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Ontario's Economy Goes GREEN

Ontario now has some 2,500 environmental companies across a broad range of sub-sectors. Emerging areas of expertise include instrumentation and monitoring equipment, environmental software and consulting services, site remediation and brownfield development. Growing environmental exports are approaching the \$1 billion mark, with more than three-quarters of that amount destined for the United States.

The success of Ontario's environmental sector is one of the province's "best-kept secrets," according to Alex Gill, executive director of the Ontario Environment Industry Association (www.oneia.ca). Says Gill: "While our manufacturers are facing international competition and people are talking about creating high-paying, high-value jobs that are export-oriented with little environmental impact, they don't always realize we have a success story to build on."

The reason so few people are aware of this growth sector, Gill adds, is that "people are working so hard filling orders, they have little time to share the news." Another reason for the lack of public awareness is that people tend to think of environmental measures in personal terms such as adopting energy-efficient measures in their homes. "They don't appreciate that environmental technology is more than just installing a fluorescent bulb; it's an industry just like the auto or pharmaceutical sectors."

Gill credits the province for making great strides in supporting his sector by providing incentives such as the 30 per cent tax deduction for new pollution control equipment and paying a premium for green energy, such as solar or wind energy that is often more expensive to produce.

R&D is a key ingredient in Ontario's success. Ontario government's focus on innovation, particularly its generous tax credits and government programs, has helped Ontario become a North American leader in environmentally friendly reduction and recycling systems.

Ontario industry is quietly leading the way in meeting the global challenge of going **green** and **clean**. Provincial firms have already established an international reputation in several critical environmental areas including water and wastewater treatment, solid and hazardous waste management, and air pollution prevention and control. Overall, the environmental sector employs some 62,000 people and generates nearly \$7 billion annually in revenues.

The province has invested in a number of companies producing green products or technology. These initiatives range from a \$1.6 million investment, through the Advanced Manufacturing Investment Strategy, in wood composite manufacturer Flakeboard Company in Sault Ste. Marie for a biomass combustion system that reduces gas consumption to a \$235 million investment in General Motors, through the Automotive Investment Strategy, that includes the development of fuel-efficient cylinder deactivation engine technology and the production of 100 prototype fuel cell-equipped Chevrolet Equinoxes.

Another way Ontario is supporting this leading-edge technology is through ETech, a division of Ontario Centres of Excellence Inc. Based at Waterloo and York universities, ETech promotes partnerships between industry and academic researchers to commercialize innovative technology in areas like resource management, clean water technologies and sustainable energy solutions. One of its success stories involves RWDI AIR, an international wind engineering consulting firm with Ontario offices in Ottawa, Guelph, Windsor and Thunder Bay. ETech supported an RWDI-York University collaboration to develop an advanced software technology to predict smog formation.

In the five years ending in 2003, the period with the most current available statistics, jobs in the environmental sector grew by 13.7 per cent. That growth rate was 60 per cent greater than that of the Canadian workforce as a whole. Jobs are being created even more rapidly since then, says Gill, because of new joint ventures with multinationals and growing export orders.

Overall, the environmental sector is rapidly becoming a significant contributor to wealth in Ontario, with the potential for even greater growth as the province and indeed the world grow increasingly more environmentally conscious.

New Government Service Creates > Procurement Opportunities for Ontario Businesses Abroad

Do you want to take advantage of new business opportunities abroad? Link to the Ministry of Economic Development and Trade's website—www.ontario-canada.com/ontcan/en/progserv_main_en.jsp—for access to potential procurement opportunities for major national and world events, including the 2012 London Olympics, the 2010 Shanghai World Fair, and the Alberta Oils Sands.

Go Green Ontario!

Here's How You Can Help

A cleaner, greener Ontario with a strong economy is important to all Ontarians. Every person can play a part in achieving this. Many people want to do their part but are unaware of how to reduce the size of their carbon footprint. That's why the Ontario government, through the Ministry of the Environment, created **Go Green Ontario**, an informative website on climate change where individuals and families can find out how they can help—at home, at work, and in the community.



Some of the things you can do to make a difference include:

- Wash your laundry in cold water
- Buy local produce (you can even try the 100-mile diet, which means all the food you use originates within a 100-mile radius of where you live)
- Ride your bike or use public transit instead of driving
- Replace your light bulbs with energy-efficient compact fluorescent bulbs
- Turn off your computer and printer at night
- Always look for the Energy Star symbol when buying appliances
- Plant a tree
- Consider a solar-panelled water heater



Go Green Ontario offers sound suggestions and advice on conserving, making it easier and more cost effective for Ontarians to conserve, and it highlights programs offered by federal, municipal and private partners that will save people money and help fight climate change at the same time.

