) – Blainville
Hubberts Industries – Brampton	Marsan Foods Limited – Toronto	Planet Bean Coffee Inc. – Guelph
Ice River Springs Water Co. Inc. – Feversham	Mastron Enterprises Ltd. – Kingsville	Poinsettia Plantation (The) – Bothwell
Icewater Seafoods Inc. – Arnold's Cove	Mastronardi Estate Winery – Kingsville, Grand Falls	Prairie Mushrooms (1992) Ltd. – Sherwood Park
Imperial Tobacco Canada Ltd. – Montréal	McCain Foods (Canada) – Portage la Prairie, Borden-Carleton, Carberry, Florenceville, Grand Falls, Mississauga, Toronto	Prism Farms Ltd. – Leamington
Ingredient Canada Inc. – Cardinal, Etobicoke, London, Port Colborne	Charcuterie la Tour Eiffel – Division of McCain Foods Limited – Québec, Blainville	Production Serres Yargeau inc. – Sherbrooke
Inovata Foods Corp. – Edmonton	Wong Wing – Division of McCain Foods Limited – Montréal	Produits Alimentaires Viau inc. (Les) – Montréal-Nord
Jadee Meat Products Ltd. – Beamsville	Meyers Fruit Farms and Greenhouses – Niagara-on-the-Lake	Pyramid Farms Ltd. – Leamington
Jayden Floral – Dunnville	Minor Bros. Farm Supply Ltd. – Dunnville	Quark Farms Ltd. – Mossbank
Jeffery's Greenhouses Plant II Limited – Jordan Station	Mitchell's Gourmet Foods Inc. – Saskatoon	Redpath Sugar Ltd. – Toronto
Jeffery's Greenhouses Inc. – St. Catharines	Mondelez Canada Inc. – Chambly	Regal Greenhouses Inc. – Virgil
Jem Farms – Ruthven	Biscuiterie Montréal, Montréal	Reif Estate Winery Inc. – Niagara-on-the-Lake
John Kouwenberg Floral Inc. o/a Foliera – Beamsville	Cadbury Plant, Toronto	Reinhart Foods Limited – Stayner
Jolly Farmer Products Inc. – Northampton	Lakeshore Bakery, Toronto	Rekker Gardens Ltd. – Bowmanville
JTI-Macdonald Corp. – Montréal	Peek Frean Bakery, East York	Rich Products of Canada Limited – Fort Erie
Kapital Produce Limited – Leamington, Ruthven	Montréal Pita inc. – Montréal	Rol-land Farms Limited – Campbellville
Kejay Farms Inc. – Chatham	Mother Parkers Tea & Coffee Inc. – Ajax, Mississauga	Rootham's Gourmet Preserves Ltd. – Guelph
Kern Water Systems Inc. – Sarnia	Mt. Lehman Greenhouses (1999) Ltd. – Mt. Lehman	Rosa Flora Limited – Dunnville
Kraft Canada Inc. – Ville Mont-Royal, Vancouver	Mucci Farms Ltd. – Kingsville	Rothmans, Benson & Hedges Inc. – North York
Kuyvenhoven Greenhouses Inc. – Brampton, Halton Hills	Nadeau Poultry Farm Ltd. – Saint-François-de-Madawaska	Rothsay – Dundas, Moorefield, Québec, Saint-Boniface, Truro
La Coop Fédérée – Montréal, Joliette, Saint-Romuald	Nanticoke Greenhouses Limited – Simcoe	Rothsay, A member of Maple Leaf Foods Inc. – Winnipeg
Comax Coopérative Agricole – Saint-Hyacinthe	Nature Fresh Farms – Leamington	Round Hill Poultry Limited – Roundhill
Société Coopérative Agricole des Bois-Francis – Victoriaville	Nature's Finest Produce Ltd. – Pain Court	Sakai Spice (Canada) Corporation – Lethbridge
La Corporation d'aliments Ronzoni du Canada – Montréal	Nestlé Canada Inc. – Chesterville, Edmonton, North York, Rexdale, Scarborough, Sherbrooke, Toronto, Trenton	Les Salaisons Desco inc. – Boisbriand
La Rocca Creative Cakes – Thornhill	Nestlé Professional – Trenton	Sanimax ACI inc. – Lévis
Landmark Feeds Inc. – Abbotsford, Brassard, Claresholm, Landmark, Medicine Hat, Otterburne, Rosenort, Strathmore, Winnipeg	Nestlé Purina PetCare – Mississauga	Sanimax Lom inc. – Montréal
Landmark Feeds Inc. – Abbotsford, Brassard, Claresholm, Landmark, Medicine Hat, Otterburne, Rosenort, Strathmore, Winnipeg	Nestlé Waters Canada – Guelph	Scotia Garden Seafood Inc. – Yarmouth
Laprise Farms Ltd. – Pain Court	New West Milling – Bassano	Scotian Halibut Limited – Clarks Harbour, Lower Woods Harbour
Larsen Foods – Berwick	Nicol Florist Ltd. – Brantford	Schenck Farms & Greenhouses Co. Limited – St. Catharines
Lassonde Beverages Canada – Toronto	Noël Wilson & Fils S.N.C. – Saint-Rémi	Schneider Foods – Ayr, Mississauga, Port Perry, St. Marys, Toronto
Leahy Orchards Inc. – Franklin, Saint-Antoine Abbé	Norfolk Fruit Growers' Association (The) – Simcoe	Schuurman Greenhouses Ltd. – Branchton
Legal Alfalfa Products Ltd. – Legal	Norfolk Greenhouses Inc. – Courtland	Scotsburn Co-Operatives Services Ltd. – Truro
Les Aliments Dare limitée – Sainte-Martine	Northern Alberta Processing Co. – Edmonton	Scott Street Greenhouses Ltd. – St. Davids
Les Cuisines Gaspésiennes Ltée – Matane	Northumberland Co-operative Limited – Miramichi	Select Food Products Limited – Toronto
Les Distilleries Schenley inc. – Salaberry-de-Valleyfield	Nunavut Development Corporation – Rankin Inlet	Sepp's Gourmet Foods Ltd. – Delta, Richmond Hill
Les Jardiniers du chef – Blainville	Kitikmeot Foods Ltd. – Cambridge Bay	Serres du Marais, inc. (Les) – Sainte-Martine
Les Oeufs d'Or – Val d'Or	Kivalliq Arctic Foods Ltd. – Rankin Inlet	Serres Sylvain Cléroux (Québec) inc. (Les) – Laval
Les Productions Horticoles Demers inc. – Saint-Nicolas	Pangnirtung Fisheries Ltd. – Pangnirtung	Serres Maryvon – L'Ascension
Les produits Zinda Canada inc. – Candiac	Oakrun Farm Bakery Ltd. – Ancaster	Shah Trading Company Limited – Scarborough, Port Williams, Saint-Félix-de-Valois, Saint-Hugues, Saint-Hyacinthe, St. Marys, Saint-Romuald, Stevensville, Summerside, Sussex, Truro, Weston, Yamachiche
Les Serres Bergeron – Notre-Dame-du-Laus, Notre-Dame-de-la-Salette	Ocean Nutrition Canada Ltd. – Dartmouth	Sifto Canada Corporation – Goderich Evaporator Plant – Goderich
Les Serres Daniel Lemieux inc. – Saint-Rémi	Okanagan North Growers Cooperative – Winfield	Simplot Canada (II) Limited – Portage La Prairie
Les Serres Florinove – Saint-Paulin	Old Dutch Foods Inc. – Summerside, Winnipeg	Sofina Foods Inc. – London
Les serres Gilles et Francine Lahaie enr. – Saint-Michel-de-Napierreville	Olymel S.E.C. / LP – Red Deer	Soil Less Growing Systems Inc. – Calgary
Les Serres Gola – Mont-Saint-Grégoire	Aliments Prince S.E.C. – Princeville, Cornwall	Southshore Greenhouses Inc. – Kingsville
Les Serres Maedler (1989) inc. – Nyon	Machinerie Olymel (1998) inc. – Saint-Valérien-de-Milton	Sovereign Farms – Waterford
Les Serres R. Bergeron inc. – Saint-Apollinaire	Olymel S.E.C. – Berthierville, Anjou, Brampton, Iberville, Saint-Hyacinthe, Trois-Rivières, Saint-Damase, Saint-Jean-sur-Richelieu	Spring Valley Gardens Niagara Inc. – St. Catharines
Les Serres Riel inc. – Saint-Rémi		St. David's Hydroponics Ltd. – Niagara-on-the-Lake, Beamsville
Les Serres Sagami (2000) inc. – Chicoutimi, Sainte-Sophie		Stag's Hollow Winery and Vineyard Ltd. – Okanagan Falls
Les Serres Nouvelles Cultures inc. – Sainte-Sophie		Stratus Vineyards Limited – Niagara-on-the-Lake
Les Serres Serge Dupuis – Saint-Élie-de-Caxton		
Les Serres Saint-Benoît-du-Lac inc. – Austin		

