

# Flowing Investment to Scale Clean Technology

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THE SCALING CLEANTECH WORKSHOP AT **GLOBE CAPITAL 2019**

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# EXECUTIVE SUMMARY

We would like to extend a special thank you to the sponsors of the “Flowing Investment to Scale Clean Technology” workshop at GLOBE Capital 2019: Foresight Cleantech Accelerator Centre, Royal Bank of Canada (RBC), Emissions Reduction Alberta (ERA), and the Canadian Commercial Corporation (CCC).

This report combines the pre-briefing provided to the workshop participants and the discussion and proposals put forward at the workshop. Participants considered the challenges associated with **scaling** and **growing** cleantech companies in Canada, and **enabling** their export strategies. By bringing together the spectrum of investors—such as pension funds, commercial banks, family offices, and VC/PE firms—as well as governments and established cleantech companies, we hoped to: (1) create a common understanding of the barriers and gaps to scaling up clean technologies, and (2) co-create possible solutions that participants could potentially pilot.

Despite being poised for significant growth, Canadian cleantech companies, tend to experience slower growth and raise less capital than their U.S. or global counterparts. Due to the capital-intensive nature of many clean technologies, longer payback periods, lower returns, and unique technological and political risks, many investors choose to avoid these companies. Financing gaps are especially acute in the later stages of financing and development, typically past a first demonstration or pilot project and pre-sales. Experience also suggests there is a lack of tools to equip Canadian companies with the capabilities and expertise to export internationally.

In recent years, progress has been made in filling earlier stage cleantech funding gaps, including increases in government grants, funding and other support, which is stimulating cleantech companies' advancement (see *Table 2* in the *Appendix*). The continuation of such support will be an essential part of further advancing cleantech research and development, testing technologies, and launching cleantech companies.

To alleviate the investment gaps associated with scaling clean technologies, financing partnerships and collaboration will be critical to positioning Canada as a global leader in the rapidly growing cleantech sector. While we can look to some unique financing vehicles, such as the Wells Fargo Innovation Incubator (IN2), the Silicon Valley Bank (SVB), government mechanisms (Sustainable Development Technology Canada, Business Development Bank of Canada, Export Development Canada, Canadian Commercial Corporation and more) and the RBC and Espresso Capital-partnered debt mechanism, there is an opportunity to identify additional solutions.

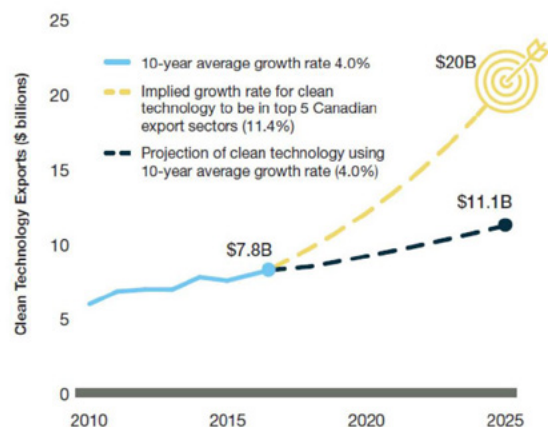
At the Scaling Cleantech workshop at GLOBE Capital 2019, individuals in government, VCs, banks, cleantech, and accelerators collaborated to bridge financing gaps and capitalize on opportunities to position Canadian cleantech companies as global leaders in the transition to a low-carbon economy. We look forward to continuing to support this work.

# INTRODUCTION

## What is the driving force behind the need for cleantech solutions?

The Paris Agreement was a historic collaboration and commitment between 185 countries to reduce greenhouse gas (GHG) emissions and limit global warming to below 2°C above pre-industrial levels within the century. The urgency and need to address climate change are being challenged by a number of confounding megatrends\*, such as rising populations and increasing energy demand. The question is: how can the world continue to grow in a way that is economically, environmentally and socially sustainable? Clean technology, or “cleantech,” is a key part of the solution for achieving both our environmental and prosperity goals.

