

Sarnia-Lambton, Ontario, Canada



Integrated renewable energy solutions

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Powering a Sustainable World™



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SARNIA-LAMBTON'S TOP 10 LOCATOR BENEFITS

1. Central Great Lakes location with easy access to excellent wind energy resources, wind farms, and North American and international markets
2. Significant cluster power in power generation, metal fabrication, industrial chemicals, manufacturing, and engineering
3. Highway, rail, deep water port, and air transportation systems
4. Strong provincial government commitment to alternative energy technologies
5. Alternative energy research and education with access to seven world-class universities and colleges
6. Highly educated, productive, and technically skilled workforce
7. Low corporate taxes and great R&D tax breaks
8. Zoned greenfield and brownfield industrial manufacturing sites
9. Located at the most rapidly growing Canada/USA commercial border crossing
10. Unified community vision transforming region into leading alternative energy centre

A COMMUNITY VISION FOR RENEWABLE ENERGY

- Local community and business leaders are driving a vision to transform Sarnia-Lambton into a leading centre for clean energy. Corporate business development, community infrastructure, and educational programming are being geared to the development and application of sustainable technologies. Efforts are being coordinated through the Bluewater Sustainability Initiative, a private / public sector initiative with a clear vision for Sarnia-Lambton to be recognized world wide as a hybrid, green community.

H₂ is the sign of the future – a future that Sarnia-Lambton has embraced. Local government approved a resolution recognizing alternative energy technologies as a key element of the community's economic development strategy, and is dedicated to ensuring that all the building blocks are in place for alternative energy manufacturing sectors and power generation.

Sarnia-Lambton is already a large producer and user of hydrogen. Nova Chemical produces "Green Hydrogen" as a byproduct of their pyrolysis cracking process. Praxair purifies and distributes this hydrogen gas to users through a 30+ km. pipeline, rail, and tanker trucks.

Air Products operates a Steam Methane Reformer to produce hydrogen for Shell and Suncor for refinery desulphurization. Additional hydrogen production is liquefied at their recently completed 80 million cubic feet per day plant and distributed across eastern North America.

The Research Park, operated by the University of Western Ontario, works with clients on new innovations, such as an improved hydrogen generation and storage systems.



SOME EXAMPLES OF RECENT SARNIA-LAMBTON PROJECTS INCLUDE:

- **First Solar / Enbridge** – 80 MW solar generation facility, first phase, is currently under construction in Sarnia-Lambton. 40 additional MW are planned in 2011.
- Through the **Fuel Cell Demonstration Project**, spearheaded by the Sarnia-Lambton Economic Partnership and Lambton College, a range of market-ready devices were used and tested by local residents in community settings. We continue to operate two golf carts powered by solar-generated H₂.
- The **Bioindustrial Innovation Centre**, Canada's centre for the commercialization of large-scale industrial biotechnology, is located at The Research Park.
- Bluewater Power, Lambton's largest electric utility, is creating a **rooftop solar testing facility** for the installation, testing, and monitoring of different technologies and manufacturers.
- Bluewater Power is partnering with Waste Management in Petrolia and Sarnia on **landfill gas-to-energy** projects



Photo – Lambton College Alternative Energy Lab

ALTERNATIVE ENERGY FOCUSED RESEARCH AND EDUCATION - University of Western Ontario Research Park, Sarnia-Lambton Campus

The University of Western Ontario Sarnia-Lambton Research Park, established in 2004, is focused on alternative energies, advanced materials and environmental, process and bio-technologies. Through the University of Western Ontario, the Research Park offers access to the engineering and research capabilities of one of Canada's top research-intensive universities. The University of Western Ontario is one of Canada's emerging leaders in alternative energy, and home to a large number of experts and unique facilities able to support fuel cell initiatives; with programs in nanotechnologies, and biofuel cells. Capabilities at Western range from materials science and power engineering, to sustainable policy development and civil engineering.

Lambton College's new Advanced Materials Engineering Research Lab provides a state-of-the-art facility for students, local manufacturers, and the community at large. It is dedicated to research into the use of polymer and biodegradable materials, and the use of advanced manufacturing technologies that can be easily transferable to the manufacturing floor.

- **Wind Power Generation** is underway at **Sky Generation Inc.'s** new Sarnia-Lambton wind power facility at Ravenswood, which generates 30 million kilowatt hours per year. Other major projects are currently under consideration.
- **Forest Wind Power** has announced a 10 MW wind farm in Northern Lambton County and IPC Energy has announced two new wind farms, one with 35 turbines
- **Invenergy Investment Company LLC** entered into service at its St. Clair Energy Centre in March, 2009. This natural gas-fired combined cycle electricity generating facility has a contracted capacity of 570 megawatt.
- **TransAlta Energy Corporation**, built the largest co-generation plant in Canada, supplying industries with power and steam from natural gas.
- **Greenfield Energy** - 1,005-megawatt combined-cycle power generation facility fuelled by natural gas and utilizing highly-efficient combined-cycle technology.
- **Leading Ontario in Hydrogen Production** - Air Products recently completed a new plant producing over 80 million standard cubic feet per day of hydrogen. Nova Chemicals and Praxair produce hydrogen gas that feeds into a 30+ kilometre hydrogen pipeline network that includes a Praxair liquid hydrogen conversion facility.
- **Suncor Energy St. Clair Township Ethanol Plant** - \$120 million facility produces 200 million litres of ethanol annually – and plant capacity is currently being doubled.