Just click on [Incentives for You](#) and discover incentive programs that help you create a more energy-efficient home, conserve water, use alternate energy sources and compost. Among the programs included are:

[The Great Refrigerator Roundup](#)

Your old, inefficient second fridge is wasting up to \$150 in electricity each year. Have it hauled away free of charge and disposed of in an environmentally friendly manner.

[Summer Savings](#) (Ontario Power Authority)

If you reduce your electricity use by 10% this summer, your [participating local electricity utility](#), with support from the Ontario Power Authority, will give you a credit on your upcoming electricity bill. No need to sign up, you are automatically enrolled.

[Home Energy Audit Program](#) (Ontario Ministry of Energy)

The Home Energy Audit Program is a \$24 million, four-year energy conservation initiative that will subsidize home energy audits in Ontario. Anyone who lives in Ontario and owns a single family home is eligible for the program. The Home Energy Audit Program will provide a rebate of 50% of the cost of the pre-retrofit audit up to a limit of \$150.

[Vehicles Powered by Alternative Fuels](#) (Ontario Ministry of Revenue)

People who purchase or lease a new or used car, truck, van or bus may qualify for a refund of the sales tax if the vehicle operates on or is converted to operate on an alternative fuel. The refund can amount to as much as \$750 for propane vehicles, \$1,000 for another alternative fuel and \$2,000 for HEVs delivered to purchasers after March 23, 2006.

[Solar Energy Systems Rebate Program](#) (Ontario Ministry of Revenue)

The Solar Energy Systems Rebate returns the sales tax paid on solar energy systems to homeowners or builders who install the energy systems into residential premises, including multi-residential premises, or who expand or upgrade an existing solar energy system.

[Cool Savings Rebate Program](#) (Ontario Power Authority)

Get up to \$800 in rebates by choosing Energy Star heating and cooling equipment.

While visiting the Go Green site, try the carbon footprint calculator, an interactive tool that lets you choose from several actions you can take to reduce your greenhouse gas emissions. Check out the Ontario Climate Change map to see what the climate might be like several years from now. There's even a section for youth that lists some great sites where young people can learn more about climate change and what they can do to help.

To learn more about what you can do to make Ontario—a greener place to live and find out about Ontario's ambitious plan to fight climate change, visit www.gogreenontario.ca.



The screenshot shows the Go Green Ontario website. At the top, there is the Ontario logo and the text "GO GREEN ONTARIO". Below this is a navigation menu with links: "ABOUT CLIMATE CHANGE", "WHY CARE?", "WHAT THE EXPERTS SAY", "WHAT YOU CAN DO", and "YOUTH". The main content area is titled "NEWS AND ANNOUNCEMENTS" and features a list of news items with dates and brief descriptions. On the right side, there are sections for "ONTARIO'S CLIMATE CHANGE PLAN" and "CARBON FOOTPRINT CALCULATOR". The website has a clean, green-themed design with a background image of a woman in a white dress standing in a field.

A Clean Bright Future for Ontario's Economy

Global investment in green technologies continues to rise as consumers continue to reduce their carbon footprint, presenting remarkable opportunities for economic growth and job creation in Ontario.

To take advantage of the economic opportunities in renewable energy, biofuels, and low-emission technologies, Premier Dalton McGuinty recently unveiled the Next Generation Jobs Fund. The initiative makes \$650 million available to companies looking to invest in the development of clean cars, clean fuels, and clean technologies and products in Ontario.

The fund is designed to create jobs and investment in Ontario by taking advantage of Ontario's economic strengths: a large manufacturing sector, a wealth of natural resources, and a skilled and highly educated workforce. These advantages will help Ontario play a significant role in the innovation and development of green technologies.

The Next Generation Jobs Fund will support environmental advances in all areas of the economy, including automotive, advanced manufacturing, energy production, forestry and agriculture. The fund will position Ontario as a global leader in the development of green technologies and products while creating jobs, improving environmental sustainability and reducing greenhouse gas emissions.

