Canadian Standards for Biomass Supply Chain Risk

Overview and Next Steps: BSCR Risk Ratings

Jordan Solomon
President & CEO
Ecostrat

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Risk Rating Systems Move over $9.5 Trillion

	S&P	Moody's	Fitch	Others NRSROs	Total
Financial instructions	54,000	61,581	61,550	32,207	209,338
Insurance companies	8,200	4,540	1,657	5,391	19,788
Corporate issuers	44,500	30,285	13,385	11,116	99,286
Asset backed securities	117,900	101,546	64,535	18,480	302,461
Government issuers	965,9000	841,235	363,897	14,694	2,185,726
Total	1,190,500	505,024	505,024	81,888	2,816,599

- Application of a **rules-based, systematized approach** to quantifying risk is a proven way of reducing capital market perceptions of risk.
- **Transparent evaluation protocol** allows capital markets to compare "apples to apples"
- Ratings enables massive efficiencies in the capital markets.

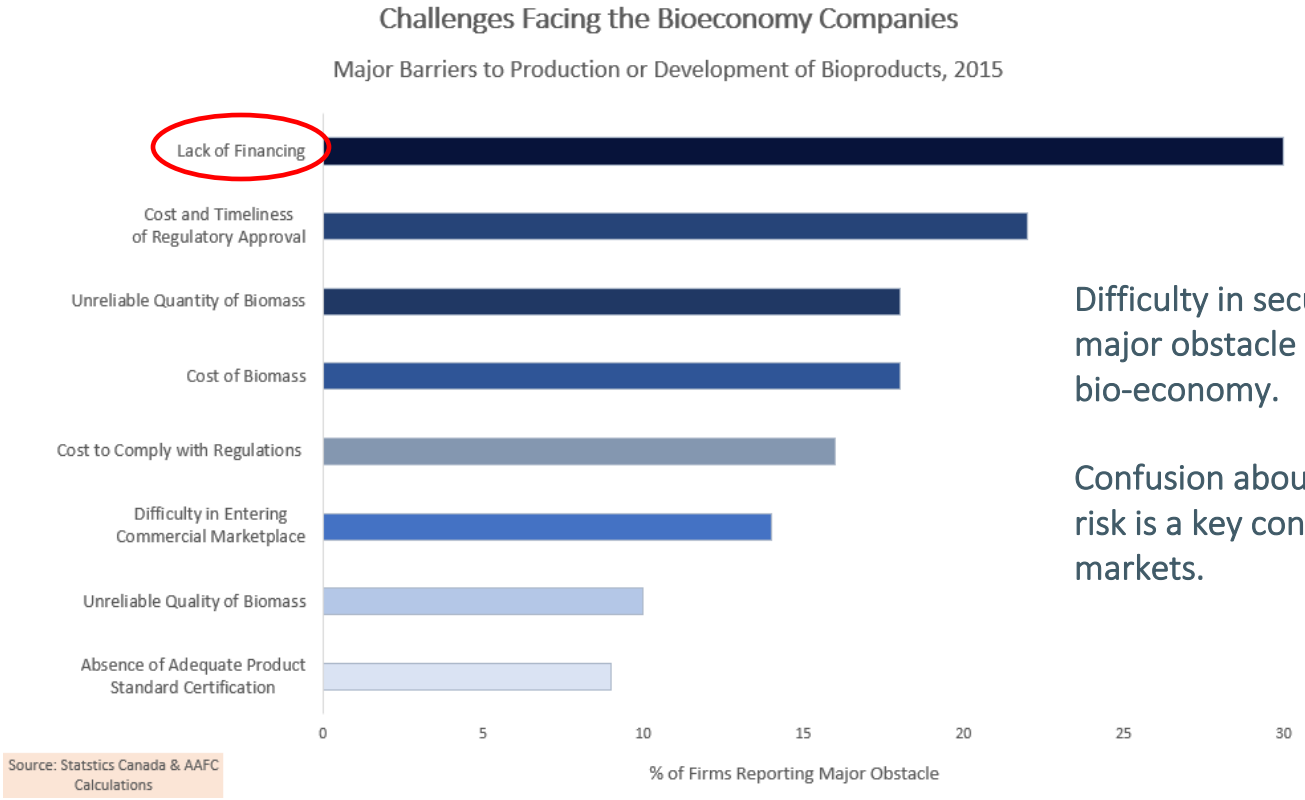
BSCR Standards are the framework for a risk rating system for biomass projects that require capital.

