



# Making choices: Investing in the Alberta bioeconomy

Dr. Stan Blade, Chief Executive Officer

Funded by the Government of Alberta



# Outline



- Why do anything different?
- Identify what makes your region unique
- Focus on existing industrial sector strengths
- Use research and innovation investments to build business relationships (risk mitigation)
- Connect with existing high level government policy direction
- Build on early success

# Alberta Industry drivers

- A need to be profitable
- Next generation economy opportunities
- Sustainable practices
- Greenhouse gas emissions
- Ecosystem adaptation to climate change
- Rural development
- Enhanced agricultural and forestry productivity
- Demographics/industry structure
- The need for innovation





# State of the Industry

- In 2011, agriculture in Alberta created \$10.5 billion of value for farmers
- Food and beverage manufacturing reached \$12.2 billion in 2011
- In 2011, Alberta's revenue from forest manufactured goods was \$2.6 billion

# Canadian Industry vision – CropLife Canada





# Alberta Industry Vision – Forestry

"What we need is change on a macro level, with a new forestry industry business model for a new future defined by growing and competing land uses and a need for innovation in a changing marketplace marked by growing environmental awareness."

Forest Industry Sustainability Committee (FISC) report,  
*Recommendations for Enhancing Alberta's Business Model.*



# Alberta Exports

## Alberta's Major Exports 2009 (\$ Billions)

Total Exports of Goods and Services: \$76.8 Billion\*

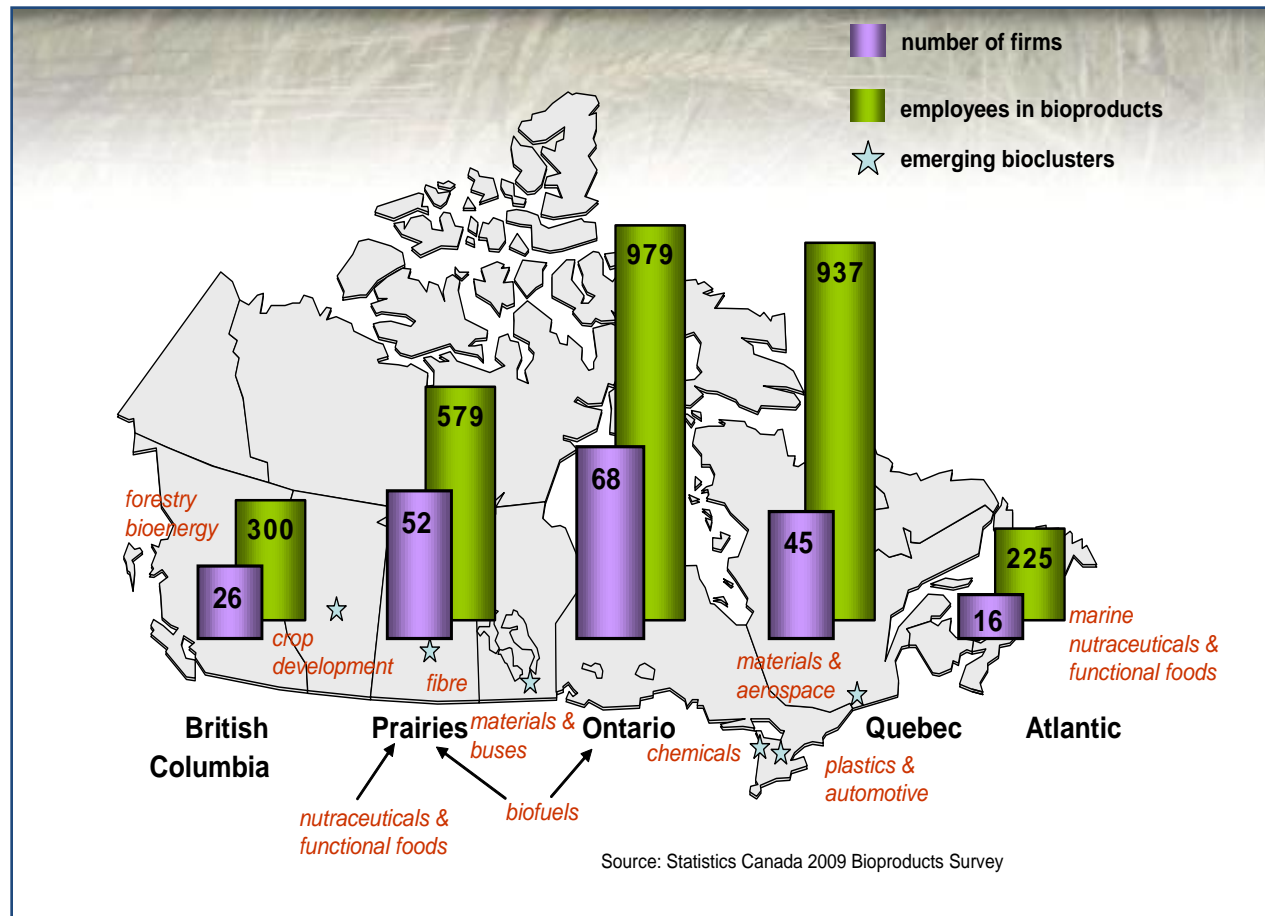
Crude Petroleum	30.7
Gas & Gas Liquids	14.2
Services*	7.7
Petrochemicals	5.4
Fabricated Metals & Machinery	4.6
Crops & Livestock	4.4
Processed Food & Beverages	3.0
Forestry Products	1.8
Refined Petroleum Products	1.3
Electronic & Electrical Products	0.8
Sulphur	0.7

