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SCALING CLEANTECH IN CANADA

GLOBE Advance 2021: Scaling Cleantech in Canada

SUMMARY REPORT

NGIF

EMISSIONS REDUCTION ALBERTA

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Contents

Executive Summary

As Canadian governments and corporations commit to net zero by 2050 targets, accelerating market deployment of clean solutions has become an increasingly urgent imperative. Building on insights gained from GLOBE Advance 2020, the Scaling Cleantech in Canada session hosted at GLOBE Capital 2021 focused on the barriers impeding cleantech deployment, solutions, and leadership.

In partnership with Emissions Reduction Alberta (ERA) and sponsored by Foresight Cleantech Accelerator Canada (Foresight) and the Natural Gas Innovation Fund (NGIF), GLOBE Series and The Delphi Group engaged 70 workshop participants and speakers from Tourmaline, Intelligent City, Foresight, and ERA to discuss key barriers, best practices, and lessons learned in deploying and scaling cleantech in Canada.

Representing a buyer and a supplier respectively, Tourmaline Technology and Innovation Lead, Scott Volk, and Intelligent City CEO, Oliver Lang, were aligned in their discussion on barriers that emerge from the delay between policy development and regulatory implementation. This is a common theme that emerged throughout the workshop alongside the need for technology developers to strengthen their knowledge of markets, policy, and regulatory standards. Both speakers emphasized that by strengthening this knowledge area, cleantech ventures can develop a clear value proposition that fits their target market. This is particularly important given the solution fatigue that is experienced by industry – a barrier highlighted by Mr. Volk. Emissions Reduction Alberta and Foresight joined the conversation to round out a panel discussion on solutions.

The following are highlights from the best practices shared:

- Engaging multiple partners in pilot projects or cluster initiatives allows adopters to combine and share resources (both in terms of finances and knowledge).

- Leveraging existing laboratories and test facilities and designing test facilities to facilitate multi-sector usage.

- Building strong relationships with regulators is essential to meaningful progress.

- Designing later stage development programming with flexibility and specific cleantech developer needs in mind should be considered.

- Using challenge dialogues and initiatives to break down silos and establish a shared understanding across different parties can accelerate success.

The remainder of the workshop took place in the form of five breakout rooms that delved into discussions on barriers and solutions as they relate to the following topics: Financing Options and Instruments, Procurement, Business Model Innovation, Policy and Regulation, Product-market Fit, and Demand Articulation. Each breakout room discussed barriers experienced by cleantech ventures and industry adopters specific to their theme, and proposed solutions to address the barriers, including which players should lead each solution.

Solution themes that emerged across each breakout room:

- Building better financial, business, regulatory and sales knowledge within cleantech ventures by looking to individual experts as well as larger knowledge resources;

- Expanding funding programs and improving the design of incentive models (i.e., patient capital);

- Updating green government procurement strategies to mobilize deployment; and

- Encouraging increased communication and knowledge sharing across government, industry and cleantech ventures.

Participants in the GLOBE Advance 2021: Scaling Cleantech in Canada session offered insight into the actions required from players across Canada's cleantech ecosystem to accelerate deployment. Table 12 below summarizes the top barriers and solutions from each breakout, and provides high-level guidance for cleantech ventures, industry, government, and other ecosystem partners on where their actions and leadership can reduce barriers to scaling and deploying cleantech solutions nationwide.

Scaling Cleantech Initiative Timeline

FEBRUARY
2019

GLOBE Capital 2019

The inaugural Scaling Cleantech in Canada workshop was hosted at GLOBE Capital 2019 in Toronto with a focus on financing options for scaling cleantech.

OCTOBER
2019

SPARK 2019

Two follow-up events were hosted at SPARK 2019. A conference panel with funding and support organizations highlighted the growing support for scaling cleantech companies and their solutions, encouraging ventures and the ecosystem to more broadly engage with organizations to find the right combination of support. The second SPARK session, a small stakeholder discussion, identified key actions needed to accelerate the commercialization of cleantech solutions in Alberta.

APRIL
2020

GLOBE 2020

As part of the first ever GLOBE Advance in 2020, the Scaling Cleantech: What's Next for Canada? session brought a cross-sectoral audience together to workshop commitments they could make to advance and promote scaling cleantech within their own networks and spheres of influence.

FEBRUARY
2021

GLOBE Capital 2021

Building on the previous workshops, the Scaling Cleantech in Canada session at GLOBE Capital 2021 focused on identifying barriers to market adoption and developing action plans to address them.

