



Canada's Policy Support for Clean Technology Exports

Report Card

Penelope Comette
Maximilian Kniewasser
Patricia Lightburn
July 2015

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PEMBINA
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Production manager & editor: Kevin Sauvé
Contributors: Penelope Comette, Maximilian Kniewasser, Patricia Lightburn
Design/Layout: Kevin Sauvé
Cover design: Bernard Rudny
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The Pembina Institute
219 19 Street NW
Calgary, AB
Canada T2N 2H9
Phone: 403-269-3344

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PEMBINA
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- driving down energy demand by encouraging energy efficiency and transportation powered with cleaner energy sources;
- promoting pragmatic policy approaches for governments to avoid dangerous climate change, such as increasing the amount of renewable energy plugged into our electricity grids;
- and — recognizing that the transition to clean energy will include fossil fuels for some time — advocating for responsible development of Canada’s oilsands and shale gas resources.

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Context

Canada is competing with a growing number of countries increasingly focused on the export potential of the clean technology (cleantech) economy. Canadian cleantech exports currently represent over one per cent of this \$1 trillion global industry, and the percentage of Canadian cleantech companies that are exporters is projected to grow from 68 per cent in 2013 to 85 per cent in 2015.¹ The U.S. in particular represents a significant market for Canadian cleantech exports with 50 per cent of current export sales coming from U.S. markets.²

With a comprehensive set of policies and programs to encourage domestic market deployment and export development, Canada has the opportunity to position itself as an even greater supplier of cleantech to the U.S. Unfortunately, there is no comprehensive policy framework for supporting Canada's cleantech exports at national or provincial levels. Instead, these policies appear to be scattered across the country, which means all levels of government have work to do to fill in the gaps in order to seize the U.S.-cleantech export opportunity. The near term result, according to Analytica Advisors estimates, is Canada's global market share has declined by 41 per cent since 2005, making Canada the world's third greatest loser of market share since 2008.³

A note on terminology

The term “clean technology” (or “cleantech” for short) spans energy production, infrastructure and conservation, and involves technologies and services that promote, enhance or advance:

- diversity of supply sources and distribution and/or transmission,
- efficiency in use, and
- reduced negative environmental effects, such as greenhouse gas emissions.⁴

For the purpose of this report, clean technology companies are those organizations that design, develop and manufacture clean technologies and/or provide supporting services. Whereas clean energy is a sector within the larger clean technology industry.

Canada has a history of successfully encouraging export development in targeted industries such as aerospace, nuclear power, digital communications and the oilsands,⁵ with supportive export policies delivered from both provincial and federal levels. Although the federal government oversees international trade agreements, the provinces can engage in trade missions and

¹ Analytica Advisors, 2015 *Canadian Clean Technology Industry Report Synopsis* (2015). http://www.analytica-advisors.com/assets/file/2015%20Report%20Synopsis%20Final_wcovers.pdf

² Ibid.

³ Ibid.

⁴ Penelope Comette, Ed Whittingham and Dan Woynillowicz. *Competing in Clean Energy, Capitalizing on Canadian innovation in a \$3 trillion economy* (Pembina Institute, 2013). <http://www.pembina.org/reports/pi-competing-in-clean-energy-12072013.pdf>

⁵ Richard Hawkins, University of Calgary, “Canada’s Innovation Policy Challenges” presented at the Sustainable Prosperity Accelerating Clean Innovation Panel, March 31, 2015.

memoranda of understanding (MOU) with foreign jurisdictions and can deliver a wide range of tax measures and funding programs.

This report card is a scan of the policies and programs in place at both the federal and provincial level in Canada that support cleantech companies in their pursuit of export opportunities. The spectrum of policies that could target cleantech companies was considered — from creating domestic deployment opportunities to encouraging business growth and providing supportive export policies and programs. This scan is the first step toward assessing gaps in public policy in Canada for clean energy companies. It does not include a detailed assessment of the effectiveness or the stringency of any particular policy, which is out of the scope of this project but which is recommended as a next steps in evaluating government support for cleantech exporters. Of note, we evaluate the federal government separately from the provinces but with the same metrics, as it has a unique role and jurisdiction.

Fortunately, some supportive policies for cleantech exports already exist across the country and at both levels of government.

