Economic Diversification of Alberta through Bio-Industrial Innovation

Going Forward - Draft Strategic Approaches

Funded by the Government of Alberta
Acknowledgement of Inputs!

BioE Initiative Steering Committee:

• Alberta Innovates:
  – Bio Solutions
  – Energy & Environment
  – Technology Futures

• Alberta Research & Innovation Authority

• Alberta Gov’t Ministries:
  – Advanced Education & Technology
  – Agriculture & Rural Development
  – Energy
  – Environment & Water
  – Finance & Enterprise
  – Sustainable Resource Development
Acknowledgement of Inputs!

Stakeholders:

• Alberta based R&D Providers: (i.e.)
  – Biorefinery Conversions Network
  – Biomaterials Development Corp
  – Discovery Place
  – U of A (NINT)
• Industry (i.e.)
  – Agriculture
  – Bioproducts
  – Chemicals
  – Energy
  – Forestry
• Technology Providers
• Communities
• Municipal Waste Management
• Markets
Acknowledgement of Inputs!

Activities:

• Current State Assessment

• Retrospective Analysis
  – including Alberta’s Jurisdiction Advantage

• Bioresource Information Management System

• Innovation Thought Leaders Forum – You!
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- Collected inputs show common focus areas & influences:
  - Markets / Economics
  - Policy
  - Innovation
  - Environment
- Influences led to design of the four panel sessions
- Discussion over next 2 days is litmus test of draft strategic approaches.
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- **3 key areas** of bioindustrial innovation & development opportunities:
  - **In alignment** & directly supporting our **core engine** (oil & gas sector)
  - **Outside of the core engine** & in alignment with renewable resources (agriculture, forestry & municipal wastes)
  - A blend of **in & out** of the sphere of the core engine, where applicable.
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Overarching strategic approaches:

• Develop a clear vision
• Enhance Alberta’s innovation model
• Enhance public policy development and mechanisms
• Determine and support near-term priority market opportunities
• Create environmental entrepreneurship opportunities
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Develop a clear vision

• Stakeholders need to understand **Gov’t** has objectives, programs & **policies** that will **endure** & can be **relied upon** by the private sector for planning **investments** & **development**

• **Collaboration & alignment** across Gov’ts, sectors of **Gov’t** & agencies is critical for **success** ensuring complimentary efforts & captures synergistic opportunities
Enhance Alberta’s innovation model:
• Create a more simplified, focused and streamlined innovation system which:
  – Supports and drives a strong innovative business environment which rapidly deploys technologies, products and services
  – Solutions based relationships with industry and other clients
  – Promotes, supports and enables technology demonstration and commercialization through Public / Private Partnerships
• Create Centre of Excellence for Bio-Industry
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Enhance public policy development & mechanisms:

• The Gov’t has both an opportunity and a responsibility to use strong, clear policy in providing guidance, incentives and a level of certainty that industry and markets can respond to

• Policies need to be integrated, aligned and applied across all sectors for transformative change (from core research, to technology demonstration, to market creation and finally regulation)
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Determine & support near-term, mid term & longer term priority market opportunities:

- **Near term**, focus on bio-industrial opportunities within and through the core engine of Alberta’s energy sector:
  - Targeted product potentials are:
    - advanced materials,
    - environmental services,
    - waste management, and
    - biochemicals

Include a focus on developing regional industrial clusters to increase chances of success and provide local economic opportunities.
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Near term focus:

• Bio-industrial opportunities in providing solutions for energy sector’s environmental & waste management challenges:
  – Target strategic industry partners to facilitate industry support and uptake
  – With energy sector identify where bio-solutions can play commercial role in addressing needs & creating solutions

– Target the specific market opportunities already identified as having large opportunity:
  • feedstock logistics
  • CO2 sequestration & offsets
  • co-firing of biomass w/ coal
  • biopolymers & green fluids
  • Land remediation / abandonment services
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Near to mid term (outside of the core engine)

• Industry sustainability:
  – Input/utility self sufficiency
  – Unit cost reductions
  – Reduction of environmental footprint and meeting compliance changes
  – Waste liabilities

• Value-added:
  – Finding value from:
    • added conversion of same products,
    • creating value from slip streams,
    • modifying core product to add value.

• Waste Management:
  – Converting cost center to a profit center
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Longer term

• Focus on higher value bioindustrial products in:
  – Biochemicals
  – Biomaterials
  – Bioenergy

• Will require endurance and patient capital and innovation support, planned over 20 years.

• Will also require deliberate & intentional analysis.
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Longer term focus:
- Accept challenge to **develop opportunities outside of the core engine** of the economy:
- Use evidence-based analysis to **understand** fundamental economic/commercial issues,
- Working with industry, ensure all **policy barriers** associated with the bio-industrial innovation system are **identified & removed**
- Focus on building world-class globally connected expertise & **research** capacity:
- Develop **“pan-western Canadian” strategy** to take advantage of synergies in provinces economic & strategic bio-industrial opportunities
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Create environmental entrepreneurship opportunities:

- Enable a voluntary approach for communities to set **zero waste goal** with appropriate policies & program support
- Support creation of **new markets** (local, regional & global) where ecosystem services & health can be valued.
Create environmental entrepreneurship opportunities:

• Identify **specific areas** where bio-industrial applications can offer marketable environmental solutions for **AB’s energy sector**

• Partner with suppliers, consumers, & NGOs to establish process & standards to enable environmentally sound “**green certification**”
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0 – 10 years
Economic diversification within Alberta’s core economic engine, the energy sector, through Bio-industrial innovation & environmental services

5- 20 years
Economic diversification within Alberta’s agriculture and forestry sectors, through value-added opportunities in biochemicals, biomaterials and integrated bioenergy projects.

0 – 20 years
Competitive, profitable, sustainable renewable resource industries.
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Questions?

Thank You!

BioE Initiative

Secretariat