In Canada, cleantech offers a way for us to meet our climate goal of reducing economy-wide emissions by 30% from 2005 levels by 2030<sup>1</sup>, while growing our economy and global influence. Global trade in cleantech, as measured by exports, doubled to more than CAD \$1.15 trillion from 2008 to 2015. The cleantech industry is expected to continue to grow to \$2.5 trillion globally by 2022<sup>2</sup>. Furthermore, the Canadian government is bullish on its ability to be a leading cleantech economy, with a target to increase cleantech exports to \$20 billion annually by 2025 (see *Figure 1*)<sup>3</sup>. This presents a substantial opportunity for investors to support Canadian cleantech companies in becoming global leaders.



## Historical and Projection of Clean Technology Exports to 2025<sup>3</sup>

**Figure 1 |** Historical and Projection of Clean Technology Exports to 2025

**Source: Government of Canada (2018) Report from Canada's Economic Strategy Tables: The Innovation and Competitiveness Imperative**

## Defining “cleantech”

Cleantech refers to any process, product or service that reduces environmental impacts. These technologies are developed by a broad array of firms, and their adoption spans all sectors of the economy. By developing and adopting cleantech, companies and industry can control costs better, meet new and emerging regulatory requirements at home and abroad, improve global competitiveness and reduce impacts on climate, water, land and air<sup>4</sup>.

\* Megatrends are defined by EY as “large, transformative global forces that define the future by having far-reaching impacts on businesses, economies, industries, societies and individuals.” Examples include climate change, urbanization, population growth and more.

# The State of Cleantech Financing in Canada

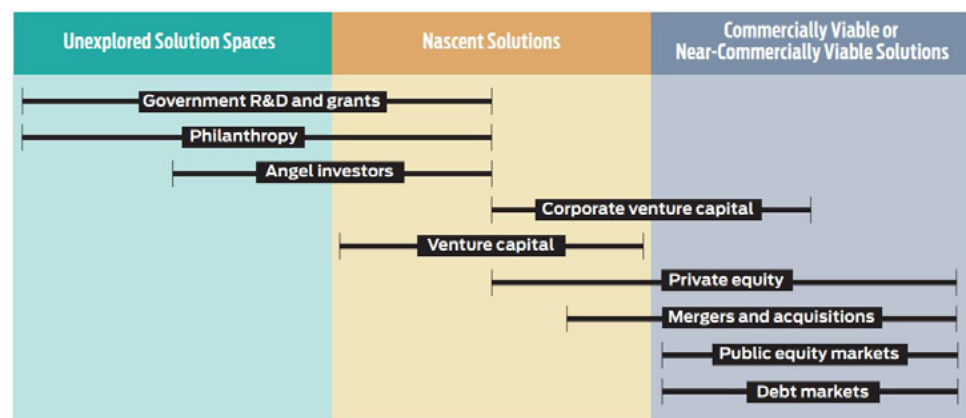
## What is the typical pipeline of funding for cleantech?

Early-stage cleantech funding in Canada seen as “*Unexplored Solution Spaces*” (in *Figure 2*) is directed to promising technologies that are in development. Funding for these is predominately facilitated through federal government departments and agencies, including Innovation, Science and Economic Development's (ISED), the National Research Council's Industrial Research Assistance Program (IRAP), and specific calls for funding from Natural Resources Canada (NRCan) and Sustainable Development Technology Canada (SDTC).

A number of organizations at the provincial level also provide support, such as non-dilutive grants, to cleantech research and development projects. This includes but is not limited to the Innovative Clean Energy (ICE) Fund in BC, Emissions Reduction Alberta (ERA), Alberta Innovates, and Ontario Centres of Excellence, as well a number of other provincial agencies. Private investment from angel investors, family and friends also plays an important role at this early stage.

As technologies move past the concept and prototype stage but require further testing and demonstration to bring them to commercial scale, they move into the “*Nascent Solutions*” stage depicted in *Figure 2*. Funding at this phase is similar to other industries and is where venture capital (VC) and private equity (PE) firms as well as corporates step in. Companies that are near, or at, commercially viable products may seek out funding from more traditional financial institutions, such as banks and pension funds. Companies at this later stage could have the potential to merge, be acquired, or go through an initial public offering (IPO) process.