\* Export of services amount is an estimate.

Sources: Statistics Canada and Alberta Finance and Enterprise



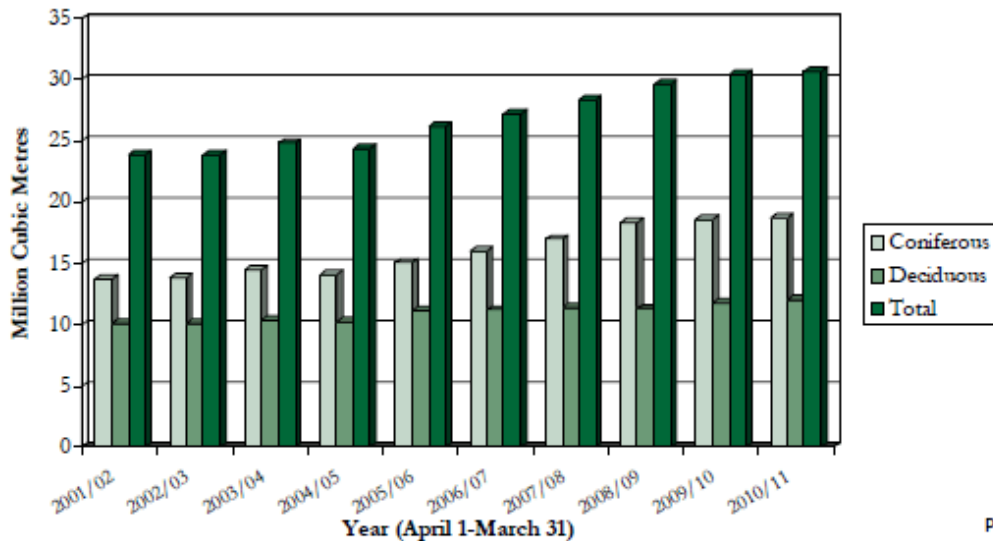
# Canadian bioclusters





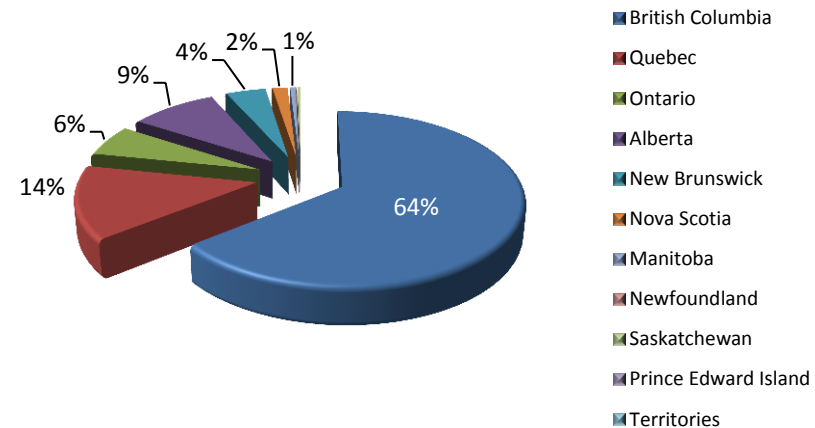
# Harvesting Alberta's Forests

Figure 6. Annual Allowable Cut in Alberta's Green Area, 2001-2011.



