

# Bioeconomy Commercialization: Working with industry to create a Net Zero Transition

October 25, 2024



# WHO WE ARE – SARNIA-LAMBTON ECONOMIC PARTENRSHIP

**Mission:** To advance economic growth and opportunity in Sarnia-Lambton through leadership, partnership, collaboration, and strategic direction.

**Vision:** Sarnia-Lambton will be one of Canada's premier locations to live, work, and invest – where economic prosperity is driven by innovation, growth and diversification.

## What We Do:

- Relocation & site selection services
- Start-up & commercialization support
- Market research, data, and statistics
- Incentive & grant information
- Permitting assistance
- Support navigating municipal, provincial, and federal government agencies
- Facilitate connections to businesses and support services pertinent to development
- Retention and expansion services for existing businesses
- Connect to local workforce and attract talent



# LOCATION



Located on the Canada/USA border in the heart of the Great Lakes Basin.

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

The largest and most well-known municipality is the City of Sarnia.

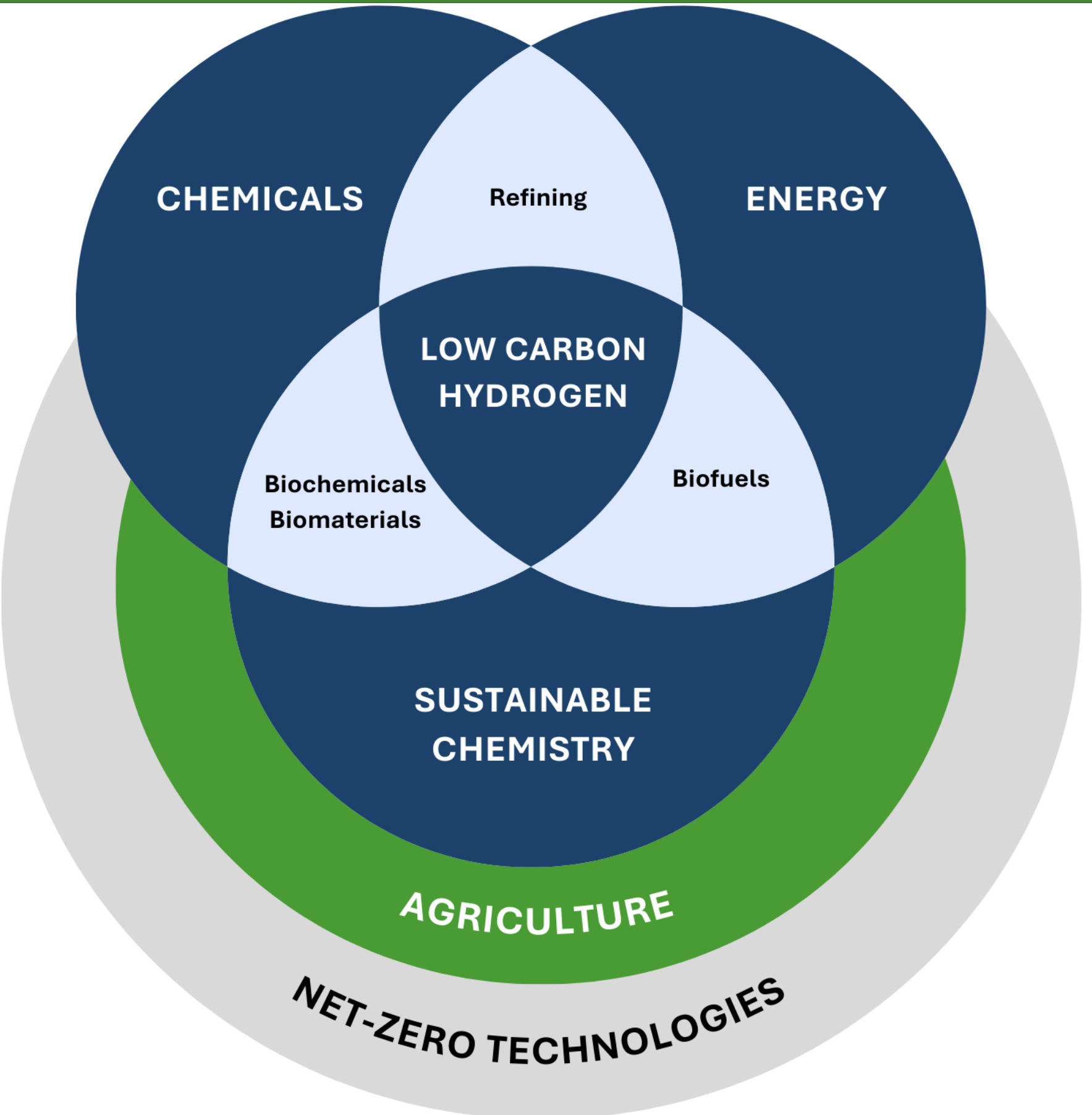
- County population 132,900
- City of Sarnia population 75,000

Ranked Top 10 Location by Site Selection Magazine 2018 through 2022

Ranked Top 7 Intelligent Community in the World by ICF.

The Sarnia-Lambton area is designated as a Canadian Foreign Trade Zone Point.