It is designed to do for the bio-economy exactly what the credit rating agencies do for the global economy.

Development supported by NRCan and Standards Council of Canada (SCC).

Will become a *National Standard of Canada* in 12–16 months. CSA engaged.

BSCR Standards Address the #1 Industry Challenge



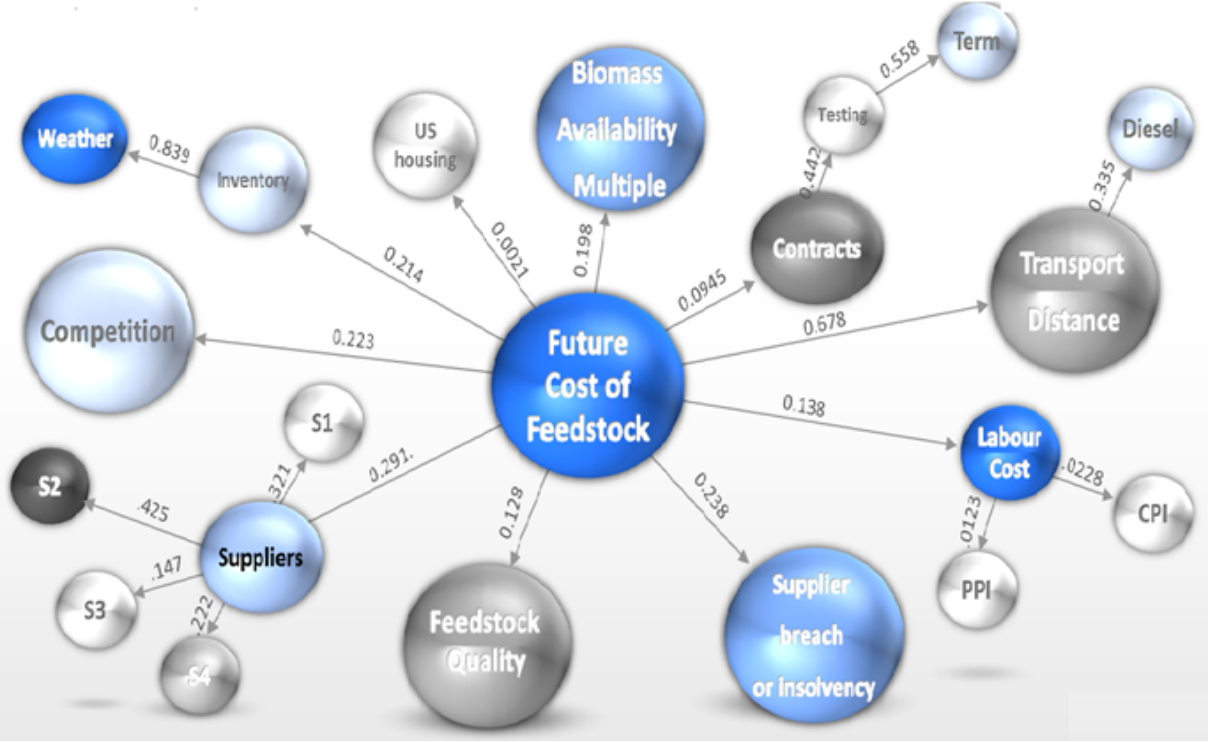
Source: Statstics Canada & AAFC Calculations

Difficulty in securing capital is the major obstacle in catalyzing Canada's bio-economy.

