

2011



Invest in Canada

CHEMICALS AND PLASTICS

Canada's competitive advantages



Canada 

MAJOR GLOBAL INVESTORS IN CANADA

- BASF
- E. I. DuPont de Nemours and Company
- ExxonMobil
- Hexion
- INEOS
- LANXESS
- NOVA Chemicals
- Shell Chemicals
- The Dow Chemical Company

LEADING CANADIAN COMPANIES

- Agrium
- Canexus
- ERCO Worldwide
- Methanex Corporation
- Petro-Canada
- Raymor Industries Inc.
- Intertape Polymer Group Inc.
- Woodbridge Foam
- ABC Group
- IPL Inc.

RECENT INVESTMENTS IN CANADA

SAFETY-KLEEN

In 2011, Safety-Kleen of Plano, Texas, announced a \$26 million* investment for the expansion of a used motor oil refining plant in Breslau, Ontario.

SIEMENS

In December 2010, Siemens announced a \$20M investment to open a wind mill blade factory in Tillsonburg, Ontario. Manufacturing, service operations and associated back-office activities are expected to create up to 300 jobs.

BASF

In November 2010, BASF announced a \$25 million investment at its plant in Windsor, Ontario, to increase the production of waterborne automotive paints. This investment created some 30 new jobs.

GREENFIELD ENERGY and ENERKEM

Utah-based Greenfield Energy and Enkern announced in 2010 a \$70 million investment to build a plant producing biofuels from solid waste.

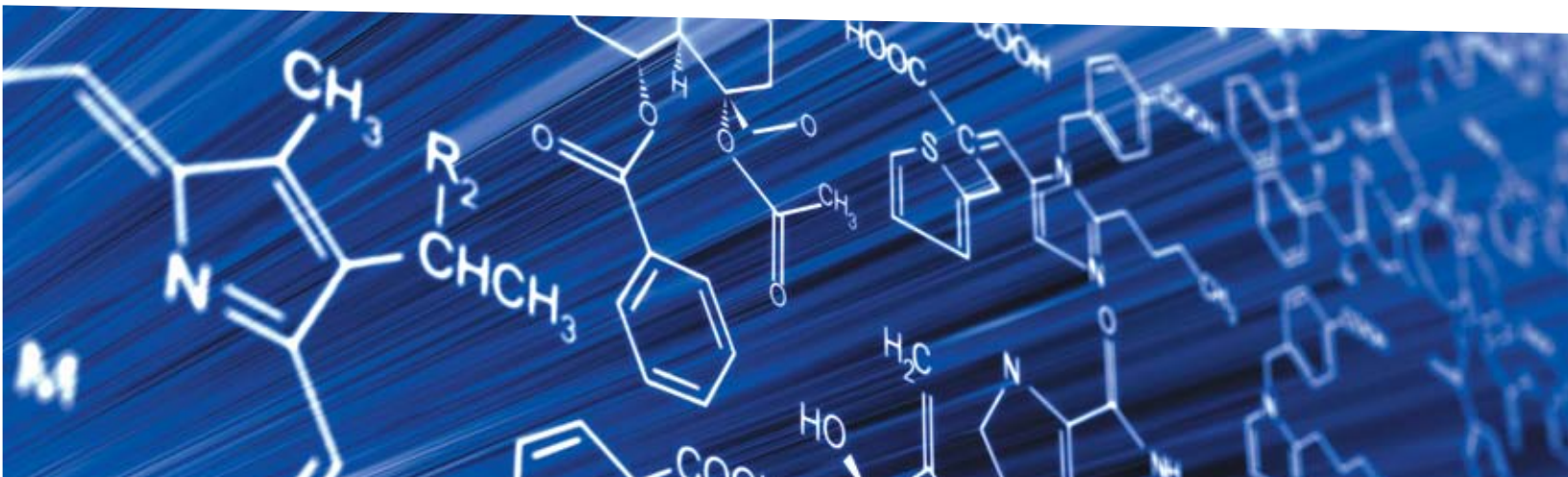
SÜD-CHEMIE

In 2010, German manufacturer Süd-Chemie AG announced a \$78 million greenfield project in Candiac, south of Montréal, to build a lithium iron phosphate (LFP) producing plant. LFP is a high performance energy storage material used in electric vehicle batteries.