# HISTORICAL STRENGTHS CREATE PATHWAY TO OPPORTUNITY



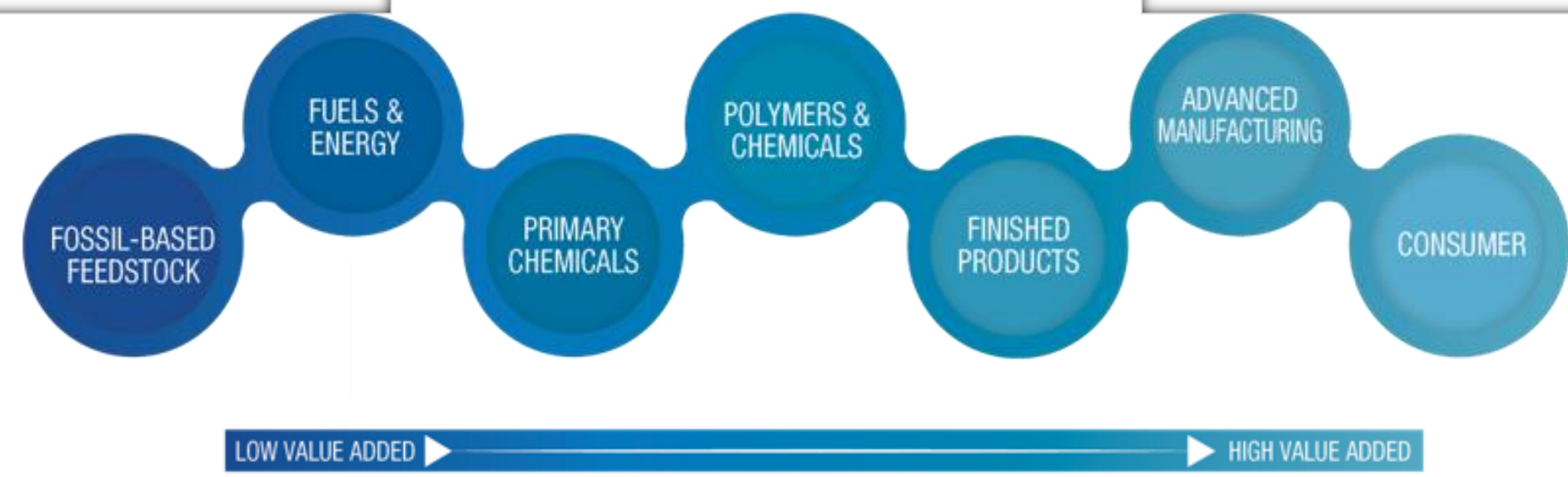
# SARNIA-LAMBTON ENERGY & CHEMISTRY COMPLEX



- Canada's 2<sup>nd</sup> largest chemical cluster.
- Sarnia-Lambton's largest industry.

- 35 interrelated facilities, Canada's most concentrated and integrated chemicals cluster.

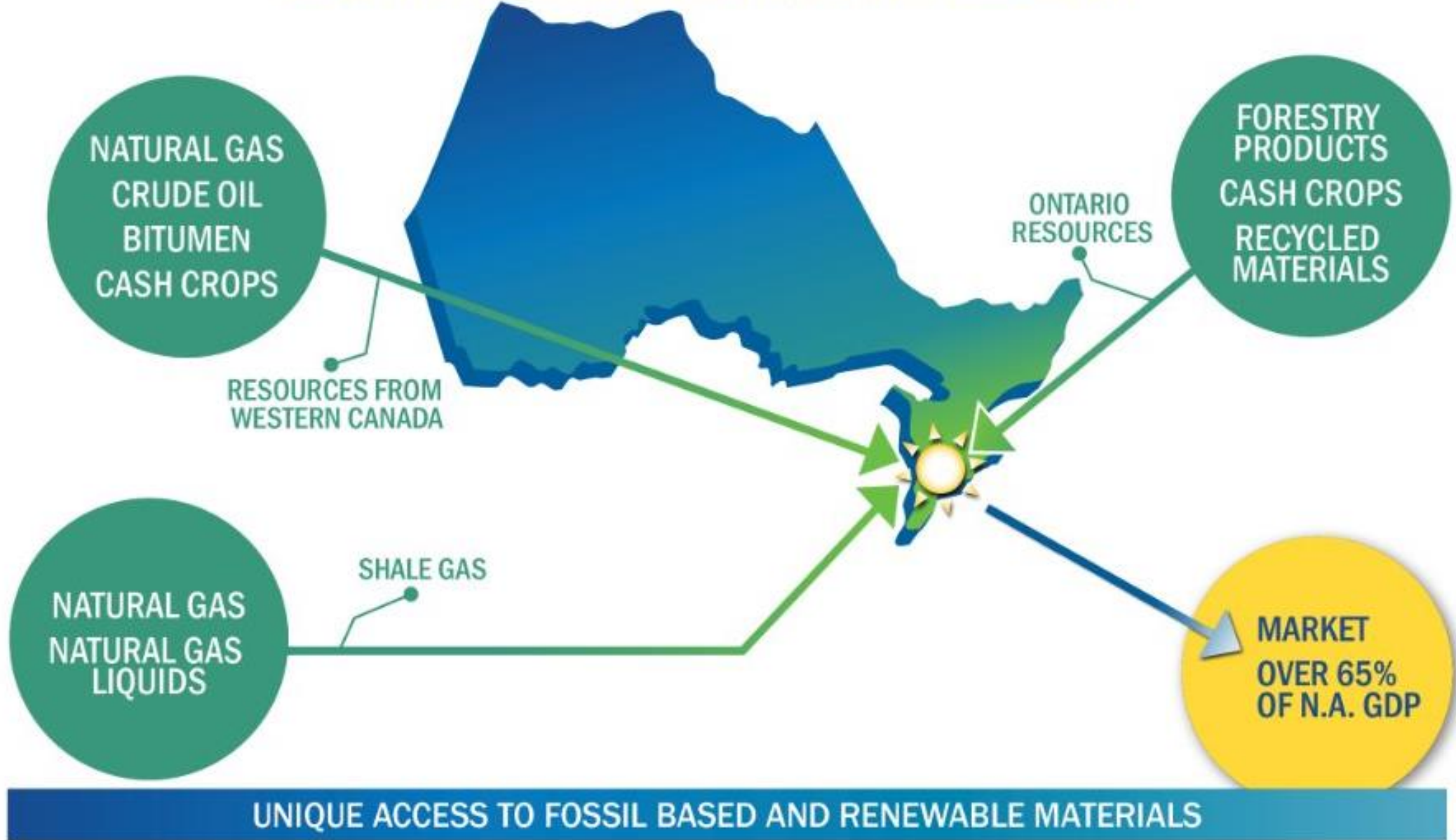
- 4,500 employees
- 21,700 employees in the associated manufacturing and service industries.