The fund is modelled after the highly successful Ontario Automotive Strategy that led to more than \$7 billion in total new automotive investments and anchored thousands of high-value jobs. The Next Generation Jobs Fund will secure the next generation of high-paying jobs for Ontarians by developing clean and green technologies and businesses in Ontario, improving economic prosperity and sustainability.

It's a five-year, \$650 million strategy to stimulate economic growth and prosperity in Ontario while helping to reduce greenhouse gas emissions and improve environmental sustainability. The fund will invest in:

- The manufacturing of green cars and auto parts,
- The development of clean fuels, and
- The creation of clean technologies and products.

Companies applying for financial support must demonstrate that they can:

- Secure jobs for Ontarians,
- Reduce greenhouse gas emissions,
- Help establish Ontario as a global leader in an emerging market,
- Build on existing expertise in areas in which Ontario has a strong research and commercialization base or create new expertise, and
- Create synergies among researchers, business people and entrepreneurs.

Ontario is a leader in green technologies, and the Ontario government's Next Generation Jobs Fund will ensure Ontario stays ahead of its competitors in the areas of greenhouse gas reductions, energy efficiency and green technologies.

Website: www.ontario-canada.com/ontcan/en/progserv_ngjf_en.jsp



How to **Build Green**—and **Save Money**

The urinals are waterless. The dual flush toilets use rainwater that is captured from the roof and stored in an underground cistern. Not only are the lights designed to go on and off when someone enters and leaves a room, but the degree of illumination is triggered by a sensor that measures the amount of existing daylight.



**Waterloo Region's
Emergency Medical
Services (EMS)
in Cambridge**

These features and more won Waterloo Region's Emergency Medical Services (EMS) headquarters and fleet centre a coveted Gold designation from the Canada Green Building Council. It was Ontario's first gold and Canada's third in the two-decade-old internationally recognized Leadership in Energy and Environment Design (LEED) rating system for new and renovated green buildings.

In June, Ontario adopted the LEED standard for new, government-owned construction and major renovation projects. Using best practices to design, build and maintain government buildings is one way to fight climate change, as energy use in buildings is responsible for 40 per cent or more of greenhouse gas emissions in the developed world.

The three-year-old EMS building in Cambridge boasts other green features: solar panels, radiant hydronic floor heating, displacement ventilation, energy recovery ventilators and CFC-free HVAC equipment. Waterloo Region EMS Director John Prno explains, "With our diesel ambulances, we are seen as a bit of a fuel hog. So when it came to putting up a new building, we wanted to counter that image and make it environmentally friendly, right from the start."

The Region hired an architect familiar with LEED standards and a contractor who believed in the green project, arriving on Day One with four waste bins—one each for wood, concrete block, steel and waste. As a result, 75 per cent of the construction waste was diverted.

Every nail and piece of wood was held to a high environmental standard. "When choosing paint, we didn't just look at the colour," says Prno. "We also examined its off-gas features that limit the release of toxic chemicals into the atmosphere."

Local products were ordered wherever possible, and some energy-saving items that would have to be shipped from great distances, eating up large amounts of fuel in the process, were rejected. Some 70 per cent of the building's components were manufactured locally, along with 40 per cent of its building materials.

In the end, these green measures boosted construction costs from \$3 million to \$3.5 million, but the efficiencies are beginning to pay off. The annual natural gas and electricity bill is \$22,000 lower and the three waterless urinals save 300,000 litres per year in a region where fresh water is precious—and costly.

Building green aims to conserve energy, water and materials, thereby reducing the impact on both the

immediate and global environment. The LEED rating system is based on performance in five broad categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.

The Canadian Coalition for Green Health Care (www.greenhealthcare.ca) has developed a practical checklist to build or renovate hospitals in an environmentally conscious fashion. It mirrors the LEED criteria and applies to non-hospitals as well. The first rule: choose an environmentally friendly site; that is, avoid farmland and other sensitive areas.

Second: design for sustainability and efficiency. This broad category covers the structure itself, its energy and water usage as well as indoor air quality. Specifically, the coalition's suggestions range from providing shower facilities for employees who cycle or jog to work to collecting storm water run-off for other purposes. Among the dozens of other ideas: install waste management technologies such as aluminum can crushers, design a site landscape with drought-resistant plants and encourage environmentally responsible forest management by using wood-based materials certified in accordance with the Forest Stewardship Council Guidelines (www.fsc-bc.org).

