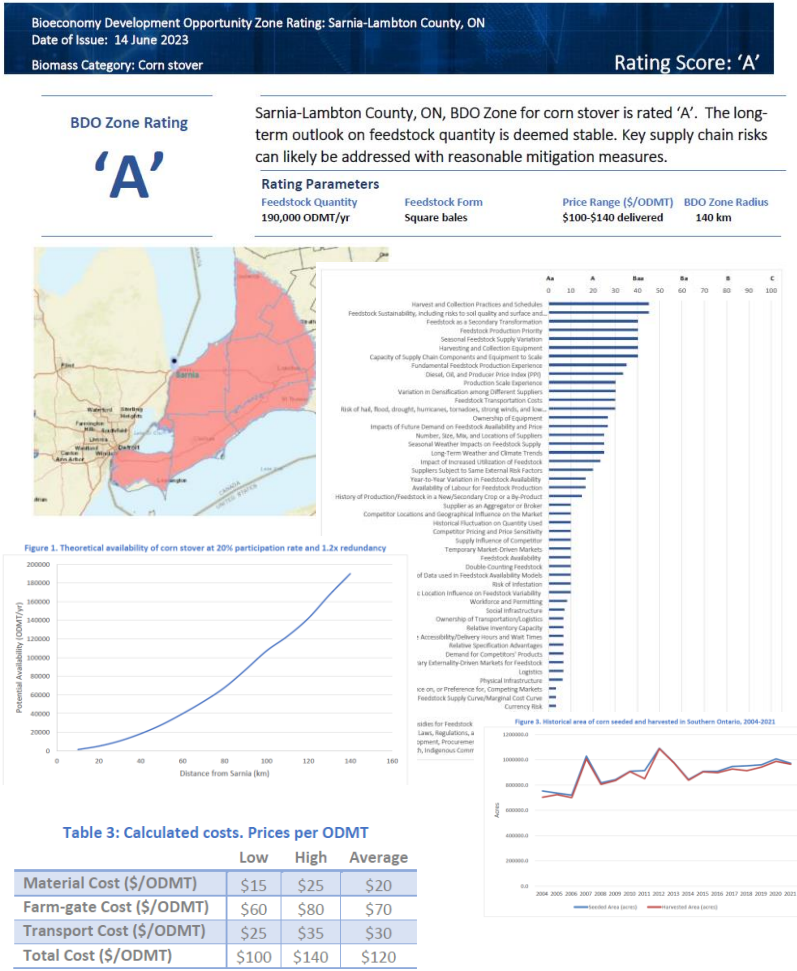
Sarnia-Lambton, Ontario BDO Zone Rating: **'A'**

- ✓ **Rating Parameters:** 190,000 odmt/year of corn stover at $100-$140/odmt delivered.
- ✓ **Rating Outlook:** Stable, long term outlook on quantity. Key supply chain risks can likely be addressed with reasonable mitigation measures.
- ✓ **Assets:** Ability to access larger supply basins at marginal increases in transport costs. No-large scale competition for corn stover.
- ✓ **Sarnia home to a bio-economy innovation center:** The Sarnia Lambton Economic Partnership (SLEP) is a collaboration of 11 municipalities that are working together to attract industrial development.

View and download Sarnia-Lambton BDO Zone Rating **here**.



Bioeconomy Development Opportunity Zone Rating: Sarnia-Lambton County, ON
Date of Issue: 14 June 2023
Biomass Category: Corn stover
Rating Score: 'A'

BDO Zone Rating
'A'

Sarnia-Lambton County, ON, BDO Zone for corn stover is rated 'A'. The long-term outlook on feedstock quantity is deemed stable. Key supply chain risks can likely be addressed with reasonable mitigation measures.

Rating Parameters

Feedstock Quantity	Feedstock Form	Price Range ($/ODMT)	BDO Zone Radius
190,000 ODMT/yr	Square bales	$100-$140 delivered	140 km

Figure 1. Theoretical availability of corn stover at 20% participation rate and 1.2x redundancy

Potential Availability (ODMT/yr)
Distance from Sarnia (km)

Figure 3. Historical area of corn seeded and harvested in Southern Ontario, 2004-2021

Table 3: Calculated costs. Prices per ODMT

	Low	High	Average
Material Cost ($/ODMT)	$15	$25	$20
Farm-gate Cost ($/ODMT)	$60	$80	$70
Transport Cost ($/ODMT)	$25	$35	$30
Total Cost ($/ODMT)	$100	$140	$120