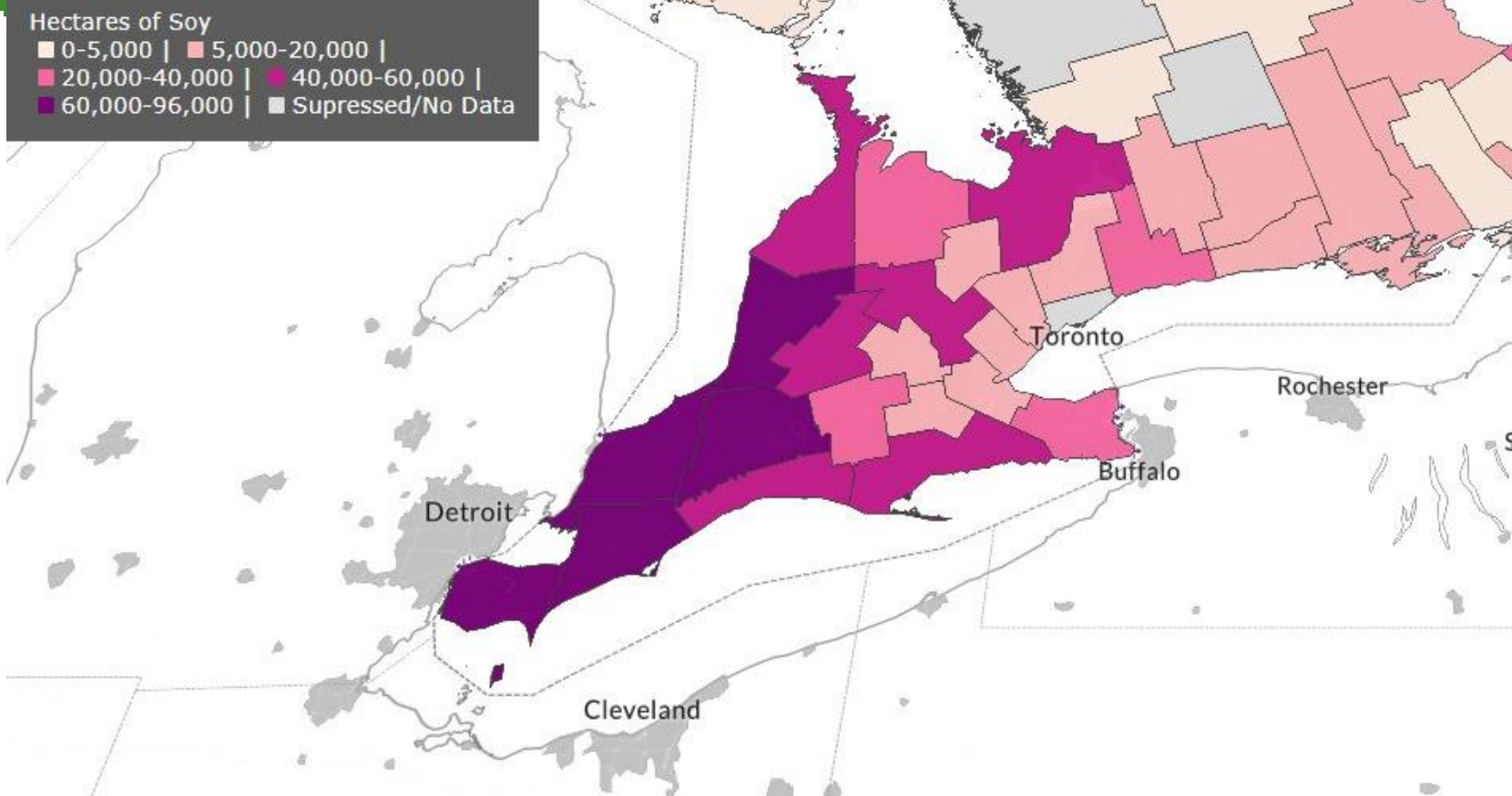
# OPPORTUNITY TO DIVERSIFY

## SARNIA-LAMBTON HYBRID CHEMISTRY COMPLEX

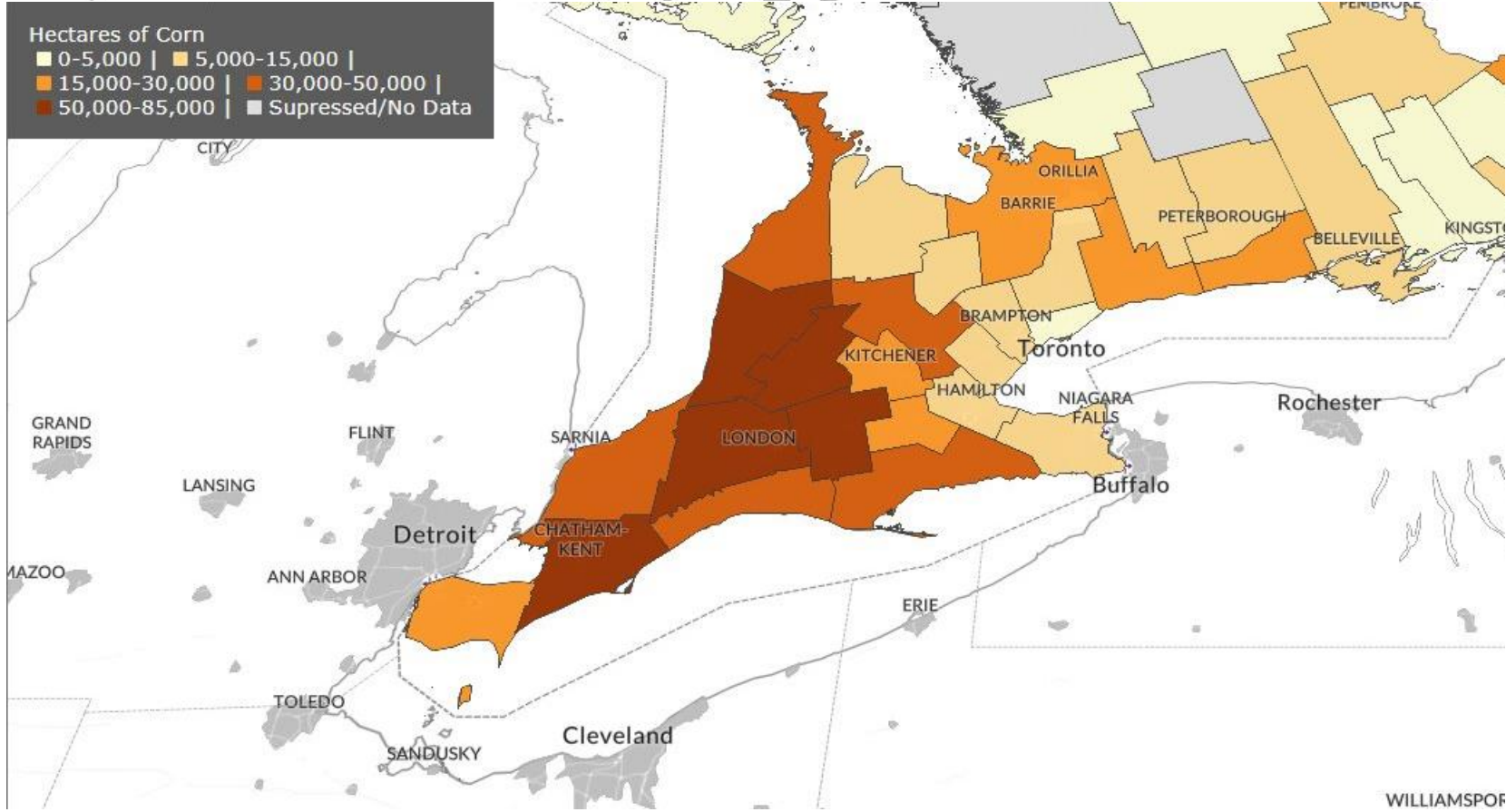
UNIQUELY POSITIONED FOR LEADERSHIP IN SUSTAINABILITY



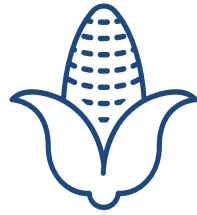
Hectares of Soy  
 0-5,000 | 5,000-20,000 |  
 20,000-40,000 | 40,000-60,000 |  
 60,000-96,000 | Supressed/No Data



Hectares of Corn  
 0-5,000 | 5,000-15,000 |  
 15,000-30,000 | 30,000-50,000 |  
 50,000-85,000 | Supressed/No Data