Streef Produce Ltd. – *Princeton*
 Sucre Lantic Limitée – *Montréal*
 Sun Harvest Greenhouses – *Glenburnie*
 Suns Bakery – *Brampton*
 Sunshine Express Garden Centre Ltd. – *Niagara-on-the-Lake*
 Suntech Greenhouses Ltd. – *Manotick*
 Sunny Crunch Foods Ltd. – *Markham*
 Sunrise Bakery Ltd. – *Edmonton*
 Sunrise Farms Limited – *Kingsville, Leamington*
 Sunrise Greenhouses Ltd. – *Vineland Station*
 Sunrite Greenhouses Ltd. – *Kingsville, Wheatley*
 Sun-Rype Products Ltd. – *Kelowna*
 SunSelect Produce (Delta) Inc. – *Aldergrove, Delta*
 Sunshine Peaks – *Leamington*
 Sunterra Meats Ltd. – *Trochu*
 Sunwold Farms Ltd. – *Acme*
 Largie Farm – *Dutton*
 Peterborough Farms – *Indian River*
 Sysco Canada, Inc. – *Acheson, Calgary, Etobicoke, Lakeside, Kelowna, Kingston, Langford, Milton, Mississauga, Moncton, Montréal, Mount Pearl, Peterborough, Port Coquitlam, Regina, Thunder Bay, Toronto, Vancouver, Winnipeg*
 Target Marine Products Ltd. – *Sechelt*
 Thomson Meats Ltd. – *Melfort*
 Tidal Organics Inc. – *Pubnico*
 Transfeeder Inc. – *Olds*
 Trevisanutto's Greenhouses – *Thunder Bay*
 Trophy Foods Inc. – *Calgary*
 Unifeed Et Premix – *Lethbridge*
 Unilever Canada – *Rexdale, Brampton*
 United Floral Greenhouse – *Fenwick*
 Valleyview Gardens – *Scarborough, Markham*
 Van Geest Bros. Limited – *Grimby, St. Catharines*
 Van Houtte S.E.C. – *Montréal*
 Van Noort Florists – *Niagara-on-the-Lake*
 Vandermeer Greenhouses Ltd. – *Niagara-on-the-Lake*
 Vandermeer Nursery Ltd. – *Ajax*
 Van Vliet Greenhouses Inc. – *Fenwick*
 VanZanten Greenhouses – *Fenwick*
 Veri Hydroponics Inc. – *Exeter*
 Vermeer's Greenhouses – *Welland*
 Versacold Corporation – *Vancouver*
 Vincor International Inc. – *Niagara Falls*
 Virgil Greenhouses Ltd. – *Niagara-on-the-Lake*
 Vittera Inc. o/a SWP – *Thunder Bay Terminal Elevator*
 Vittera "A" – *Thunder Bay*
 Vittera Inc. o/a SWP – *Thunder Bay Terminal Elevator*
 Vittera "B" – *Thunder Bay*
 Vittera Food Processing – *Barrhead*
 Vitoeuf inc. – *Saint-Hyacinthe*
 Voogt Greenhouses Inc. – *Niagara-on-the-Lake*
 Voortman Cookies Ltd. – *Burlington*
 Young Street Gardens Ltd. – *Smithville*
 W.J. O'Neil Et Sons Ltd. – *Maidstone*
 W.T. Lynch Foods Limited – *Toronto*
 W. Martens Greenhouses Inc. – *Leamington*
 Waldan Gardens – *Wainfleet*
 Waterloo Flowers Limited – *Breslau*
 Weesjes Greenhouses Ltd. – *St. Thomas*
 Westland Greenhouses (Jordan) Ltd. – *Jordan Station*
 Weston Foods Inc. – *Etobicoke*
 Weston Bakeries Limited – *Toronto, Kingston, Kitchener, Orillia, Ottawa, Sudbury, Winnipeg*
 Bronson Bakery Limited – *Ottawa*
 Crissa Bakery – *Barrie*
 Golden Mill Bakery – *Hamilton*
 Maplehurst Bakeries Inc. – *Brampton*
 Pepe's Mexican Foods Inc. – *Etobicoke*
 Ready Bake Foods Inc. – *Mississauga*
 Sir Bagel – *Concord*
 Weston Fruit Cake Co. – *Cobourg*
 Willow Spring Hydroponics Farms Ltd. – *Bothwell*

Willy Haeck et Fils Inc. – *Saint-Rémi*
 Willy's Greenhouses Ltd. – *Niagara-on-the-Lake*
 Windset Greenhouses Ltd. – *Delta*
 Witzke's Greenhouses Ltd. – *Courtice*
 Woodhill Greenhouses Inc. – *Lynden*

FOUNDRY

Ancast Industries Ltd. – *Winnipeg*
 Bibby-Ste-Croix, Division Tuyauterie Canada Limitée – *Sainte-Croix*
 Breyer Casting Technologies Inc. – *Brampton*
 Canadian Specialty Castings Incorporated – *Niagara Falls*
 Century Pacific Foundry Ltd. – *Surrey*
 Deloro Stellite Inc. – *Belleville*
 ESCO Limited – *Port Coquitlam, Port Hope*
 Grenville Castings Limited – *Merrickville, Perth, Smiths Falls*
 J & K Die Casting Ltd. – *Scarborough*
 Johnson Matthey Limited – *Brampton*
 M.A. Steel Foundry Ltd. – *Calgary*
 Magotteaux Itée – *Magog*
 Mueller Canada – *Saint-Jérôme*
 Norcast Castings Company Ltd. – *Mont-Joli*
 Peninsula Alloy Inc. – *Stevensville, Fort Erie*
 Royal Canadian Mint – *Winnipeg*
 Supreme Tooling Group – *Toronto*
 Victaulic Custom Casting – *Richmond Hill*
 Wabi Iron Et Steel Corporation – *New Liskeard*
 Wabtec Foundry – *Div. of Wabtec Canada Inc. – Wallaceburg*
 Xstrata Copper Canada – *CCR – Horne – Rouyn-Noranda*
 Xstrata Zinc Canada
 Fonderie générale de Canada – *Lachine*
 Brunswick Smelter – *Belledune*

GENERAL MANUFACTURING

3M Canada Company – *London, Brockville, Etobicoke, Morden, Perth*
 A1 Label Inc. – *Toronto*
 ABCO Industries Limited – *Lunenburg*
 Aberfoyle Metal Treaters Ltd. – *Guelph*
 AbitibiBowater Inc. operating as Resolute Forest Products – *Bridgewater, Girardville, Maniwaki, Mistassini, Price, Saint-Félicien*
 Acuity Innovative Solutions – *Richmond Hill*
 Acadian Platers Company Limited – *Etobicoke*
 Accuride Canada Inc. – *London*
 Active Burgess Mould Et Design Ltd. – *Windsor*
 Advanced Ag and Industrial Ltd. – *Biggar*
 AeroTek Manufacturing Limited – *Whitby*
 AirBoss Produits d'Ingénierie inc. – *Acton Vale*
 AirBoss Rubber Compounding – *Kitchener*
 Airex Industries inc. – *Drummondville, Montréal, Mississauga*
 Airia Brands Inc. – *London*
 Airtek Systems Inc. – *Edmonton*
 Airworks Compressors Corp. – *Edmonton*
 Albany International Canada Inc. – *Perth*
 Albarrie Canada Limited – *Barrie*
 Alberta-Pacific Forest Industries, Boyle
 Alfield Industries, Division of Rea International Inc. – *Woodbridge*
 Aluminum Surface Technologies – *Burlington*
 American Color Graphics Inc. – *Stevensville*
 American Et Efid Canada Inc. – *Montréal*
 Annabel Canada inc. – *Drummondville*
 Anchor Lamina Inc. – *Cambridge, Mississauga, Windsor*
 Anchor Lamina Inc. – *Reliance Fabrications – Tilbury*
 A.P. Plasman Inc. – *Tecumseh, Tilbury, Windsor*
 APC Coatings Limited – *Dartmouth*
 A.R. Thomson Group – *Edmonton*
 Armtec Limited Partnership – *Guelph, Woodstock*
 Art Design International inc. – *Saint-Hubert*
 Artopex Plus inc. – *Granby, Laval*

Arva Industries Inc. – *St. Thomas*
 Associated Tube Industries – *Markham*
 Atlas Industries Ltd. – *Saskatoon*
 Automatic Coating Limited – *Scarborough*
 AYK Socks Inc. – *Saint-Léonard*
 Babcock Et Wilcox Canada Ltd. – *Cambridge*
 Barco Materials Handling Limited, *Burns Lake*
 Baron Metal Industries Inc. – *Woodbridge*
 Barrday Inc. – *Cambridge*
 BASF The Chemical Company – *Georgetown*
 Batteries Power (Iberville) Itée – *Saint-Jean-sur-Richelieu*
 Baxter Corporation – *Alliston*
 Baytree Logging Ltd. – *Baytree*
 B.C. Instruments – *Barrie, Schomberg*
 Beaulieu Canada inc. – *Acton Vale*
 Belvedere International Inc. – *Mississauga*
 Bennett Fleet (Québec) inc. – *Ville-Vanier*
 Bentofix Technologies Inc. – *Barrie*
 Bernard Breton inc. – *Saint-Narcisse-de-Beaurivage*
 Bérou International inc. – *Anjou*
 Best Color Press Limited – *Vancouver*
 Blount Canada Ltd. – *Guelph*
 Bois-Francis inc. – *Saint-Phillippe-de-Néri*
 Borden Cold Storage Limited – *Kitchener*
 Bosch Rexroth Canada Corp. – *Welland*
 Bourgault Industries Ltd. – *St. Brieux*
 Braam's Custom Cabinets – *St. Thomas*
 Brampton Engineering Inc. – *Brampton*
 Brant Corrosion Control Inc. – *Brantford*
 Brawo Brassworking Ltd. – *Burk's Falls*
 BRC Business Enterprises Ltd. – *Georgetown*
 Brenntag Canada Inc. – *Mississauga*
 Bridgeline Limited – *Deseronto*
 Broan-Nutone Canada Inc. – *Mississauga*
 Builders Furniture Ltd. – *Winnipeg*
 Building Products of Canada Corp. *Edmonton, Pont Rouge*
 Burnco Manufacturing Inc. – *Concord*
 Butcher Engineering Enterprises Limited (The) – *Brampton*
 Byers Bush Inc. – *Mississauga*
 CAE Inc. – *Saint-Laurent*
 Calko (Canada) Inc. – *Montréal, Ville d'Anjou*
 Cambridge Towel Corporation (The) – *Cambridge*
 Camfil Farr (Canada) Inc. – *Laval*
 Cam-Slide – *Newmarket*
 Canada Mold Technology – *Woodstock*
 Cancoil Thermal Corporation – *Kingston*
 Cambridge Brass Inc. – *Cambridge*
 Cambridge Heat Treating Inc. – *Cambridge*
 Canada's Best Store Fixtures Inc. – *Woodbridge*
 Canada Colors and Chemicals Limited – *Plastics Division – Colborne*
 Cana-Datum Moulds Ltd. – *Etobicoke*
 Canadian Curtis Refrigeration Inc. – *Stoney Creek*
 Canadian General-Tower Limited – *Cambridge*
 Canfor Corporation – *Vancouver*
 Canadian Forest Products, *Bear Lake*
 Cannon Knitting Mills Limited – *Hamilton*
 Canwood Furniture Inc. – *Penticton*
 Cansew Inc. – *Saint-Michel*
 Carrière Bernier Limitée – *Saint-Jean-sur-Richelieu*
 Carrière Union Ltée – *Quebec*
 Casavant Frères s.e.c. – *Saint-Hyacinthe*
 Cascade Canada Ltd. – *Guelph*
 CCL Container Aerosol Division – *Penetanguishene*
 Cello Products Inc. – *Cambridge*
 Centerline (Windsor) Limited – *Windsor*
 Centre du Comptoir Sag-Lac inc. – *Alma*
 CertainTeed Gypsum Canada Inc – *Mississauga*
 CDEX usine de sciage – *Val d'Or*
 Chandelles Tradition Itée – *Laval*
 Cherry Forest Products – *Division of Barco Handling, Pushlinch*

