

SPARK
SPEAKER SERIES



UNIVERSITY OF
CALGARY

ALBERTA'S ENERGY FUTURE

ONLINE JUNE 16, 23, 30
9:00 - 10:30 AM

PRESENTED BY:



THE SCHOOL
OF PUBLIC POLICY

HASKAYNE
SCHOOL OF BUSINESS



What We Heard Report

TABLE OF CONTENTS

EVENT OVERVIEW.....3

SESSION DESCRIPTIONS.....3

WHAT WE HEARD SUMMARIES.....4

Session 1 – Keynote Conversation.....4

Session 2 – Panel Discussion, Industry and Technology Perspectives.....6

Session 3 – Panel Discussion, Beyond Technology Perspectives.....8

Summary of common themes.....9

EVENT OVERVIEW

Alberta is facing significant uncertainty and disruption due to the COVID-19 pandemic, the decline in global oil prices, and the resulting instability in financial markets and economies around the world. Alberta must respond to these near-term challenges, while also identifying opportunities and solutions for long-term sustainable economic recovery, investment attraction, and growth. The inaugural Spark Speaker Series event, Alberta's Energy Future, delivered in partnership with the University of Calgary's Haskayne School of Business and School of Public Policy, highlights the actions and opportunities for the short term, while focusing on the long-term sustainability of the province's energy future.

Objectives:

- Discuss what energy markets will look like as the world recovers from the economic impacts of COVID-19 and the oil price crisis
- Identify short-term opportunities to enable medium- and long-term recovery
- Validate that Albertans remain committed to taking action to reduce emissions in the energy sector AND rebuild the economy
- Share compelling stories about learnings, successes, and strategies for the future
- Host a positive, solutions- and action-oriented conversation about the path forward.

Approximately 100 participants joined each of the three online sessions. These sessions included a keynote conversation, panel discussion, and a Q&A with the speakers. Following each session, participants were invited to join a 30-minute breakout discussion to further connect and explore the topics in the series. Participants were divided into groups and asked to respond to a series of facilitated questions.

SESSION DESCRIPTIONS

Session 1: Tuesday, June 16, 2020

Keynote Conversation (9 to 10:30 a.m. MT)

Kathy Bardswick, CEO of the [Canadian Institute for Climate Choices](#), and Al Reid, Executive Vice-President Stakeholder Engagement, Safety, Legal & General Counsel, for [Cenovus Energy](#), provided a frank discussion about the threats and opportunities of the current crisis and what a sustainable economic recovery looks like for Alberta's energy sector.

Session 2: Tuesday, June 23, 2020

Panel Discussion: Industry & Technology Perspectives (9 to 10:30 a.m. MT)

What are the near-term technology opportunities that will enable an economic recovery in the energy sector? What are the longer-term innovations that will keep us on track to meet our 2050 goals? What has changed as a result of the crisis? What remains the same? Leading experts discussed innovation and technology and explored these key questions for Alberta's energy future. The panel involved:

- Dr. Elizabeth Cannon, President Emerita & Professor, Geomatics Engineering, University of Calgary (moderator)
- Jon Mitchell, Vice President, Sustainability, Suncor
- Scott Nelson, President & CEO, Titanium Corporation
- Grant Strem, Chairman & CEO, Proton Technologies
- Dr. Harrie Vredenburg, Suncor Energy Chair, Professor, Haskayne School of Business, University of Calgary.

Session 3: Tuesday, June 30, 2020

Panel Discussion: Beyond Technology Perspectives (9 to 10:30 a.m. MT)

What are the roles of policymakers, investors, and other key stakeholders in enabling the clean energy innovation ecosystem to be part of a sustainable economic recovery? What are the short-term opportunities for changes in the current economic environment? How can we enable longer-term economic and environmental sustainability? This expert panel shared perspectives on factors beyond technology innovation required for the success of Alberta's energy future. Experts included:

- Chad Park, Vice President, Sustainability and Citizenship, The Cooperators / Founding Director, Energy Futures Lab (moderator)
- Jonathan Hackett, Managing Director & Head of Sustainable Finance, BMO Financial Group
- Jennifer Winter, Assistant Professor and Scientific Director, Energy and Environment Policy research division, School of Public Policy, University of Calgary
- David James, Associate Deputy Minister, Natural Gas, Government of Alberta.

