

## SPARK 2017

### Connecting Innovators, Advancing Technology

Edmonton, Alberta

November 6 – 8, 2017

As of September 13, 2017

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#### Monday, November 6, 2017

5:30 – 7:30pm Registration & Networking Reception

#### Tuesday, November 7, 2017

8:00am Registration

8:30 – 9:00am

##### **Conference Opening / Welcome**

Steve MacDonald, Chief Executive Officer, Emissions Reduction Alberta (ERA)  
Laura Kilcrease, Chief Executive Officer, Alberta Innovates

9:00 – 10:00am

##### **Keynote Presentation - SEEING THROUGH COMPLEXITY: Innovating in a world under stress**

*What are the risks and opportunities that will affect how societies, communities, and companies innovate in coming years? The talk will pinpoint a set of linked large-scale stresses that will powerfully shape innovation pathways in the next decade—including climate change, the energy transition, rapid urbanization, chronic low growth, and political instability. It will also identify some likely areas of technological breakthrough that will create genuine and perhaps surprising opportunities for innovation.*

*Moderator:* Steve Price, Executive Director, Bioindustrial Innovation, Alberta Innovates  
Thomas Homer-Dixon, Chairman, Global Systems, Balsillie School of International Affairs

10:00 – 10:30am

Networking Break

10:30 – 11:30am

##### **Plenary Panel – Where Money and Ideas Meet**

*What are the new, innovative funding approaches under development and how we can leverage global efforts to fund clean tech in Alberta?*

*Moderator:* Brenda Kenny, Vice Chair, Emissions Reduction Alberta (ERA)  
Kristina Williams, President and CEO, Alberta Enterprise Corp.  
Tony Van Bommel, Senior Managing Partner, BDC Capital, Industrial, Clean and Energy Technology Fund

11:30am – 12:00pm

Lunch

12:00 – 12:45pm

Innovation Showcase

12:45 – 2:00pm

**Breakout Session #1**

STREAM A	STREAM B	STREAM C	STREAM D	STREAM E
<p><b><u>1.1– Technology Development to Measure and Enhance Sustainability in Biological Systems</u></b>  <i>What technologies can be used to measure or enhance sustainable practices in biological systems?</i></p> <p><i>Moderator:</i> Susan Wood-Bohm, President and CEO, Wood-Bohm and Associates</p> <p>David Layzell, Director, Canadian Energy Systems Analysis Research (CESAR) Initiative</p> <p>Cameron Carlyle, Assistant Professor, Faculty of Agricultural, Life &amp; Environmental Sciences, Agricultural Food and Nutritional Science, University of Alberta</p> <p>Alison Sunstrom, CEO, GrowSafe Systems Ltd.</p>	<p><b><u>2.1 – Finding The Sweet Spot for your Technology</u></b>  <i>How do you find the right market/fit for a new technology? When is it time to change course?</i></p> <p><i>Moderator:</i> Chris Reid, Director, Institute for Breakthrough Energy and Emission Technology (IBET)</p> <p>Joel Cherry, President, R&amp;D Amyris Inc.</p> <p>Zoe Kolbuc, Director Stakeholder Engagement, Sustainable Development Technology Canada (SDTC)</p> <p>Iggy Domagalski, CEO, Tundra Process Solutions</p>	<p><b><u>3.1 – Financing and Funding Models to Advance Innovation</u></b>  <i>How can innovators access funding to optimize and commercialize technology once it has been proven at the demonstration scale?</i></p> <p><i>Moderator:</i> Bruce Edgelow, Managing Director, Debt Capital Markets, Amnius Capital Partners</p> <p>Nate Glubish, Investment Manager, Yaletown</p> <p>Marty Reed, CEO, Evok Innovations</p>	<p><b><u>4.1 – Digital Solutions for Advancing Clean Technology</u></b>  <i>Why are data, sensors and other measurement tools the next big thing in meeting GHG emission reduction and other environmental targets? How are they being applied?</i></p> <p><i>Moderator:</i> John Brown, Assistant Deputy Minister, Economic Development and Trade, Government of Alberta</p> <p>Kevin Lo, Vice President, Pason Systems</p> <p>Remi Schmaltz, CEO, Decisive Farming Corp.</p> <p>Gandeephan Ganeshalingam, Chief Innovation Officer, GE Canada</p>	<p><b><u>5.1 – Bioindustrial Development and Biological GHG Emissions</u></b>  Next Generation of Landfill Diversion: Transforming Solid Waste into Zero-Carbon Oil using Hydrothermal Liquifaction  <i>Presented by:</i> Jerry Kristian, Co-Founder, NULIFE GreenTech</p> <p>Valorization of Biofuel Byproducts  <i>Presented by:</i> Shawn Samborsky, Project Director, KBL Environmental Ltd.</p> <p>Canola Based Spray Foam insulation  <i>Presented by:</i> Mehr Nikoo, Lead Process Engineer, Oleofoam Inc.</p> <p>Yield-based Nitrous Oxide Emissions as affected by Nitrogen Fertilization in Wheat: Application Timing and Fertilizer Types  <i>Presented by:</i> Shakila Ekanayaka Mudiyanse, Graduate Student, Department of Renewable Resources, University of Alberta</p>