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## Canadian Forest Product Exports, 2008



We have mature, established industries....

**Alberta Farm  
Gate Value  
(2011)**

Product	Value (\$mil)
Beef	3,167
Canola	2,609
Wheat	1,596
Hogs	417
Dairy	504
Poultry	297
Pulses	266
Barley	236
Potatoes	153
Vegetables	202



Processing - \$12.2B

# *A Diversified Economy*



## Harvesting 21<sup>st</sup> Century Light

Maximizing the Value of our  
Biomass Resources

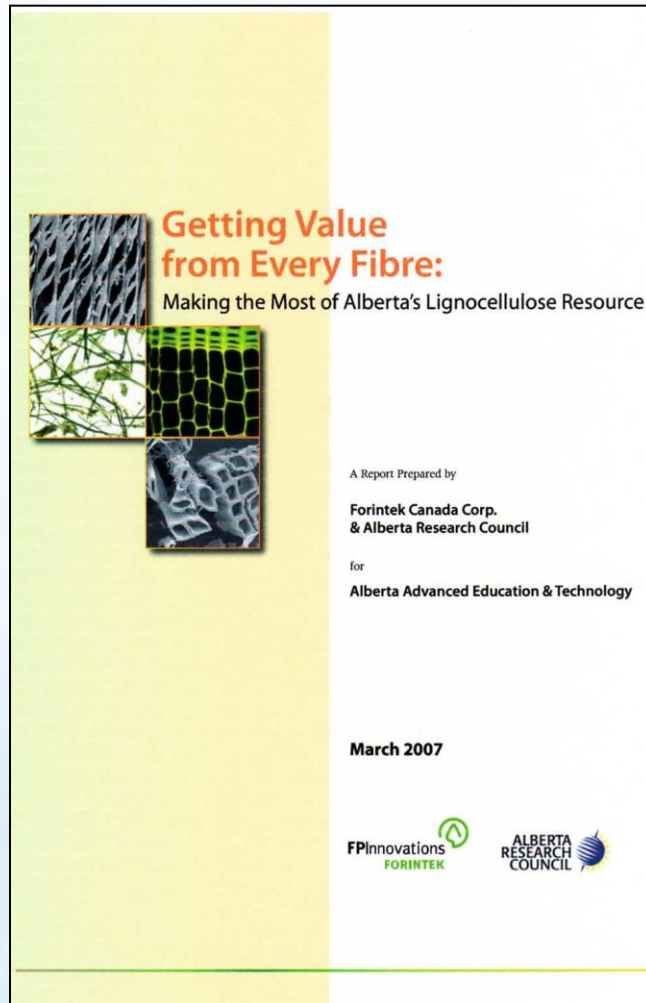
- Capturing the value of Alberta's biomass feedstocks by producing and delivering new environmentally responsible bio-based fuels, chemicals, materials, energy, health and food products.





## Focus actions around four key strategies:

1. **Clusters**-Building biorefineries and integrated lignocellulose industrial clusters
2. **Build on existing strength** - Transforming and sustaining the current lignocellulose-based industries
3. **Communities** - Sustaining and enhancing forest and agriculture based communities
4. **New companies** - Growing biocomposite, biomaterial and bioproduct companies



# Developing the Alberta bioeconomy

- Feedstock availability
- Building the bioeconomy is a private and public sector priority
- Unique facilities
- Conversion technology initiatives
- Bioproduct development opportunities
- Companies are investing
- Communities are engaged





# Feedstock Development



- Genomics: Improving fibre & crop characteristics through advanced, molecular technologies.
- Breeding: Developing new cultivars for improved agronomic performance (e.g. emergence, growth dynamics, disease resistance).
- Agronomy: Optimizing crop cultivation practices through scientific field trials (e.g. seeding dates/densities, fertilizer options, water usage, harvesting practices).





# Bioeconomy crops

Triticale



Hybrid Willow



Flax



Canola

# Bioconversions Network

The Biorefining Conversions Network (BCN), a research network based out of the University of Alberta, is focused on aligning local and global research communities in the area of biorefining conversion technologies.