WHAT WE HEARD SUMMARIES

Session 1 - Keynote Conversation: Discussion summary

In their Keynote Conversation, Kathy Bardswick, from the Canadian Institute for Climate Choices, and Al Reid, from Cenovus Energy, discussed increased global demand for energy coinciding with the need to reduce greenhouse gas emissions. Future energy scenarios show a long-term demand for hydrocarbons. This will require Alberta—with its abundance of natural resources, technological and engineering expertise, and innovative and entrepreneurial spirit—to play a leadership role for Canada to find a prosperous role in that journey to a low carbon future.

While complex and uncertain, key technology pathways, including CCUS and hydrogen, represent an opportunity in this space. However, the cost of these technologies is a barrier. These innovations will need to come with incentives from government through policies that can help accelerate the development and the adoption of critical technologies, and investment to help get these technologies off the lab bench, into the field and commercialised broadly. This will help maintain Canada's competitiveness in a global market and establish it as a low emissions leader. It requires a unified vision for clean energy—something that can only be created without partisanship and rhetoric.

The economic impact of COVID-19 and the global oil price collapse is big. Debt is building up quickly and industry will play a key role in long-term recovery. Policies will need to be put in place that help create vibrant industries that utilize Canada's natural resources and resource development skillsets—there is no solution to climate change that does not involve the oil and gas industry.

Session 1 - Keynote Conversation: Breakout questions and summary of the discussions

1) What is the SINGLE most IMPORTANT or SURPRISING thing you heard this morning?

Three main themes emerged across the breakout sessions that participants identified as important and/or surprising.

Education/communication: The need to continue to communicate and find new ways to educate Canadians outside the energy industry is important. There is discrepancy in understanding and awareness of industry efforts—particularly with those groups/people less exposed to the oil and gas industry. The notion that Alberta is making an effort, and is making progress to reduce GHGs and develop energy in a more responsible/sustainable way, is being lost or overshadowed. Continued

education could reduce the conflict that leads to polarization and a divisive “us versus them” mentality. Alberta has had some success in the past (e.g., AOSTRA¹).

Transition to a low carbon economy: Energy is, and will continue to be, important. The world needs energy. To transition we must build on Alberta’s strengths—natural resources, technological and engineering expertise, and innovative entrepreneurial spirit. As Canadians, we need to do more to understand what the notion of a “transition” looks like; we don’t have a common vision. Some may expect the transition to be faster, while others understand the need for a more measured transition. Inconsistent reporting further complicates the issue. The vision of what that transition should look like in 2050 and beyond is unclear.

Carbon Capture: It was noted that there is a need to focus on CCUS and the incentive mechanisms that can help accelerate the development and the adoption of technologies in this space. This will be a critical pathway for achieving Net Zero. Alberta is well positioned to lead with storage space and expertise.

2) What is ONE important opportunity you are aware of or working on that was NOT raised during this morning’s panel?

- Electricity: geothermal, wind, solar, lithium batteries
- Carbon-fibre (Bitumen Beyond Combustion)
- Biofuels (opportunities around biojet fuels)
- The need to broaden the conversation beyond oil and gas
- Role of oil and gas in other technologies
- Partial upgrading technologies
- Economic stimulus
- Unified policies at the provincial and federal level
- Alberta offsets
- Improved oil field technologies
- Leveraging the fact many smaller companies are at or close to net-zero already
- Opportunities on the demand side (buildings/facilities/farming)
- Support for more analysis to be done by post secondary institutions
- Natural resources opportunities
- Forestry (prove out mitigation benefits of tree improvements).

3) What ACTION are you inspired to take as a result of what you heard this morning?

- Active conversations (listen to others)
- Sharing knowledge with colleagues/ Network more and collaborate with others
- Leverage the University as an expert and impartial platform for dialogue or as a neutral ground for testing and proof-of-concept
- Explore policy solutions to find the middle ground and compromise pathways to clean growth
- Learn more about clean tech start ups that could have tech usable in oil field services and industry experts (meetings/networking)

¹ The Alberta Oil Sands Technology and Research Authority (AOSTRA) was an Alberta crown corporation founded in 1974, to promote the development and use of new technology for oil sands and heavy crude oil production, and enhanced recovery of conventional crude oil. It was funded by the Alberta Heritage Savings Trust Fund.