Context

Since the inaugural Scaling Cleantech workshop in 2019, there has been a marked increase in financing options—including scaling and growth funds, public offerings for cleantech ventures and new commercial bank mechanisms. However, a key piece of the scaling puzzle continues to prove challenging in Canada: market adoption. Securing buyers not only guarantees returns for investors, but also ensures that the environmental and economic potential of clean innovation is realized.

As governments and corporations worldwide commit to net zero by 2050, accelerating market deployment of clean solutions is an increasingly urgent imperative. Building on insights gained from GLOBE Advance 2020, the Scaling Cleantech in Canada session hosted at GLOBE Capital 2021 posed the following questions to participants:

- What are the obstacles and barriers facing the Canadian buyer market?

- How can investors support corporate and other partners in accelerating cleantech adoption?

- What lessons can we learn from models being deployed in Canada and beyond?

The Scaling Cleantech in Canada 2021 session brought together a diverse audience, including government agencies and funders, investors, cleantech ventures, industry, and ecosystem partners, such as accelerators/incubators, networks/associations, and research institutes, to identify current barriers to market adoption in Canada.

GLOBE Series and the Delphi Group, in partnership with ERA, and sponsored by Foresight and NGIF, delivered an interactive session focused on identifying actions to address current adoption barriers. Figure 1 below provides the breakdown of participants by category, with representation from all the major stakeholders involved in scaling cleantech ventures.

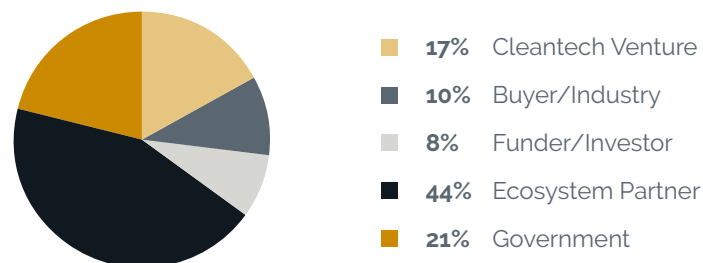|	
17%	Cleantech Venture
10%	Buyer/Industry
8%	Funder/Investor
44%	Ecosystem Partner
21%	Government

Figure 1 - GLOBE Advance 2021: Scaling Cleantech in Canada Participants by Category

Introduction to Barriers to Deployment

The workshop kicked off with a fireside chat between Scott Volk, Technology and Innovation Lead, Tourmaline, a member of NGIF, and Oliver Lang, CEO, Intelligent City, a developer of intelligent software and advanced robotics manufacturing applied to mass-timber construction. The discussion highlighted the specific barriers facing both adopters (Tourmaline) and cleantech developers (Intelligent City).

Despite operating in different sectors as a buyer and a supplier respectively, Mr. Volk and Mr. Lang found many commonalities. Both speakers emphasized the need to understand barriers holistically by using a systems-thinking perspective. They highlighted how de-risking activities and technology elements across the supply chain can serve as an incentive for buyers and adopters. They also agreed that breakthrough decarbonization solutions can be more effective than solutions emerging from incremental change but recognize that both are needed to achieve widespread decarbonization of our current economy and systems.

Both speakers recognized that the delay between policy development and regulatory implementation is a continual challenge for cleantech deployment. They also emphasized the need for technology developers to strengthen their understanding of markets, policy, safety, and regulatory standards to better articulate how their value proposition fits within their target market.

Read on for further detail on barriers to deployment faced by Mr. Volk and Mr. Lang.

Barriers Identified by Mr. Lang (Innovator Perspective):

- **Lack of capital and customers:** Solution providers still find it difficult to access public dollars (e.g., grants) and private investment capital when scaling, including access to patient capital and financing options for projects with higher perceived technical risks. A similar issue arises around customer access, with many solution providers finding it difficult to identify and engage with first customers and pilot partners.

- **Outdated regulatory frameworks:** Regulatory standards and codes do not adapt to current technology offerings. This can mean that emerging cleantech solutions are not implemented simply because their innovation is unaccounted for in current regulations. Given the rate of technological change, regulatory frameworks need to be updated faster and more often. Frameworks should also aim to be less prescriptive, leaving room for more innovative solutions.

- **Delay in procurement procedures:** Within many organizations, procurement teams are not brought in until projects are nearing completion, i.e., after feasibility studies, modeling and design work have already taken place. Incorporating procurement considerations at the start of a project will help mitigate risks and increase the efficiency of pilot projects and site installations.

