

Economics and Environmental Policy Research Network

Research Symposium

March 1st – 2nd, 2018

Session Notes for Plenary IV: Public Policy and Unleashing Private Investment for Clean Innovation

1. Context of Discussion

The presentations in this session covered a host of issues related to the challenges and opportunities in driving private investment in clean innovation.

1. Canada's Performance

Evidence suggests that Canada is not yet realizing its clean innovation potential. While our early stage cleantech companies perform well, performance tends to fall off as companies get closer to commercialization and market diffusion. While Canada has a strong track record in R&D and is home to a host of emerging clean technology companies, they tend to stall before the growth stage where most jobs and revenue are created.

For example Canada is home to 13 of the Top 100 emerging Cleantech firms and moved up from 7th to 4th on the 2017 Global Cleantech Innovation Index, which measures where cleantech companies are most likely to emerge over the next decade. However, retained earnings by Canadian cleantech firms is negative and falling. Canadian firms are also taking longer to reach growth stage than in other countries, 10.2 years on average compared to 8.9 in the US and tend to reach commercialization at about half the rate. Canadian companies identify a lack of access to finance as a key barrier preventing them from growing and competing internationally. Often, Canadian firms are having to look outside of Canada to obtain the financing they need.

2. Barriers to Clean Innovation Finance

Clean innovation faces a number of fundamental market failures (such as knowledge spillovers) and additional market barriers (such as policy uncertainty, infrastructure lock-in, incomplete information, and capital intensity) that chill investment in clean innovation. A further market issue facing cleantech companies is that of environmental externalities: if pollution were properly priced, it would create demand for cleantech; the fact that it is not currently being adequately priced means that environmental factors like pollution are not effectively functioning as market drivers for cleantech. Correcting these market failures with public policy tools like R&D support, carbon pricing, and public procurement is essential to encouraging investment in clean innovation.

In particular, the capital intensive nature (high capex) and long scale-up timelines of many clean innovations tend to be an unattractive profile for traditional funding tools. Private lenders can only tolerate so much risk, banks tend to prefer established firms and venture capital is shifting toward the relatively “capital-light” business models, with faster return timelines more characteristic of software

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investment. Low capex investment is presently outweighing high capex 20:1. This means public investment and innovative funding models are necessary to meet the needs of the cleantech sector. The high cost of capital for cleantech firms appears to be preventing them from being able to compete with and displace incumbent industries.

Additionally, inadequate information can impede investment in clean innovation. For example, the finance industry is only beginning to build an understanding of the sector, information barriers and policy uncertainty appear to be slowing the capacity of the finance sector to develop instruments to meet the needs of clean innovation. Trends toward improvements in understanding of environmental risk and climate-related financial disclosure may be able to better inform lending decisions.

Conversely, cleantech SMEs are often run by founder/CEOs that sometimes don't necessarily possess the business and finance experience to develop strong funding proposals and shift their organization from a creation to a growth mindset.

More broadly, there is a need to develop financial mechanisms to support the demand of low carbon products and services. Increasingly the argument is being made that supporting clean tech firms without having a market for carbon in place, does not make a lot of sense. Tools and solutions to address this problem already exist, however they are not applied in Canada at present.

2. Research Questions Identified

The following directions for future research emerged from the discussion:

- **How could the clean technology 'sector' be better measured to inform decision making by financing institutions?** You can't manage what you can't measure. Financial institutions are struggling to account for the cleantech sector without sufficient data. Improving existing tools such as Canada's Standard Industrial Classifications (SIC) to account for emerging trends can help institutions make decisions for cleantech. **What are other jurisdictions around the world doing to address this?**
- **How can public investment in clean innovation finance best leverage private capital?** Recent federal budgets saw a significant injection of capital to drive clean innovation. Identifying best practices for leveraging private capital – beyond direct financing - is important to get the most out of the public investments Canada has made.
- **How can environmental risk be better accounted for in financial risk assessment?** International trends toward recognition of environmental and climate risk by the financial sector represent an opportunity to better incorporate environmental impacts in financial decision making.
- **How could alternative capital allocation requirements for cleantech help drive private investment?** Some US financial institutions enjoy lighter capital allocations for certain product offerings such as venture debt allowing them to fund enterprises at an earlier stage and at finer pricing than would be otherwise possible. Knowing that this notion of altering capital allocation buffers is contentious (it effectively re-allocates risk to the financial system, arguably in a way that misprices assets and hence could increase systemic financial system risk in a way that is not

intended), could clean technology be allocated lower capital risk by Canadian regulators to encourage greater participation in this space?

- **What alternative financing instruments could be used to fulfill the unique needs of the cleantech sector?** Where existing financial tools aren't meeting the demand of the sector, what alternatives could help fill this gap?
- **What else can governments/the public sector do (outside of direct investment support) to help crowd-in private financing and bridge the investment gap?**
- **What can we learn from other countries regarding tools and solutions to develop financial mechanisms to support the demand of low carbon products and services in Canada?**

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