WILLIAMS ENERGY

In 2009, Williams Energy of Tulsa, Oklahoma, announced an investment ranging from \$50 to \$75 million for the addition of a deethanizer at its facility in Redwater, Alberta.

*Unless otherwise noted, all values in this publication are in Canadian dollars.



CHEMICALS AND PLASTICS: A FLOURISHING INDUSTRY

The global chemicals and plastics industry is worth around US\$3.7 trillion annually. Roughly one-third of the industry is located in the Americas, another third in Asia, and the remaining third in Europe.

The industry in Canada generated revenues of \$61 billion in 2010, of which 57 percent—or \$35 billion—represented export production. At the same time, Canadian research and development expenditures in the chemical and plastics industry totalled \$1.1 billion.¹ The industry accounts for 147,000 direct jobs.

The Canadian petrochemical and resins industry represents a significant segment of the overall chemicals sector, with 595 manufacturing establishments generating \$20.9 billion in shipments and \$15.8 billion in exports in 2010. This industry subsector employs 15,900 people.

Substantial reserves of natural gas in Canada have provided a readily available source of competitively priced feedstock and allowed for low-cost production of ethylene and its derivatives. Canada has also achieved important economies of scale owing to its large and efficient extracting plants, modern ethylene crackers, and derivative plants that are among the largest in the world. The development of northern gas reserves and the use of materials produced by the upgrading of oil sands bitumen could provide new feedstock sources for the manufacturing of petrochemicals and resins.

Finally, Canada is the first G-20 country to eliminate tariffs on all manufacturing inputs. Most of the reductions occurred in 2010 and, by 2015, all inputs imported by Canadian manufacturers, including chemicals, fibres, stone, glass, metals, as well as tools, machinery and equipment, will be totally duty-free.

1 Statistics Canada, 2009.

KEY CAPABILITIES

Inorganic chemicals: With its abundant natural resources and access to large quantities of reliable, low-cost electricity, both of which are essential to the production of many inorganic chemicals, Canada is a top investment choice in this sector. Biotechnology is increasingly being used to create organic chemicals, some of which are commercially produced from biomass feedstocks such as corn, soy and wheat. As technologies based on the use of bio-waste become more viable, Canada is well positioned to become a key global player, given the resources derived from its large agricultural and forestry industries.

Plastics: With 2010 shipments estimated at \$16.8 billion, including exports worth \$6.7 billion, Canada boasts a sophisticated, multi-faceted plastics sector that encompasses plastics products, machinery and moulds, along with synthetic resins. Canada's large pool of highly skilled machinists and technicians represents an important asset for the industry. Canadian firms have internationally recognized expertise in high-quality injection moulding, thermoforming machinery, blown film extrusion systems, extruders for corrugated pipe and other plastic profiles. Customer- and market-specific projects, along with relatively short delivery times, help drive innovation at Canadian plastics companies.

Environmental action: Industry, governments, and non-governmental organizations in Canada have a strong record of working collaboratively to achieve desired environmental or health outcomes in ways that also recognize industry needs to remain internationally competitive. Voluntary actions on the part of industry have also proven to be successful in achieving desired outcomes. For example, members of the Chemistry Industry Association of Canada have been voluntarily reducing and reporting on their environmental emissions for the past 15 years. Over that time, the industry has dramatically reduced its emissions to air, land and water.