				The Road to Carbon Neutral Beef – Large Scale Demonstration Pilot of the Clean Cow Compound <i>Presented by:</i> Karen Haugen-Kozyra, President, Viresco Solutions
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2:00 – 2:15pm

Short Break – Room Change

2:15 – 3:30pm

**Breakout Session #2**

STREAM A	STREAM B	STREAM C	STREAM D	STREAM E
<p><b><u>1.2 – What’s New in Biomaterials, Biochemicals and Bioenergy</u></b> <i>What are the new biomaterial, biochemical and bioenergy products and technologies, and how can they provide an environmental benefit?</i></p> <p><i>Moderator:</i> Warren Mabee, Associate Professor and Department Head of Geography, Queens University</p> <p>Jonathan Curtis, Scientific Director, Lipid Chemistry Group, University of Alberta</p> <p>Dan Madlung, President and CEO, BioComposites Group</p>	<p><b><u>2.2 – Carbon Conversion Technologies and Opportunities for Alberta to Lead</u></b> <i>What are some of the leading carbon conversion technologies that will move us toward Alberta and world climate change goals? Where are the opportunities for researchers and innovators as Alberta advances development of these technologies?</i></p> <p><i>Moderator:</i> Mark Summers, Executive Director, Technology and Innovation at Emissions Reduction Alberta (ERA)</p>	<p><b><u>3.2 – Governments as Customers for Innovations</u></b> <i>How can you target governments as a first market or first customer for new technology? What are governments looking for and where are the best opportunities?</i></p> <p><i>Moderator:</i> David Lynch, General Manager, Research and Development Enerkem</p> <p>Kevin Turner, Regional Director, Office of Small and Medium Enterprises, Western Region, Public Services and Procurement Canada (PSPC)</p>	<p><b><u>4.2 – Jumping Over the Gaps and Barriers to Adopt New Technologies</u></b> <i>What are the pinch points or bottlenecks that slow the development and adoption of new technologies and what are the solutions?</i></p> <p><i>Moderator:</i> Rus Matichuk, Vice President, Rohit Capital, Rohit Group</p> <p>David Bressler, Professor, Agricultural, Life and Environmental Sciences Agricultural Food and Nutritional Science, University of Alberta</p>	<p><b><u>5.2 – Industrial Processes and Energy Efficiency</u></b> <i>Robust Model Predictive Control of an Energy-efficient HVAC System</i> <i>Presented by:</i> Mehran Mehrandezh, Professor, University of Regina</p> <p><i>Conversion of Waste CO2 to Value Added Products Using Renewable Energy</i> <i>Presented by:</i> Beatriz Molero-Sanchez, Postdoctoral Fellow, University of Calgary</p> <p><i>Effect of Acid Hydrolysis Reaction Conditions on CNC Isolation from Enzymes-treated Wood Pulp</i> <i>Presented by:</i> Dawit Beyene, PhD Candidate, University of Alberta</p> <p><i>Carbon UpCycling Technologies - Making CO2 Green</i></p>

Bernhard Seifried Senior Research Scientist, Ceapro Inc.	Apoorv Sinha, CEO, Founder, Carbon Upcycling Technologies	Sandy Marshall, Executive Director, Bioindustrial Innovation Canada	Rebecca Boudreaux, President & Board Director, Oberon Fuels	<i>Presented by:</i> Mark Montemurro, CEO, Carobon Upcycling Technologies Ltd.
	Harold Krenkel, Manager, Processing Technologies, InnoTech Alberta	Soumya Ghosh, Director, Smart City, City of Edmonton	Stephen Kaufman, General Manager, Corporate Technology, Suncor	EPI Refinery Cryostrip <i>Presented by:</i> Jose Lourenco, President, Expansion Power Inc.
	Issam Dairanieh, CEO, Global CO2 Initiatives			
	Robert Niven, CEO & Founder, CarbonCure Technologies			