**Figure 2 |**  
Sources of Capital for Climate Solutions Stages



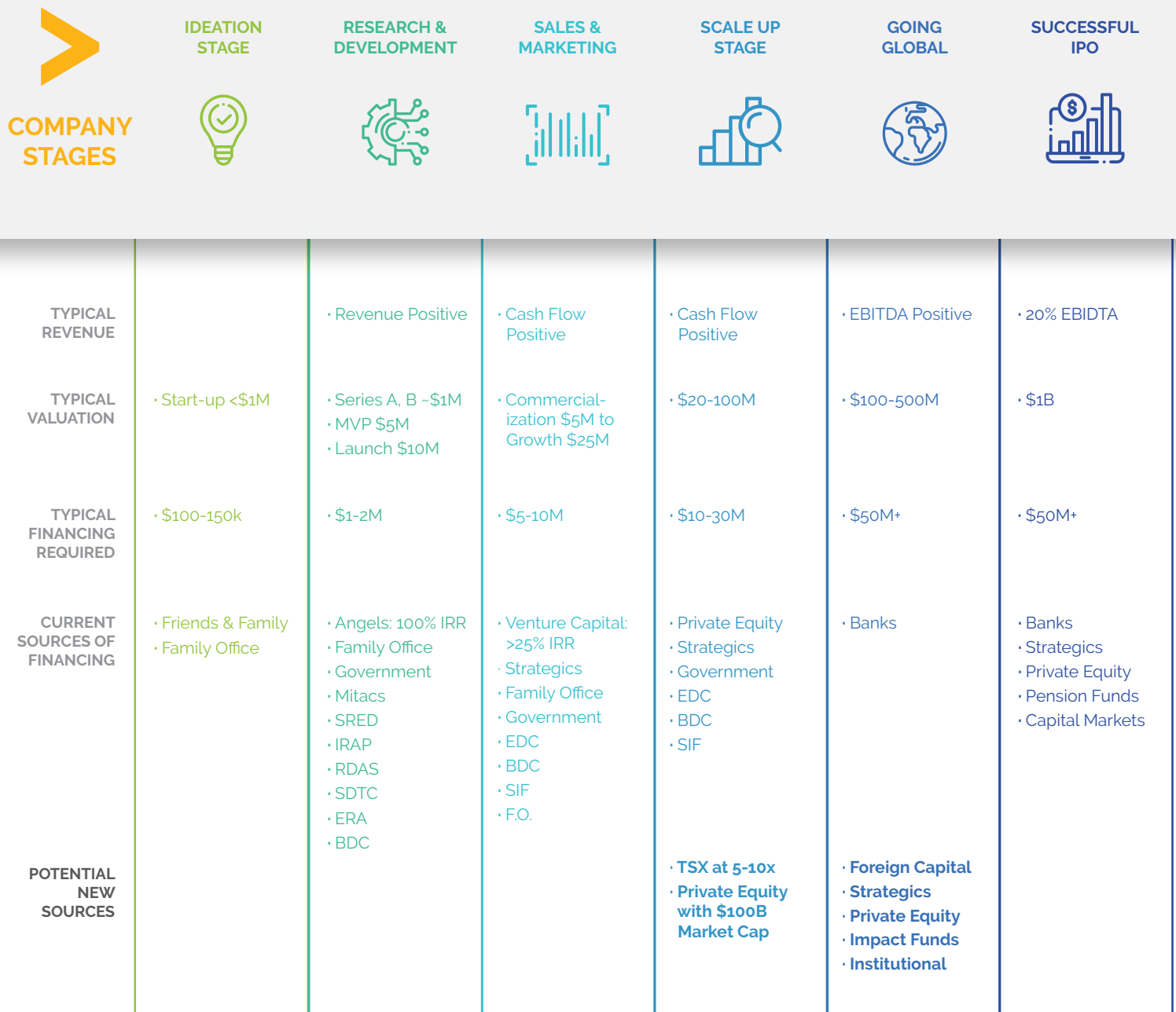
At the Scaling Cleantech workshop at GLOBE Capital 2019, participants mapped the cleantech funding pipeline in Canada (*Figure 3*). This visual can serve as a guide to cleantech companies and the ecosystem to better understand the current funding pipeline as well as potential new financing opportunities. Overall, the funding value chain of cleantech is akin to most other industries, yet cleantech companies have unique challenges, which are explored in the next section.