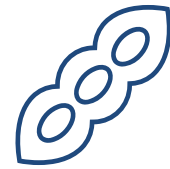


# MULTIPLE FEEDSTOCK POTENTIAL



**Corn**

6.7-million  
tonnes in  
Southwestern  
Ontario



**Soybeans**

3.3-million  
tonnes in  
Southwestern  
Ontario



**Wheat**

2-million  
tonnes in  
Southwestern  
Ontario



**Residual  
Biomass**

2.1-million  
tonnes in  
Southwestern  
Ontario

**Processed  
Sugars &  
Starch's**

10,000 acres  
of sugar beets  
with potential  
for 40,000  
acres

**Forestry Biomass – Municipal Solid Waste – Waste Oils – Carbon Dioxide**



# BIOECONOMY DEVELOPMENT OPPORTUNITY ZONE

## BDO Zone Rating “A”

Feedstock Quantity – 190,000 ODMT/yr

Feedstock Form – Square bales

Price Range (\$/ODMT) - \$100-140 delivered

BDO Zone Radius – 140 km

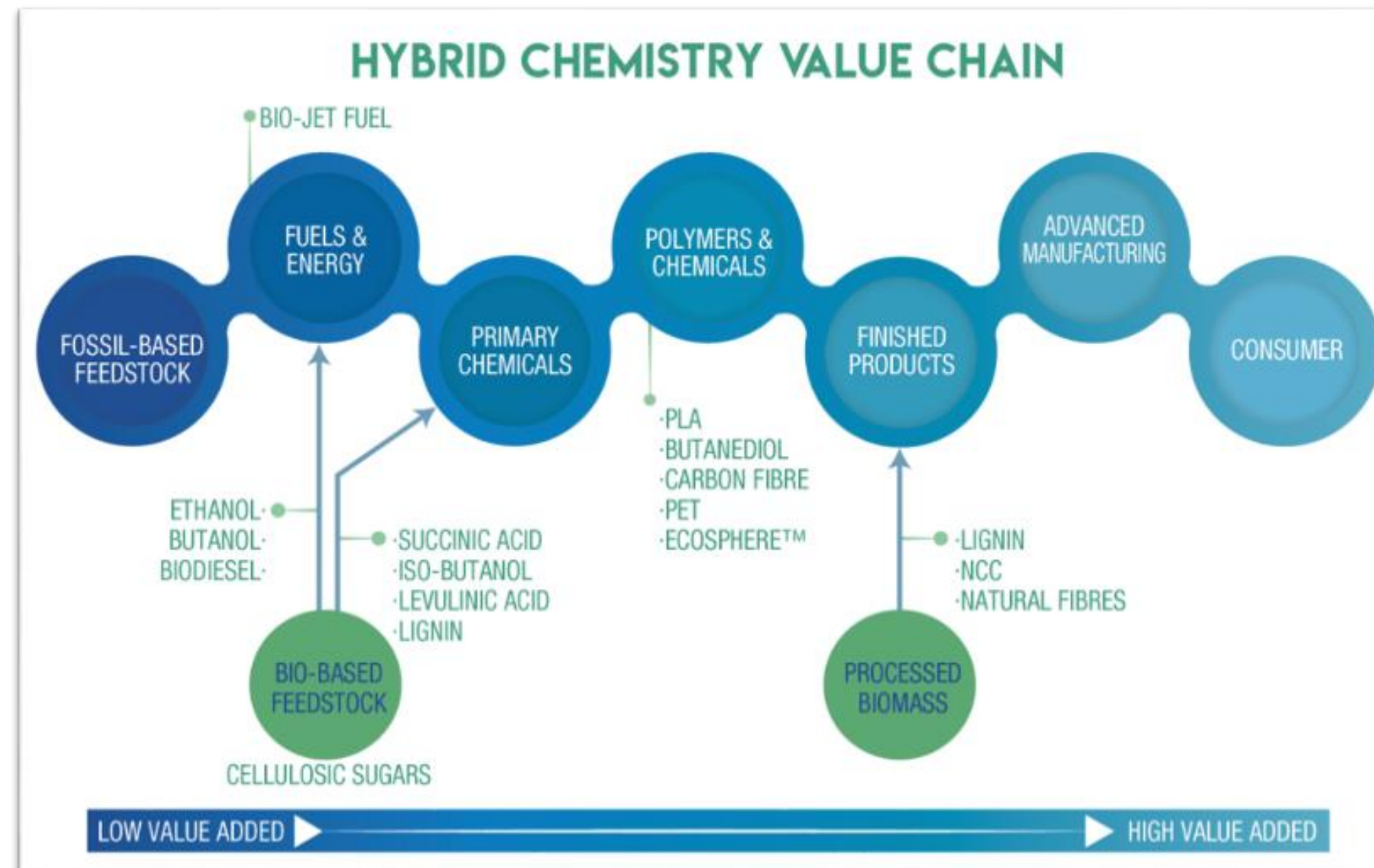




# SARNIA-LAMBTON HYBRID CHEMISTRY CLUSTER

Canada's premier location for the development of and investment in clean, green, and sustainable chemistry technologies.

Be a world leading centre for bio-industrial manufacturing and research and development.



# SARNIA-LAMBTON HYBRID CHEMISTRY CLUSTER

## 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



## WESTERN SARNIA-LAMBTON RESEARCH PARK

- 1 Sarnia-Lambton Economic Partnership
- 2 Bioindustrial Innovation Canada
- 3 Bluewater Technology Access Centre
- 4 Woodland Biofuels
- 5 Origin Materials
- 6 Forward Water Technologies

## LAMBTON COLLEGE

- 1 Centre of Excellence in Energy & Bio-Industrial Technologies
- 2 Bio-Industrial Process Research Centre
- 3 Centre for Industrial Material Development
- 4 Industrial Research Chair for Colleges
- 5 Lambton Energy Research Centre
- 6 Lambton Water Centre

- Provincial Highway
- County Road
- Railway CSX
- - - Railway CN

## FOSSIL FUEL COMPANIES IN SARNIA-LAMBTON



## BIO/RENEWABLE COMPANIES IN SARNIA-LAMBTON



## SUCCESS PROFILE

**SUNCOR**

Canada's largest ethanol facility.

# THE NEED FOR THE NET-ZERO TRANSITION

Given urgency of net-zero, now is more important than new.

Facility Owner	Facility Name	Facility City	Facility Primary NAICS Code	Carbon dioxide (CO2)
Imperial Oil	Sarnia Refinery Plant	SARNIA	324110	1268044.466