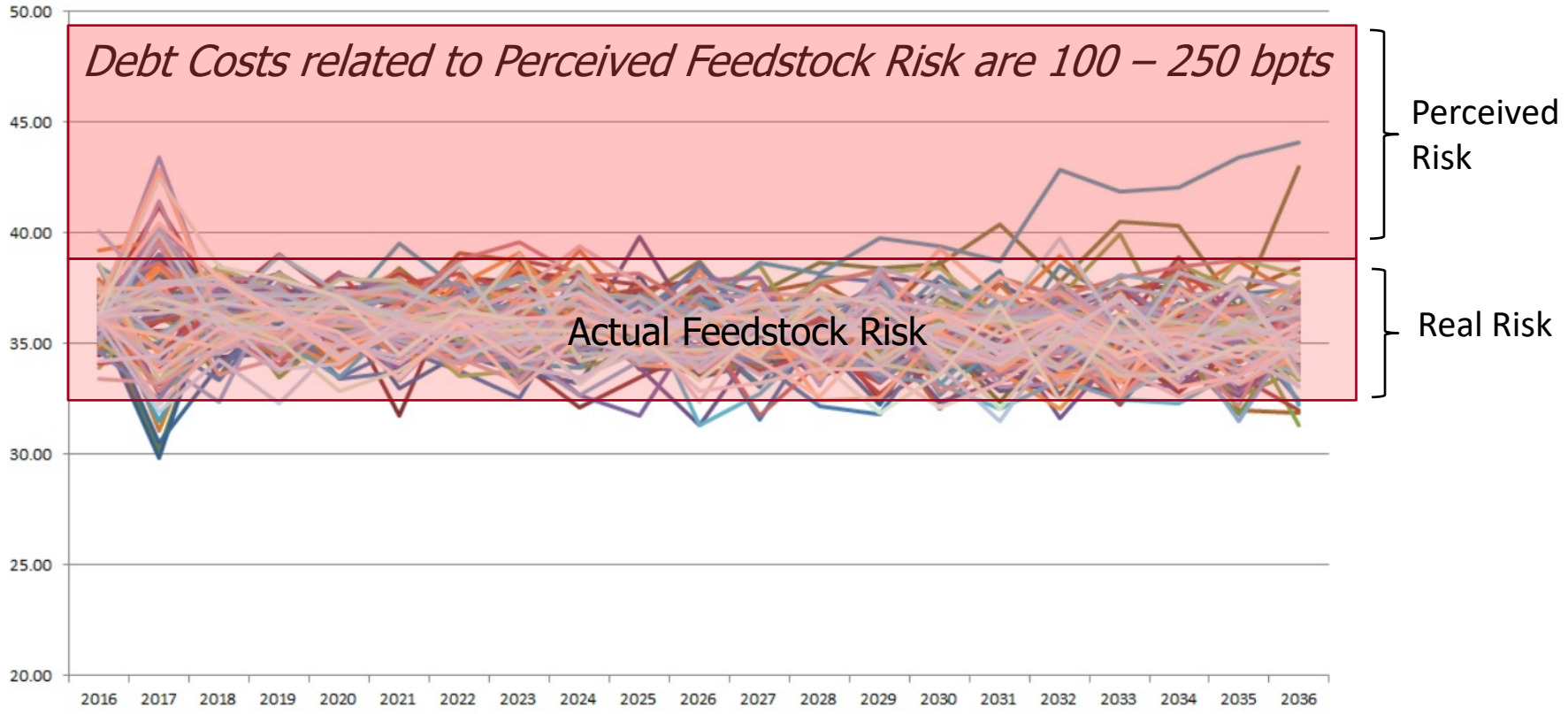
Confusion about biomass feedstock risk is a key concern for the capital markets.

Financing Barrier: Biomass Supply Chain Risk is Complex-- No Standard Tools for Capital Markets to Measure Risk

- Biomass Supply Chain Risk can be complex.
- There is a growing need for investors to make sense of the multitude of risks and their interconnectivity– confusion.
- Standard rating agency protocols are not designed to quantify biomass supply chain risk.



Lack of Clarity on Feedstock Risk is a Key Barrier to Financing Bio-Projects

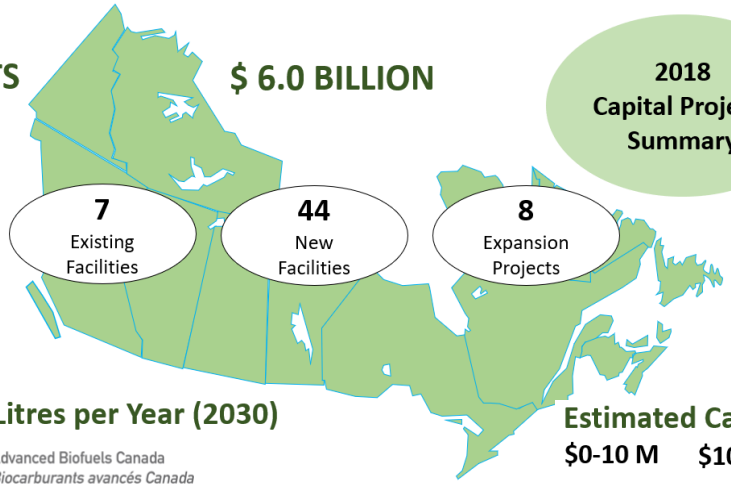


Canada's Advanced Biofuels Potential

52 New Advanced Biofuels Projects / 4.3 BLY / $6B Capex

52 PROJECTS

$ 6.0 BILLION



> 4.3 Billion Litres per Year (2030)