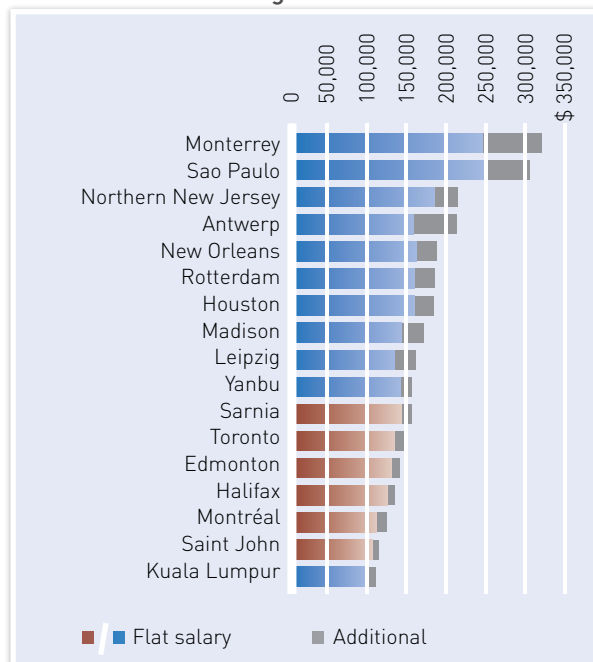
CANADA'S COMPETITIVE ADVANTAGES

Advantage:

Competitive salary costs for heads of manufacturing

- ▶ This chart examines remuneration levels for heads of manufacturing who report to a company's chief executive and exercise overall control of several major manufacturing sites. The products they oversee are highly technical and require years of development.
- ▶ Remuneration includes flat salary as well as additional compensation, such as incentive payments and performance bonuses.

Head of manufacturing



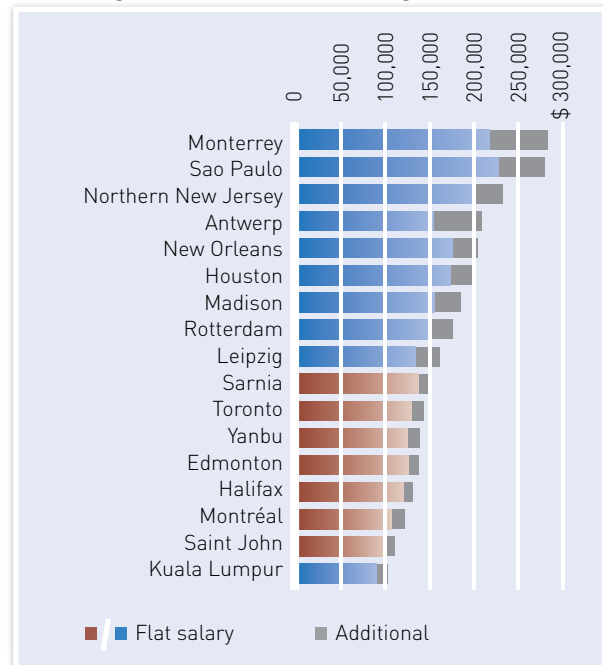
Sources: fDi Benchmark; Towers Watson, *Global 50 Remuneration Planning Report 2010-2011*

Advantage:

Competitive salary costs for chief engineers/technical managers

- ▶ This chart examines remuneration levels for chief engineers/technical managers (such positions require a university education followed by 8 to 10 years' experience).
- ▶ Remuneration includes flat salary as well as additional compensation, such as incentive payments and performance bonuses.

Chief engineer / Technical manager



Sources: fDi Benchmark; Towers Watson, *Global 50 Remuneration Planning Report 2010-2011*

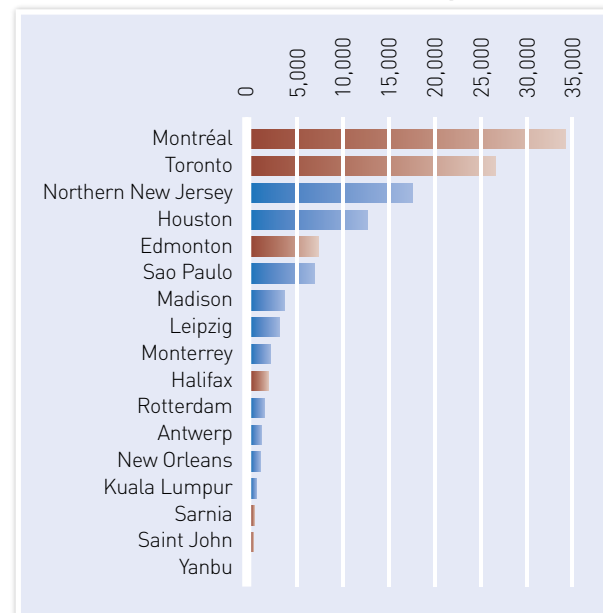
Advantage:

A large pool of experienced, highly trained R & D researchers

With its high number of experienced, highly trained R & D researchers, Canada offers many advantages to companies looking to launch or expand their R & D facilities. With close to 35,000 researchers in Montréal alone and another 25,000 in Toronto, Canada's two largest cities are ideal investment locations. Edmonton and Halifax are also centres of scientific research expertise.