BD OZ BIOECONOMY DEVELOPMENT OPPORTUNITY ZONE INITIATIVE



SARNIA·LAMBTON
Economic Partnership
Powering a Sustainable World®

SARNIA-LAMBTON BDO ZONE CORN STOVER

SHAUNA CARR ECONOMIC DEVELOPMENT OFFICER

ENERGY & CHEMISTRY SECTORS

BD OZ | BIOECONOMY DEVELOPMENT OPPORTUNITY ZONE INITIATIVE

BD OZ INITIATIVE

Sarnia-Lambton Economic Partnership

SARNIA·LAMBTON Economic Partnership
Powering a Sustainable World®

- Customized services to industry:
  - Site selection and permitting assistance
  - Support navigating municipal, provincial, and federal government agencies
  - Demographic information, mapping, and statistics
  - Facilitate connections to businesses and support services pertinent to development
  - Retention and expansion services for existing businesses
  - Connect to local workforce and attract talent

Vision – Economic growth and diversification to expand prosperity and elevate Sarnia-Lambton as an exceptional place to live and invest.

Mission – To advance economic opportunity in Sarnia-Lambton through leadership, collaboration and strategic direction.

Accredited Economic Development Organization

Discoveries That Matter
SARNIA - LAMBTON

www.sarnialambton.on.ca

Location



Located on the Canada/USA border in the heart of the Great Lakes Basin and in Ontario's most abundant agricultural area.

Through the USMCA companies in Sarnia-Lambton have direct highway access to a market of nearly 400 million people.

BD OZ INITIATIVE

Sarnia-Lambton Hybrid Chemistry Cluster



WESTERN SARNIA-LAMBTON RESEARCH PARK

- (i) Sarnia-Lambton Economic Partnership
- (ii) Bioindustrial Innovation Canada
- (iii) Bluewater Technology Access Centre
- (iv) Woodland Biofuels
- (v) Origin Materials
- (vi) Forward Water Technologies

LAMBTON COLLEGE

- (i) Centre of Excellence in Energy & Bio-Industrial Technologies
- (ii) Bio-Industrial Process Research Centre
- (iii) Centre for Industrial Material Development
- (iv) Industrial Research Chair for Colleges
- (v) Lambton Energy Research Centre
- (vi) Lambton Water Centre

PROPOSED INDUSTRIAL SITES

- Benefuel
- AChT (Advanced Chemical Technologies)
- Origin Materials
- Imtex Membrane Corp
- Forge Hydrocarbons

Provincial Highway
County Road
Railway CSX
Railway CN

HYBRID CHEMISTRY CLUSTER INDUSTRIAL PARKS

1. Bio-Industrial Park Sarnia
2. Bluewater Energy Park
3. St. Clair Industrial Park
4. Chippewas of Sarnia Industrial Park
5. Sarnia Research & Business Park

Sarnia-Lambton Hybrid Chemistry Cluster

FOSSIL FUEL COMPANIES IN SARNIA-LAMBTON

Air Liquide · Air Products · CF · Cabot · Dow · Enbridge · INEOS Styrolution · Imperial · NOVA Chemicals · Pembina · Plains All American Pipeline, L.P. · Shell · Suncor

BIO/RENEWABLE COMPANIES IN SARNIA-LAMBTON

Advanced Chemical Technologies Inc. · Benefuel · Forward Water Technologies · Cargill · Forge Hydrocarbons · BioLine · LCY Biosciences Inc · Origin · Suncor · Woodland Biofuels

SUCCESS PROFILE

Suncor

Canada's largest ethanol facility.

SARNIA·LAMBTON Economic Partnership
Powering a Sustainable World®



Bioindustrial Innovation Canada®

A Sustainable Chemistry Alliance

Bioindustrial Innovation Canada

Focus is on critical strategic capital investment in small to medium-sized enterprises (SME's) with compelling business plans where innovation in science and engineering can bring about major advances in sustainable chemistry.

With contribution from FedDev Ontario, BIC has developed the Ontario Bioindustrial Innovation Network (OBIN).

Has supported more than:

- 20 Projects
- 27 Investments
- 17 Partners
- 3,600 Jobs

SARNIA·LAMBTON Economic Partnership
Powering a Sustainable World®



Logistics - Port

- Access to the Atlantic Ocean via the St. Lawrence Seaway System.
- Shipping open from March to December
- Oversized Load Corridor accommodates movement of massive vessels/modules that may be required by facilities starting at the port throughout the complex.



Logistics - Road

The Blue Water Bridge border crossing is a key link between Canada and the USA.

- Links Ontario Highway 402 to U.S. Interstates I-69 and I-94
- Canada's 2nd busiest commercial border crossing with 1.5 million trucks & $42.2 billion in road trade.
- Dedicated car and truck lanes via the FAST and NEXUS programs.
- Access to Ontario 400-series highway system via Highway 402.