Source: ABFC members

Advanced Biofuels Canada
Biocarburants avancés Canada

Estimated Capital Cost (CAPEX)

$0-10 M	$10-50 M	$50-100 M	> $100 M
4	14	9	25

Delivering these new projects is essential to delivering the CFS…
but it means addressing financing barriers.

Production Capacity

Million Litres	2020	2025	2030
Renewable Gasoline Products[1]	50	250	620
Renewable Diesel Products[2]	560	2,270	2,580
Biocrude[3]	60	520	1,100

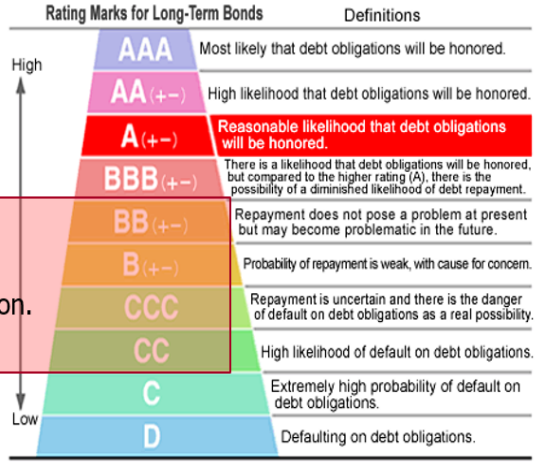
[1] Includes ethanol, methanol, renewable gasoline

[2] Includes biodiesel, renewable hydrocarbon diesel, biojet, synthetic diesel, renewable fuel oil

[3] Processed biomass to biocrude (excludes oilseeds, rendered fats)

Risk Ratings Impact on Bio-project Financing

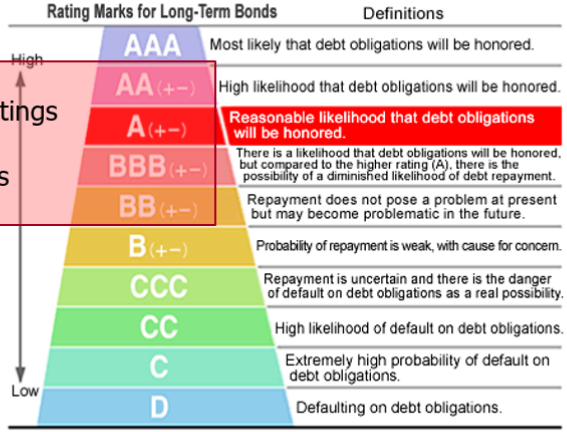
Without Rating



Note: Credit ratings range from AAA to D, and are further subdivided into a total of 20 ratings (see chart) by the use of plus and minus signs for ratings AA to B.

Typical bioenergy project ratings are in the junk region.

With Rating (1-3 notch increase)



Note: Credit ratings range from AAA to D, and are further subdivided into a total of 20 ratings (see chart) by the use of plus and minus signs for ratings AA to B.

Biomass Supply Chain Risk Ratings can result in a ratings bump For bio-projects of 1-3 notches

WHAT'S NEXT: Leveraging the BSCR Standards to drive Investment in Bio-Economy

- ✓ **Obtain SCC Accreditation** for the Canadian BSCR Standards as a National Standard of Canada. Finalize contract with Standards Council of Canada and CSA *(SCC APPROVED AND CSA ENGAGED-- SEPT 2019)*

- ✓ **Develop Ratings Systems and Scoring Protocols.** Use BSCR Standards to develop risk ratings systems and scoring. Calibrate using case studies and real projects.

- ✓ **Set Up Ratings Body.** Incorporation of the BSCR Standards framework and Ratings and Scoring Protocols into a non-governmental Standardization and Certification Body.