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## Biorefining Conversions Network



- About Us
- Research Themes & Current Projects
- Network Members
- Get Involved
- Annual Strategic Retreat
- Media and Links
- Contact Us
- Join our mailing list



Changing the Nature of Biomass



### News



**Bioeconomy Alberta's Website Launched**  
April 18, 2011



**BCN will be at the 2011 World Congress on**

### BCN Events

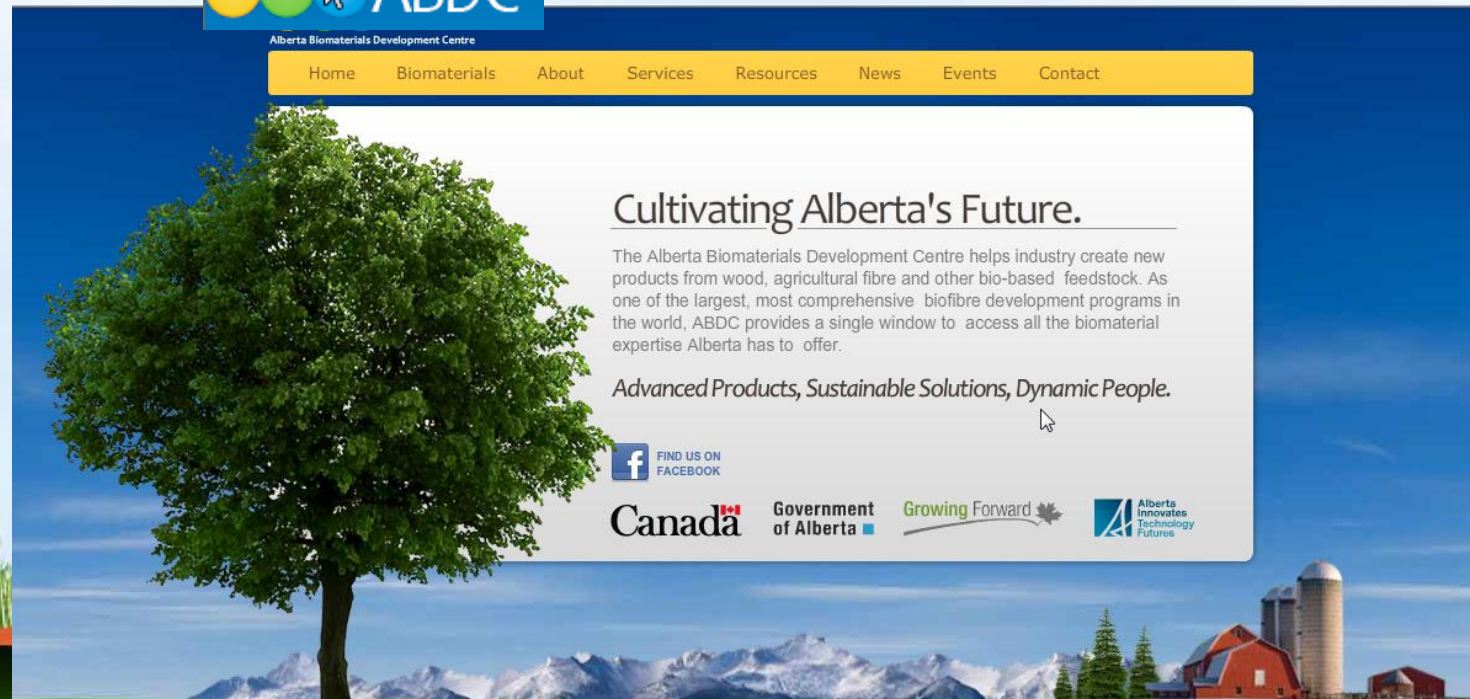
No upcoming events are currently scheduled.

[» More events](#)



# Alberta Biomaterial Development Centre - ABDC

- **ABDC is a newly formed provincial initiative with the mandate to establish Alberta as an innovation and commercialization leader in the growing field of agriculture and forestry based biomaterials.**