**Source: Burger, Murray, Kearney & Ma (2017)**

The Investment Gap That Threatens the Planet. Stanford Social Innovation Review



Figure 3 |  
Cleantech Funding Pipeline in Canada



## GLOSSARY

**BDC** Business Development Bank of Canada

**EDC** Export Development Canada

**ERA** Emissions Reduction Alberta

**F.O.** Family Office

**IRAP** Industrial Research Assistance Program

**IRR** Internal rate of return

**Mitacs** National research and training organization

**RDAS** Regional Development Agencies

**SDTC** Sustainable Development Technology Canada

**SIF** Strategic Innovation Fund

**Strategics** Also called corporate venture capital

**SRED** Scientific Research and Experimental Development



# Financing Cleantech Scaling, Growth and Export: Where are the Gaps?

In 2014, Canada was ranked seventh globally in terms of countries where cleantech companies are most likely to emerge, according to the Global Cleantech Innovation Index. Three years later, the country jumped to fourth due to its funding availability and early entrepreneurship support<sup>5</sup>. Government funding, innovative VCs, corporate strategies and other initiatives all helped increase the ranking. Although these rankings paint a promising picture of an ecosystem that supports rising cleantech firms, there are a number of barriers to scaling cleantech companies in Canada.

## Key challenges

- Shadow of past cleantech failures
- Capital-intensiveness of the industry
- Technology risks
- Government's role in scaling companies
- Availability of debt financing
- Exporting tools
- Capital-raising talent in cleantech companies

## Shadows of past cleantech failures

In the early 2000s, investors and the market were extremely optimistic about the growth of cleantech. This led to a significant surge in cleantech investment—from USD \$365 million across 59 deals in 2001 to USD \$6.65 billion across 385 deals in 2008—an annual average growth rate of 51.4% over that period<sup>6</sup>. Unfortunately, a large number of companies did not end up meeting their growth potential, and many even ended up failing.

For example, Solyndra, a U.S.-based company that manufactured tubular solar panels using a thin, next-generation solar material and lightweight racking system, received more than USD \$535 million in public funding and nearly USD \$1 billion in private funding<sup>7</sup>. However, Solyndra was forced to file for bankruptcy in 2011 due to its inability to compete with cheaper panels that were beginning to be produced in China<sup>8</sup>.

These issues, combined with the 2008 financial crisis, cheap new reserves of natural gas and more, led to the “bursting of the cleantech bubble<sup>9</sup>” and the failure of over 150 Silicon Valley cleantech start-ups<sup>10</sup>. Investors also lost their shirts—it is estimated that over half of the USD \$25 billion invested by VC firms from 2006 to 2011 was returned. As a result, funding in the sector slowed

immensely<sup>11</sup>. Since the bursting of the bubble, cleantech investment has continued to decline in Canada and the U.S. Canadian cleantech saw its share of total VC investment decline from 21% in 2013 to 6% in 2016. Similar declines occurred in the U.S.—16.8% in 2011 with investment declining further to 7.6% in 2016<sup>12</sup>. The memory of this cleantech boom and bust may still be casting a shadow on cleantech companies, making past investors weary of new investments.

### Many clean technologies are capital-intensive

Cleantech technologies are often capital-intensive and require a longer investment period, creating risk profiles that are prohibitive for many traditional investors, such as VC firms. As a result of these lengthened time horizons and higher upfront capital requirements, cleantech companies often have lower annual return on invested capital (ROIC) in comparison with other prominent sectors seeking VC funding. To illustrate, for every \$1 of investment, cleantech generates, on average, \$0.86 in annual revenue, compared to information and communication technologies (ICT), which average an ROIC of \$1.50<sup>13</sup>. Furthermore, the technology risk with cleantech companies is heightened because large amounts of capital are needed before the technology may be proven (see *Technology risk* on page 11).