ChromeShield Co. – Windsor	FBT Inc. – St. Catharines	J.D. Irving, Limited – Saint John, Deersdale
Climatizer Insulation Inc. – Etobicoke	Fileco Inc. – Division of Teknion Furniture Systems – Concord	J.H. Huscroft Limited – Creston
CMP Advanced Mechanical Solutions (Ottawa) Ltd. – Ottawa	Finewood Flooring & Lumber Limited – Baddeck	Jobal Industries Ltd. – Brampton
CMP Solutions Mécaniques Avancée Ltée – Châteauguay	Flexstar Packaging Inc. – Richmond	John Gavel Custom Manufacturing Ltd. – Emo
CNH Canada Ltd. – Saskatoon	Floform Industries Ltd. – Winnipeg, Edmonton	Johnsonite Canada Inc. – Waterloo
Coldstream Lumber – Vernon	Custom Countertops Ltd. – Regina, Saskatoon	Jones Packaging Inc. – London
Collingwood Fabrics Inc. – Collingwood	Fiready Inc. – Clair	JTL Integrated Machine Ltd. – Port Colborne
Colonial Tool Group Inc. – Windsor	Flakeboard Company Limited – St. Stephen	Juliana Manufacturing Ltd. – Winnipeg
Colorama Dyeing and Finishing Inc. – Hawkesbury	Fournitures Funéraires Victoriaville inc. – Victoriaville	K&C Silviculture Ltd. – Red Deer, Oliver
Colourific Coatings Ltd. – Mississauga	Fuller Industrial Corporation – Lively	KelCoatings Limited – London
Columbia Forest Products – Saint-Casimir	Futuretek-Bathurst Tool Inc. – Oakville	KI Pembroke LP – Pembroke
Columbia Industries Limited – Sparwood	Garaga Inc. – Barrie	KIK Custom Products – Etobicoke
Commonwealth Plywood Co. Ltd. – Lachute, Low, Mont-Laurier, Princeville, Rapides-des-Joachims, Sainte-Thérèse, Shawinigan	Garant – Saint-François	Franke Kindred Canada Limited – Midland
Comp-Tech Mfg. Inc. – North York	Garland Commercial Ranges Limited – Mississauga	Kobay Tool & Stampings Inc. – Scarborough
Compact Mould Ltd. – Woodbridge	Garlock du Canada Ltée – Sherbrooke	Korex Canada – Toronto
Compagnies du Groupe DATA (Les) – Granby	Garrtech Inc – Stoney Creek	Korex Don Valley ULC – Toronto
Compagnie Henry Canada inc. – Lachine	General Dynamics Produits de défense et Systèmes tactiques-Canada Inc. – Saint-Augustin-de-Desmaures	Kwality Labels Inc. – Richmond Hill
Conference Cup Ltd. – London	Genfoot Inc. – Montréal	KWH Pipe (Canada) Ltd. – Huntsville, Saskatoon
Consoltech Inc. – Montréal, Cowansville	George A. Wright & Son General Services Inc. – Kingston	Kuntz Electroplating Inc. – Kitchener
Control Skateboards Inc. – Saint-Nicolas	George Guenzler & Sons Inc. – Kitchener	La Compagnie Américaine de Fer et Métaux inc. – Montréal
Cooper-Standard Automotive – Stratford	Georgia-Pacific Canada, Inc. – Thorold	Lac-Mac Limited – London
Corporation Internationale Masonite Inc. (La) – Lac Mégantic	Geo. Sheard Fabrics (1994) Ltd. – Coaticook	Lainages Victor Itée – Saint-Victor
Corporation Emballages Flexible Sonoco Canada – Terrebonne	Global Casegoods Inc. – Concord	Lanart Rug inc. – Saint-Jean-sur-Richelieu
Cosella-Dorken Products Inc. – Beamsville	Global Wood Concepts Ltd. – North York	Lantz Truck Body Ltd. – Port Williams
Créations Verbois inc. – Rivière-du-Loup	Gonderflex International inc. – Longueuil	Larsen & D'Amico Manufacturing Ltd. – Edmonton
Cristini North America Inc. – Lachute	Goodyear Canada Inc. – Napanee	Laser Impressions Inc. – Saskatoon
Crown Metal Packaging Canada LP – Calgary, Concord, Ville Saint-Laurent	Gosco Valves Inc. – Oakville	Laval Tool & Mould Ltd. – Maidstone
CUMI Canada Inc. – Summerside	Granules L.G. inc. – Saint-Félicien	Lee Valley Tools Ltd. – Ottawa, Carp
D. Repol Enterprises Inc. – Whitby	Gregory Signs & Engraving Ltd. – Vaughan	Les Distributions Option Kit inc. – Québec
Data Group of Companies (The) – Brampton, Brockville, Drummondville	Greif Bros. Canada Inc. – Maple Grove, Oakville, Stoney Creek	Les industries Peintek inc. – Chesterville
Davis Wire Industries Ltd. – Delta	Groupe Altech 2003 inc. – Pointe-Claire	Les Productions Ranger (1988) inc. – Granby
DCR Holdings Inc. – Stoney Creek	Groupe Lacasse inc. – Saint-Pie	Les Produits Belt-Tech inc. – Granby
Dava Inc. – Tring Junction	Groupe Lebel (2004) inc. – Rivière-du-Loup, Cacouna Bois Traitel Itée – Saint-Joseph de Kamouraska	Les Technologies Fibrox Itée – Thetford Mines
Déblavage National inc. – Asbestos	Groupe Savoie inc. – Saint-Quentin	Les Tricots Confort Absolu inc. – Montréal
Delta Elevator Co. Ltd. – Kitchener	Gunnar Manufacturing Inc. – Calgary	Linamar Corporation – Guelph
Dentex – Montréal	H. Beck Machinery Ltd. – Windsor	Cemtol Mfg. – division of Linamar Corporation – Guelph
Derma Sciences Canada Inc. – Scarborough	Hafner Inc. – Granby	Skyjack Inc. – Guelph
Descor Industries Inc. – Markham	Hallink RSB Inc. – Cambridge	Lincoln Electric Company of Canada LP – Toronto
DEW Engineering and Development Limited – Miramichi, Ottawa	Hamilton Kent – Toronto	Lincoln Fabrics Ltd. – St. Catharines
Dipaolo CNC Retrofit Ltd. – Mississauga	Hammond Manufacturing Company Limited – Guelph	Loger Toys Ltd. – Brantford
Display Merchandising Group Inc. – Scarborough	Harber Manufacturing Limited – Fort Erie	L'Oréal Canada inc. – Ville Saint-Laurent
Di-tech inc. – Montréal	Harring Doors Ltd. – London	Louisiana-Pacific Canada Ltd. – Bois-Franc, Dawson Creek, East River, Golden, Swan River
Dixie Electric Ltd. – Concord	Hartmann Canada Inc. – Brantford	Lowe-Martin Group (The) – Ottawa, Mississauga
DK-Spec inc. – Saint-Nicolas	Hendrickson Spring – Stratford	Ludlow Technical Products Canada, Ltd. – Gananoque
Domtar Inc. – Kamloops	Henninger's Diesel Limited – Sudbury	Luzenac Incorporated – Timmins
Dorothea Knitting Mills Limited – Toronto	Heritage Memorials Limited – Windsor	Lyn-Jay Holdings Ltd. o/a Brannon Steel – Brampton
Dortec Industries – Newmarket	Hercules SLR Inc. – Dartmouth	Maclean Engineering & Marketing Co. Limited – Collingwood
Doubletex inc. – Montréal	Hilroy, A Division of MeadWestvaCo Canada LP – Toronto	Madawaska Doors Inc. – Bolton
Durable Release Coaters Limited – Brampton	Hitachi Canadian Industries Ltd. – Saskatoon	Magnum Signs Inc. – Kent Bridge
Dura-Chrome Limited – Wallaceburg	Horst Welding Ltd. – Listowel	Maksteel Service Centre – Mississauga
Durham Furniture Inc. – Durham	Hurteau & Associés inc. (Fruits & Passion) – Candiac	Manluk Industries Inc. – Wetaskiwin
Dutch Industries Ltd. – Pilot Butte, Regina	Hydroform Solutions – Brampton	Manor Tool & Die Ltd. – Oldcastle
Eastern Fluid Power Inc. – Kingston	Industries Maibec inc. – Saint-Pamphile	Mansour Mining Inc. – Sudbury
EHC Global – Oshawa	lafrate Machine Works Limited – Thorold	Manufacturier de bas de nylon Doris Itée – Montréal
Emballages Alcan Lachine – Lachine	Infasco – Marieville	Manufacturier TechCraft inc. – Laval
Emerson Process Management – Edmonton	IKO Industries Ltd. – Brampton, Hawkesbury	Marcel Lauzon inc. – East Hereford
Engauge Controls Inc. – Lakeshore	IMAX Corporation – Mississauga	Marimac Group (The) – Montréal, Iroquois
Enstel Manufacturing Inc. – Concord	Imprimerie Interweb inc. – Boucherville	Maritime Geothermal Ltd. – Petitediac
Entreprises Dauphinais inc. (Les) – Sherbrooke	Indal Technologies Inc. – Mississauga	Marwood Ltd. – Tracyville
Entreprises Interco inc. – Saint-Germain-de-Grantham	Independent Mirror Industries Inc. – Toronto	Matériaux Spécialisés Louiseville inc. – Louiseville
Envirogard Products Ltd. – Richmond Hill	Industrie Bodco inc. – Saint-François-Xavier	Matt's Inc. – Wallaceburg
Erie Flooring and Wood Products – West Lorne	Industries Graphiques Cameo Crafts Limitée – Montréal	Maverick Canada Limited – Wallaceburg
Ezefflow Inc. – Granby	Integrated Mechanical Services Inc. – Stratford	McCabe Steel – a division of Russel Metals Inc. – Stoney Creek
Fabrication S Houle inc. – Saint-Germain-de-Grantham	Integria inc. – Saint-Laurent	McCloskey International Limited – Peterborough
Farnel Packaging Limited – Dartmouth	Interface Flooring Systems (Canada) Inc. – Belleville	MDF La Baie inc. – La Baie
Fasteners & Fittings Inc. – Milton	Interforest Ltd. – Durham	MeadWestvaCo Packaging Systems LP – Ajax, Pickering, Toronto
	J.A. Wilson Display Ltd. – Mississauga	Métal Leetwo Inc. – Pointe-Claire
	JAB Produits Récréatifs inc. – Batiscan	Metal World Incorporated – Torbay
	Jay Ge Electroplating Ltd. – Laval	Métalux inc. – Drummondville
	Jervis B. Webb Company of Canada Ltd. – Hamilton	