Solar PV		Price (¢ / kWh)
Any type	≤ 10 kW	80.2
Rooftop	> 10 kW ≤ 250 kW	71.3
Rooftop	> 250 kW ≤ 500 kW	63.5
Rooftop	> 500 kW	53.9
Ground mounted*	≤ 10 MW	44.3
Wind *		Price (¢ / kWh)
Onshore	Any size	13.5
Offshore	Any Size	19.0

Eligible for aboriginal or community adder
Source – Ontario Power Authority

GENEROUS SUBSIDIES FOR SOLAR – Ontario's Green Energy Act sets aggressive targets for solar energy, 10,000 MW of new installed renewable energy by 2015, over and above 2003 levels; and 25,000 MW of new installed renewable energy by 2025, over and above 2003 levels.

As of January 01, 2011, Ontario content requirements are 60% for solar projects including micro solar 10 kW or smaller.

Lambton College's Alternative (Sustainable) Energy Engineering Technology Program is a three year program with a co-op component which will provide students with a combination of theory and application skills in current and emerging energy technologies, including fuel cells, solar, and wind. Graduates will deal with the integration of current energy sources along with newly developing alternative energy distribution systems. These specialists will be given technical and applied knowledge in renewable energy concepts combined with energy efficient design principals. A new facility is currently under construction at the College; the Suncor Sustainability Centre, which will become the focal point for sustainability initiatives in the region.



A WORKFORCE WITH ENERGY AND CHEMICAL INDUSTRY SKILLS - Sarnia-Lambton, population 128,204 (Source – Statistics Canada, 2006 Census), offers a dependable and abundant supply of labor. There are 63,630 people in the workforce. In addition, there is the potential to recruit from an additional 253,000+ workers located within a 100 kilometre catchment area in surrounding Chatham-Kent, Middlesex, Elgin, and Huron Counties.

Graduates of the University of Western Ontario's Chemical and Biochemical Engineering Masters degree program and Lambton College's Alternative (Sustainable) Energy Engineering Technology and Chemical Production Engineering Program are trained in Sarnia-Lambton.

Real After Tax Cost of a \$100 R&D Expenditure 2009 Taxation Year		
Small and Medium-Sized Non-Manufacturers¹ (Public, Private or Foreign-Owned)	R&D Expenditure	R&D Expenditures at Eligible Ontario Research Institutes
Gross expenditure	\$100.00	\$100.00
Ontario - 10% OITC ³	(\$10.00)	(\$10.00)
Ontario - 20% OBRI tax credit ⁴		(\$20.00)
Ontario – 4.5% ORDTC ⁵	(\$4.05)	(\$3.15)
Federal investment tax credit - 20%	(\$17.19)	(\$13.37)
Tax deduction ⁶		
\$68.76 x 33.0%	(\$22.69)	
\$53.48 x 33.0%		(\$17.65)
After-tax cost of \$100 expenditures	\$46.07	\$35.83

Source - Reviewed by Canada Revenue Agency — Ontario Region; Ministry of Finance, May/June 2008 (9/2008)

- ¹ Medium-sized companies have taxable income of less than \$400,000 and taxable capital of less than \$50 million.
- ² Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
- ³ The 10% refundable Ontario Innovation Tax Credit (OITC).
- ⁴ The 20% refundable Ontario Business-Research Institute Tax Credit (OBRITC).
- ⁵ The 4.5% Ontario Research and Development Tax Credit.
- ⁶ 2009 tax rates for non-manufacturers: Federal 19.0% plus Ontario 14.0% = Total 33.0%.

BENEFIT FROM COMPETITIVE CORPORATE TAX RATES -

Canada has a comprehensive social security system, as well as excellent public health care, training, and educational services. With all these publicly financed benefits, corporate and business taxes are still competitive with the United States and G-7 average.

The Canadian federal government sets a federal corporate tax rate that is uniform across the country and is combined with the Ontario tax rate.

Both federal and provincial corporate income tax rates are being lowered. When the Ontario rate cuts are fully implemented, Ontario's combined federal-provincial rate of 25% will be lower than the current average Organization for Economic Co-operation and Development (OECD) corporate tax rate of 26.7%. Compared to the United States' Great Lakes states, Ontario's combined rate will be 15 percentage points lower than the average combined federal-state general corporate income tax rate and more than 11 percentage points lower than the average combined.

SAVE COSTS WITH CANADA'S / ONTARIO'S RICH R&D TAX POLICIES - In 2006 Canada's cost advantage in R&D was 10.9% over USA's and 20% over Germany's. Canada offers the most favorable tax treatment for R&D among the G-7. These tax-based incentives permit firms to significantly reduce R&D costs through direct investment or sub-contracting in Canada.