TransAlta Sarnia Cogeneration L.P.	Sarnia Regional Cogeneration Facility	SARNIA	221112	1004446.972
NOVA Chemicals Corporation	Corunna Site	CORUNNA	325110	939274.15
Greenfield Energy Centre, LP	Greenfield Energy Centre LP	COURTRIGHT	221112	897930.51
Suncor Energy Products Partnership	Sarnia Refinery	SARNIA	324110	756929.947
Terra International (Canada) Inc.	CF Industries Courtright Nitrogen Complex	COURTRIGHT	325313	687823.6921
Shell Canada Products	Sarnia Manufacturing Centre	CORUNNA	324110	676485.501
Air Products Canada Ltd.	Corunna Hydrogen Facility	CORUNNA	325120	582801.15
Imperial Oil	Sarnia Cogen Plant	SARNIA	221112	406192.2143
St. Clair Power, LP	St. Clair Energy Center	CORUNNA	221112	296512.018
Imperial Oil	Sarnia Chemical Plant	SARNIA	325110	256826.0982
Cabot Canada Limited	Cabot Canada Limited	SARNIA	325189	173563.011
Plains Midstream Canada ULC	Sarnia Fractionation Plant	SARNIA	211110	170776.9
Waste Management of Canada Corporation	Twin Creeks Landfill (formerly Warwick Landfill)	WATFORD	562210	2192.6156
Suncor Energy Inc.	St. Clair Ethanol Plant	MOORETOWN	325190	139145.9556
INEOS Styrolution Canada Ltd.	INEOS Styrolution	SARNIA	325110	126309.4094
NOVA Chemicals Corporation	St. Clair River Site	CORUNNA	325210	63986.92
Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	562210	45961.1
Linde Canada Inc.	Sarnia CO2 & Dry Ice Plant	SARNIA	325120	35711.4

8.7 million tonnes of CO2 emissions

# ONTARIO'S HYDROGEN HUB

## Decarbonizing Existing Hydrogen Demand

- Hydrogen feedstock for petrochemical and refining facilities
- Hydrogen feedstock for hybrid chemistry sector, including fertilizer and chemical products

## Supplying Emerging Hydrogen Demand

- Industrial fuel switching natural gas to hydrogen for process heating
- Industrial fuel switching natural gas to hydrogen for power generation
- Hydrogen for transportation
- Blending hydrogen into the local low-pressure natural gas network feeding residential, commercial, and light industry

Estimated 150,000 tonnes/year produced & used in Sarnia-Lambton for oil/gas & ammonia.