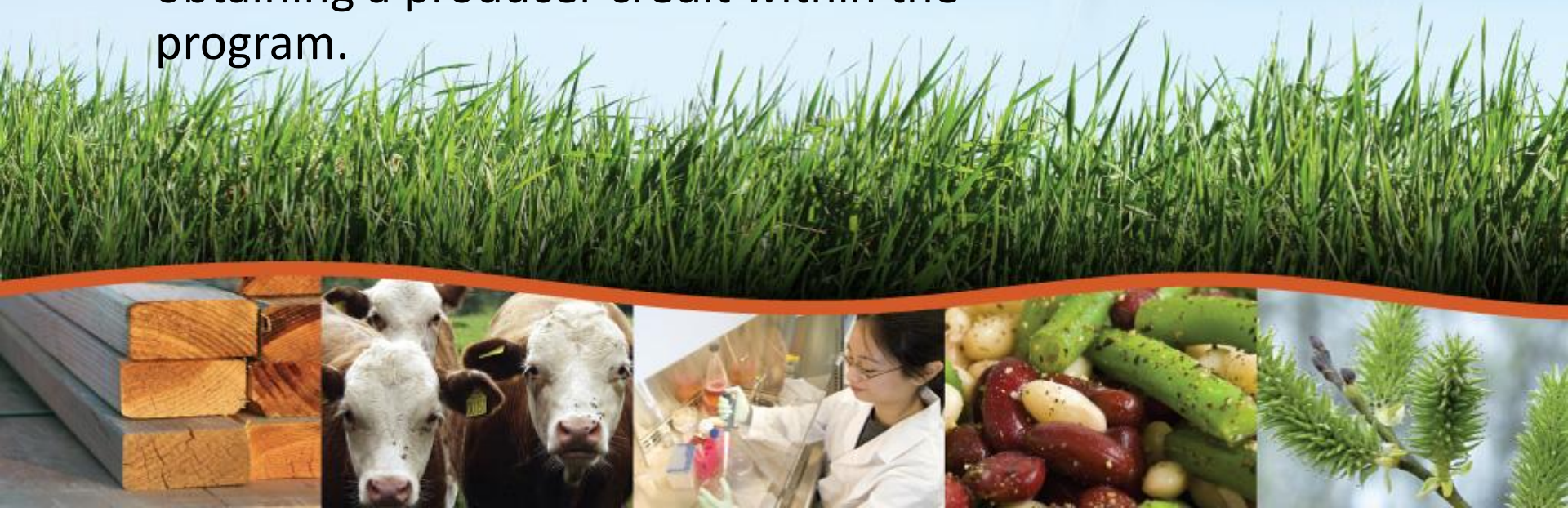
# Climate Change Strategy

- The Climate Change Strategy established the following targets for Alberta:
  - By 2020 -- Stabilize greenhouse gas emissions - 50 megatonne reduction
  - By 2050 -- emissions reduced 50 per cent below business as usual level. This equals 200 megatonnes, or 14 percent below 2005 levels.
- The initiation of the **Climate Change and Emissions Management Corporation** has resulted in \$300+ million (supported by \$15/tonne GHG) available to invest in clean technologies.



# Nine Point Bioenergy Plan

- The Nine Point Plan was developed in 2006 specifically to develop, expand and strengthen Alberta's bioenergy production capacity, as well as leverage industry funds on commercialization and capacity building.
- Industries have access to support feasibility, capital costs as well as obtaining a producer credit within the program.





# Alberta Innovates

- The focus is on areas where Alberta has a competitive advantage.
- Realigns provincially funded research and innovation into a cohesive, accessible system.
- Funds world-class research to support Government of Alberta priorities.
- Coordinates and supports investments required to solve major industry challenges.
- Provides research and innovation support.