Combined Federal and State/Provincial manufacturing taxes

ONTARIO (2012)	25.0%
ONTARIO (2010)	28.0%
ONTARIO (2009)	31.0%
TEXAS	33.9%
MICHIGAN	35.9%
FLORIDA	36.3%
GEORGIA	36.8%
NEW YORK	37.1%
US WEIGHTED AVERAGE	37.2%
ILLINOIS	37.4%
GREAT LAKES	37.7%
OHIO	38.1%
VERMONT	38.1%
CALIFORNIA	38.6%
NEW JERSEY	38.8%
PENNSYLVANIA	39.0%

Source: Ontario Ministry of Finance

BENEFIT FROM WORLD-CLASS CLUSTER POWER IN CHEMICALS, MANUFACTURING, POWER

GENERATION, AND ENGINEERING - Sarnia-Lambton is a national and international leader in the production of chemicals, advanced industrial materials and energy. Major firms include: Invista Canada (formerly DuPont). Lanxess (formerly Bayer), Shell, Ontario Power Generation, Air Products, Praxair Canada Inc., Suncor Energy Products Inc., TransAlta Energy, SNC Lavalin, and WorleyParsons.

UNBEATABLE WATERFRONT LIFESTYLE AND LOW COST OF LIVING -

Big city amenities and home town friendliness make Sarnia-Lambton a pleasant surprise. An average standard two-storey detached housing can be purchased for about \$170,000. Lake Huron and its miles of sandy beaches put the focus on sailing, swimming, wind surfing and scuba diving. And there are 19 public golf courses for those who prefer to remain on terra firma.



Getting around is easy – imagine no rush hour.

Add in Sarnia-Lambton's location in southern Ontario (providing one of the mildest climates in Canada) and you will understand why we can't help bragging!

For further information contact

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Front cover photographs (left to right): • harvest in Sarnia-Lambton, • fuel cell battery, Lambton College Alternative Energy Lab, • solar test panel, Lambton College Alternative Energy lab, • wind turbine, Ravenswood, Sarnia-Lambton

MODERN MANUFACTURING INFRASTRUCTURE AND AFFORDABLE

COSTS - By locating in Sarnia-Lambton you will benefit from a sophisticated electrical infrastructure and world-class telecommunications. With no shortage of water and access to high-pressure gas, steam, hydrogen, and a host of other feed stocks, the manufacturing infrastructure is well established. Advanced industrial materials manufacturer H.C. Starck is just one of many global industries located in Sarnia-Lambton. Sarnia-Lambton is a national and international leader in the production of chemicals, energy, synthetic rubber and a variety of oil-based products.

City of Sarnia – Recipient – “fDi magazine”
“Micro-City of the Future – Top five best foreign direct investment strategy (2009 – 2010)”

City of Sarnia – Recipient - Pembina Institute - *Most Livable City in Ontario* (August, 2007)

City of Sarnia - Recipient - *fDi magazine, 3rd North America “Micro-City of the Future”* (April / May 2007)

BLUEWATER SUSTAINABILITY INITIATIVE -

This initiative brings business, industry, and civic organizations together with a shared vision for Sarnia-Lambton – to be recognized worldwide as a hybrid, green community.

All of the partners are volunteers, and include Lambton College, the University of Western Ontario Research Park, City of Sarnia, County of Lambton, Aamjiwnaang First Nations, the Sarnia-Lambton Economic Partnership, the Sarnia-Lambton Environmental Association, the Industrial Education Co-operative, the Sarnia-Lambton Chamber of Commerce, the Sustainable Chemistry Alliance, and local industry. This integrated group is taking action to identify and execute sustainability initiatives in Sarnia-Lambton.

The Sustainability Centre, located on the Lambton College campus, is a collaborative effort of Lambton College and the Suncor Energy Foundation. It was established to help advance the strategy, ideas, and goals of the Bluewater Sustainability Initiative, including – Develop, adopt, and promote alternative energy and industrial bioproducts; Reduce the ecological footprint from development; Promote energy conservation and clean energy processes.
www.bsi.lambton.on.ca



Discover our nature

For companies in the business of innovation, Sarnia-Lambton, Ontario, may be one of the most important discoveries of all.

Innovation isn't just an ambition here – it's a longstanding tradition tied to our unique petrochemical expertise.

- Major community and company biofuels and bioproducts initiatives
- Community-based fuel cell demonstration project
- Canada's newest and largest enhanced plants for biofuels and low sulphur gasolines
- Unique industry-recognized university and college R & D, education, and technical skills

Access it all

- Canada's new Bioindustrial Innovation Centre at the University of Western Ontario Research Park, Sarnia-Lambton
- One of the lowest-cost regions for conducting research – in Canada or the USA
- Leading producer of bio-inputs – corn, soybeans, and wheat
- Large cluster of multi-national petrochemical, refining, and energy firms



Sarnia-Lambton is Powering a Sustainable World™

Find out more today.

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