3:30 – 4:00pm

Networking Break

4:00 – 5:00pm

**Plenary Panel – What Does the Marketplace Want?**

*What clean tech challenges are confronting Alberta’s biggest industry sectors? How can the research and innovation community better understand and address market needs?*

*Moderator:* Kathleen Sendall, Corporate Director, Enmax Corporation / Board Chair, Emissions Reduction Alberta

Dan Wicklum, Chief Executive, Canada’s Oil Sands Innovation Alliance (COSIA)

Linda Coady, Chief Sustainability Officer, Enbridge

Michael Crothers, President and Canada Country Chair, Executive Vice President, Oil Sands, Shell Canada

5:00 – 7:00pm

Networking Reception & Innovation Showcase

## Wednesday, November 8, 2017

8:00am	Registration
8:30am	Opening Remarks
8:45 – 9:45am	<p><b>Plenary Panel – Opportunities for Innovators Today and Tomorrow</b>  <i>Global leaders will explore how Alberta can transition to a lower carbon future and the opportunities that exist for innovators who can help the province meet decarbonization goals.</i></p> <p>Speakers to be confirmed</p>
9:45 – 10:15am	Networking Break
10:15 – 11:30am	<b>Breakout Session #3</b>

STREAM A	STREAM B	STREAM C	STREAM D	STREAM E
<p><b><u>1.3 – Biological Solutions for Transportation Products, Policy and the Future</u></b>  <i>What are the policies or incentives that have been successful in encouraging a move to lower carbon transportation fuels?</i></p> <p>Moderator: Warren Mabee, Associate Professor and Department Head of Geography, Queens University</p> <p>Geoffrey Tauvette, Director, Fuel &amp; Environment, WestJet</p>	<p><b><u>2.3 – Exploring Solutions for Transforming the Power Grid</u></b>  <i>What policy and technical barriers need to be addressed to transform Alberta’s power grid and maximize adoption of renewable energy and other technologies that can reduce GHG emissions? Where do co-firing technologies, material switching and co-gen fit into the electricity system? Where are the best opportunities for researchers and innovators?</i></p>	<p><b><u>3.3 – Policy Driving Innovation</u></b>  <i>How is Alberta’s Climate Leadership Plan creating opportunities for complementary programs that support climate goals? What opportunities are there for innovators as a result of policy initiatives, like the oilsands GHG emissions limit and output-based allocations?</i></p> <p>Moderator: Eric Denhoff, Deputy Minister, Climate</p>	<p><b><u>4.3 – Building A Stronger Business</u></b>  <i>Advancing innovative technology requires tremendous attention and sometimes the business side of your operations needs additional support. How do you know when it is time to bring in help from the outside? How soon do you need to start looking for your first customer? How do you determine when it’s time to start looking for funding?</i></p>	<p><b><u>5.3 – Reducing GHG Footprint from Fossil Fuels</u></b>            Newly patented - In-Pipe Turbine Generator (IPTG)  <i>Presented by:</i> Bruce Kaiser, President, Tazman Turbinz</p> <p>Membrane Technology Assessment Program (MTAP) at NAIT’s Centre for Oil Sands Sustainability  <i>Presented by:</i> Hamed Mahdavi, Water Technology Development Engineer, NAIT</p> <p>Advanced Catalysis and Process for Green Chemicals Production</p>

<p>Dawn Fenton, Director, Sustainability &amp; Public Affairs, Volvo</p> <p>Jack Saddler, Task Leader, IEA Bioenergy Task 39, Liquid Biofuels, University of British Columbia</p>	<p><i>Moderator:</i> Heather Campbell, Procurement Development Manager, Alberta Electric System Operator (AESO)</p> <p>Kate Chisholm, Senior Vice President, Legal and External Relations, Capital Power</p> <p>Dan Chapman, Director, Business Development and Projects, NRStor Inc.</p>	<p>Change Office, Government of Alberta</p> <p>Don Roberts, CEO, Nawitka Capital Advisors Ltd.</p> <p>Adrian Banica, EIR Business Development, TEC Edmonton</p> <p>Meera Nathwani-Crowe Manager, Technology and Innovation, Canadian Natural Resources Limited (CNRL)</p>	<p><i>Moderator:</i> Jane Halford, Co-Founder, BOLT Transition, and President, Halford Consulting Inc.</p> <p>Joe Martini, Director, GE Innovation Centre, Zone Startups Calgary</p> <p>James Szarko, President &amp; CEO, Botaneco</p> <p>Tim Haig, CEO, Forge Hydrocarbons Corp.</p>	<p><i>Presented by:</i> David Lynch, Research &amp; Development Manager, Enerkem</p> <p>Demonstration of Near Zero Emission Well Control System <i>Presented by:</i> Calum Chisholm, CEO, SAFCell</p> <p>Myths of Collaboration <i>Presented by:</i> Bryan Helfenbaum, Manager, Technology, Devon Canada</p>
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11:30am – 12:00pm