Barriers Identified by Mr. Volk (Buyer Perspective):

- **Lack of alignment with regulation and safety standards:** Solution providers put much of their focus on technology development and can often overlook regulatory requirements and safety standards. It's important to remember that from an adopter perspective, a prototype needs to be safe and site-ready before it can go in the ground.

- **Lack of market understanding:** Solution providers need to strengthen their knowledge of their target market and how their technology and value proposition fits into that market. This includes understanding the competitive landscape and solutions already in use.

- **Solution fatigue:** Industry can get overwhelmed by the number of solutions out there and how to choose the option that is best for their operation. They need support to assess solutions more efficiently.

Accelerating Deployment: Best Practices and Models

Next, the panel portion of the workshop shared best practices. This discussion invited insights from Steve MacDonald, CEO, Emissions Reduction Alberta (ERA), a cleantech funder, and Jeanette Jackson, CEO, Foresight, a Canadian cleantech ecosystem accelerator.

From ERA's perspective, cleantech deployment challenges can't be solved by simply finding the right technology and writing a cheque. Transforming the world's energy systems requires a complete solutions approach, incorporating innovation in policy, financing, supply chains, business models, partnerships, and even culture. From Foresight's perspective, innovation must not be developed in isolation from industry, and clear adoption parameters must be defined early in a venture's technology and product development to identify the best business model, attract the right investments and accelerate the pace of adoption. This echoes the barriers shared by Tourmaline and Intelligent City earlier: the challenges are complex, system-wide, and reinforced by fragmentation and risk aversion. Given this complexity, solutions should aim to be comprehensive, systemic, and complete. All the pieces—regulations, sound business models, supply chains, acceptance of innovation culture—need to be in place before wide-scale, accelerated deployment of clean technology can occur.

In the panel discussion, NGIF, Intelligent City, ERA, and Foresight shared the following case study and best practices to help reduce barriers to deployment:

Testing and Pilot Projects

- **Case Study:** NGIF's model mandates that a technology trial/pilot must take place at the site of one of its industry members. It also encourages multiple partners to be involved in a pilot project, which allows adopters to combine resources and funds to ease the burden of technology de-risking, which can be hard to justify as an individual company.

- **Best Practice:** Leverage existing laboratories, test facilities and academic resources to prove a concept in the real world. Bolster these resources with international partnerships to further drive success.

- **Best Practice:** Design test facilities with multi-sector usage in mind to maximize cost, resource, and time efficiency.

Strengthening Regulatory Knowledge

- **Best Practice:** Building strong relationships with regulators is critical for clean technology adoption. Work with regulators to anticipate regulatory changes. When regulators know where a sector is going and what technology will drive decarbonization, they will develop codes and standards that enable deployment.

Business Model and Technology Development Programming

- **Best Practice:** Use partnerships to ensure innovators design robust, successful business models.

- **Best Practice:** Invest in programming for cleantech companies at both early and later stages.

- **Best Practice:** Allowing for flexibility in later stage technology development programming offerings is key since the specific needs of a cleantech developer will vary depending on the sector in which they operate and the nuances of their team. A one-size-fits-all approach is ineffective.

Product-market Fit/Demand Articulation

- **Best Practice:** Innovation challenge dialogues and initiatives are effective in breaking down silos and establishing a shared understanding of needs from different parties.

- **Best Practice:** Cluster initiatives drive increased collaboration and enable cost-sharing.

Solution Pathway Discussion – Breakout Rooms

To build on and dig into the points raised by the speakers on barriers, solutions and best practices, the attendees were divided into five distinct breakout rooms, categorized as follows:

Breakout Room 1: Financing Options and Instruments

Breakout Room 2: Procurement

Breakout Room 3: Business Model Innovation

Breakout Room 4: Policy and Regulatory

Breakout Room 5: Product-market Fit and Demand Articulation

Each breakout room was assigned a facilitator to guide the group discussion in identifying the barriers unique to cleantech ventures, those unique to industry adopters, as well as barriers experienced by both. Based on the discussion around barriers, participants were then asked to brainstorm specific solutions to help resolve or mitigate the barriers brought forward. Participants were also asked to consider who is responsible/plays a key role in ensuring specific solutions are championed and implemented (e.g., industry, cleantech ventures, ecosystem support partners, federal government, etc.), as well as the levels of accountability for the varying ecosystem players.

The following tables summarize the market adoption barrier, solutions and accountability discussions that took place during the session within each breakout room.

