NRCan Clean Growth Program – Alberta

Webinar

InnoTech Alberta

Programs/Facilities

January 3, 2018

InnoTech ALBERTA

InnoTech Alberta

- A wholly owned subsidiary of Alberta Innovates
- Was established for the purpose of carrying out applied research activities
- Over 310 research, engineering & support staff (140 PhDs or Masters)
- $118 million investment in innovation infrastructure including:
  - Over one million sq. ft. of research and lab space
  - Over 600 acres of farmland for research and testing
- 550 clients in 2016-17 including 200 new clients
- 286 active technologies including 133 patents

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Primary Locations

InnoTech Programs/Facilities

- Experience in operating multi-stakeholder, multi-delivery agency programs, e.g: Carbonate Research Program, Aboriginal Environmental Services Network (AESN), Alberta Manufacturing & Fabrication Innovation (AMFI)
- Experience in operating pilot scale facilities, e.g.: Terrestrial Mesocosms, Water Treatment Systems (evaporator, flash cooling, membrane)
- Facilities suitable for controlled release testing (Vegreville)
- Support services for program execution, e.g.: analytical, machine shop, contract administration

Anaerobic Digestion-Composting Process for Smaller Municipalities

Program

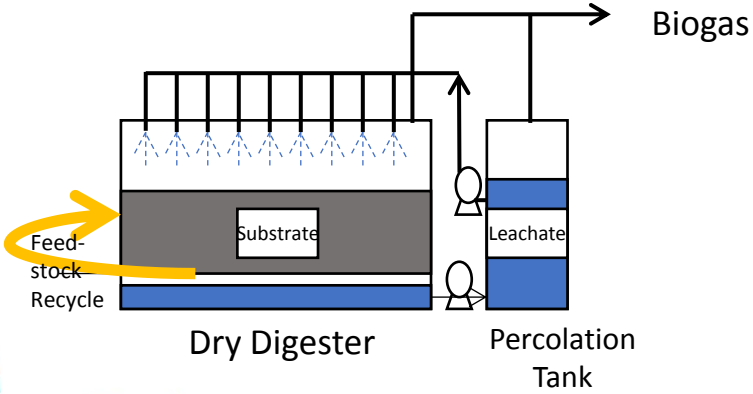
- Conversion of waste to value-added products
- Increase value of low value or waste biomass materials for waste-to-energy & soil amendments

Facilities

- Dry anaerobic digestion
- Pilot scale processing

Connection to Clean Growth

- Improved waste management
- Improving efficient energy use and productivity



Fermentation Facility

Program

- Fermentation processes need to be optimized and scaled for the products to be commercialized
- Working on potential partnership with NRC and SRC to provide stage-gated testing capabilities at appropriate scale

Facilities

- Investment of greater than $18m
- Largest reactor is 10,000L
  - NRC: 1500L
  - SRC: 300L

Connection to Clean Growth

- Supporting production and use of bio-products

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Materials and Reliability in Oil Sands

MARIOS
Materials & Reliability in Oil Sands

Program

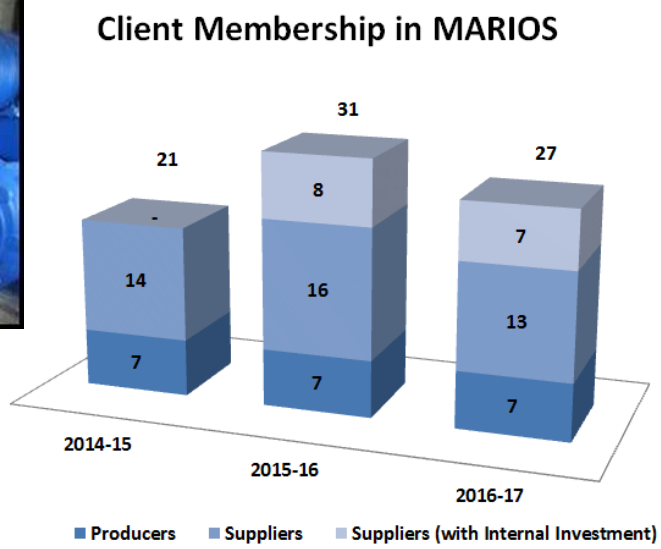
- Consortium managed by InnoTech bringing suppliers and end users together
- Collaboration to tackle issues in oil sands industry
- Directed by oil sands sector

Facilities

- Slurry flow loop
- Materials lab
- Pipeline pig testing

Connection to Clean Growth

- Increased reliability will result in reduced environmental impacts



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Aquatic Mesocosms

Program

- A 5-year research agreement with COSIA
- Provides capability to examine the design and performance of end pit lakes tailings remediation strategies

Facilities

- InnoTech invested $1.3M in capital (30 mesocosms and supporting infrastructure)

Connection to Clean Growth

- Potential to minimize landscape disturbance
- Improved waste management
- Potential to carry out emission monitoring and development of monitoring technologies

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Alberta Carbon Conversion Technology Centre (ACCTC)

- Program
  - The goal is to accelerate GHG emission reductions within the Oil and Gas, and other industries, and to develop products by using CO_2 waste.
  - Test and advance CO_2 capture and conversion technologies ***in real-life conditions and within a commercial scale environment.***
  - Collaboration with multiple stakeholders to move technologies along development path: COSIA, NRCan, Economic Development & Trade, Emissions Reduction Alberta, Carbon Management Canada

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Alberta Carbon Conversion Technology Centre (ACCTC) (continued)

- Facilities
  - 10-year time frame with first 2 years dedicated to the COSIA NRG Carbon XPRIZE competition
  - Funding from NRCan and GoA to develop the facility adjacent to the Shepard Energy Centre in Calgary
  - InnoTech Alberta will be the owner/operator

- Connection to Clean Growth
  - Advancement of GHG emission reduction technologies
  - Improving waste management
  - Potentially supporting production of novel advanced materials

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Summary – Programs/Facilities

Programs

- Internationally recognized scientific capacity
- Issues-focused applied research experience
- Flexibility in working with multiple stakeholders
- Flexibility in program delivery

Facilities

- Scale and types of facilities: Cellulose Nanocrystal (CNC) Pilot Plant, Decortication Pilot Plant, Fibre Panel Test Facility

Connection to Clean Growth

- Established capacity for existing or new initiatives

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