Lunch

12:00 – 12:45pm

Innovation Showcase

12:45 – 2:00pm

**Breakout Session #4**

STREAM A	STREAM B	STREAM C	STREAM D	STREAM E
<p><b><u>1.4 – What’s Creating Biobuzz – Feedstocks and Conversion</u></b> <i>What are some of the leading technologies to address methane emissions and where are the best opportunities for Alberta’s innovators to advance technologies that will have a growing global market?</i></p>	<p><b><u>2.4 Exploring Cleantech Directions – State of the Industry in Alberta</u></b> <i>This panel of experts will share their views, perspectives and learnings from the latest survey results and their participation in the 2018 Cleantech Directions Report, which focuses on advancing innovation in Alberta.</i></p>	<p><b><u>3.4 – Accessing Investments to Scale Up Technology in Canada’s Oil Sands</u></b> <i>Given the magnitude of investment required to scale up GHG-reducing technologies in Canada’s oil sands, how can researchers and innovators advance technologies for the sector? How can innovators de-risk technology for the oil</i></p>	<p><b><u>4.4 – Gaining Public Acceptance for New Technologies</u></b> <i>Innovation is not always readily accepted. What are some approaches companies have taken to garner public acceptance for new technologies or business practices they</i></p>	<p><b><u>5.4 – Low-Emitting Electricity Supply</u></b> <i>Emissions Reduction Potential from Micro Combined Heat and Power Presented by: Imad Khaled, Senior Engineer, Research &amp; Innovation, ATCO</i></p> <p>Development of LEAP-WEAP integrated model for assessment of water and GHG footprints for Power</p>

<p><i>Moderator:</i> Christine Murray, Director, Agricultural Technologies, Alberta Innovates</p> <p>Amy Taylor, Chief Operations Officer, Green Analytics</p> <p>Paolo Mussone, Applied Bio/Nanotechnology Industrial Research Chair, NAIT</p> <p>Kevin Vessey, Professor, Plant Biology, St. Mary's University</p>	<p>Speakers to be confirmed</p>	<p><i>sands? Why are some technologies able to attract investment and scale up?</i></p> <p><i>Moderator:</i> Dave Collyer, President, Collyer Business Consulting Inc.</p> <p>Joe Kuhach, CEO, Nsolv</p> <p>Craig Stenhouse, Manager, Canada's Oil Sands Innovation Alliance (COSIA), Cenovus Energy</p>	<p><i>have developed or introduced?</i></p> <p><i>Moderator:</i> Vic Adamowicz, Professor, University of Alberta</p> <p>Judith Sayers, Board of Directors, Clean Energy BC</p> <p>Doug Beever, Senior Director, Sustainability &amp; Stakeholder Relations, Agrium</p> <p>Veronica Bliska, Councillor, Municipal District of Peace No. 135</p>	<p>Generation Sector <i>Presented by:</i> Ankit Gupta, Student, University of Alberta</p> <p>Waste Heat Recovery Power Generation <i>Presented by:</i> Colin Duncan, Director of Business Development, Ormat Technologies Inc.</p> <p>Pressurized Combustion of Hydrogen and Oxygen for Low-Cost, Zero-Emissions Energy Storage <i>Presented by:</i> Rebecca Hollis, Business Development Manager, Clean Energy Systems Inc.</p> <p>Edmonton's Electric Vehicle Strategy <i>Presented by:</i> Howaida Hassan, Senior Environment Project Manager, City of Edmonton</p>
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2:00 – 2:30pm

Networking Break

2:30 – 3:30pm

**Plenary Panel – Advancing Innovation around the World**

*What solutions have been effective in driving clean technology innovation around the world? Can we apply lessons from other jurisdictions to find complete solutions that will advance technology more quickly in Alberta and Canada?*

*Moderator:* Celine Bak, President, Analytica Advisors

Laura Kilcrease, Chief Executive Officer, Alberta Innovates

Oryssia Lennie, Board Chair, The Alberta Research and Innovation Advisory Committee (ARIAC)

3:30 – 3:45pm

Closing