Given the longer investment period, high risks and lower returns, some funds have begun to move away from more capital-intensive clean technologies, such as hardware and materials, to invest in capital-light models, such as software-enabled devices (i.e., the industrial internet of things)<sup>14</sup>. For example, a 2017 Brookings report on cleantech VCs in the U.S., found a reluctance to fund high risk, capital-intensive ventures like offshore wind farms, biofuel refineries, and unproven solar cell technologies<sup>15</sup>.

Although some investors are hesitant about these capital-intensive technologies, there are a number of innovative Canadian VC firms, such as ArcTern, Chrysalix, Cycle Capital, Evok, Pyfera and others that recognize the positive financial and environmental impacts of these technologies and are making investments. More information on some of the key VC firms can be seen in *Table 1* in the *Appendix*.



“While investors in other areas of tech discuss the ‘hockey stick’ revenue growth, John Coburn of XPV has made the analogy that cleantech’s hockey stick is laying down on the ice as it has a long maturing phase before it provides a modest return.”

~ **Peter McArthur** | Senior Account Manager, RBC

## Technology risk

Given that many clean technologies are the first of their kind, it is difficult for investors and the market to adequately price their risk. The complexity and technical expertise needed to fully understand some clean technologies makes it even more challenging for investors to price risk<sup>16</sup>. Enhancing investors' knowledge of the technologies and their risks (both real and perceived) could help bolster investors' and the market's confidence in cleantech.

High-technology risk often scares private investors away unless there is a third party, such as a government organization or a potential corporate adopter/buyer, that is willing to shoulder a portion of the risk. Public funding for ventures at the seed stage could help motivate co-investment from angels, essentially de-risking new technology where only a few investors have expertise<sup>17</sup>. This has been found to be true by organizations such as ERA. **Support from government in some format is and will continue to play a crucial role in helping reduce this risk for private investors.**

## Government's role in driving cleantech growth

Federal and provincial governments are optimistic about cleantech and have agreed on a clean growth framework that includes efforts to grow and finance the country's cleantech innovations. Government support of cleantech companies is and will continue to be an integral part of Canadian cleantech's current and future success. Some of the key organizations supporting these initiatives include Alberta Innovates, ICE Fund, BDC, CCC, ERA, EDC, SDTC, and more.

In recent years, EDC and BDC have begun to play a more prominent role in providing funding and support for cleantech companies. This follows the federal government committing nearly CAD \$1.4 billion in new financing to EDC and BDC to support cleantech firms in the 2017 federal budget. Additionally, the Joint Account Management (JAM) meetings, launched in 2017, were established to (1) facilitate discussion and collaboration among a number of the key government organizations, including SDTC, EDC, BDC and Global Affairs Canada (GAC), and (2) share information on high-potential firms, their financial needs, and any organizational opportunities or mechanisms that could be considered to support firms<sup>18</sup>.

An overview of the main Canadian government funders and the support they provide can be seen in *Table 2* in the *Appendix*. The increased collaboration between government organizations combined with the additional injections of funding from the federal government highlights the essential part government will continue to have in supporting the growth and scaling of cleantech companies.

**Opportunities;** While government support is benefiting cleantech companies, there are other opportunities to enhance the tools that organizations offer. For example, despite the CAD \$1.4 billion committed to cleantech from BDC and EDC through 2018 alone<sup>19</sup>, this amount remains relatively small compared to these organizations' total funding. For example, BDC committed a total of CAD \$31 billion in capital to small- and medium-sized businesses, yet BDC has committed only CAD \$700 million specifically to cleantech firms over a period of five years<sup>20</sup>.

Funding gaps remain, as do concerns from cleantech companies about accessing this funding. For example, it appears that BDC offers earlier-stage, pre-commercial financing and later-stage mezzanine and quasi-equity financing. However, companies that have proven or even commercial-scale technologies, but are still not cash-flow positive, often do not have the ability to qualify for financing. Even those cleantech companies that do meet the requirements find that the administrative burden is not offset by favourable terms, and/or the terms are very restrictive. There is an opportunity for government organizations to collaborate with investors and cleantech companies to look at all the types of support these organizations offer and identify new ways they can help cleantech companies scale.