Metex Heat Treating Ltd. – <i>Brampton</i>	Polycor Granite Bussière inc. – <i>Saint-Sébastien</i>	SIHI Pumps Limited – <i>Guelph</i>
Metro Label Company Ltd. – <i>Toronto</i>	Polycote Inc. – <i>Concord</i>	Simmons Canada Inc. – <i>Brampton</i>
Metro Label Pacific Ltd. – <i>Langley</i>	Polytainers Inc. – <i>Toronto</i>	Sixpro inc. – <i>Notre-Dame-du-Bon-Conseil</i>
Métro Jonergin ilnc. – <i>Saint-Hubert</i>	Poudrier Frères Itée – <i>Victoriaville</i>	SMS Siemag Ltd. – <i>Oakville</i>
Metroland Printing, Publishing & Distributing – <i>Mississauga</i>	Poutrelles Delta inc. – <i>Sainte-Marie</i>	Snap-on Tools of Canada Ltd. – <i>Newmarket</i>
Metso Minerals Canada Inc. – <i>North Bay</i>	Poutres et Poteaux Val-Morin inc. – <i>Sainte-Agathe-des-Monts</i>	Société Industrielle de décolletage et d'outillage Itée – <i>Granby</i>
Meubles Idéal Itée – <i>Saint-Charles-de-Bellechasse</i>	Powell PowerComm Inc. – <i>Edmonton, Grande Prairie, Hardisty, Lloydminster, Nisku, Olds, Provost</i>	Société Laurentide Inc. – <i>Shawinigan</i>
Meubles Canadel inc. – <i>Louiseville</i>	Powercast Manufacturing inc. – <i>Saint-Eustache</i>	SOFAME Technologies Inc. – <i>Montréal</i>
Michelin North America (Canada) Inc. – <i>New Glasgow</i>	Premier Horticulture Itée – <i>Rivière-du-Loup</i>	Sonaca NMF Canada – <i>Mirabel</i>
Millar Western Forest Products Ltd. – <i>Whitecourt Pulp Division, Whitecourt</i>	Prémoulé Comptoirs – <i>Saint-Augustin-de-Desmaures</i>	Soprema inc. – <i>Drummondville</i>
MIRALIS inc. – <i>Saint-Anaclet-de-Lessard</i>	Prescott Finishing Inc. – <i>Prescott</i>	Soucy Techno inc. – <i>Rock Forest</i>
MLT International – <i>Saint-Pie</i>	Prestige Glass International – <i>Elliot Lake</i>	Soudure Germain Lessard inc. – <i>Boucherville</i>
Mobilier MEQ Itée – <i>La Durantaye</i>	Princeton Co-Generation Corporation – <i>Princeton</i>	Spartek Systems – <i>Sylvan Lake</i>
Modern Dyers – <i>Hamilton</i>	PrintWest Communications Ltd. – <i>Regina, Saskatoon</i>	Spec Furniture Inc. – <i>Toronto</i>
Moli Industries Ltd. – <i>Calgary</i>	Pro-Meubles inc. – <i>Granby</i>	Spécialiste du Bardeau de Cèdre inc. (Le) – <i>Saint-Prosper</i>
Momentum – <i>Newmarket</i>	Procter & Gamble Inc. – <i>Belleville</i>	Spencer Steel Ltd. – <i>Ilderton</i>
Mondo America Inc. – <i>Laval</i>	Produits D'Acier Hason inc. (Les) – <i>Berthierville, Lanoraie</i>	Spirite LP – <i>Listowel</i>
Mondor Itée – <i>Saint-Jean-sur-Richelieu</i>	Produits Verriers Novatech inc. (Les) – <i>Sainte-Julie</i>	Sportspal Products – <i>North Bay</i>
Montebello Packaging – <i>Hawkesbury</i>	Créations Vernova inc. (Les) – <i>Sainte-Julie</i>	Stanfield's Limited – <i>Truro</i>
Montréal Woollens (Canada) Ltd. – <i>Cambridge</i>	Groupe Verrier Novatech – <i>Sainte-Julie</i>	Stedfast Inc. – <i>Granby</i>
Moore Canada Corporation o/a RR Donnelley – <i>Mississauga, Cowansville, Edmonton, Fergus, Montréal, Oshawa, Scarborough, Trenton, Vancouver</i>	Portes Novatech inc. – <i>Sainte-Julie</i>	Steelcase Canada Ltd. – <i>Markham</i>
Morbern Inc. – <i>Cornwall</i>	ProFile Industries Ltd. – <i>North York</i>	Stepan Canada Inc. – <i>Longford Mills</i>
MS Gregson div. de RAD Technologies Inc. – <i>Drummondville</i>	Pullmatic Manufacturing – <i>Unionville</i>	St. Lawrence Corporation – <i>Iroquois</i>
Multy Industries Inc. – <i>North York</i>	QBD Cooling Systems Inc. – <i>Brampton</i>	Strudex Fibres Limited – <i>Waterloo</i>
Muskoka Timber Mills Limited – <i>Bracebridge</i>	Railtech Ltd. – <i>Baie d'Urfé</i>	Suntech Heat Treating Ltd. – <i>Brampton</i>
Nahanni Steel Products Inc. o/a Jancox Stampings – <i>Brampton</i>	Ramstar Carbide Tool Inc. – <i>Oldcastle</i>	Superior Radiant Products Ltd. – <i>Stoney Creek</i>
National Rubber Technologies Corp. – a division of KN Rubber – <i>Toronto</i>	Rayonese Textile inc. – <i>Saint-Jérôme</i>	Supremex inc. – <i>Lasalle, Mississauga</i>
Newalta Corporation – <i>Abbotsford, Airrie, Amelia, Brooks, Calgary, Cranbrook, Drayton Valley, Drumheller, Eckville, Edmonton, Elkpoint, Fort St. John, Gordondale, Grande Prairie, Halbrite, Hays, Hughenden, Nanaimo, Nisky, Nilton Junction, North Vancouver, Pigeon Lake, Prince George, Raymond, Red Earth, Redwater, Regina, Richmond, Sparwood, Stauffer, Stettler, Surrey, Taber, Valleyview, West Stoddart, Willesden Green, Winfield, Zama</i>	Ready Rivet & Fastener Ltd. – <i>Kitchener</i>	Techform Products Limited – <i>Penetanguishene</i>
Nexans Canada Inc. – <i>Montréal-East</i>	Reko International Group Inc. – <i>Oldcastle</i>	Technologies Veyance Canada Inc – <i>Saint-Alphonse de Granby</i>
NGF CANADA Limited – <i>Guelph</i>	Concorde Machine Tool – <i>Tecumseh</i>	Teknion Furniture Systems Ltd. – <i>Toronto</i>
NODMAN Automation Systems – <i>Rockwood</i>	Reko Automation & Machine Tool – <i>Tecumseh</i>	Teknion Roy & Breton Inc. – <i>Saint-Romuald</i>
Norbord Inc. – <i>Plaster Rock</i>	Reko Tool & Mould (1987) Inc. – <i>Oldcastle</i>	RBLogistek – <i>Saint-Romuald</i>
Nord Gear Limited – <i>Brampton</i>	Resco Canada Inc. – <i>Grenville-sur-la-Rouge</i>	RBTek – <i>Saint-Romuald</i>
North American Decal – <i>Markham</i>	Reversomatic Manufacturing Ltd. – <i>Woodbridge</i>	Roy & Breton – <i>Saint-Vallier</i>
Northern Industrial Plating Ltd. – <i>Saskatoon</i>	Ridgewood Industries Ltd. – <i>Cornwall</i>	Teknion Concept – <i>Lévis</i>
Norwest Precision Limited – <i>Weston</i>	Rip-O-Bec inc. – <i>Saint-Apollinaire</i>	Teknion Form – <i>Concord</i>
Novanni Stainless Inc. – <i>Coldwater</i>	Riverside Forest Products Limited – <i>Armstrong</i>	Teknion Québec – <i>Montmagny</i>
Nutech Brands Inc. – <i>London</i>	RLD Industries Ltd. – <i>Ottawa</i>	Télio Et Cie – <i>Montréal</i>
Oberthur Jeux et Technologies inc. – <i>Montréal</i>	Roland Boulanger & Cie Itée. – <i>Warwick</i>	TenCate Protective Fabrics Canada – <i>Magog</i>
OCM Manufacturing – <i>Ottawa</i>	Royal Building Technologies – <i>Woodbridge</i>	Tembec inc. – <i>Témiscaming</i>
Oetiker Limited – <i>Alliston</i>	Royal Dynamics Co. – <i>Woodbridge</i>	Tembec Industries inc. – <i>Chapleau</i>
O-I Canada Corporation – <i>Montréal</i>	Royal Machine Manufacturing Co. – <i>Woodbridge</i>	Textiles Monterey (1996) inc. – <i>Drummondville</i>
Olympic Tool & Die Inc. – <i>Mississauga</i>	Royal Window Coverings (Canada) Inc. – <i>Boisbriand</i>	Thermetco inc. – <i>Montréal</i>
Orchard International Inc. – <i>Mississauga</i>	Royalbond Co. – <i>Woodbridge</i>	Timken Canada LP – <i>St. Thomas</i>
Owens-Corning – <i>Toronto</i>	Roxul (West) Inc. – <i>Grand Forks</i>	Times Fiber Canada Limited – <i>Renfrew</i>
P. Baillargeon Itée – <i>Saint-Jean-sur-Richelieu</i>	Russel Metals Inc. – <i>Calgary, Mississauga</i>	Top Grade Molds Ltd. – <i>Mississauga</i>
Padinox Inc. – <i>Charlottetown, Winsloe</i>	McCabe Steel – a division of Russel Metals Inc. – <i>Stoney Creek</i>	Tri-Graphic Printing (Ottawa) Ltd. – <i>Ottawa</i>
Paisley Brick & Tile Co. Ltd. – <i>Paisley</i>	Russell Industries – <i>St. Catharines</i>	Tractel Limited – <i>Swingstage Division – Scarborough</i>
Palliser Lumber Sales Ltd. – <i>Crossfield</i>	Canadian Babbitt Bearings Ltd. – <i>Brantford</i>	Tranches Polycor inc. – <i>Saint-Sébastien</i>
Pan-Oston Ltd. – <i>Peterborough</i>	CME Protective Coatings – <i>Sarnia</i>	Transcontinental Interweb Toronto – <i>Mississauga</i>
Patt Technologies Inc. – <i>Saint-Eustache</i>	Gudgeon Thermfire International Inc. – <i>London</i>	Imprimerie Interglobe inc. – <i>Beauceville</i>
Pavage U.C.P. Inc. – <i>Charlesbourg</i>	S.A. Armstrong Limited – <i>Scarborough</i>	Imprimeries Transcontinental S.E.N.C. – <i>Boucherville, Saint-Hyacinthe</i>
Pavex Itée – <i>Jonquière</i>	S.C. Johnson and Son, Limited – <i>Brantford</i>	Transcontinental de la Capitale – <i>Québec</i>
Perfecta Plywood Itée – <i>Saint-Hyacinthe</i>	Sable Marco inc. – <i>Pont-Rouge</i>	Transcontinental Gagné – <i>Louiseville</i>
Piddi Design Associates Limited – <i>Mississauga</i>	Sabre Machine Tool Inc. – <i>Oldcastle</i>	Transcontinental Printing 2005 G.P. – <i>Saskatoon</i>
Pinnacle Finishing – <i>Chatham</i>	Safety-Kleen Canada Inc. – <i>Breslau</i>	Transcontinental RBW Graphics – <i>Owen Sound</i>
Pinnacle Mold Inc. – <i>Tecumseh</i>	Saint-Gobain Ceramic Materials Canada Inc. – <i>Niagara Falls, Paris</i>	Trenergy Inc. – <i>St. Catharines</i>
Placage Chromex inc. – <i>Sainte-Foy</i>	Sandvik Materials Technology, Tube Production Unit, Division of Sandvik Canada Inc. – <i>Arnprior</i>	Trent Rubber Corp. – <i>Lindsay</i>
Planchers Mercier inc. – <i>Montmagny</i>	Sandvik Mining and Construction Canada Inc. – <i>Burlington</i>	Tri-Service Metal Products Inc. – <i>Ajax</i>
Plastiques Cellulaires Polyform inc. – <i>Granby</i>	Sandvik Tamrock Canada Inc. – <i>Lively</i>	Tube-Fab Ltd. – <i>Mississauga, Charlottetown</i>
	Sani Métal Itée – <i>Québec</i>	Tuiles Polycor Inc. – <i>Saint-Sébastien</i>
	Sarjeant Company Ltd. (The) – <i>Barrie, Orillia</i>	Tylon Prototype – <i>Campbellville</i>
	Scapa Tapes North America Ltd. – <i>Renfrew</i>	Ultramet Industries Inc. – <i>Breslau</i>
	Scierie Girard inc. – <i>Shipsaw</i>	Uni-Fab – <i>Oldcastle</i>
	Sher-Wood Hockey inc. – <i>Sherbrooke</i>	Unifiller Systems Inc. – <i>Delta</i>
	Shorewood Packaging Corp. – <i>Scarborough</i>	Unimotion-Gear – Division of Magna Powertrain Inc. – <i>Aurora</i>
	Siemens Milltronics Process Instruments Inc. – <i>Peterborough</i>	Unique Tool & Gauge Inc. – <i>Windsor</i>
		Unitrak Corporation Limited – <i>Port Hope</i>