Breakout Room 1: Financing Options and Instruments

While participants were able to identify barriers specific to cleantech ventures and industry adopters, one barrier that resonated on both sides as an ongoing challenge is the regulatory uncertainty and related timelines (e.g., the time it is taking to establish a low carbon fuel standard in Canada). This echoes the type of inherent complexity of many barriers to cleantech deployment discussed in the fireside chat.

For cleantech ventures, barriers focused on the lack of financial and market knowledge both within and outside cleantech ventures. For example, cleantech ventures face a lack of available financial advisors specific to cleantech to assist in raising larger funds. Participants also flagged the impacts of the pandemic and the barrier it has created in interacting and connecting with customers as well as financial partners. While the pandemic has interrupted in-person interactions and operations for many businesses, this barrier will hopefully begin to diminish as more provinces expand vaccination efforts.

Table 1: Barriers and Solutions for Cleantech Ventures

Barriers Experienced by Cleantech Ventures	Solution	Responsibility
Lack of financial knowledge about the pros and cons of different types of financing	Offering a program to help develop managerial/financial literacy as part of receiving certain types of grants	Government
Challenge of growing the company as well as the managerial capabilities	Executives in residence	Industry associations/ ecosystem programming
Access to resources, experts, and knowledge related to regulations and policy	Board members with strong regulatory/policy knowledge	Retired CEOs from corporates could help as board executive advisors

Table 2: Barriers and Solutions for Industry Adopters

Barriers Experienced by Industry/Adopters	Solution	Responsibility
Lack of incentives (financial or regulatory) to take technology risks	Provide tax incentives for adopters who collaborate with tech startups (e.g., offer their sites for testing)	Government
Difficulty finding first customer/pilot	Procurement of novel technologies to de-risk private investments/mobilize private capital in the scaling phase	Government (federal, provincial)/Crown Corporations/Municipalities
Funding programs focus on capital for technology development rather than business development	Provide capital to support both business development (BD), and research and development (R&D) activities	Government funders could expand programming to include BD activities in addition to supporting R&D
Return on investment is too long for some technologies— need investment support (e.g., patient capital) for innovation	Sustainable finance or offering of other types of capital to incentivize adopters	Government funders/Private investment firms
Access to patient capital with longer, forgiving return cycles is lacking	Provide matching funding at favorable conditions with longer term development cycles in cleantech	Government/Private investment firms

Breakout Room 2: Procurement

Procurement barriers experienced by both cleantech ventures and industry adopters include conservative adoption practices among buyers, and outdated government procurement policies. Participants also flagged the lack of longer-term networking/trust-building opportunities in communities to help address uncertainty or conservative buying practices. Table 3 addresses the regulation barrier which garnered discussion around a potential solution that could be driven by local government.

Table 3: Barriers and Solutions for Cleantech Ventures

Barrier Experienced by Cleantech Ventures	Solution	Responsibility
Lack of regulation in place for new products	Mandate low-carbon building materias in legislation (e.g., construction firms must use lowest carbon materials) Case Study: The New York State Low Embodied Carbon Concrete Leadership Act	Local government procurement teams

On the industry adopter side, major barriers include the lack of green procurement strategies and policy, coupled with a policy culture that excludes "out-of-region" cleantech suppliers. To address these challenges, proposed solutions focus on better communication between governments and niche markets, better advocacy for green procurement on behalf of industry associations, and replicating successful models for cleantech procurement from other sectors.

Table 4: Barriers and Solutions for Industry Adopters

Barriers Experienced by Industry Adopters	Solution	Responsibility
Policy and procurement culture which does not include cleantech or "out-of-region" suppliers	Communication with governments in niche markets	Stakeholders/shareholders and end users (i.e., industry)
Lack of green/sustainable procurement strategy and outdated government procurement policies	Advocate for green procurement strategies	Cleantech ventures/associations Federal, provincial/territorial governments
Certain sectors have seen success by updating their procurement models to enable more uptake of modern solutions	Replicate successful procurement models for cleantech procurement (e.g., the Canada Health digital health integration model)	Government and industry
Pace of development for green procurement strategy is too slow at all government levels	Develop detailed green procurement rules	Federal and provincial/territorial government Treasury Board Local government (i.e., municipalities)

Breakout Room 3: Business Model Innovation

At the outset of this breakout room discussion, participants highlighted barriers in business model innovation unique to cleantech ventures and industry adopters (see Table 5) and focused the solution discussion on barriers experienced by both players. These barriers centered around poorly communicated and unclear value propositions that are coupled with the development of sound business models, all while navigating pandemic market complexities. For industry adopters, barriers include inflexible and traditional business operations and governance models as well as risk aversion (e.g., first-mover concerns).