### Availability of debt financing

Debt plays an important role in helping cleantech companies, especially those that require significant capital expenditures, to scale and grow. However, as mentioned above, the difficulty is that cleantech's longer development time and higher capital requirements may mean companies do not meet typical debt financing thresholds.

According to Kate Ballota, spokesperson for the Canadian Bankers Association, bankers find it hard to provide debt financing to cleantech firms "who do not yet have balance sheets that banks can use as security, or the cash flow" necessary to back loans. The challenge for banks is that many cleantech companies seeking debt finance do not have positive earnings before income taxes, depreciation and amortization (EBITDA). This is a concern for lenders as cash flows are the main source of loan repayment<sup>21</sup>. As most cleantech companies do not have the required cash flows, they are not able to qualify for loans and scale as they might otherwise would like.

Canadian cleantech firms that do qualify for loans can also have trouble paying back loans due to high interest rates. Many companies that are eligible for debt financing may face interest rates higher than those of other industries<sup>22</sup>. It is estimated that interest rates on working capital are 31% higher for cleantech firms than for the average small-to-medium business<sup>23</sup>. These interest rates further eat into companies' cash flows and their ability to grow.

**Opportunities;** Given that many companies are seeking debt financing, there is an opportunity here for lenders and cleantech companies to explore how to unlock more debt options for companies.

Although government funding, such as BDC's mezzanine financing option, has recently stepped in to help address some of the barriers to debt financing, there are still others to fill. According to Tom Rand at ArcTern Ventures, cleantech "needs to find long-term strategic partners with patient capital to help get its hardware-based technologies to market."<sup>24</sup> New partnerships and solutions are critical to helping cleantech companies meet their growth potential.

### Exporting tools

Exporting is a key goal for growing cleantech companies, and many rely on external sales. For example, data from 2014-2015 shows that 62% of sales for cleantech firms was from outside of Canada, with firms in energy and recycling averaging around 80% of sales from external markets<sup>25</sup>. Helping companies export will not only help the companies generate the revenue they need to continue to grow and scale, but will also enhance the Canadian economy.

**Opportunities;** While there are a number of tools offered by EDC and CCC to cleantech companies that export, there may be other opportunities for Canada to enhance its exporting capabilities. For example, the EU's Aid for Trade Strategy merges development dollars with trade partnerships, opening markets for both EU and the aid-receiving nation<sup>26</sup>. A 2017 survey conducted among EU delegations and member states found that more than 50% agreed that demand from Aid for Trade countries has increased trade<sup>27</sup>. This sort of packaging could be done in Canada, especially as it was one of the developed countries that, under the 2009 Copenhagen Accord, to mobilizing up to USD \$100 billion a year by 2020 to help developing countries tackle climate change. Connecting Canada's cleantech companies to these markets and opportunities to tackle climate issues could create win-win opportunities.

### **Funding and talent gaps**

In addition to funding gaps, cleantech companies rated capital-raising talent as one of their top barriers for success<sup>28</sup>. High-quality, experienced management is one of the most important characteristics that investors look for. Raising capital is challenging and time consuming and requires leadership that can effectively find and pitch scenarios to potential investors<sup>29</sup>. This type of skillset is necessary in all companies, but especially in cleantech companies that need extensive capital. Cleantech companies, however, may be tight on capital and may not have the resources to attract top talent<sup>30</sup>. There is an opportunity here for the cleantech ecosystem to try to find ways for companies to hire this type of talent.

# TOOLS TO ADDRESS THESE GAPS AND CHALLENGES?

## Existing solutions

Overall, the challenges that cleantech companies face in their scaling journey may seem numerous, yet there are also significant opportunities and rewards for companies, investors, the economy, and the world associated with scaling and growing Canadian cleantech firms into global companies.

The Scaling Cleantech workshop that took place at GLOBE Capital 2019 achieved its objective of bringing key players from the cleantech ecosystem together to understand the barriers and gaps to scaling and growing cleantech, share existing innovative mechanisms to address some of the gaps, and identify solution themes and next steps.

