



**Smart Prosperity
Institute**

SUBMISSION:

REMARKS TO THE HOUSE OF COMMONS'
STANDING COMMITTEE ON NATURAL
RESOURCES ON CLEAN TECHNOLOGY IN
CANADA'S NATURAL RESOURCES SECTORS

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Remarks to the House of Commons' Standing Committee on Natural Resources on Clean Technology in Canada's Natural Resources Sectors

Thank you for the opportunity to share with you today some of the findings of Smart Prosperity Institute's research on clean innovation in Canada. As an evidence-based, research-focused think tank at the University of Ottawa, Smart Prosperity Institute has been looking at the public policy levers to accelerate clean innovation in Canada for the past 2.5 years. Our work is informed by a literature review of both the academic and grey literature, a conference that we held in Calgary (with government, academic, think tank and industry representatives), and a series of over 40 interviews with a broad cross-section of experts from business and public policy. This Spring, we intend to release publicly the first report on our findings.

What we've found is this:

- Increasingly, the world is looking for clean innovation. Economic reward will flow to those nations and firms that embrace the new thinking necessary for improving our economic strength and protecting our environment simultaneously.
- The clean innovation opportunity applies across all parts of the economy. It is giving rise to new industries, while at the same time rewarding traditional industries -- such as the natural resource sectors -- for making existing products more efficiently and creating altogether new products.
- As the world rapidly moves in this direction of cleaner growth, Canada cannot afford to fall behind. This is true both in terms of meeting national

environmental imperatives and international commitments, and in terms of positioning Canadian firms and the “Made-In-Canada” brand to capture the tremendous market share in cleaner technologies and cleaner commodities, goods and services.

- Generally, countries innovate best around what they already do well. For Canada, that points to the natural resource sectors as fertile ground for clean innovation.
- But Canada isn’t there yet. So, to figure out why, we’ve looked at where and how in the “clean innovation ecosystem” public policy can accelerate the creation and adoption of clean technology.
 - What we’ve found is that improving Canada’s performance requires addressing the double market failure present in clean innovation: the ‘knowledge spillover’ market failure that results in an under-provision of new ideas, combined with the ‘environmental externalities’ failure that occurs because markets on their own generally don’t capture the clean value of products and services. Essentially, when you are creating new ideas, you aren’t fully compensated for them (this is true for all innovation).
 - But what’s novel for clean innovation is that when you create an idea that reduces an environmental impact, the clean aspect of your product generally isn’t fully reflected in market prices. This **double market failure** is unique to clean innovation and it’s compounded by several key market barriers. Together, these market limitations mean that government action to accelerate clean innovation is not only justified, it is necessary.

These market failures translate into risks for business. To address your question of what types of risk the federal government can address to help de-risk the adoption of clean technology in the natural resource sectors, perhaps the most important role for government is in reducing **policy risk**.

Because of the unique double market failure in clean innovation, governments need to help clean innovation markets work to their full

potential – and this has profound implications. It means that entrepreneurs, investors, and researchers rely on governments’ actions to help create the demand for their products and services. If there is uncertainty around a government’s environmental policy agenda—what policies it will put in place, how those policies will evolve, how resilient they are to political change—that translates directly into market uncertainty. This policy risk leads to under-investment in clean innovation, and it is a problem only government can solve.

The key for governments is to intervene in smart ways that target market failures and other barriers, and to do the things that private actors cannot do, with the ultimate aim of creating well-functioning markets for clean innovation. We have found that there are 4 areas where policy is needed:

1. There are policies needed to address the particular challenges related to the creation of new ideas, like finding ways to boost private sector R&D
2. There is another set of policies needed to help create the market demand for clean solutions and cleaner commodities – pricing carbon is a great step in the right direction, but public procurement and well-designed regulations are needed too.
3. Another set of policies will be needed to target the challenges around commercializing technologies and growing companies.
4. And finally, we’ll need a set of policies that helps support the whole clean innovation ecosystem – things like skills training, data initiatives, clusters etc.

Because clean innovation in the natural resource sectors requires that the whole ecosystem work well, it means these various types of policies are needed, and they should be guided by a strategic vision. Providing certainty in the government’s vision, investments, programs, and policies is the most important way governments can address what is perhaps the most important risk – the policy risk. “Policy stickiness” matters.

Having just said that the government must consider policies at all stages of the clean innovation system, there's a unique role for what are called PULL policies – the policies that create market demand for clean innovation. This is also Smart Prosperity Institute's area of greatest expertise so I'll focus briefly on these policies.

In the case of clean innovation, well-designed policy actions can help recognize the real cost that pollution imposes on society and the economy. For clean innovation, government action is not just acceptable – it is necessary in order to make the market work. In a market where pollution bears a price, clean innovation—which reduces pollution—assumes real economic value.

Pricing pollution is one of the most effective and cost-effective pull policies. This can take the form of explicit pricing, for example in the form of a carbon tax or an emission trading system, or it can take the form of an implicit price on polluting activities, such as through regulations and standards. In addition, government purchasing power—exercised through procurement policies—can be a powerful market driver and can be designed to be a safe space to test new clean innovations.

The OECD has studied these market-creating pull policies extensively and found that they work best when they meet some key criteria: they must be **stringent, predictable and flexible**. When designed well, these policies can create market demand for cleaner goods and services, AND induce innovation.

We've also spent a significant amount of time looking at the design features that clean innovation institutions should have. I'd be happy to share our papers on that topic with you if this topic is interest.

The natural resource sectors of the Canadian economy have an opportunity to build on our unique strengths to provide low-carbon, resource efficient technologies, goods and services to the world. We must go farther than today's best efforts to move to the front of the clean innovation pack, and our research shows that the best public policy response will be not one policy, **but a suite of coordinated policy initiatives that address different needs in different parts of the clean innovation ecosystem.** Delivering the environmental and economic outcomes that clean innovation offers requires a strong, healthy, and integrated system of research, education, and finance all functioning together.

Within this suite of policies, there is a particular role for **well-designed environmental “pull” policies.** Flexible policy tools, like pollution pricing and smart regulations, as well as a predictable policy path, help create the certainty needed to unleash investment and entrepreneurship across Canada's natural resource sectors.

Most of all, achieving this future will require smart, far-sighted, and sustained government actions to enable private initiative to flourish. Government has a natural role in setting a vision and level of ambition that will position our natural resource sectors for long-term success. Governments can invest more patiently with longer horizons than the private sector and can approach risk differently. At the same time, **only governments can provide policy certainty and create the market conditions that will unleash clean innovation.**

Thank you