Table 5: Barriers Experienced by Cleantech Ventures and Industry Adopters

Barriers Experienced by Cleantech Ventures	Barriers Experienced by Industry Adopters
Challenges in assessing best opportunities for support and navigating market disruptions (e.g., COVID-19 crisis)	Isolated long-term corporate training practices
Pressure on value proposition and business models	Traditional business practices and governance models
Complex requirements for small innovators to work with large multinational corporations	Issues around competencies and mindset on innovation (e.g., first-mover concerns)
	Lack of agility due to time and workloads
Timing of the market being in sync (both supply and demand side)	
Regulation challenges with pilots (both supply and demand side)	
Lack of experience in working with each other (both supply and demand side)	

To address shared barriers around market timing, regulations around pilot projects and knowledge sharing, the solutions proposed in this breakout focused on better communication and roadmaps from government and industry, improved policy flexibility, new cross-sector collaboration, coopetition, and the sharing of goals, funding and best practices amongst industry players.

Table 6: Barriers and Solutions for Cleantech Ventures and Industry Adopters

Barriers Experienced by Both	Solution	Responsibility
Timing of the market being in sync with offerings	Better communication and roadmaps to provide more insight on market	Industry (transparency on gaps) Government (supporting collaboration)
Clear direction for cleantech deployment and its link to current policy and regulation is lacking	Be vocal about pushing for faster movement with clear priorities	Industry/Cleantech sector
Regulation challenges with pilot projects	Policy flexibility and better certainty through alignment of stakeholders	Government (set cleantech plans)
Share more experience and expertise between companies	Cross-sector collaboration/ training Shared goals, funding, and best practices Culture transformation and change management Coopetition	Industry (transparency and openness)

Breakout Room 4: Policy and Regulatory

The discussion around policy and regulatory barriers focused on those experienced by industry adopters. Misalignment between regulations and readily available technology was flagged as a challenge for industry adopters, in addition to policy uncertainty, and lack of coordination between governments. The latter particularly impacts knowledge sharing between various levels of government, as well as between regional (i.e., provincial/territorial) governments in terms of policies and regulations supporting cleantech deployment.

A notable solution that was discussed to address a lack of consumer awareness is public-private partnerships (PPPs) to gather relevant data and develop accessible messaging in support of cleantech adoption.

Table 7: Barriers and Solutions for Industry Adopters

Barriers Experienced by Industry Adopters	Solution	Responsibility
Lack of inclusion of key cleantech player insights in government decision-making	Education on the positive impacts of cleantech adoption (e.g., showcase examples of green buildings, LEED certification)	Federal and provincial/territorial leadership
Limited time for industry to respond or adapt to changes Lack of policy predictability and better ways to manage risk	Accountability framework and government investment to support/maintain stability in climate commitments and tools	Federal and provincial/territorial coordination
Limited consumer awareness/engagement results in less public demand or pressure for policy consistency	Gather relevant data and information to share with consumers through PPPs so that consumers can make informed decisions on cleantech adoption	Federal government Industry

Breakout Room 5: Product-market Fit and Demand Articulation

Echoing points raised during the fireside chat for cleantech ventures to improve their overall policy and regulatory knowledge, participants in this breakout room pointed to demand articulation barriers around lack of market-discovery work by cleantech ventures. The simplest solution in this case is for cleantech ventures to invest in, and allocate more time to, this type of knowledge building to increase their likelihood of success in establishing a sound product-market fit.

In discussing overarching solutions, participants focused on the role buyers play in solutions (see Table 10) to work through different approaches to find the best fit, and gain support from, investors. This kind of willingness to trial different approaches is also helped by openness from the buyers' side to knowledge sharing and the innovation process.

Table 10: Product-market Fit and Demand Articulation - Solutions for Cleantech Ventures

Barriers Experienced by Cleantech Ventures	Solution	Responsibility
Lack of openness and willingness from industry to develop methods to explore best product fit	Go through different approaches to find the best fit and find support from investors	Buyers
Gatekeeping and lack of knowledge sharing	Be open to sharing and the overall innovation process	Buyers
Mismatch between supply and demand	Deliver challenges to help focus innovation (e.g., coopetition)	Buyers, innovation hubs, industry groups

Industry adopters interested in optimizing product-market fit and demand articulation generally face barriers around the lack of solutions available for specific challenges, as well as the lack of companies that have solutions that could fit. Adopters also struggle with the reality that companies are hesitant to share their problems and often miss out on the benefit of an outside perspective.