- ▶ This chart looks at the estimated total number (for 2011) of researchers involved in research and development activities.

Researchers in research and development (estimates)



Sources: fDi Benchmark; fDi intelligence based on data from the Financial Times Ltd.

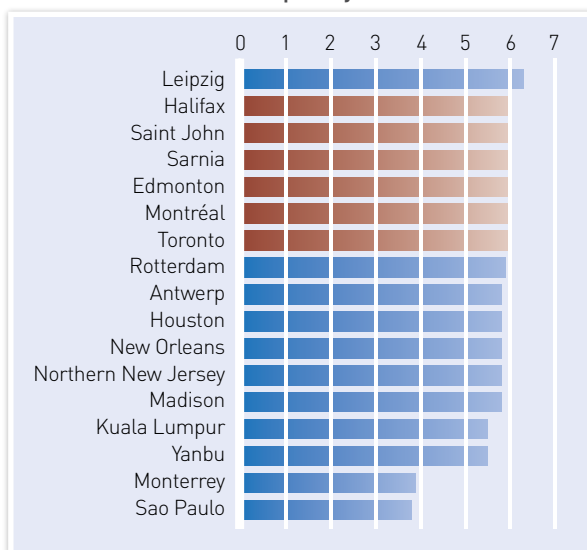
CANADA'S COMPETITIVE ADVANTAGES

Advantage: World-class infrastructure

Canada's modern, world-class public infrastructure supports the economic growth of its cities and communities. Canadian roads, bridges, railroads, ports and airports are well located, well built, well maintained and secure.

- This chart rates the overall quality of infrastructure such as transport, telephony and energy. A rating of 0 signifies that infrastructure is "extremely underdeveloped," while a rating of 7 signifies that infrastructure is "well developed."

Overall infrastructure quality



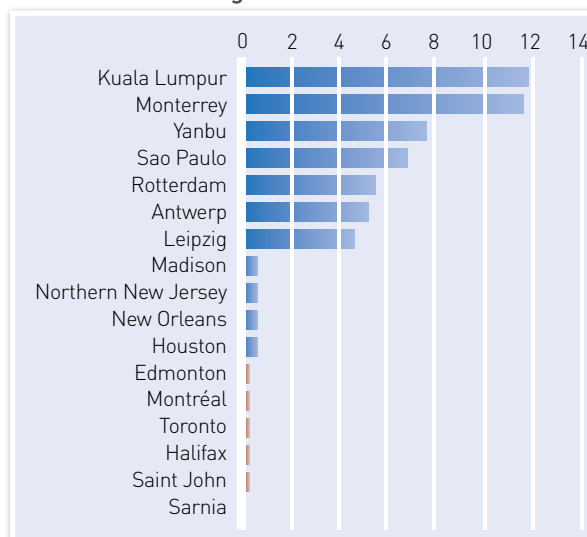
Sources: fDi Benchmark; World Economic Forum, *Global Competitiveness Report 2010-2011*

Advantage: Low business set-up costs

The cost of establishing a business in Canada is very competitive—about half that of U.S. cities, and much less than some European cities. Canada has low business tax rates, as well as the lowest payroll taxes among the G-7 countries.

- This chart looks at the official total cost of procedures required to establish a business. The scale of 0 to 14 represents start-up costs as a percentage of income per capita.