USINATECH Inc. – *Melbourne*
 USNR/Kockums Cancar Company – *Plessisville*
 VA TECH Ferranti-Packard Transformers Ltd. – *Hamilton*
 Van Wyck Packaging Ltd. – *Owen Sound*
 Vannatter Group Inc. – *Wallaceburg*
 Velcro Canada Inc. – *Brampton*
 VeriForm Incorporated – *Cambridge*
 Vesta Marble & Granite Ltd. – *Ottawa*
 Vibac Canada inc. – *Montréal*
 Vitafoam Products Canada Ltd. – *Downsview*
 V.N. Custom Metal Inc. – *North York*
 VicWest Steel – *Oakville*
 VOA Canada Inc. – *Collingwood*
 Vulcan Contenants (Quebec) Itée – *Lachine*
 Wabash Alloys Mississauga – *Mississauga*
 Waiward Steel Fabricators Ltd. – *Edmonton*
 Waterloo Textiles Limited – *Cambridge*
 Waterville TG Inc. – *Waterville*
 Watts Water Technologies (Canada) Inc. – *Burlington*
 Walsh Brothers Welding – *Mitchell*
 Web Offset Publications Limited – *Pickering*
 Welland Forge – *Welland*
 Welsh Industrial Manufacturing Inc. – *Stoney Creek*
 Wescam Inc. – *Burlington*
 West Fraser Timber Co. Ltd. – *Vancouver*
 Alberta Plywood Ltd. – *Slave Lake*
 Blue Ridge Lumber – *Whitcourt*
 Chetwynd Forest Industries – *Chetwynd*
 Fraser Lake Sawmills – *Fraser Lake*
 Hinton Wood Products – *Hinton*
 Houston Forest Products – *Houston*
 100 Mile Lumber – *100 Mile House*
 Pacific Inland Resources – *Smithers*
 Quesnel Plywood – *Quesnel*
 Quesnel Sawmill – *Quesnel*
 Ranger Board – *Whitcourt*
 Sundre Forest Products Inc. – *Sundre*
 West Fraser LVL – *Rocky Mountain House*
 West Fraser Mills – Chasm Division – *70 Mile House*
 West Fraser Mills Ltd. – *Quesnel*
 West Fraser Timber – *Williams Lake*
 WestPine MDF – *Quesnel*
 Williams Lake Plywood – *Williams Lake*
 Wheaton's Woodworking Ltd. – *Berwick*
 Wheeltronic Ltd. – *Mississauga*
 Windham Harvest Specialties Limited – *Simcoe*
 Wolverine Tube (Canada) Inc. – *London*
 Woodman Machine Products Ltd. – *Kingston*
 World Color Press – *Aurora, Concord, Dartmouth, Edmonton, Islington, LaSalle, Port Coquitlam, Richmond Hill*
 YKK Canada Inc. – *Montréal*
 York Label Canada, Ltd. / Étiquette York Canada Itée – *Saint-Laurent*
 ZENON Environmental Inc. – *Oakville*
 Zip Signs Ltd. – *Burlington*
 Zodiac Fabrics Company – *London*

LIME

Carmeuse Beachville (Canada) Limited – *Blind River*
 Carmeuse Lime (Canada) Limited – *Dundas, Ingersoll*
 Chemical Lime Company of Canada Inc. – *Langley*
 Ebel Quarries Inc. – *Warton*
 Graymont (NB) Inc. – *Havelock*
 Graymont (QC) Inc. – *Bedford, Boucherville, Joliette, Marbleton*
 Graymont Western Canada Inc. – *Calgary, Richmond (C.O.), Cache Creek*
 Summit Plant – *Coleman*
 Exshaw Plant – *Exshaw*
 Faulkner Plant – *Faulkner*