The coalition's third category involves green building materials and products. That means use high reflectant roofing and high-performance windows and use the least possible amount of carpeting and other materials that absorb and then release indoor pollutants.

Fourth: "think green" during construction. Builders should establish a landfill diversion plan, protect trees and topsoil, and minimize construction packaging.

Finally, once construction is over, the greening efforts must continue. Companies should educate staff to separate and recycle waste, establish "green teams" among employees and create a position for a staff environmental coordinator.

Such simple and relatively inexpensive measures can help create a sustainable environment and save on operating costs. They can also make buildings healthier and more comfortable for their occupants.

Still, there are challenges. "Green is not a colour on the radar screen for most builders," says Mike Singleton, executive director of Sustainable Buildings Canada (www.sbcana.org). "In many cases the builder is driven to reduce costs because he does not share in the long-term savings of more expensive, but energy-efficient measures."

Singleton welcomes the province's inclusion of energy performance in its new building codes, but cautions that much still has to be done to increase green awareness. "Many people still associate green buildings with freezing in the dark," he says.

In June, Premier McGuinty announced a new \$150 million green program aimed at helping homeowners conserve energy. Its best-known feature is the one-year elimination of the provincial sales tax on most large, energy-efficient appliances. But the program also provides up to \$5,000 for home energy retrofits that include qualified furnaces and solar energy water systems as well as zero-interest loans for new renewable energy systems.

“Climate change is the defining issue of our generation,” said Premier Dalton McGuinty. “By helping Ontarians fight climate change at home, we’re moving forward, together, towards a future that is greener and more innovative, with a better quality of life and a stronger economy for all Ontarians.”

An Innovative Solution to an Age-Old Problem

An Ontario company has developed an innovative technology that protects the health of Ontario's groundwater with every flush of the toilet. **Waterloo Biofilter Systems**, based in Rockwood, designed a low-energy, low-maintenance solution to reduce the impact of residential and commercial sewage on the environment.



SC20 shipping
container
treatment units

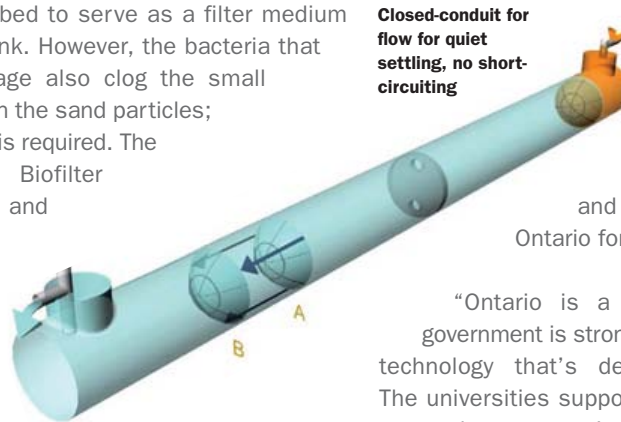
"In simple terms, it's a 'tile bed in a box,'" says Craig Jowett, a former University of Waterloo research professor who started the company with his wife, Robin, back in 1995. "Our filter system promotes beneficial microbial activity within a contained unit to treat wastewater before it reaches the environment."

Jowett began working on the idea in 1990 after attending a University of Waterloo conference at the Ministry of the Environment's Toronto office. Since the company operates in a regulated industry, Jowett has had to work closely with the Ontario government.

"Our business depends on regulators allowing our technology to enter the market," says Jowett. "The engineers at the Ministry of the Environment recognized the environmental and economic benefits of our technologies and, as a result, have been very supportive over many years."

Traditional trickle-filters rely on solid particles, typically sand or soil, in a tile bed to serve as a filter medium following the septic tank. However, the bacteria that break down the sewage also clog the small drainage holes between the sand particles; therefore, a large area is required. The absorbent, synthetic Biofilter medium improves air and wastewater flow, giving the microbes the time and space required to decompose the effluent before it exits the system.

"It's a *septic* system, not an *antiseptic* system," explains Jowett. "The sewage first goes through a fermentation process, like wine or beer. The next stage is to filter the effluent in an oxygenated environment, which also requires bacteria. Household disinfectants and bleaches can kill the bacteria and damage a septic system. Since our treatment can be verified by visual inspection, our system is recoverable after an upset, unlike traditional septic systems."



Closed-conduit for
flow for quiet
settling, no short-
circuiting

Wastewater contamination of the environment is an important issue for residents, regulators, and municipal planners alike. The high levels of nitrogen and phosphorus in wastewater can negatively impact the health of groundwater and nearby lakes and rivers.