Cost of establishing a business



Sources: fDi Benchmark; World Bank, *Doing Business Guide 2010*

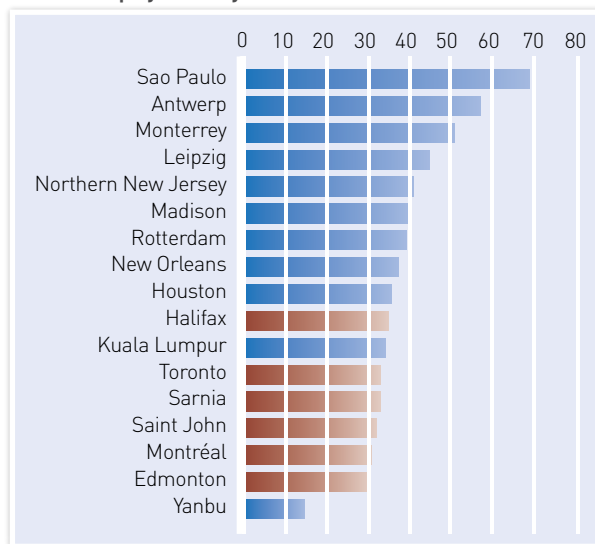
Advantage:

Favourable corporate income tax rates

Canadian corporate income tax rates compare very favourably with those of other countries.

- This chart looks at the total income tax payable by corporations in selected cities. Figures express tax payable as a percentage of companies' gross profit, in 2009-2010.

Total tax payable by businesses



Sources: fDi Benchmark; Tax Foundation, *National and State Corporate Income Tax Rates, U.S. States and OECD Countries, 2009*; World Bank, *Doing Business 2010*; KPMG: *Income Tax Rates for General Corporations (2008/2009)*

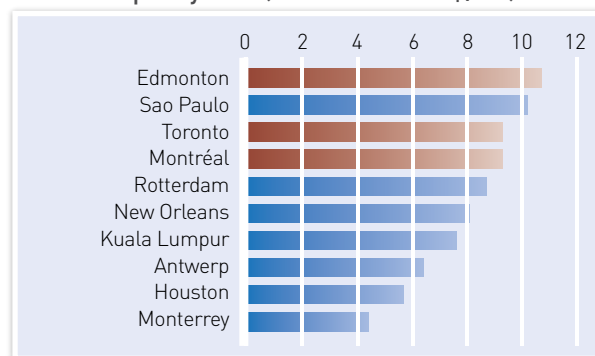
Advantage:

Facilities located in some of the world's most liveable cities

Although industrial rental costs in Canadian cities are somewhat higher, on average, than those in other cities, Canadian cities are noted for their outstanding quality of life and affordable cost of living. Combined with their world-class infrastructure, Canadian cities are ideal locations for chemical-industry companies looking to launch or expand their operations in Canada.

- This chart assesses total occupancy costs (i.e., rent and other occupancy charges) in selected cities. The figures represent cost per square metre of rental space.

Total occupancy cost (industrial rent \$/m²)



Sources: fDi Benchmark; fDi intelligence based on data from Statistics Canada, Towers Watson, SalaryExpert and U.S. Bureau of Labour Statistics; deviation for Antwerp based on data for Flanders region (Statistics Belgium); deviation for Monterrey based on data for Nuevo Leon State (Towers Watson regional office, Mexico)

CANADA'S CHEMICALS AND PLASTICS SECTOR: AN OVERVIEW

ALBERTA

Alberta's chemical industry has four main segments: petrochemicals, fertilizers, inorganic chemicals, and specialty and fine chemicals. The petrochemical industry in the province continues to grow, with production capacity for ethylene, polyethylene, ethylene glycol and linear olefins expanding substantially.