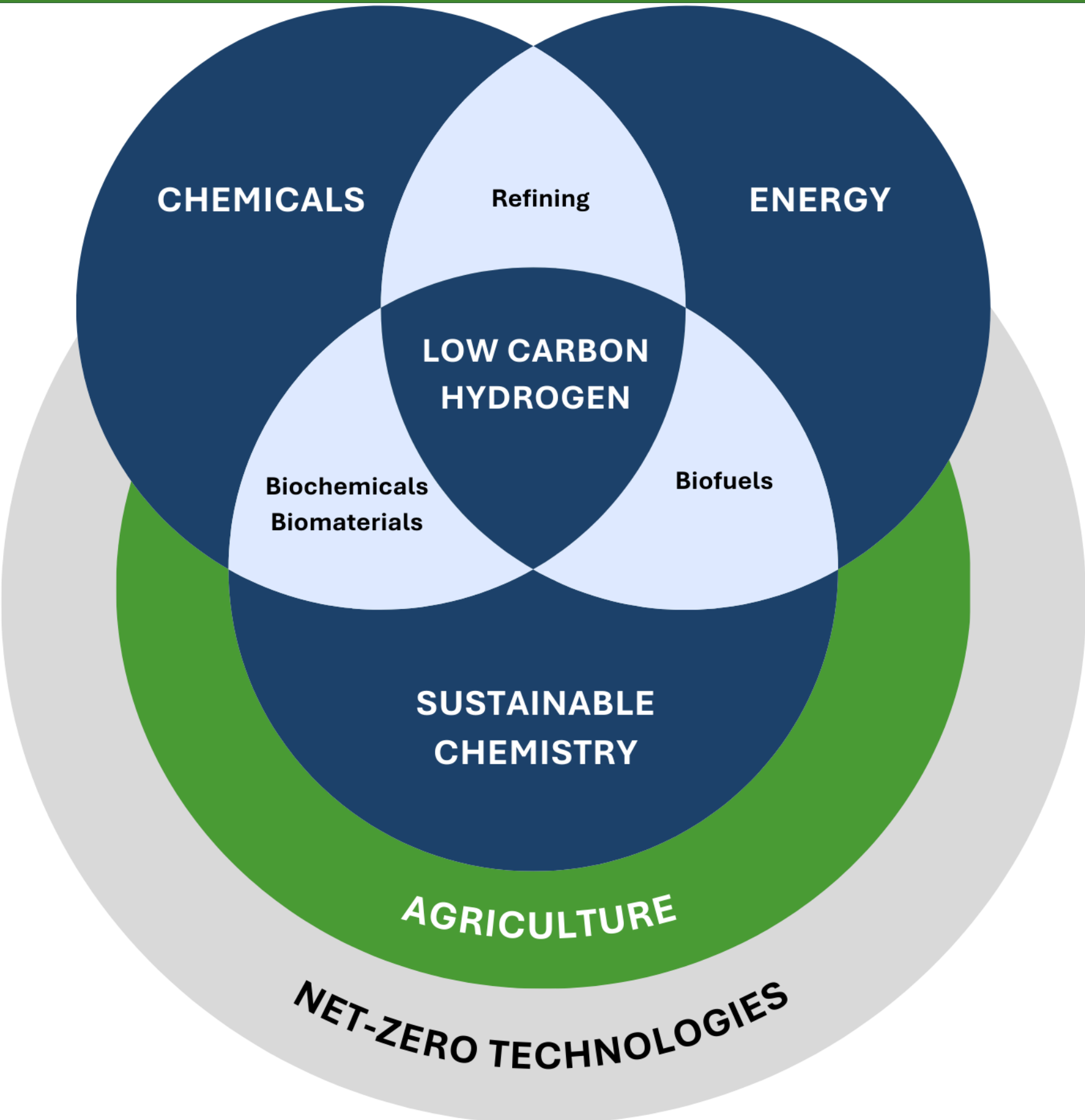
By 2030 local low-carbon demand could range from 25,000 – 60,000 tonnes/year