1. Policy toolbox

The policies that are in place across the country fit broadly into one of three categories:

1. Creating domestic deployment opportunities
2. Encouraging business growth
3. Supporting export opportunities

Research has shown that supportive policies in each of these three areas improve the competitiveness of cleantech companies and their ability to export their products to the U.S. and other markets.⁶

Figure 1: The three policy categories that support cleantech exports in Canada



⁶ Comette et al., *Competing in Clean Energy*. 2013, and ECOPOL, “European best practices and policy tools supporting the internationalisation of eco-innovative SMEs,” in ECOPOL Project, Work package 6 - “Exploring and analysing the potential of international cooperation in diffusing environmental technologies” Centro Científico e Cultural de Macau, Lisbon, April 16, 2012 (Lisbon, 2012). Available at http://www.ecopol-project.eu/easydata/customers/ecopol/files/materials/ecopol_wp6_background_document_final.pdf



Creating domestic deployment opportunities

A key challenge for companies looking to expand into export markets is to demonstrate a successful existing track record. Policies to create domestic deployment opportunities help Canadian cleantech companies by allowing them to grow and showcase their businesses. We grouped these supportive policies into two subcategories: **structural frameworks** and **technical support**. Policies that were considered structural frameworks include carbon pricing, feed-in tariffs, coal-power regulations and clean-electricity regulations, for example. Policies in the technical support category include those such as government investment in demonstration projects and green procurement policies.



Encouraging business growth

A wide variety of policy tools exist to promote the growth of cleantech businesses. These policies can help bring businesses from the conceptual stage to commercialization and to the point when they are ready to turn to export markets. These policies were divided into two categories: **research and development (R&D) focused** and **commercialization focused**. R&D policies include research and development support, seed funding and leveraging venture capital. Commercialization policies focus on later stage capital and implementing favourable tax regimes. Policy stability is also crucial in this area in order to maintain investor confidence and industry momentum.



Supporting export policies and programs

Export policies and programs provide support for the transition from domestic deployment to an export focus. These tools can range from relationship strengthening support, such as networking and representation at trade shows, to research and market analysis as well as capacity building and trade missions and agreements more generally. Business support through loan guarantees and insurance programs for exporters is another way that governments can lower risks and increase access to capital for companies looking to export. Targeted programs can help businesses to leverage the existing relationships that governments maintain with export markets, including with foreign governments, buyers and investors.

2. Findings

The following table presents the policies in place to support the cleantech export market at the federal and provincial levels using the three categories for policy support described above. The findings highlight that — although policies exist in all provinces as well as at the federal level — no jurisdiction has a comprehensive policy framework and significant policy gaps remain. Filling these gaps will increase the likelihood that Canada will be able to maximize its opportunity for cleantech exports to the U.S. and other jurisdictions.

Ontario, Quebec and British Columbia stand out as leaders among provinces in terms of having the *most* policies in place to support cleantech companies. Saskatchewan, Manitoba, New Brunswick and Prince Edward Island are at the other end of the spectrum — these provinces have the least number of policies in place to support cleantech companies.

The federal government, like the provinces, lacks a comprehensive strategy to support the cleantech export market. The federal government provides varying levels of support across all categories although it largely does so through government agencies such as Sustainable Development Technology Canada (SDTC) and Export Development Canada (EDC), not through comprehensive policies.









































































In general, policy tools are focussed on R&D support and commitments to “greening” (i.e. improving energy efficiency and fuel conservation in) public buildings and vehicle fleets. Programs to support export market development are less common and are almost exclusively populated by the work of the EDC, as well as some provincial trade missions.

These findings are consistent with perspectives of Canadian clean energy business leaders,⁷ who say that a national approach to carbon pricing along with later stage funding and tax support and proactive export market assistance are important missing pieces of the clean energy policy framework in Canada.⁸ Furthermore, outside of creating domestic deployment opportunities, there are only a small number of programs and policies dedicated specifically to the clean energy sector. Most of the support is spread across multiple sectors, such as tax incentives and business accelerator programs.

⁷ Comette et al., *Competing in Clean Energy*.

⁸ *Ibid.*

Table 1: Policy support for cleantech exporters

Policy category	CAN Canada	ON Ontario	QC Quebec	BC British Columbia	NS Nova Scotia	AB Alberta	NL Newfoundland & Labrador	NB New Brunswick	SK Saskatchewan	MB Manitoba	PE Prince Edward Island
 Creating domestic deployment opportunities											
Structural frameworks											
Technical support											
 Encouraging business growth											
R&D focused policies											
Commercialization focused											
 Supporting export programs											
Business support											
Strengthening trade relationships											
Legend	 Several policies in place  Some policies in place  Little to no policies in place										

Note: This scan is the first step for assessing gaps in public policy. It does not include a detailed assessment of the effectiveness and/or stringency of any particular policy. A dark “orange circle” indicates several policies or programs are in place. It does not mean that a government has a comprehensive solution for that particular area or that more should not be done in this area.