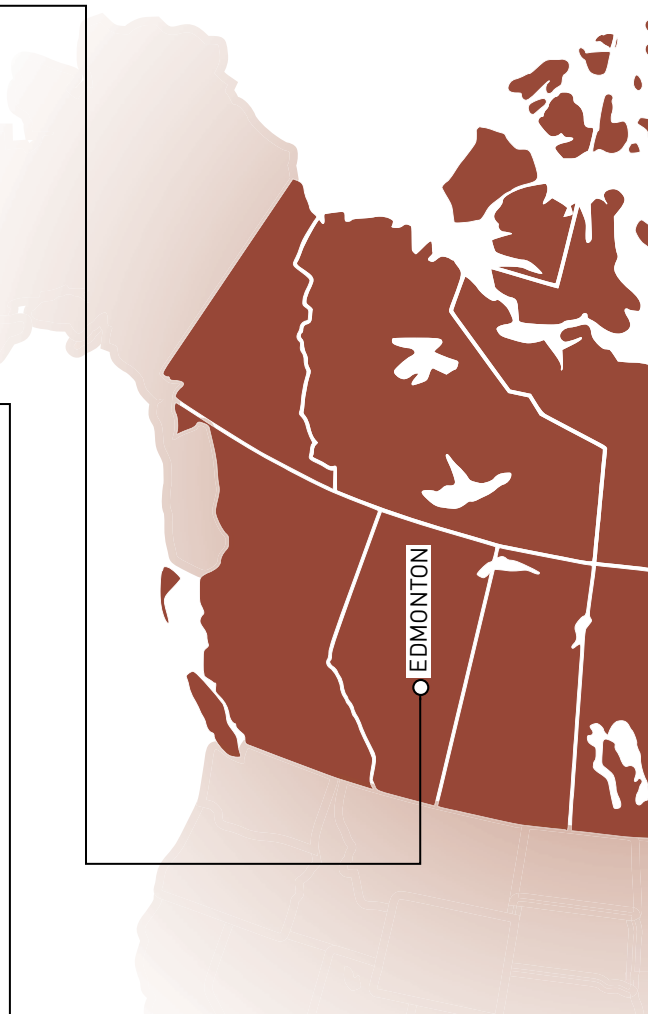
The Government of Alberta and the industry are working closely to add value to the province's oil sands reserves by developing the capacity to refine petroleum products and petrochemicals. This initiative will help companies in Alberta meet the growing North American and international demand for petroleum products. By developing an integrated upgrading and refining petrochemical complex in the **Edmonton** region, Alberta is poised to become one of the largest and most competitive chemical-producing regions in the world.

ONTARIO

Ontario is Canada's largest producer of chemical products, the leading petroleum-refining region, and the hub of the nation's plastics industry. The province is also home to 7 of the 10 largest chemical companies in Canada.

Sarnia contains Canada's largest cluster of chemical, allied-manufacturing and R & D facilities. The city's well-developed infrastructure is ideal for petrochemical production, with large underground salt-storage caverns, nearby petroleum refineries, access to natural gas and liquid feedstock, a tanker terminal for offshore shipments, excellent transportation networks, and access to crude oil and oil-based liquids. Companies with manufacturing facilities in Sarnia include Dow Chemical Canada, Imperial Oil, INVISTA, NOVA Chemicals and Shell Canada.

A variety of chemical companies are located in **Toronto**, producing lubricants, paints, medical gases, laundry detergents, adhesives and other products. As a thriving business and financial centre, Toronto is also home to the Canadian corporate headquarters of industry leaders such as Bayer, BASF, DuPont and Unilever.





○ QUÉBEC

Montréal is the hub of Québec's chemical industry, supplying the consumer market with products as diverse as adhesives, textiles, paint, maintenance and cleaning products, electronics and cosmetics. The city boasts an integrated petrochemical cluster that offers petroleum refineries, a tanker terminal for ocean shipments, and close access to the large markets of Canada and the eastern and central United States. Montréal has successfully attracted a number of new investments in recent years, building an aromatics-industry value chain.

Most chemical industry establishments are located close to Montréal's refining facilities, with which they regularly exchange products and raw materials. The province of Québec's diversified sources of energy help stabilize energy prices, thereby giving the industry a genuine competitive advantage.

○ NEW BRUNSWICK

Saint John is home to Canada's largest and most modern oil refinery, which produces some of the cleanest fuels in North America. Major projects worth as much as \$20 billion are currently underway or are being considered in New Brunswick, including a new liquefied natural gas terminal and supporting pipeline, a significant refurbishment project at NB Power's Point Lepreau generating station, a new potash mine in **Sussex**, and the potential construction of a second oil refinery and a second nuclear generating station. These new projects are helping the province create the right conditions for attracting investments in the industrial chemicals sector.