By 2050 local low-carbon demand could range from 500,000 – 1-million

## Additional demand opportunities via provincial & export markets

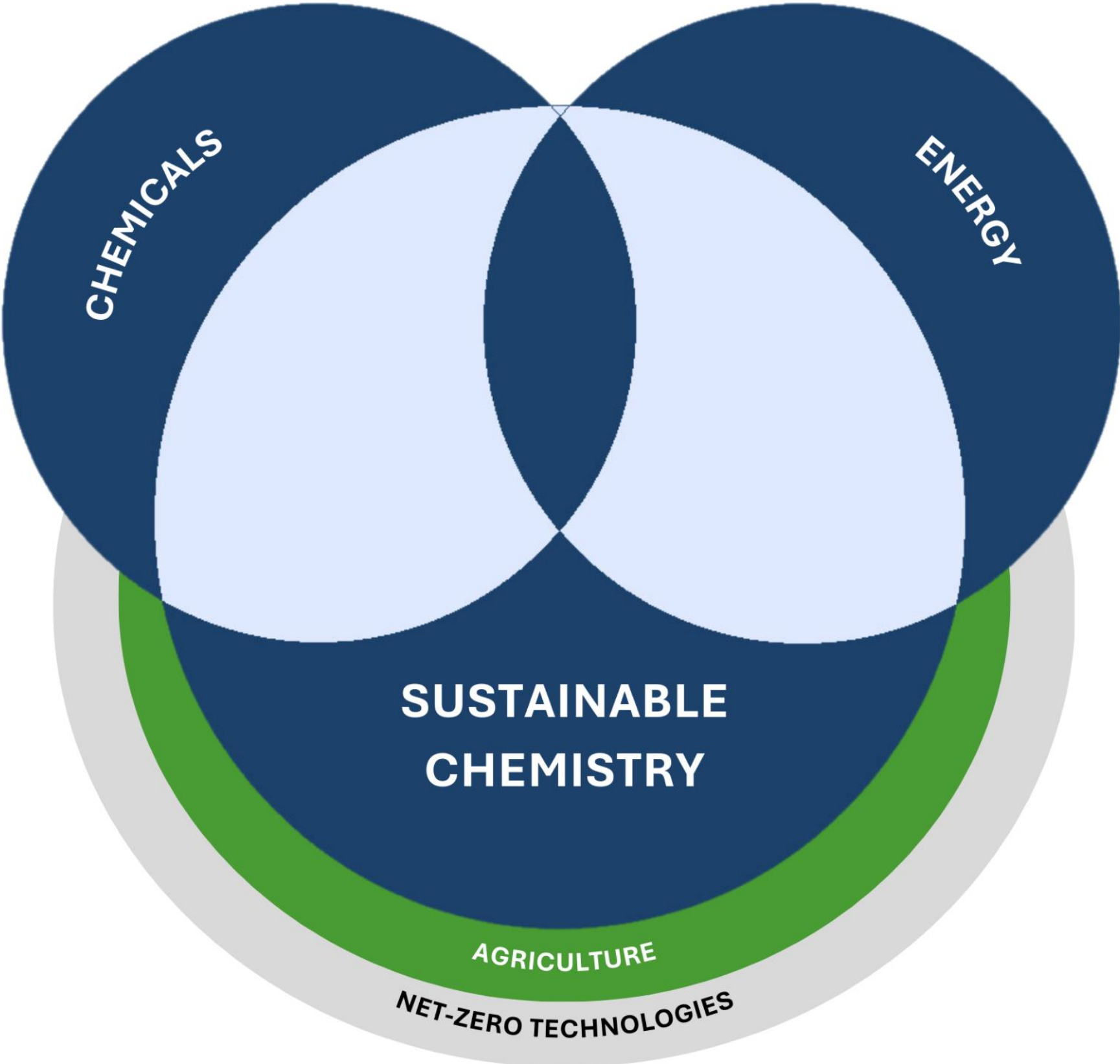
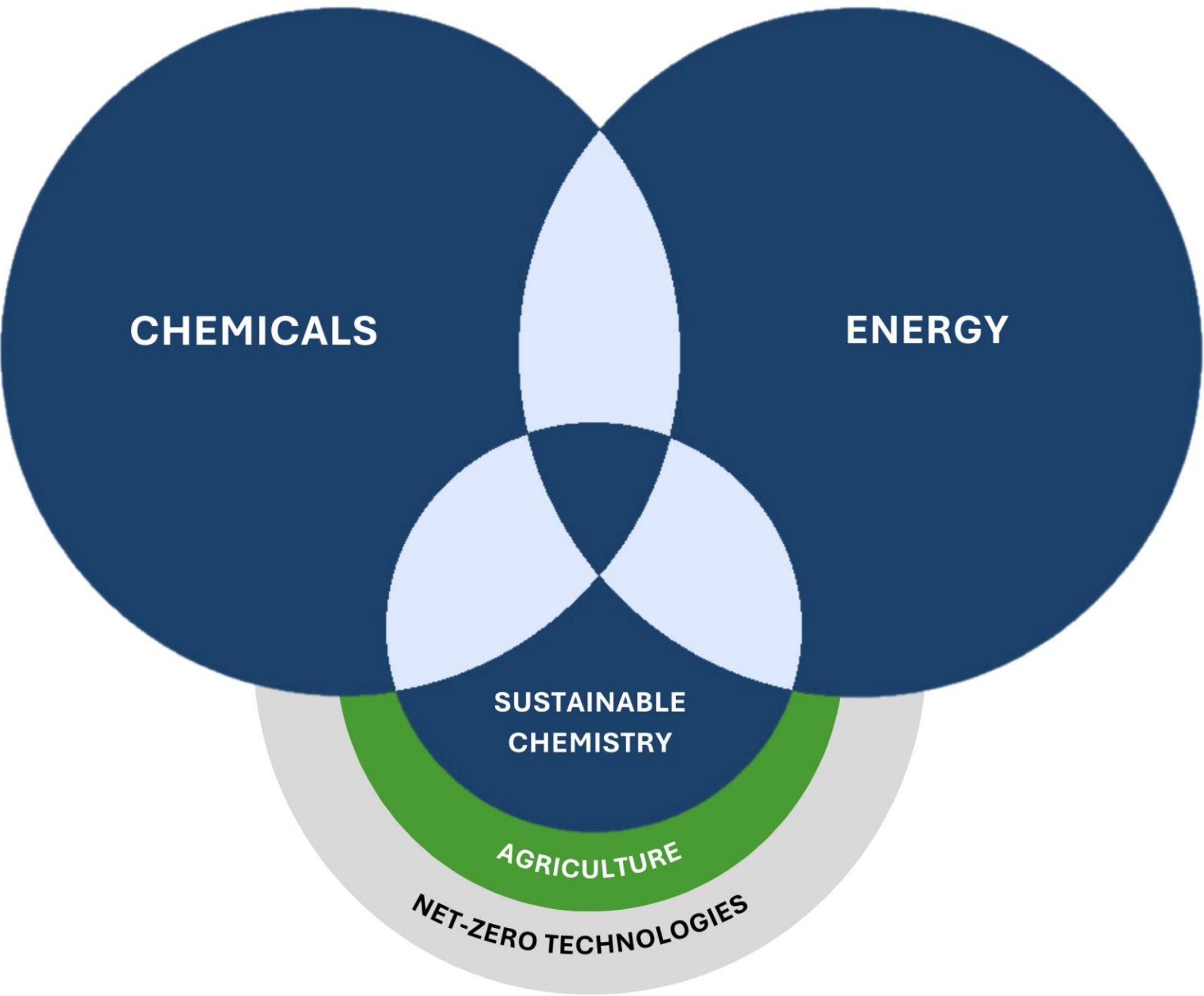
- Shipping/air, steel plants, fueling stations, natural gas blending

# SARNIA-LAMBTON'S ECONOMY THROUGH A NET-ZERO TRANSITION



# SARNIA-LAMBTON'S ECONOMY – NET-ZERO TRANSITION

Do better, with what we do well today, through an incremental and well-defined shift.