MINING

Aerosion Ltd. – *Aldersyde*
 ArcelorMittal Mines Canada – *Port-Cartier*
 BHP Billiton Diamonds Inc. – *Yellowknife*
 Canadian Salt Company Limited (The) – *Pugwash*
 Construction DJL Inc. – *Boucherville, Bromont*
 – Continental, division de Construction DJL inc. – *Boucherville, Shawinigan*
 De Beers Canada Inc. – *Toronto, Yellowknife, Timmins*
 Démix Agrégats – *Varenes*
 Démix Agrégats, une division de Holcim (Canada) inc. – *Laval*
 Goldcorp Inc. – *Vancouver*
 – Goldcorp Canada Ltd. – *Musselwhite Mine – Thunder Bay*
 – Goldcorp Inc. – *Porcupine Gold Mine Division – South Porcupine*
 Hillsborough Resources Limited – *Campbell River*
 Hudson Bay Mining & Smelting Co. Ltd. – *Flin Flon*
 Hy-Tech Drilling Ltd. – *Saskatoon*
 Iron Ore Company of Canada – *Labrador City*
 Mines Wabush – *Sept-Îles*
 New Gold, *Kamloops*
 Teck Metals Ltd. – *Toronto, Trail*
 Teck Resources Limited – *Vancouver*
 Vale Inco – *Toronto, Birchtree, Copper Cliff, Creighton, Garson, McCreedy East, Mississauga, Murray, Port Colborne, Stobie, Thompson, Totten, Victor, Voisey's Bay*
 Xstrata Canada Corporation – *Toronto*
 Xstrata Coal Canada Donkin – *Glace Bay*
 Xstrata Copper Canada – CCR – *Montréal*
 – *Kidd Creek – Timmins*
 Xstrata Nickel Canada – Sudbury Operations – *Falconbridge*
 – *Fraser Mine – Sudbury*
 – *Fraser Morgan – Sudbury*
 – *Montcalm – Timmins*
 – *Nickel Rim – Sudbury*
 – *Raglan – Nunavik territory*
 – *Sudbury Mines – Sudbury*
 Xstrata Zinc Canada – Brunswick Mine – *Bathurst*
 – *Noranda-Matagami – Matagami*
 – *CEZ Refinery – Valleyfield*

OIL SANDS

Suncor Energy Inc. – Suncor Group – *Sarnia*
 Syncrude Canada Ltd. (Oil Sands) – *Fort McMurray*

PETROLEUM PRODUCTS

Bitumar Inc. – *Hamilton, Montréal*
 Chevron Canada Limited – *Vancouver, Burnaby*
 Husky Energy Inc. – *Calgary*
 Husky Oil Operations Ltd. – *Rainbow Lake*
 Imperial Oil Limited – *Calgary*
 Irving Oil Limited – *Saint John*
 North Atlantic Refinind – *Come By Chance*
 Nova Chemicals (Canada) Limited – *Calgary*
 Suncor Energy Products Partnership – *Calgary*
 Shell Canada Limited – *Calgary*
 Ultramar Ltée – *Montréal*

PIPELINES

Duke Energy Gas Transmission – *Calgary, Chetwynd, Fort Nelson, Hope, Mile 117, Mile 126, Pink Mountain, Taylor, Vancouver*
 Enbridge Pipelines Inc. – *Calgary, Edmonton*
 Floating Pipeline Company (The) – *Halifax, Saint John*

PLASTICS

1 Source Design Ltd. – *Wallaceburg*
 ABC Group Inc. – *Toronto*
 ABC Plastic Moulding – *Brydon, Orlando*
 MSB Plastics Manufacturing Ltd. – *Etobicoke*
 PDI Plastics Inc. – *Etobicoke*
 Polybottle Group Limited – *Edmonton, Vancouver*
 Salga Associates – *Concord*
 ADS Groupe Composites Inc. – *Thetford Mines*
 Advanced Panel Products Ltd. – *Nisku*
 AMCOR PET Packaging – *Moncton*
 American Biltrite (Canada) Itée – *Sherbrooke*
 Amhil Enterprises – *Burlington*
 Ani-Mat inc. – *Sherbrooke*
 A.P. Plasman Inc. – *Windsor*
 Armstrong World Industries Canada Ltd. – *Montréal*
 Armtec Limited Partnership – *Orangeville*
 Associated Packaging Enterprises Canada Inc. – *Cambridge*
 Atlantic Packaging Products Ltd. – *Scarborough*
 BainUltra inc. – *Saint-Nicolas*
 Baytech Plastics Inc. – *Midland*
 Berry Plastics Canada Inc. – *Waterloo*
 Berry Plastics – *Belleville*
 Blue Falls Manufacturing Ltd. – *Coleman, Thorsby*
 Cam-Slide – *Newmarket*
 Camoplast Inc. – *Richmond*
 Camtac Manufacturing – division of Linamar Holdings Inc. – *Guelph*
 Canplas Industries Ltd. – *Barrie*
 Cascades Inopak – *Drummondville*
 CKF Inc. – *Etobicoke, Langley, Rexdale*
 Clorox Company of Canada Ltd. (The) – *Brampton, Orangeville*
 Co-Ex-Tec – *Concord*
 Compact Mould Ltd. – *Brampton*
 D & V Plastics Inc. – *Acton*
 DDM Plastics – *Tillsonburg*
 Deflex Composite inc. – *Saint-Victor*
 Downeast Plastics Ltd. – *Cap-Pelé*
 Dura-Tech Industrial & Marine Limited – *Dartmouth*
 DynaPlas Ltd. – *Scarborough*
 Emballage Saint-Jean Itée – *Saint-Jean-sur-Richelieu*
 Emballages Polyplastic Inc. – *Granby*
 Entreprises Hamelin – Division de Groupe Hamelin Inc. – *Boucherville*
 Fabrene Inc. – *North Bay*
 Fenplast – *Delson*
 Fibres Armtex inc. – *Magog*
 Flexahopper Plastics Ltd. – *Lethbridge*
 Formica Canada inc. – *Saint-Jean-sur-Richelieu*
 FRP Systems Ltd. – *Thunder Bay*
 Genpak Limited Partnership – *Mississauga*
 Greif Bros. Canada Inc. – *Belleville*
 Groupe Accent-Fairchild inc. – *Saint-Laurent*
 Groupe RCM inc. – *Yamachiche*
 GSW Building Products – *Barrie*
 High-Q Design Ltd. – *Edmonton*
 Hinspergers Poly Industries Ltd. – *Mississauga*
 Horizon Plastics International Inc. – *Cobourg*
 Husky Injection Molding Systems Ltd. – *Bolton*
 Hymopack Ltd. – *Etobicoke*
 Les industries de moulage Polytech inc. – *Granby*
 Imaflex Inc. – *Montréal*
 Industries Nigan (Les) – *Cookshire-Eaton*
 Injection Technologies Inc. – *Windsor*
 Intertape Polymer Group – *Truro*
 IPEX Inc. – *Edmonton, Invader, Langley, L'Assomption, London, Mississauga, Saint-Jacques-de-Montcalm, Saint-Joseph-de-Beauce, Saint-Laurent, Scarborough*
 Jacobs & Thompson Inc. – *Weston*
 Jockey Plastics North America Inc. – *Goderich*

Kal-Trading Inc. – *Mississauga*
 Kohler Canada Co. – *Armstrong*
 L-D Tool & Die Inc. – Div. of Madix Engineering Inc. – *Stittsville*
 Lefko Produits de Plastiques inc. – *Magog*
 Les industries de moulage Polymax – *Granby*
 Masternet Ltd. – *Mississauga*
 Matrix Packaging Inc. – *Mississauga*
 Mold-Masters Limited – *Georgetown*
 Molded Plastic Consultants – *Shanty Bay*
 Neoncon International – *Dartmouth*
 Newdon Industries Ltd. – *Fergus*
 Newell Rubbermaid – *Calgary, Mississauga*
 Niigon Technologies Ltd. – *MacTier*
 Norseman Plastics Limited – *Etobicoke*
 Nu-Co Plastics – *Blenheim*
 Ontario Plastic Container Producers Ltd. – *Brampton*
 Pano Cap (Canada) Limited – *Kitchener*
 Papp Plastics & Distributing Limited – *Windsor*
 Par-Pak Ltd. – *Brampton*
 Plastiflex Canada Inc. – *Orangeville*
 Plastiques Cascades inc. – *Kingsey Falls*
 Plastiques GPR inc. – *Saint-Félix-de-Valois*
 Plastiques Novaprofil inc. – *Sainte-Julie*
 Plastube inc. – *Granby*
 PM Plastics Ltd. – *Windsor*
 Polar Plastique ltée – *Montréal*
 Pollard Windows Inc. – *Burlington*
 Polybrite – *Richmond Hill*
 Pultrall Inc. – *Thetford Mines*
 Reid Canada Inc. – *Mississauga*
 Reinforced Plastic Systems – *Mahone Bay, Minto*
 Reliance Products LP – *Winnipeg*
 Richards Packaging Inc. – *Etobicoke*
 Rochling Engineering Plastics Ltd. – *Orangeville*
 Ropak Packaging – *Langley, Oakville, Springhill*
 Royal Group Technologies Limited – *Woodbridge*
 Candor Plastics Co. – *Woodbridge*
 Crown Plastics Extrusions Co. – *Woodbridge*
 Dominion Plastics Co. – *Woodbridge*
 Dynast Plastics Co. – *Winnipeg*
 Gracious Living Industries – *Woodbridge*
 Imperial Plastics Co. – *Woodbridge*
 Industrial Plastics – *Saint-Hubert*
 Le-Ron Plastics Inc. – *Surrey*
 Majestic Plastics Co. – *Woodbridge*
 Montréal PVC – *Saint-Laurent*
 Prince Plastics Co. – *Woodbridge*
 Regal Plastics Co. – *Woodbridge*
 Residential Building Products – *Saint-Lambert-de-Lauzon*
 Royal EcoProducts Co. – *Concord*
 Royal Flex-Lox Pipe Limited – *Abbotsford*
 Royal Foam Co. – *Woodbridge*
 Royal Group Resources Co. – *Woodbridge*
 Royal Outdoor Products Co. – *Woodbridge*
 Royal Pipe Co. – *Woodbridge*
 Royal Plastics Co. – *Concord*
 Royal Polymers Limited – *Sarnia*
 Royal Tooling Co. – *Woodbridge*
 Roytec Vinyl – *Woodbridge*
 Thermoplast – *Laval*
 Ultimate Plastics Co. – *Woodbridge*
 S & Q Plastic – Division of Uniglobe (Canada) Inc. – *Mississauga*
 SABIC Specialty Extrusion Canada – *Long Sault*
 Silgan Plastics Canada Inc. – *Mississauga, Lachine*
 Soniplastics Inc. – *Boucherville*
 Sonoco Flexible Packaging Canada Corporation – *Mississauga*
 Soucy Baron Inc. – *Saint-Jérôme*
 Tarkett inc. – *Farnham*