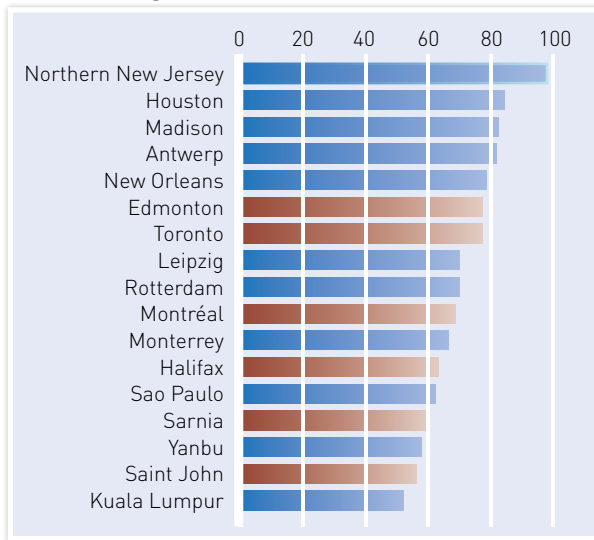
CANADA'S COMPETITIVE ADVANTAGES

Great quality of life at affordable cost

Canadian cities offer a high quality of life at an affordable cost. Compared to U.S. cities, for example, Edmonton, Toronto, Sarnia, Montréal, Saint John and Halifax boast a lower cost of living combined with a higher quality of life. In 2011, the Economist Intelligence Unit ranked Vancouver as the most liveable city in the world, while Toronto and Calgary also placed in the top 10.

- This chart assesses a variety of living costs, including housing.

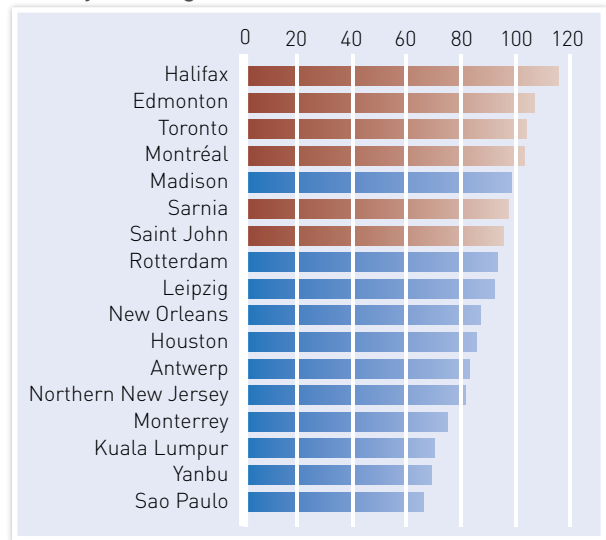
Cost of living index



Sources: fDi Benchmark; fDi intelligence based on data from the Financial Times Ltd.

- This chart assesses quality of living factors.

Quality of living index



Sources: fDi Benchmark; fDi intelligence based on data from the Financial Times Ltd.



INVESTMENT LOCATION BENCHMARKING

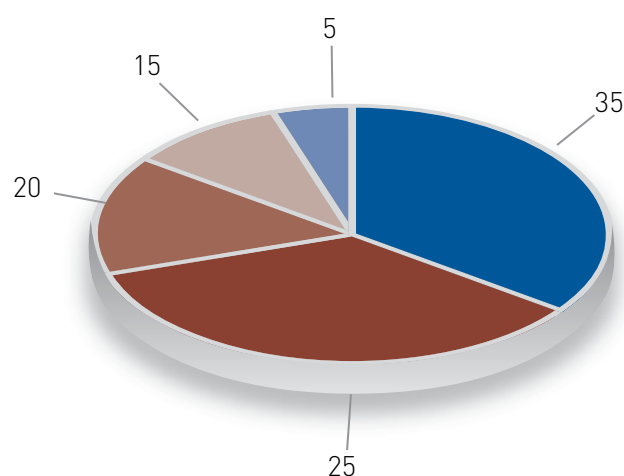
The tables and graphs in the preceding pages were generated by fDi Benchmark, a service of the Financial Times Ltd. (www.fdibenchmark.com). This search tool relies on industry-recognized databases and location assessments to appraise the attractiveness of countries, states/provinces and cities around the world for specific sectors and investment projects.