- Talk to people/tell stories that inform the general public
- Adjust performance metrics to capture the full range of activities
- Use fact-based information
- Create clear/shared priorities that everyone can support and rally behind
- Create personal environmental goals (lessen footprint/lead by example)
- Follow new developments in the province more closely
- Connect with organizations such as Canadian Energy Regulator, Petroleum Technology Alliance (PTAC) and Canada's Oil Sands Innovation Alliance (COSIA), University of Calgary (Low Carbon Fuel (LCF) standards) and look for better ways to coordinate their efforts.

Session 2 - Industry and Technology Perspectives Panel: Discussion summary

The panel discussed the technology opportunities that will help enable economic recovery and the longer-term innovations that will keep Alberta on track to meet our 2050 goals. Participants heard that playing to Alberta's strengths can not only support incremental change in current operations, but that radical change can be driven by advancing a hydrogen economy, further work pursuing opportunities around CCUS technologies, and continuing to explore the potential of new biofuels for the aviation sector. These efforts must include a close working relationship with Indigenous Peoples to create long-term wealth for vulnerable communities. All of this will require new business models, partnerships, and financing methods. Alberta must also address the historical negative perception of the oil and gas industry.

The need for governments to incent and fund innovation to position Alberta for a resilient recovery is also critical. This includes regulation that plays a role in allowing innovators to navigate the system and advance their game-changing technologies.

Session 2 - Industry and Technology Perspectives Panel: Breakout questions and summary of the discussions

1) What is the SINGLE most IMPORTANT or SURPRISING thing you heard this morning?

Two main themes emerged across the breakout sessions that participants identified as important and/or surprising.

Hydrogen: There was a lot conversation around hydrogen and the role it plays in Alberta's energy future. There was a mix of knowledge about hydrogen with some experts in the breakouts, while others knew little and were intrigued with the possibilities of hydrogen supporting an energy transition. Other comments of interest included:

- Surprise that the cost can be as low as natural gas
- Canada is behind other countries developing hydrogen technologies, but Alberta is leading on radical technical and business model innovations in other areas
- Hydrogen can be a high value product and Alberta's firms will need to try lots of technologies and models to be successful in this space.

Technology and potential barriers: participants expressed the continued need for strong communication and a shared understanding of Alberta as having an emissions problem NOT an oil and gas problem. It was noted as surprising that Titanium did not view regulation as a barrier, and that is an indication that innovation is supported from a regulatory standpoint. Other comments included:

- The feeling innovation has not slowed during the economic crisis
- There will never be a “silver bullet” solution
- The concept of economic benefits “and” environmental solutions.

2) What is ONE important opportunity you are aware of or working on that was NOT raised during this morning’s panel?

- The need for new money to drive transition (bigger companies cannot drive change on their own)
- Partial upgrading – and government regulations prepared to support these technologies
- Policy innovation is required (not just technology innovation)
- The distinction between “blue” Hydrogen (from natural gas) and “green” hydrogen (from renewable energy sources)
- Oxygen—and the output of the electrolysis process—is a big discussion in Japan and Europe
- Building a national vision
- In the oil sands, there are significant opportunities in natural gas and LNG
- Carbon capture is a practical large-scale solution Alberta has at its disposal (but it is capital intensive)
- Social and risk tolerance innovation needs to be done to achieve success
- Tailings pond innovation will be a big opportunity for Alberta
- Mitacs is doing a business strategy internship for SMEs to have access to MBA students to help them with strategy development to modify their operations and adapt to changes in the economy due to COVID-19
- Utility-scale batteries in Alberta to take place of coal generation
- Geothermal – opportunity in Alberta from oil and gas expertise, drilling
- Longer-term use of CO₂ are creative solutions that will become more innovation advances (e.g., CarbonX Prize)
- Diversity of sectors contributing to low-carbon economy (agriculture, municipalities etc.).

3) What ACTION are you inspired to take as a result of what you heard this morning?