Technologies d'extrusion appliquées (Canada) inc. – *Varennes*
 Truefoam Limited – *Dartmouth*
 Vifan Canada inc. – *Montréal, Lanoraie d'Autray*
 Vulsay Industries Ltd. – *Brampton*
 W. Ralston (Canada) Inc. – *Brampton*
 Winpak Heat Seal Packaging Inc. – *Vaudreuil-Dorion*
 Winpak Portion Packaging Ltd. – *Toronto*
 Woodbridge Foam Corporation – *Woodbridge*

PULP AND PAPER

AbitibiBowater inc. Operating as Resolute Forest Products – *Montréal, Alma, Amos, Baie-Comeau, Bridgewater, Brooklyn, Clermont, Fort Frances, Girardville, Grand Falls-Windsor, Grand-Mère, Iroquois Falls, Jonquière, La Doré, Maniwaki, Mistassini, Price, Saint-Félicien, Saint-Raymond, Thorold, Thunder Bay*
 Abzac Canada Inc. – *Trois-Rivières, Drummondville*
 Alberta-Pacific Forest Industries Inc. – *Boyle*
 Atlantic Packaging Products Ltd. – *Agincourt, Brampton, Don Mills, Ingersoll, Mississauga, Scarborough*
 Alberta Newsprint Company – *Whitcourt*
 British Confectionery Company Limited – *Mount Pearl*
 Canfor Pulp Limited Partnership – *Intercontinental – Prince George*
 Northwood – *Prince George*
 Prince George – *Prince George*
 Cariboo Pulp and Paper Company Limited – *Quesnel*
 Caraustar Industrial & Consumer Products Group – *Kingston*
 Cascades inc. – *Kingsey Falls*
 Cascades Boxboard Group – *Montréal, East Angus, Jonquière, Toronto, Mississauga*
 Cascades Conversion inc. – *Kingsey Falls*
 Cascades Converting Center – *Saint-Jérôme*
 Cascades East Angus – *East Angus*
 Cascades Fine Paper Group – *Saint-Jérôme, Breakeyville*
 Cascades Enviropac – *Berthierville, Saint-Césaire*
 Cascades Lupel – *Cap-de-la-Madeleine*
 Cascades Multi-Pro – *Drummondville*
 Cascades Papier Kingsey Falls – *Kingsey Falls*
 Cascades Tissue Group – *Candiac, Kingsey Falls, Lachute, Agincourt*
 Catalyst Paper Corporation – *Campbell River*
 Crofton Division – *Crofton*
 Cie Matériaux de Construction BP Canada (La) – *LaSalle, Joliette*
 CKF Hantsport – *Hantsport*
 Daishowa-Marubeni International Ltd. – *Peace River*
 Domtar Inc. – *Montréal, Dryden, Espanola, Terrebonne, Windsor*
 Easy Pack Corporation – *Markham*
 Emballages Mitchel-Lincoln ltée – *Saint-Laurent, Drummondville*
 Emballages Festival inc. – *Montréal*
 Emterra Environmental – *North Vancouver, Surrey*
 F.F. Soucy Inc. – *Rivière-du-Loup*
 Greif Bros. Canada Inc. – *LaSalle, Niagara Falls*
 Howe Sound Pulp and Paper Limited Partnership – *Port Mellon*
 Industries Ling inc. – *Warwick*
 Interlake Paper – *St. Catharines*
 Irving Forest Services Limited – *Saint John*
 Irving Paper Ltd. – *Saint John*
 Irving Tissue Corporation – *Dieppe*
 Irving Tissue Inc. – *Dieppe*
 Kard Products Inc. – *Brampton*
 Kruger inc. – *Montréal*
 Corner Brook Pulp & Paper Limited – *Corner Brook*
 Division Bromptonville – *Sherbrooke*
 Division Emballages – *LaSalle*
 Division Emballages – *Brampton*
 Division Carton – *Montréal*

Division de Papiers Journal – *Sherbrooke*
 Gérard Crête & Fils inc. – *Saint-Séverin-de-Proulxville, Saint-Roch-de-Mekinac*
 Kruger Products Ltd. – *Gatineau, Calgary*
 Kruger Wayagamack inc. – *Trois-Rivières*
 Longlac Wood Industries Inc. – *Mississauga*
 Longue-Rive Planing and Drying Mill – *Longue-Rive*
 Manufacturing Region East – *Crabtree, Sherbrooke*
 Manufacturing Resion West – *New Westminster*
 Produits Kruger Limitée – *Lennoxville*
 Scierie Manic, division de Kruger inc. – *Ragueneau*
 Scierie Parent Inc., division de Kruger Inc. – *Parent*
 Lake Utopia Paper – *Utopia*
 Les Cartons Northrich inc. – *Granby*
 Maritime Paper Products Limited – *Dartmouth*
 Master Packaging Inc. – *Dieppe, Borden-Carleton*
 Neucel Specialty Cellulose – *Port Alice*
 Norampac Inc. – *Saint-Bruno, Burnaby, Cobano, Calgary, Drummondville, Moncton, St. Marys, Vaughn*
 Norampac Inc. OCD – *Mississauga*
 Norampac inc. – *Viau – Montréal*
 Norampac Lithotech – *Scarborough*
 Norampac – Newfoundland, a Division of Cascades Canada Inc. – *St. John's*
 Northern Pulp Nova Scotia Corporation – *Abercrombie*
 Paper Source Converting Mill Corp. – *Granby*
 Papiers White Birch, division Stadacona SEC – *Québec*
 Peterboro Cardboards Limited – *Peterborough*
 Rosmar Litho inc. – *Baie D'Urfé*
 SAC Drummond inc. – *Saint-Germain-de-Grantham*
 Sonoco Canada Corporation – *Trois-Rivières*
 Tembec Paper Group – *Spruce Falls*
 Terrace Bay Pulp Inc. – *Terrace Bay*
 Tolko Industries Ltd. – *Armstrong, Heffley Creek, High Level, High Prairie, Kamloops, Kelowna, Lumby, Meadow Lake, Merritt, Quesnel, Slave Lake, The Pas, Vernon, Williams Lake*
 West Fraser Timber Co. Ltd.
 Eurocan Pulp and Paper Co. – *Kitimat*
 Hinton Pulp – *Hinton*
 Quesnel River Pulp Co. – *Quesnel*
 Slave Lake Pulp Corporation – *Slave Lake*
 Zellstoff Celgar Limited Partnership – *Catelgar*

STEEL

Abraham Steel Service Ltd. – *Woodbridge*
 Essar Steel Algoma Inc. – *Sault Ste. Marie*
 AltaSteel Ltd. – *Edmonton*
 ArcelorMittal Dofasco Inc. – *Hamilton*
 ArcelorMittal Montréal inc. – *Contrecoeur-Est, Contrecoeur-Ouest, Hamilton East, Longueuil, Saint-Patrick-Montréal*
 ArcelorMittal Tubular Products – *Woodstock*
 Armtec Limited Partnership – *Guelph*
 Bull Moose Tube Limited – *Burlington*
 Elkem Métal Canada inc. – *Chicoutimi*
 Douglas Barwick Inc. – *Brockville*
 Gerdau Ameristeel Corporation – *Cambridge*
 Gerdau Ameristeel Whitby – *Whitby*
 Gerdau Ameristeel Manitoba – *Selkirk*
 Ivaco Rolling Mills 2004 LP – *L'Orignal*
 Lakeside Steel Corp. – *Welland*
 Laurel Steel – Division of Harris Steel – *Burlington*
 Nelson Steel – Division of Samuelson & Co. Ltd. – *Stoney Creek*
 Nova Tube inc. – *Montréal*
 Ontario Chromium Plating Inc. – *Oakville*
 QIT – Fer et Titane inc. – *Tracy*
 Samuel Plates Sales – *Stoney Creek*
 U.S. Steel Canada Inc.
 Hamilton Works – *Hamilton*
 Lake Erie Works – *Nanticoke*