Logistics - Rail

Canadian National (CN) and CSX Transportation operate mainline Class 1 railroad services.

- CN operates five railyards including the largest switching yard in the Great Lakes District.
- St. Clair Tunnel (CN) carries more freight than any other US-Canada border rail crossing.
- VIP Rail, Procor Ltd., ARI Fleet Services, and OWS Rail Car provide railcar switching, transloading, storage, and cleaning services.

Infrastructure



Energy

Ontario's electricity grid is 94% green energy.

(Note: Ontario includes Nuclear as green generation.)

2000 MW of natural gas, solar, and wind generated power through facilities operated in Sarnia-Lambton:

Natural Gas

- TransAlta Energy (506 MW)
- Greenfield Energy Centre (1,005 MW)
- Invenergy St. Clair Power (584 MW)
- Greenfield South Power Corp (300 MW)
- Imperial Oil (90 MW)

Solar

- Enbridge/First Solar (80 MW)
- Cordelio Power (20 MW & 20 MW)

Wind

- Cordelio Power (149 MW)
- NextEra Energy (100MW)
- Sky Generation (9.9 MW & 6.6 MW)

Agriculture & Feedstocks

Agriculture is the 2nd largest industry in Sarnia-Lambton.



Corn

6,731,000 tonnes in Southwestern Ontario

Soybeans

3,300,000 tonnes in Southwestern Ontario

Residual Biomass

2,100,000 tonnes in Southwestern Ontario

Wheat

2,000,000 tonnes in Southwestern Ontario

Processed Sugars & Starches

Potential for up to 40,000 acres of sugar beets

Other Renewables or Wastes

Forestry biomass, municipal solid waste, waste oils, CO2, Methane



Western Sarnia-Lambton Research Park

The Research Park's Commercialization Centre is Canada's largest clean-tech incubator with over 50,000 s.f. of office, laboratories and pilot plant infrastructure as part of the 288,000 s.f. complex.

2016 – Outstanding Research Park Award

2015 – 5th Top Research Park in North America

Successful pilot projects include:

- Forward Water Technologies
- Woodland Biofuels Inc.
- Origin Materials
- KMX

Education

The Sarnia-Lambton labour force has a higher percentage of workers with a post-secondary certificate, diploma, or degree than the Provincial average.

Nearby universities provide an abundance of engineers and production workers, with courses applicable to the Sarnia-Lambton areas core industrial mix.

Educational Attainment (Sarnia)	2016
No Certificate, Diploma or Degree	17,615
High School Certificate or Equivalent	30,835
Apprenticeship, Trades Certificate or Diploma	11,075
College, CEGEP or other Non-University Certificate or Diploma	29,275
University Certificate, Diploma or Degree or Above	14,825

Post-Secondary Institution	Drive Time from Sarnia-Lambton
Lambton College	N/A
Western University	45 Minutes
Fanshawe College	1 Hour
St. Clair College	1.5 Hours
University of Windsor	1.5 Hours
Conestoga College	1.5 Hours
University of Waterloo	2 Hours
Wilfrid Laurier University	2 Hours
Mohawk College	2 Hours
McMaster University	2 Hours
University of Guelph	2 Hours



Workforce

Sarnia-Lambton has a labour force of 64,500, with over 21,700 people employed in manufacturing and related service industries. The total labour force within a 100km radius is almost 350,000.

Dependable and abundant supply of skilled labour. Exceptionally strong in the areas of science, engineering, process operations, instrumentation, machining, maintenance, and managerial ability.

Lambton College works cooperatively with sustainable chemistry based companies to provide technology and trades programs that meet industry demand for skilled employees.





Ontario has R&D cost advantage over other G7 Countries

R&D Cost Advantage

When combined with federal R&D programs, Ontario's Scientific Research and Experimental Development program is one of the most generous in the world. The after-tax cost of $100 in R&D spending can be reduced to between $37 and $61.

Selected Programs:

- Industrial Research Assistance Program
- Scientific Research and Experimental Development Program
- Ontario Innovation Tax Credit
- Ontario Research & Development Tax Credit
- Ontario Tax Exemption for Commercialization





Incentives and Support

Southwestern Ontario Development Fund

Up to 15% funding to a maximum of $5M

Up to $1,500,000 for strategic projects that are foreign direct investments

SD Tech Fund

Up to 33% of project costs (avg $2-4M).

Non-repayable.

Several Provincial & Federal sources of funding available to fund projects with new to Ontario or innovative processes.