- ✓ **Issue Supply Chain Risk Ratings** (AA, A-, BB, etc.) to qualifying bio-projects.

A Made-In-Canada Rating Agency to Drive Investment in Biomass

Biomass Ratings Canada (BRC) will be an independent, *non-governmental* administrative body that will issue certified risk ratings for bio-project supply chains. BRC will:

1. **Train Certified Bodies** (CBs) to apply the BSCR Standards to guide companies through the certification process.

2. **Issue Supply Chain Risk Ratings** (AA, A-, BB, etc.) to qualifying bio-projects based on the BSCR Standards.

3. **Transition by year 5 to be fully self-sustaining** through user-generated revenues.

Biomass Risk Ratings Protocols — Review Committee

- Over 30 review committee members.
- **>$50 billion** in deployable "bio-targeted" capital from investors deploying capital in sector.
- Clear call for Biomass Risk Ratings by capital market players

Alignment with Government Priorities

THE CLEAN FUEL STANDARD

"Our research shows that a strong Clean Fuel Standard would drive $5.6 billion a year in economic activity and create up to 31,000 jobs for workers building, supplying, and operating new clean fuel facilities."

Clean Energy Canada

CLEAN FUEL STANDARD Cost-Benefit Analysis Framework

February 2019

- ✓ "The advanced low-carbon fuel sector is still an emerging industry and as such, there is more uncertainty on the variability of business models, technical abilities, and market demand, in comparison to traditional low-carbon fuels and fossil fuels".
- ✓ "Upfront capital cost barriers could act as a limiting factor towards quick development and adoption of new low-carbon fuel facilities or expansions of existing facilities."

ECCC / Cost-Benefit Analysis Framework February 2019, P.10

Alignment with Government Priorities

THE FOREST BIOECONOMY FRAMEWORK FOR CANADA

Pillar 2 Supply of Forest Resources and Advanced Bioproducts

Establishing effective standards will enable the purchase and trade of forest biomass and advanced bioproducts. Standards and certification are critical components of a thriving industry. They guide and protect market participants and can influence market incentives and pricing to support nascent technologies.

- ✓ **OBJECTIVE 2A ESTABLISH EFFECTIVE STANDARDS**

  Advancing Canada's forest bioeconomy requires updated standards that enable the purchase … of forest biomass resources and advanced bioproducts. Clear processes for establishing new standards would accelerate the growth of the bioeconomy, as would standards for biomass feedstock. p.22

- ✓ **OBJECTIVE 2B ENHANCE DATA COLLECTION AND MANAGEMENT**

  Many start-up companies lack in-house expertise and financial resources to provide the necessary data required by granting agencies, financial institutions, and venture capitalists. Example policy measure: "Explore innovative mechanisms and improved analytics to de-risk supply chains p. 23

Pillar 4 Support for Innovation

Innovators need access to investment funding and markets while investors expect financial returns commensurate with perceived risks. A range of mechanisms are required to promote the development of new products and level the innovation playing field p.26

- ✓ **OBJECTIVE 4A FACILITATE AN INNOVATION ECOSYSTEM**

  … increase the appetite for investment and provide guidance on leading practices that will enable funding agencies and financial institutions to close on projects faster and more cost effectively. P 26

- ✓ **OBJECTIVE 4C DEVELOP INNOVATIVE FINANCIAL MECHANISMS**

  Financing the forest bioeconomy requires significant capital investments and knowledgeable strategic partners… Securing capital requires astute investors and a suite of products available to de-risk projects p.27.

  Example policy measures: Catalyze both debt and equity financing to help commercialize new technologies p.27

Alignment with Government Priorities

THE PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

SECTION 5: CLEAN TECHNOLOGY, INNOVATION, AND JOBS

Fostering and encouraging investment in clean technology solutions can facilitate economic growth, long-term job creation, and environmental responsibility and sustainability.