- Learn more about:
 - Blue and green hydrogen
 - The catalysts for technology innovation and what are the opportunities that represent the BIG prizes and BIG potential
 - What can be done on the policy side to move these along
 - Oxy-fired combustion
 - Turning waste into a profitable resource for oil and gas companies
 - The underlying legislation on hydrogen pipelines in Canada
 - Indigenous sovereign wealth fund.
- Offer demonstration site to other start-ups
- Personal conversations to help educate others about the role of hydrocarbons in a low carbon future
- Figure out what investment opportunities are out there for new businesses interested in developing hydrogen technologies in Alberta.

Session 3 – Beyond Technology Perspectives Panel: Discussion summary

In the final round of the inaugural Spark Speaker Series event, participants heard from experts on factors beyond technology innovation that are required for the success of Alberta’s energy future.

The panel discussed the role policymakers, investors, and other stakeholders can play to enable the clean energy innovation ecosystem to be part of a sustainable economic recovery. They spoke to the need for government to create enabling, well-defined policy that supports technology developers along the path towards commercialisation. This helps foster a stable and predictable environment for industry, innovators, and investors. Driving outcomes through investments in emerging technologies, like hydrogen and CCUS innovations, is also critical.

To be effective, these actions must be taken with a clearly defined future vision. Panelists explained that the future of energy is a polarizing conversation; one with different interpretations that includes different perspectives on the pathways needed to reach economic and environmental goals. Playing a convening role is an opportunity for government—provincially and federally—to bring people together for an inclusive consideration of differing perspectives and competing interests. By creating an environment focused on finding common ground, government can create the collaborative, constructive space needed to enable longer-term economic and environmental sustainability, one that addresses existing disparities within society.

Session 3 - Beyond Technology Perspectives Panel: Breakout questions and summary of the discussions

1) What is the SINGLE most IMPORTANT or SURPRISING thing you heard this morning?

Participants found this to be a promising discussion. From a policy standpoint, participants were surprised to hear that panelists thought we do not need a national agenda for energy transition and that a provincial solution would suffice. The complexity of environmental issues is further confounded by intricacies of provincial, federal, and international policies. Governments’ role in policy direction is an important factor to create economic stability provincially and federally.

Other points included:

- Pipeline debates, infrastructure investments, economic disparity are all important factors in future opportunities
- Opportunities of a hydrogen economy—natural gas with CCS —are interesting
- Value based discussions are important
- The need for a vision that is idealistic and does not limit policy options.

2) What is ONE important opportunity you are aware of or working on that was NOT raised during this morning’s panel?

- Need to align provincial goals with federal goals (methane was given as a good example)
- Need for cross province cooperation and information sharing
- The role that municipalities can and do play in innovation
- Alberta’s vision. What is it?
- The social side and the role of everyday Albertans. What are the best policies to support building a constituency for behavioral change/energy transition from a consumer perspective?

- Blue hydrogen is a great opportunity
- Alberta’s need for continued communication that tells a compelling story about why companies should invest in Alberta
- There is a great opportunity to move away from a carbon energy economy to solutions like Bitumen Beyond Combustion
- Hydrogen and lithium are both great examples of alternate uses for the abundance of resources in Alberta
- There is a need to make social change practical and attractive.

3) What ACTION are you inspired to take as a result of what you heard this morning?

- Do more to understand the underlying reasons for the swing away from the higher density resources
- Work on a compelling story to tell people that rings true
- Continue to advocate—at work, at home, and among friends—for smart policies, investments and funding programs that help diversify and grow our economy and position Alberta for a carbon constrained future
- On a personal level, do my part at home.

Summary of common themes:

Throughout all the sessions a few common themes emerged as important and worthy of noting.

- Hydrogen: Hydrogen was discussed as an important opportunity for Alberta. While hydrogen technologies are not as well developed/utilized as in other parts of the world, Alberta is poised for success because of its abundance of natural gas resources.
- Carbon Capture, Utilization and Storage (CCUS): Alberta has the advantage of ample opportunities for capture and storage. It was mentioned throughout these sessions that large scale CCS will be a critical pathway for achieving Net Zero in Alberta.
- Public Education and Communication: There was significant discussion and input about the need for continued communication and to “tell our story” to the broader public. While it was widely acknowledged that the world needs energy, there is a feeling that enhanced public education on the work being done to reduce emissions in the energy sector would improve the reputation of the industry.
- Real action: And finally, the need for real action was echoed during these sessions. While Alberta has the technology innovation, it will require the wide-spread adoption and implementation of these solutions to accelerate economic and environmental change.