TRANSPORTATION EQUIPMENT MANUFACTURING

A.G. Simpson Automotive Inc. – *Cambridge, Oshawa, Scarborough*
 ABC Group Inc. – *Toronto*
 ABC Climate Control Systems Inc. – *Toronto*
 ABC Flexible Engineered Product Inc. – *Etobicoke*
 ABC Group Exterior Systems – *Toronto*
 ABC Group Interior Systems – *Toronto*
 ABC Group Product Development – *Toronto*
 ABC Metal Products Inc. – *Toronto*
 LCF Manufacturing Ltd. – *Rexdale*
 LCF Manufacturing Ltd. – *Weston*
 Aalbers Tool & Mold Inc. – *Oldcastle*
 Affinia Canada ULC – *Guelph*
 Anton Mfg. – *Concord*
 Arcor Metal Processing Inc. – *Richmond Hill*
 Avcorp Industries Inc. – *Delta*
 Aviation Lemex Inc. – *Saint-Hubert*
 B & W Heat Treating Canada ULC – *Kitchener*
 Blau Autotec Inc. – *Brampton*
 Bombardier Aerospace – *Downsview*
 Bombardier Aéronautique – *Mirabel, St. Laurent*
 Bombardier Produits Récréatifs Inc. – *Valcourt*
 Bovern Enterprises Inc. – *Markham*
 Burlington Technologies Inc. – *Burlington*
 Cami Automotive Inc. – *Ingersoll*
 Capital Tool & Design Ltd. – *Concord*
 Chalmers Suspensions International Inc. – *Mississauga*
 Chemin de fer Canadien Pacifique – *Montréal*
 Citerne Almac International inc. – *Lanoraie*
 Composite Atlantic Limited – *Lunenburg*
 Corvex Mfg. – division of Linamar Corporation – *Guelph*
 CSI Gear Corporation – *Mississauga*
 DaimlerChrysler Canada Inc. – *Brampton, Mississauga*
 Chrysler Canada Inc. – *Windsor*
 Daimler Buses North America – *Mississauga*
 Daimler Trucks North America – *St. Thomas*
 Dana Canada Corporation – *Burlington, Cambridge, Oakville*
 Dana Thermal Products – *Mount Forest*
 Dorte Industries – Division of Magna International Inc. – *Newmarket*
 Dresden Industrial – *Rodney, Stratford*
 Dura-Lite Heat Transfer Products Ltd. – *Calgary*
 DYNA-MIG Mfg. of Stratford Inc. – *Stratford*
 Eston Manufacturing – division of Linamar Corporation – *Guelph*
 Eurocopter Canada Limited – *Fort Erie*
 F & P Mfg., Inc. – *Tottenham*
 Faurecia Automotive Seating – *Bradford*
 Ford Motor Company of Canada, Limited – *Oakville, St. Thomas, Windsor*
 Formet Industries – *St. Thomas*
 GATX Rail Canada – *Coteau-du-Lac, Moose Jaw, Red Deer, Rivière-des-Prairies, Sarnia, Montréal*
 General Motors of Canada Limited – *Oshawa, St. Catharines*
 Global Emissions Systems Inc. – *Whitby*
 Glueckler Metal Inc. – *Barrie*
 Groupe Environnemental Labrie – *Saint-Alphonse*
 Halla Climate Control Canada Inc. – *Belleville*
 Hastech Mfg. – *Guelph*
 Héroux Devtek inc. – *Longueuil, Scarborough*
 Hitachi Construction Truck Manufacturing Ltd. – *Guelph*
 Honda of Canada Mfg. – *Alliston*
 Kingsville Stamping Ltd. – *Kingsville*
 Jefferson Elora Corporation (JEC) – *Elora*
 Johnson Controls LP – *London, Milton, Mississauga, Tillsonburg*
 Lafrate Machine Works Ltd. – *Thorold*

Lunenburg Industrial Foundry & Engineering Limited – *Lunenburg*
 Lear Corporation – *Mississauga*
 Leggett & Platt Inc. London – *London*
 Schukra of North America – *Lakeshore*
 Linex Manufacturing – division of Linamar Corporation Inc. – *Guelph*
 Litens Automotive Partnership – *Woodbridge*
 LPP Manufacturing – division of Linery Manufacturing Inc. – *Guelph*
 Mancor Canada Inc. – *Oakville*
 Massiv Die-Form – *Brampton*
 Meritor Suspension Systems Company – *Chatham, Milton*
 Métal Marquis inc. – *La Sarre*
 Modatek Systems – *Milton*
 National Steel Car Limited – *Hamilton*
 Nemak Canada – *Windsor*
 Neptunus Yachts – *St. Catharines*
 Niagara Piston Inc. – *Beamsville*
 Northstar Aerospace (Canada) Inc. – *Milton*
 NTN Bearing Corporation of Canada – *Mississauga*
 Omron Dualtec Automotive Electronics Inc. – *Oakville*
 Ontario Drive & Gear Limited – *New Hamburg*
 Orenda Aerospace Corporation – *Mississauga*
 Orlick Industries Limited – *Hamilton*
 Pilkington Glass of Canada Limited – *Collingwood*
 Platinum Tool Technologies – *Oldcastle*
 Pratt & Whitney Canada Corp. – *Longueuil, Enfield, Saint-Hubert*
 Presstran Industries – *St. Thomas*
 Prévost – division of Volvo Group Canada – *Sainte-Claire*
 Prince Metal Products Ltd. – *Windsor*
 Procor Limited – *Oakville, Edmonton, Joffre, Regina, Sarnia*
 Quadrad Manufacturing – division of Linamar Corporation Inc. – *Guelph*
 Remtec Inc. – *Chambly*
 Rotel Manufacturing – division of Linamar Corporation Inc. – *Guelph*
 Rollstamp Mfg., division of Decoma International Inc. – *Concord*
 Satisfied Brake Products Inc. – *Cornwall*
 Simcoe Parts Service Inc. – *Alliston*
 Spinic Manufacturing – division of Linamar Corporation Inc. – *Guelph*
 Stackpole International – *Mississauga*
 StandardAero – *Winnipeg*
 STT Technologies Inc. – *Concord*
 Summo Steel Corp. – *Burlington*
 Sydney Coal Railway Inc. – *Sydney*
 Tool-Plas Systems Inc. – *Oldcastle*
 Toral Cast Integrated Technologies – *Concord*
 Toyota Motor Manufacturing Canada Inc. – *Cambridge*
 Traxle Mfg – division of Linamar Corporation Inc. – *Guelph*
 TRW Automotive – *St. Catharines, Woodstock*
 TS Tech Canada Inc. – *Newmarket*
 Unison Engine Components – *Orillia*
 Vehcom Manufacturing – division of Linamar Corporation Inc. – *Guelph*
 Ventra Group Co. – *Calgary*
 Flex-n-Gate Bradford – *Bradford*
 Flex-n-Gate Canada – *Tecumseh*
 Flex-n-Gate Seeburn – *Beaverton, Tottenham*
 Veltri Metal Products – *Glencoe, Tecumseh, Windsor*
 Ventra AFR – *Ridgetown*
 Ventra Plastics Kitchener – *Kitchener*
 Ventra Plastics Windsor – *Windsor*
 Volvo Cars of Canada Toronto – *Toronto*
 Wallaceburg Preferred Partners – *Wallaceburg*
 Woodbridge Foam Corporation – *Mississauga*

UPSTREAM OIL AND GAS

AltaGas Services Inc. – *Wabasca*
 Baytex Energy Ltd. – *Taber*
 BP Canada Energy Company – *Calgary, Edson, Grande Prairie, Rocky Mountain House*
 Cenovus Energy Inc. – *Calgary*
 Chevron Canada Resources – *Calgary*
 Connacher Oil and Gas Ltd. – *Calgary*
 ConocoPhillips Canada – *Calgary, Atlantic French Corridor, Big Valley, Deep Basin, Edson, Foothills, Jenner, Kaybob/Edson, Mackenzie Delta, Morrin, Northern Plains, Rimbeby/O'biese, Southern Plains, Vulcan, Wembley*
 Crescent Point Energy Trust – *Calgary, Sounding Lake*
 Devon Canada Corporation – *Calgary, Central, Deep Basin, Fairview, Foothills, Fort McMurray, Fort St.-John, Lloydminster, NE British Columbia /NW Alberta, Northern Plains, Peace River*
 Keyera Energy – *Rocky Mountain House*
 Nexen Canada Ltd. – *Calgary*
 Nuvista Energy Ltd. – *Calgary*
 Paramount Resources Ltd. – *Calgary*
 Pengrowth Corporation – *Calgary*
 Penn West Petroleum Ltd. – *Calgary*
 Talisman Energy Inc. – *Calgary, Carlyle, Chauvin (AB), Chauvin (SK), Chetwynd, Edson, Grande Prairie, Lac La Biche, Shaunavon, Turner Valley, Warburg, Windsor*
 TAQA North Ltd. – *Calgary, Niton Junction*

For an up-to-date list of CIPEC Leaders, visit oe.nrcan.gc.ca/industrial/opportunities/14175

CIPEC TRADE ASSOCIATIONS

[Aerospace Industries Association of Canada \(AIAC\)](#)

[Alberta Food Processors Association \(AFPA\)](#)

[Alliance of Ontario Food Processors \(AOFP\)](#)

[Aluminum Association of Canada \(AAC\)](#)

Atlantic Dairy Council

[Automotive Parts Manufacturers Association \(APMA\)](#)

[Baking Association of Canada \(BAC\)](#)

[Brewers Association of Canada \(BAC\)](#)

Canadian Association of Surface Finishing (CASF)

[Canadian Association of Petroleum Producers \(CAPP\)](#)

[Canadian Chamber of Commerce](#)

[Canadian Construction Association \(CCA\)](#)

[Canadian Electricity Association \(CEA\)](#)

[Canadian Energy Pipeline Association \(CEPA\)](#)

[Canadian Fertilizer Institute](#)

[Canadian Foundry Association \(CFA\)](#)

[Canadian Fuels Association](#)

[Canadian Gas Association \(CGA\)](#)

[Canadian Lime Institute](#)

[Canadian Manufacturers & Exporters \(CME\)](#)

[CME Alberta Division](#)

[CME British Columbia Division](#)

[CME Manitoba Division](#)

[CME New Brunswick Division](#)

[CME Newfoundland and Labrador Division](#)

[CME Nova Scotia Division](#)

[CME Ontario Division](#)

[CME Prince Edward Island Division](#)

[CME Quebec Division](#)

[CME Saskatchewan Division](#)

[Canadian Meat Council \(CMC\)](#)

[Canadian Plastics Industry Association \(CPIA\)](#)

[Canadian Steel Producers Association \(CSPA\)](#)

[Canadian Vehicle Manufacturers' Association \(CVMA\)](#)

[Cement Association of Canada \(CAC\)](#)

[Chemistry Industry Association of Canada](#)

[Council of Forest Industries \(CFI\)](#)

[Electro-Federation Canada](#)

[Fisheries Council of Canada \(FCC\)](#)

[Food and Consumer Products of Canada \(FCPC\)](#)

[Forest Products Association of Canada \(FPCA\)](#)

[FPIInnovations](#)

[Mining Association of Canada \(The\)](#)

[North American Insulation Manufacturers Association \(NAIMA Canada\)](#)

[Ontario Agri Business Association \(OABA\)](#)

[Packaging Association of Canada \(PAC\)](#)

[Quebec Forest Industry Council](#)

[Rubber Association of Canada](#)

[Explorers and Producers Association of Canada \(SEPAC\)](#)

[Wine Council of Ontario \(WCO\)](#)

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