Canada needs a step change in clean technology development, commercialization, and adoption across all industrial sectors. Clarity of purpose and investment [is] essential to seizing the economic growth and job-creation opportunities of clean technology

Pan-Canadian Framework, p.37

5.1 Building early-stage innovation

- ✓ Sustainable Development Technology Canada (SDTC) provides funding support to companies across Canada to develop, demonstrate, and deploy innovative new clean technologies

5.2 Accelerating commercialization and growth

- ✓ Biomass market and product diversification strengthens the long-term competitiveness of the agriculture and forest sectors by encouraging new technologies to support industry transformation.
- ✓ While federal and provincial governments already have a range of supports in place, key needs exist in terms of accessing venture capital as well as working capital and support for first, large-scale commercial projects or deployments p.39.
- ✓ New Action 2. Increasing support to advance and commercialize innovative technologies Governments will collaborate to enable access to capital for clean technology businesses to bring their products and services to market, including at the commercial-scale demonstration and deployment stages p.40
- ✓ New Action 6. Standards-setting Governments will work together to exert a strong leadership role in international standards-setting processes for new clean technologies and to ensure that Canada's clean-technology capacity shapes future international standards. P.40

Biomass Ratings Canada: Benefits

Biomass Ratings Canada will:

- ✓ Decrease a major barrier to investment into project development in the bioeconomy
- ✓ Support delivery of government policy
- ✓ Drive greater investment in low-carbon, innovative bio-based economy projects
- ✓ Accelerate job creation and economic development, particularly in rural areas.
- ✓ Consolidate Ontario's position as an innovative leader in the Canadian and global bioeconomy.

Jordan Solomon
President and CEO
Ecostrat Inc.

www.ecostrat.com
jordan.solomon@ecostrat.com
Tel: 416-968-8884 x 222

50+ Industry Stakeholder Group in Canada

Strong industry support: stakeholder group of over 50 bio-companies, industry associations, and universities in Canada and >100 in US.

Biomass Ratings Canada – Industry Support Letters

We represent key stakeholders in Canada's advanced biofuels, bioenergy, biochemical and bioproduct sectors. We are Canadian bio-economy industry organizations, financial institutions, capital providers, bio-technology providers, operators, developers, end-markets, forestry and agricultural producers, and academia. We are writing to express our support for the establishment of the *Canadian Biomass Rating Agency (CABRA)*.

We share a collective interest with the federal government in reducing financial barriers to the further build-out of facilities that produce biofuels, biochemicals, bio-energy, and bio-products and in advancing Canada's Clean Growth Economy and the CFS.

Securing financing is a major barrier to bio-economy development and feedstock risk is an important contributing factor. We believe that by providing the capital markets with a transparent and empirical ratings metric (A+, A, BB, etc.) to more accurately quantify feedstock risks, CABRA materially mitigates feedstock risk for the capital markets.

As a result, we collectively support the establishment of *CABRA* and its de-risking and credit enhancing ratings mechanisms that allow capital to flow more easily, more quickly, and less expensively to the many existing and prospective bio-economy plants in Canada.

Signatories

- Sebnem Madrali — CanmetENERGY
- Zoltan Tompa — bdc
- John Wilkinson — GREENFIELD GLOBAL
- James Olson — Faculty of Applied Science, The University of British Columbia
- Don Roberts
- David A. Swan — eco options energy cooperative
- Roger Tang-Poy — ArcelorMittal
- Elizabeth Demarco — DEMARCO ALLAN LLP
- Dimple Roy — IISD, International Institute for Sustainable Development
- Pierre Marineau — Association des producteurs de pierre à chaux du Québec inc.
- Martin Vroegh — Ontario Centres of Excellence, Where Next Happens
- Warren Mabee — Queen's University
- Ian Thompson — Advanced Biofuels Canada / Biocarburants avancés Canada
- Brian Foody — IOGEN
- Sandy Ferguson — CONIFEX
- David B. Layzell — University of Calgary
- Tyler Whale — Ontario AgriFood Technologies
- Denise Hockaday — The Climate Corporation
- Bruce Dudley — DELPHI GROUP
- Jeremy Mortl
- Donald L. Smith — Réseau BIOFUELNET Canada
- Jeff Passmore — PASSMORE GROUP Inc.

Overview of Discussion

1. **What we have done** to develop *Canadian Standards for Biomass Supply Chain Risk*. What they are. The project financing barriers they address.

2. **What we see as the path forward.** Phase 2: Developing ratings systems and scoring protocols, calibration and, commercialization. Why biomass risk ratings are so important for driving capital into bio-economy projects.

3. **How this supports delivery of government priorities.** The Forest Bioeconomy, the Framework Pan-Canadian Framework, and the CFS.