# Alberta Innovates Bio Solutions: Business Plan Priorities

## Sustainable Production

- Market Driven Traits and Products
- Agriculture and Forest Sustainability

## Advancing the Bioeconomy

- New Conversion Processes
- New Products

## Quality Food for Health

- Products and Processes for Improved Wellbeing
- Food Safety

## Ecosystem Services

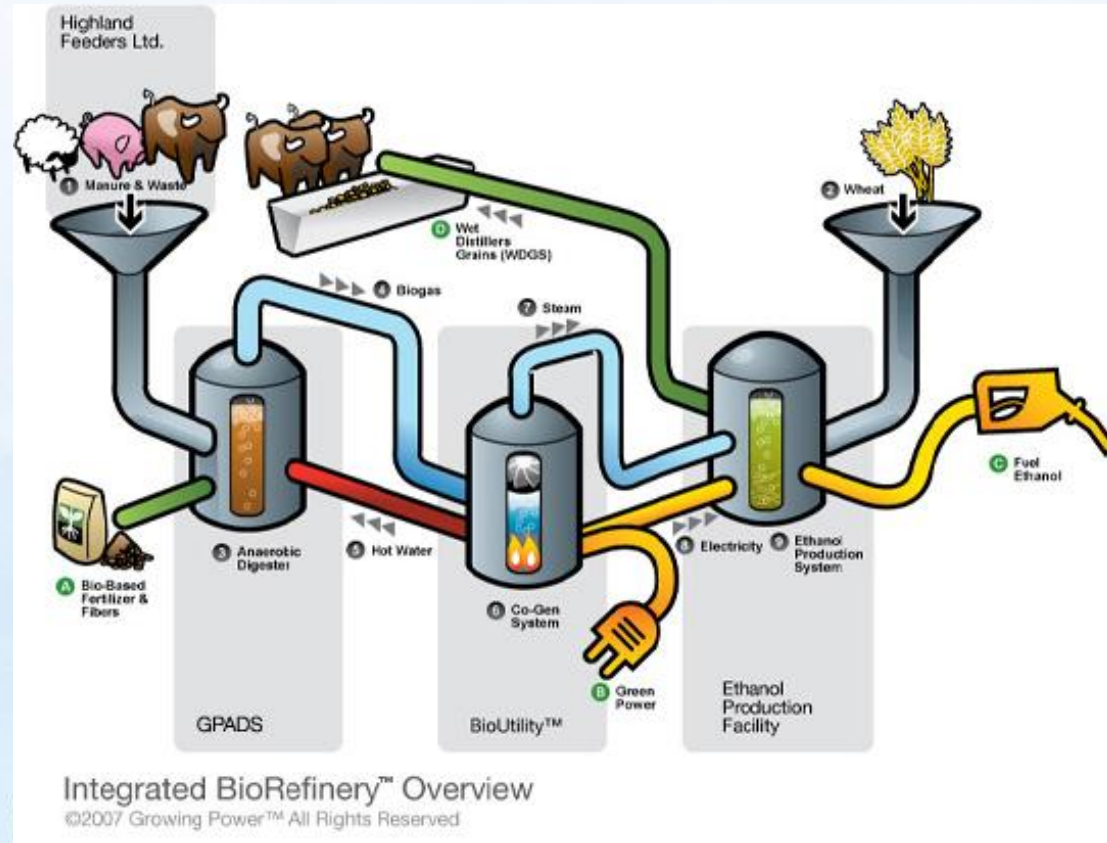
- Science-based Solutions for Immediate Industry Challenges
- Integrated Business Models

## Prion and Protein Misfolding Diseases

- Advancing Science and its Application
- Connections between Prion and Other Protein Misfolding Diseases

# Alberta private sector investment

## - Growing Power/Highmark Renewables



# Alberta private sector investment - Enerkem/City of Edmonton

- 25-year contractual agreement between City of Edmonton and Enerkem/GreenField Ethanol
- 100,000 tonnes / y of waste will be diverted from landfill. Edmonton will achieve 90% diversion rate.
- Enerkem and GreenField Ethanol will build, own and operate the plant. City of Edmonton will share profits (after CAPEX has been recovered).
- Will produce 36 million litres of ethanol per year
- Project will reduce CO2 footprint by 6 million tons over 25 years. CO2 credits and profits will be shared.





Permolex  
International, L.P.





# Community engagement





# BioE-a 10-year strategy

- Current state assessment
- Industry round table
- Development of an inventory database
- Interviews with 110 CEOs (energy, manufacturing, agriculture, forestry)
- Thought Leaders Forum





# Stanford Blade, Ph.D.

## Chief Executive Officer

Alberta Innovates - Bio Solutions

1800 Phipps McKinnon Building

10020-101A Avenue

Edmonton, Alberta Canada T5J 3G2

Telephone: (780) 427-0367

Fax: (780) 427-3252

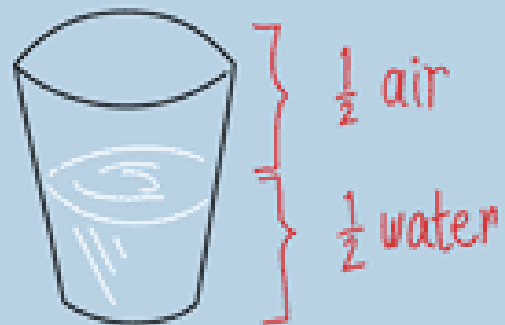
Email: [stan.blade@albertainnovates.ca](mailto:stan.blade@albertainnovates.ca)

Website: [www.albertainnovates.ca/bio](http://www.albertainnovates.ca/bio)



**Twitter: BioSolutionsCEO**





**technically, the glass  
is always full.**