**The workshop participants raised a number of possible solutions that are already in existence. These include:**

### Wells Fargo Innovation Incubator (IN2)

A technology incubator and platform funded by the Wells Fargo Foundation and co-administered by the National Renewable Energy Laboratory (NREL), IN2 helps speed the path to market for early-stage clean energy and agriculture technologies by providing funding and technical assistance<sup>31</sup>.

### Silicon Valley Bank (SVB)

Provides financial solutions for energy and resource innovation companies in order to help manage capital-intensive development cycles, competitive pricing pressures and product deployment costs while moving quickly along the path to commercial success. SVB formally launched its Canadian bank and it is seeing interest to support Canadian cleantech<sup>32</sup>.

### RBC offers two unique programs:

**Espresso Capital** | Offers early- and growth-stage tech companies with flexible, interest-only loans to allow companies to grow without dilution, giving up board seats or personal guarantees<sup>33</sup>.

**Partnership with National Angel Capital Organization (NACO)** | If companies have received funding from NACO, RBC can provide a credit card for a percentage of the money they have raised. This provides credit to cleantech companies, which is significant and allows organizations to participate in the digital economy without having to put their personal credit on the line.

### Government support:

**Clean Growth Hub** | Provides a one-shop stop for cleantech companies who have questions about accessing federal support.

**BDC** | Constructs deals (equity, preferred shares, debt, etc.) that work with investors and entrepreneurs to help companies grow.

- Collaboration between EDC and RBC led to debt financing for a cleantech company from RBC. The company received a purchase contract and placed a down payment for the product, which was secured by EDC. This type of partnership provides the company with cash flow along with the confidence in the company's ability to have positive EBITDA in 12 months, helping to secure this deal.

**EDC** | Offers funding and support to companies who are at commercial readiness. They have aggressive goals to scale-up and invest in 20 successful companies.

**CCC** | As mentioned previously, provide support for exporting.

### Workshop structure

Overall, the recent increase in collaboration and information sharing between government organizations is helping address some of the scaling and growth barriers. These existing solutions are beginning to address some of the barriers and can be used as inspiration for new mechanisms and collaborations.

The key solution themes that emerged during the workshop include:

- Increase and enhance information/knowledge sharing on existing mechanisms.
- Create new financial vehicles/mechanisms and partnerships.
- Grow understanding and capacity in cleantech companies and investors.

### Some potential solutions and next steps are:

#### 1. Better Information/Knowledge Sharing on Existing Mechanisms |

- Map out in detail the roadmap of how cleantech companies scale and the various actors that are helping support them at each stage. This map can help the various actors in the cleantech ecosystem understand where there may be opportunities to partner and/or create solutions to address gaps. It can also help cleantech companies understand where to go for their next round of funding. An initial map of the ecosystem that was created during the workshop can be found in *Figure 3*.

- Enhance communication and build awareness of the types of resources that are available to cleantech companies (e.g., government funding and what is currently offered).



- Leverage the knowledge and expertise that government organizations have about cleantech.
- Understand and enhance the right financial mechanisms and export information to facilitate companies' needs to both scale and grow.

## 2. New Financial Vehicles/Mechanisms and Partnerships |

- Collaborate with institutional investors and investment bankers—bring them into the conversation and utilize their expertise.
- Explore ways for government to further reduce the risk associated with cleantech investments.
- Develop partnerships with municipalities and modify government procurement practices to help support Canadian cleantech.
- Create more blended finance approaches that utilize public funding to increase private sector investment. An example of this is a Public-Private Partnership (PPP) or Pay-for-Performance, where private investors provide up front funding and are repaid by the government if certain objectives are achieved (e.g., the Heart and Stroke Foundation's Impact Bond).
- Examine tax incentives that the EU and U.S. offer that are helping cleantech companies, and identify if there may be opportunities for Canada to apply similar types of incentives.
- Connect government and private investors and increase information sharing between the two, which can help decrease risks and support the due diligence process for investors.
- Build out the network of potential investors and engage family offices and foundations.

## 3. Grow Understanding and Capacity in Companies and Investors |

- Work with entrepreneurs to enhance their business models and create a more accurate representation of financial expectations.
- Educate cleantech companies about the handing-off process between investors, and support them in developing networks and expertise so they are able to successfully raise a new round of funding.
- Increase education about cleantech and technology risks to traditional investors (e.g., financial institutions).