As the conversation shifted toward solutions, participants discussed how cleantech companies can invest in their sales and marketing to appeal to industry adopters' openness to innovation, while buyers and government can continue/ramp up internships and co-ops, deliver focused innovation challenges, expand programming that helps innovators connect with potential buyers, and engage municipalities as key adoption markets to reinforce strong product-market fit and demand articulation.

Table 11: Barriers and Solutions for Industry Adopters

Barriers Experienced by Industry Adopters	Solution	Responsibility
Lack of mechanisms to help industry be open to innovation process due to lack of resources	Cleantech companies must invest in their sales and marketing functions	Cleantech firms
Need for increased cleantech student job creation programs	Intern/co-op support for industry to engage in innovation	Provincial/territorial and municipal government
Lack of alignment and coalition around a need from industry	Deliver challenges to help focus innovation	Federal government, innovation hubs, industry groups
Mismatch between supply and demand	Deliver challenges to help focus innovation	Buyers, innovation hubs, industry groups
Difficulty finding first customer/adopter	Expand programs, like NRC IRAP, that connect solution providers to potential early adopters	Federal government, early-stage investors, accelerators, and other ecosystem support mechanisms

Summary of Key Takeaways and Next Steps

Participants in the GLOBE Advance 2021: Scaling Cleantech in Canada session offered insight into the actions required from players across Canada's cleantech ecosystem to accelerate deployment.

A significant number of the barriers that accelerators, adopters, buyers, funders, and eco-system partners face are rooted in outdated policy frameworks and regulatory uncertainty, coupled with limited access to experienced financial advisors who can offer insight on financing strategies and accessing relevant grants. However, there is also a lack of understanding within cleantech companies of the policies and regulations affecting their technology, which can ultimately slow progress toward industry uptake and deployment.

Buyers and adopters both also experienced an overarching challenge around solution fatigue in industry, coupled with a need for cleantech companies to approach prospective buyers with a clearer value proposition and understanding of how the technology fits within the market and aligns with regulations and safety standards. This is often the result of as well as exacerbates inadequate communication between buyers and suppliers, impairing demand-supply fit.

To address these barriers, solutions that were frequently cited both by speakers and workshop attendees point to more programming and training for cleantech companies to obtain a better understanding of the markets, policy, and regulations relevant to their area of tech-nology. This programming could be led by both industry and government. Solution providers also call for better communication from government on policy and regulation changes and impacts through roadmaps and information sessions, as well as much needed updates to government-level green procurement guidelines that encourage the implementation of new and local technologies. The following table summarizes the top barriers, solutions and responsibilities that were provided in each of the breakout rooms.

ERA, Foresight, NGIF, The Delphi Group, and GLOBE Series hope this summary supports scaling and deployment of cleantech in Canada and welcome stakeholder feedback.

Table 12: Top Barriers, Solutions and Responsibilities from the Breakout Rooms

	Barrier	Solution	Responsibility
Financing Options and Instruments	**Lack of financial knowledge about the pros and cons of different types of financing**	Offering a program to help develop managerial/financial literacy as part of receiving certain types of grants	Government
Procurement	**Lack of defined "green" or sustainable procurement strategies within government organizations, who often utilize outdated procurement policies**	Increased advocacy to government organizations for defined green procurement policies Establish clear timelines and targets for procurement policy updates	Cleantech industry and associations Government – federal, provincial/territorial, municipal
Business Model Innovation	**Sharing experience and expertise with each other needs to increase**	Cross-sector collaboration/training Shared goals, funding, and best practices Culture transformation and change management Coopetition	Industry Industry, cleantech sector, and government Industry, government Industry, cleantech sector
Policy and Regulatory	**Lack of policy certainty and stability**	Encourage effective and predictable policy by buyers/suppliers communicating regularly with governments and educating public to help depoliticize policies	Buyers and sellers, governments
Product-market Fit and Demand Articulation	**Lack of meaningful communication between buyers and suppliers (for reasons detailed above)**	Mechanisms and tools to enable exploring fit between buyers and innovators (e.g. innovation challenges, matchmaking, etc), and support for both to address specific issues	Buyers and sellers identifying barriers and seeking resources; programming by ecosystem players, government support