- ▶ The following Canadian and foreign cities and regions selected for benchmarking are locations with a cluster of chemical industries: Antwerp, Edmonton, Halifax, Houston, Kuala Lumpur, Leipzig, Madison, Monterrey, Montréal, New Orleans, the Northern New Jersey region, Rotterdam, Saint John, Sao Paulo, Sarnia, Toronto and Yanbu, in Saudi Arabia.
- ▶ The model enterprise profile is an industrial chemicals company with 115 employees, some located in a downtown office and the majority in an industrial facility.

Chemicals manufacturing company

COST FACTOR	USAGE AMOUNT
Property	Square metres
Total occupancy (in town office rent)	500 m ²
Total occupancy (industrial rent)	24 500 m ²
Utilities	
Electricity	60 000 100 kWh
Industrial gas	1 400 000 m ³
EMPLOYEE TYPE	PROFILE HEAD COUNT
Fabrication	
Head of manufacturing	1
Production manager	1
Production operative (highly skilled)	27
Production operative (skilled)	33
Production operative (unskilled)	14
Quality control manager	1
Quality control specialist	2
R&D / Engineering	
Chief engineer/technical manager	1
Engineer	28
Laboratory technician	2
Scientist	2
Administration	
Secretary	3
Total	115

Quality model properties / Weights applied



WEIGHTING MODEL OVERVIEW	WEIGHTING	
Presence of an industrial cluster	35%	<div style="width: 35%;"></div>
Labour availability and quality	25%	<div style="width: 25%;"></div>
General business environment	20%	<div style="width: 20%;"></div>
Infrastructure and accessibility	15%	<div style="width: 15%;"></div>
Living environment	5%	<div style="width: 5%;"></div>

CANADA'S COMPETITIVE ADVANTAGES

Canada boasts many advantages and unparalleled potential: it is a place where businesses can achieve excellence on a global scale.

A HIGHLY EDUCATED WORKFORCE

Canada ranks second in higher-education achievement among members of the Organisation for Economic Co-operation and Development (OECD). (Source: IMD, *World Competitiveness Yearbook 2010*)

A WELCOMING BUSINESS ENVIRONMENT

The Economist Intelligence Unit rated Canada the number one place to do business in the G-7 for the next five years. (Source: Economist Intelligence Unit, *Business Environment Ranking*, March 2011)

A SOUND ECONOMY

Since the third quarter of 2009, Canada's economy has grown for six consecutive quarters and has now fully recovered job and output losses that occurred during the global economic crisis. (Source: Department of Finance Canada, Budget 2011)

FINANCIAL STABILITY

Over the past three years, Canada's banking system has repeatedly been declared the soundest in the world by the World Economic Forum.

LOW TAX RATES

Canada's overall tax rate on new business investment is substantially lower than that of any other G-7 country, while corporate tax rates are among the lowest in the G-7. (Source: Department of Finance Canada, 2010)

SCIENTIFIC RESEARCH AND EXPERIMENTAL DEVELOPMENT

Canada has a very generous Scientific Research and Experimental Development Program (SR & ED) and the lowest costs in R & D-driven sectors in the G-7. (Sources: KPMG, *Competitive Alternatives 2010*; OECD)

NAFTA

Canada's NAFTA advantage (North American Free Trade Agreement) gives investors access to more than 448 million North American consumers and a combined continental GDP of more than US\$16.3 trillion. (Source: World Bank, *World Development Indicators Database*, 2010)

A GREAT PLACE TO LIVE AND WORK

World-class universities; a universally acclaimed health-care system; clean, friendly cities; and spectacular scenery make Canada a great place to invest, work, live and raise a family. (Sources: United Nations Development Programme, *Human Development Report 2010*; Economist Intelligence Unit, *Global Liveability Report 2010*)



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Foreign Affairs and International Trade Canada
111 Sussex Drive
Ottawa, Ontario, Canada K1N 1J1

vp.investincanada.com

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