We also encourage participants and the entire cleantech ecosystem to commit to taking next steps to further solutions, leveraging the foundation created with this workshop and report. We look forward to continuing to collaborate and to see how the ecosystem can help Canadian cleantech companies meet their potential!

## APPENDIX

Table 1: Canadian Venture Capital Funds Involved in Cleantech

VC Fund	Investment Thesis	Cleantech Sectors Financed
Cycle Capital Management	Early-stage venture, late-stage venture, private equity <sup>34</sup> .	Agriculture technology, green chemicals, biofuels, biomass transformation, smart grid, energy storage, renewable energy, energy efficiency, Internet of Things (IoT) applied to resources management, big data and technologies dedicated to Smart Cities <sup>35</sup> .
Evok	Investments in early-stage companies with technologies that substantially improve industrial efficiency, particularly in the oil and gas sector.	Evok's portfolio specifically contributes towards: reducing greenhouse gas emissions, reducing water consumption and disposal, reducing marine and land disturbance, and developing higher value materials from existing resources with reduced environmental impact <sup>36</sup> .
Pyferra	Targets high growth Series A companies in technology and sustainability <sup>37</sup> .	Not explicitly disclosed.
EnerTech	EnerTech targets investment opportunities that offer significant revenue growth in the following 6-18 months, have large addressable and global markets, leverage defensible intellectual property or operational advantages, and are run by the best managers and their teams <sup>38</sup> .	Smart grid, energy efficiency, energy management, water remediation, materials, solar.
ArcTern Ventures	Early Stage Venture, Seed <sup>39</sup> .	Clean energy, energy use & storage, mobility, advanced manufacturing & materials, resource use & efficiency, food-tech <sup>40</sup> .
Chrysalix Venture Capital	Chrysalix invests early in breakthrough innovations at the heart of science and technology that are driving disruptive impact in resource intensive industries <sup>41</sup> .	Intelligent systems, energy technology and resource productivity solutions.
Espresso Capital	Provides venture debt financing to early and growth stage technology companies <sup>42</sup> .	Not explicitly disclosed.

## APPENDIX

Table 2: Key Sources of Canadian Government Funding Sources for Cleantech Companies

Organization	Funding Available for Cleantech	Financing Mechanism	Company Stage Targeted
Business Development Canada (BDC)	BDC is committing \$600 million over five years (2018-2023) <sup>43</sup> .	Long-term financing, cash flow loans, mezzanine and quasi-equity financing, growth equity.	VC funding for early-to-late stage, high-potential cleantech companies with market-ready technology or products and proven potential to scale.
Export Development Canada (EDC)	Budget 2017 allocated \$1.4 billion to cleantech funding through EDC and BDC combined <sup>44</sup> .	Credit, political risk, and performance security insurance, as well as buyer financing, direct lending, and structured and project finance.	Commercial ready, revenue generating.
Sustainable Development Technology Canada (SDTC)	Budget 2017 committed \$400 million over five years.	Grants.	Technology beyond proof of concept but pre-commercial.
Canadian Commercial Corporation (CCC)	Lower-risk Power Purchase Agreements.	Power Purchase Agreement (PPA).	Commercial ready, seeking opportunities in emerging markets.
Alberta Innovates	Annual investment of \$286 million.	Funding and technical support.	All stages.
Emissions Reduction Alberta (ERA)	All applications for funding are currently closed. To date, ERA has funded 145 projects totalling \$467 million.	Grants.	All stages.
British Columbia Innovative Clean Energy (ICE) Fund	\$40 million to pre-commercial clean energy projects and technologies from 2017-2020 (combined effort w/ SDTC) <sup>45</sup> .	Grants.	Pre-commercial.
Technoclimat, Transition énergétique Québec (TEQ)	Up to \$3 million in funding per project (energy efficiency, renewable energy, bioenergy, GHG reduction) <sup>46</sup> .	Grants.	Focus on pre-commercial technological innovation.
Ontario Carbon Trust	\$400 million over four years.	To be determined.	To be determined.

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