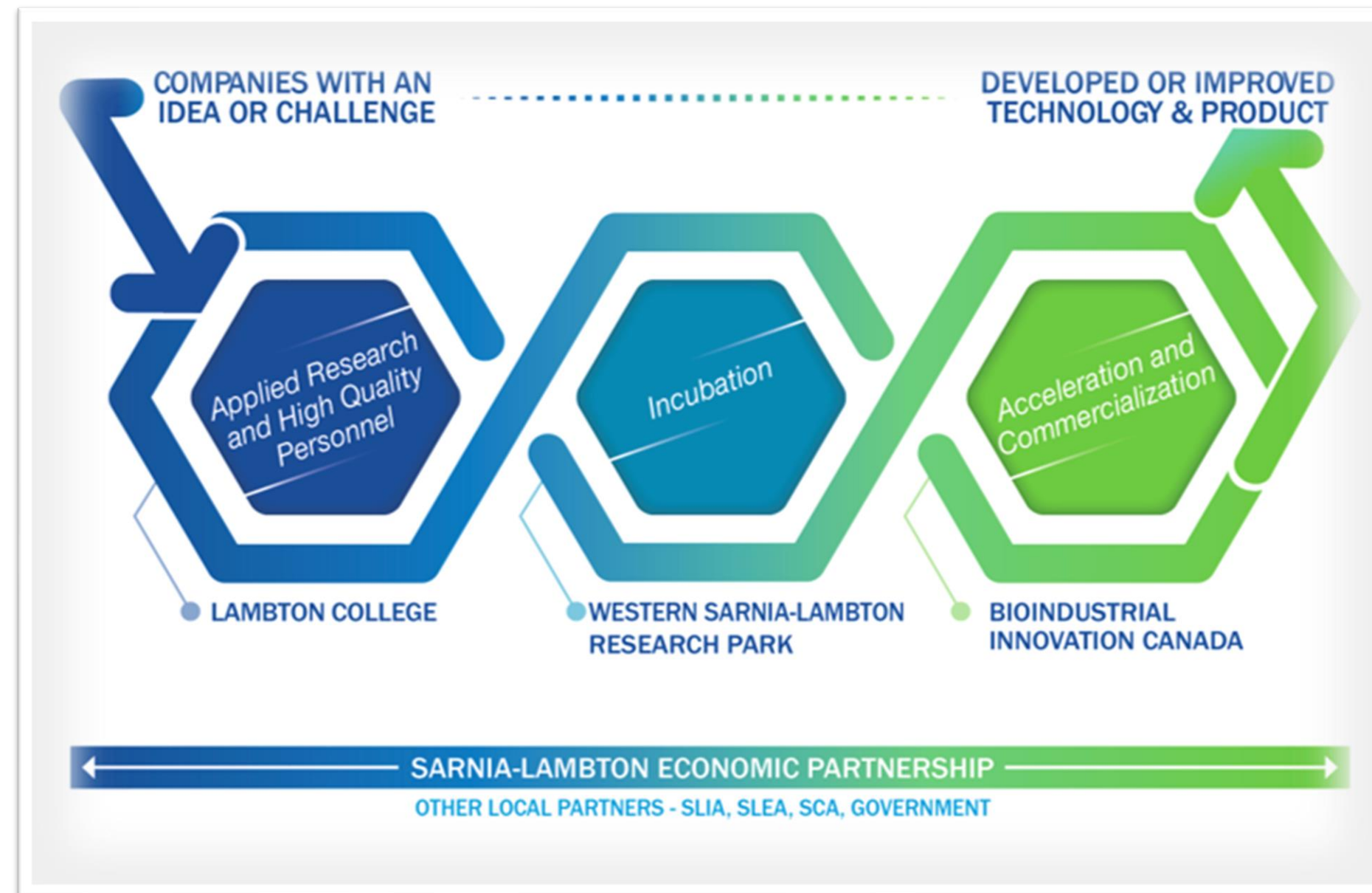


# PROVEN PATHWAYS TO INNOVATION & COMMERCIALIZATION

Support the development of an idea from research, to incubation, to acceleration and commercialization.

Companies at every stage:

- Lab project
- Bench scale
- Pilot plant
- Demonstration scale
- Commercial scale



Support businesses at any stage of the commercialization hub process, especially as companies will often have processes, technologies, or projects that start at an early stage while other aspects of their business move forwards.

# LAMBTON COLLEGE



A global leader for collaborative applied research, development, innovation, education, entrepreneurship, and commercialization.



Facilities include the Centre of Excellence in Energy and Bio-Industrial Technologies.

Rank as one of Canada's TOP 3 Research Colleges three consecutive years.





# 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.

Lab & pilot space available that is dedicated to industrial biotechnology and net-zero technology advancement.

Successful pilot projects include:

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

# 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.

Initial bio-industrial cluster was the Sarnia-Lambton Hybrid Chemistry Cluster, with the goal of replicating in key locations across Canada.



**Bioindustrial**   
**Innovation Canada**<sup>®</sup>  
*A Sustainable Chemistry Alliance*

# INFRASTRUCTURE PARTNERSHIP OPPORTUNITIES

Fully serviced industrial parks ideal for pilot, demonstration, and full-scale chemical facilities, with direct connections to extensive shared infrastructure.

- Favourable energy pricing
- Potential to save up to 20% on capital costs through shared infrastructure.

- Buildings
- Logistics
- Pipelines
- Services
- Utilities
- Interconnections



# THE INCREMENTAL SHIFT TOWARDS NET-ZERO

- NOVA Chemicals exploring a chemical recycling of plastics projects with Plastic Energy.
- Imperials Oil exploring a chemical recycling of plastics project.
- Eastern Power building a hydrogen-ready cogeneration facility.
- Waste Management building a renewable natural gas facility.
- Enbridge exploring regional carbon sequestration potential and pilot opportunities.
- Autura Power proposed feasibility study for hydrogen production at former Lambton Generating Station site.

# NET-ZERO TRANSITION – WHAT DO WE NEED?

- Local buy-in and open collaboration
- Carbon sequestration legislation in Ontario
- Extension of carbon sequestration ITC's
- Extension of hydrogen ITC's
- Competitive incentive programs – long-term, open intake, high value, technology agnostic
- Clean, reliable, affordable and abundant electricity system



# THANK YOU!

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