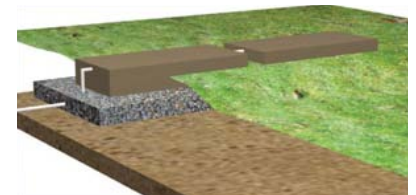
"The treated effluent exiting the Waterloo Biofilter system is relatively non-polluting, with 95% of the organics removed and over 50% of the nitrate," says Jowett. "It's comparable to and often better than storm water."

The system is sold directly to customers in Ontario, Massachusetts, and other jurisdictions, and is licensed to a US manufacturer on a royalty basis. Licensed partners are utilizing the technology for the resort industry in Mexico and the Caribbean.

The company has also capitalized on the economic growth and construction boom in the western provinces. A Winnipeg company even designed a mobile treatment unit using the Waterloo Biofilter system that travels with oil and gas workers as they move from camp to camp.

Jowett credits the innovative and competitive business climate in Ontario for the growth of the company.

"Ontario is a great business location. The government is strongly committed to commercializing technology that's developed within the province. The universities support entrepreneurship by enabling researchers to retain ownership of the technologies they develop. And the infrastructure and well-educated, skilled workforce are tremendous advantages."



FlatBed Biofilter

RWDI: Taking the Building Industry to New Heights

Rowan Williams Davies & Irwin Inc. (RWDI) is marking its 35th anniversary this year and the Guelph-based company has a lot of reasons to celebrate.

The engineering firm's specialty is wind engineering and it's been involved in the design many of the major skyscrapers, sports stadiums, long-span bridges and resorts in the world, including the Emaar Properties' Burj Dubai, which, when completed in 2008, will be the world's tallest building.

That's pretty impressive for a company that began by simulating snowdrifts for farm buildings.

Established in 1972, RWDI first attracted attention the following year when it was called in to determine what had caused a deadly whiteout on Highway 400. Using a water flume technique it had pioneered, the company simulated what had happened to cause the wind to blow snow across the highway—and made recommendations on how to prevent future accidents.

It was the first in a number of turning points that would see RWDI become a world leader in a field it would help to create.

The next turning point came in the early 1980s. The number of snow studies was slowing, but RWDI, recognizing that where there's snow, there's wind, had wisely added wind tunnel expertise to its core competencies. When skyscrapers in urban centres came back into vogue, RWDI was ready to capitalize on it.

"Our wind tunnel results were far more accurate than the building code methods commonly used at the time by structural designers," says RWDI vice president Michael Soligo. "We could tell how a structure would react long before the shovel went in the earth."

As architects and developers started to understand the benefits of wind engineering services, RWDI's reputation grew. Soon the company was capturing one high profile project after another in North America, Europe, Asia and the Middle East, including wind studies on the Grand Mosque in Mecca, Saudi Arabia and bridge studies for the Second Severn Crossing connecting England to Wales.

Then, in the early 1990s, the environmental movement exploded, bringing with it a wealth of new business opportunities for RWDI, and the creation of entirely new niche service areas, including the impact of air emissions, noise and urban smog. As the new millennium dawned, the building industry surged ahead, with taller and more complex skyscrapers changing the world's landscape—all requiring RWDI's wind engineering expertise.

Today, RWDI employs more than 350 people in eight offices across the world. The company has four wind tunnels (for the more than 1,000 wind tunnel projects it does yearly), a water flume and advanced computer modeling capabilities used to simulate air flows inside buildings and tunnels.

"I think the reason we've been so successful is because our philosophy is 'there are no problems, just potential opportunities,'" says Soligo. "We're a company of engineers who want to be challenged and who think outside the box."

With no end in sight to the trend in tall buildings and sustainable design, RWDI is looking ahead to the next 35 years with anticipation.

Website: www.rwdi.com



Model of Burj Dubai at RWDI

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The focus of this newsletter is on business—successes, news, trends, opportunities, challenges and issues affecting Ontario's business climate. Information is drawn from ministries and agencies across government and from other public sources believed to be reliable. All efforts are made to ensure timeliness and accuracy.

La version française du *Ontario Business Report* est disponible sous le titre *Rapport d'activités de l'Ontario*.

We want to hear from you.

Comments and contributions are welcomed. Please write us by mail, fax or e-mail.