3. Highlights and leading examples

Creating a comprehensive policy framework to support Canada’s cleantech exports will require filling in the gaps identified in the table above and building on the success of existing programs and policies that have already been established by provincial and federal governments. There are several policies, outlined below, that can serve as leading examples, starting points for discussion and potential approaches for broader implementation.

3.1.1 Creating domestic deployment opportunities

The primary gap in this category is the lack of robust and stable structural policy frameworks to support the domestic clean energy industry: there is only one at the federal level and only three provinces have comprehensive policies in this area. Ontario’s feed-in tariff, phase-out of coal electricity generation and its recent commitment to carbon pricing, as well as B.C. and Quebec’s carbon pricing mechanisms, are the leading examples of overarching policy frameworks that support domestic deployment. These policies provide a clear price signal with long-term visibility. The Pembina Institute’s research with key industry stakeholders suggests this is an area of critical importance to clean energy technology exporters.⁹

In terms of technical support policies, all of the provinces (except P.E.I.) and the federal government have made commitments to invest in “greening” public fleets and buildings. Nine of the jurisdictions have programs targeting demonstration projects; two of these exclusively target carbon capture and storage technologies. Examples of leading policies include B.C.’s and Nova Scotia’s commitment to LEED Gold in government buildings and Nova Scotia’s Innovacorp Demonstration Centre. Without evaluating the effectiveness of these policies it is difficult to say whether they are sufficient to spur the deployment needed to impact exports, but the Pembina Institute’s qualitative research with leading clean energy technology entrepreneurs and financiers suggests this is an area that needs increased public policy.¹⁰

3.1.2 Supporting business development

A clear strength in Canada is R&D. All jurisdictions (except P.E.I.) have an R&D tax credit available for cleantech companies and all but two jurisdictions have funding dedicated specifically to early stage cleantech development. A leading example of a tax measure for R&D is the federal scientific research and experimental development (SR&ED) tax credit, which is matched by a provincial R&D tax credit in all provinces except P.E.I.

⁹ Comette et al., *Competing in Clean Energy*.

¹⁰ *Ibid.*

There are clear gaps in government support for the commercialization of businesses. At a time when research is showing increasingly low levels of early stage investment by private cleantech venture capital firms,¹¹ only five jurisdictions have funding available specifically to cleantech companies and six provinces have supportive tax measures.

The most significant support for commercialization comes from the federal level: SDTC's SD Tech Fund, SD Natural Gas Fund and NextGen Biofuels Fund have helped to address the access-to-capital issue faced by many cleantech businesses. The NextGen Biofuels Fund, however, is coming to an end and new applications are no longer being accepted.¹²

3.1.3 Export policies and programs

The majority of the policies in Canada targeting cleantech export development are delivered almost exclusively at the federal level. Seven of the provinces have active trade development agencies and are represented at international trade missions and trade shows. B.C.'s international network of Trade and Investment Representatives, for example, has been instrumental in connecting cleantech companies with business opportunities abroad.¹³ However, there are major gaps in terms of programs and support measures. For example, only two provinces (Ontario and Quebec) have ongoing cleantech export development strategies.

At the federal level, the Canadian Trade Accelerators Program, which provides support to access global markets and entrepreneurship services, has established a stream for cleantech companies. EDC and SDTC are collaborating to provide support for the transition of cleantech companies from start-up and commercialization to the export development stage. By providing loan guarantees to financial institutions, EDC's Export Guarantee Program can help cleantech companies increase their access to capital. This is a program cleantech exporting companies would like to see replicated at the provincial level.¹⁴ EDC has also provided support in the form of growth equity and financing to a number of cleantech companies and has established partnerships, such as the International Finance Corporation, to support the development of the Canadian cleantech sector abroad.

¹¹ PricewaterhouseCoopers, *Cleantech MoneyTree™ Report: Q3 2014* (2014).
http://www.pwc.com/en_US/us/technology/publications/assets/pwc-moneytree-cleantech-venture-funding-q3-2014.pdf

¹² <https://www.sdte.ca/en/funding/funds/nextgen>

¹³ Trade and Invest British Columbia, *Success Stories*. Retrieved from:
http://www.britishcolumbia.ca/export/success-stories.aspx?StoryId=273#.VW8_nGRVhBc

¹⁴ Various cleantech CEOs, personal communications, Fall 2012.

4. Conclusions

In 2013, the perspective of Canadian clean energy business leaders was that Canada lacked a comprehensive policy to support cleantech companies.¹⁵ The findings of this study confirm this and delve into the specific areas where policies are in place, identifying the significant gaps in policies to support the development of companies producing cleantech for export in Canada. While Ontario, Quebec and British Columbia are leaders in terms of policies, in all provinces there is a need to improve domestic deployment opportunities to provide cleantech companies with a market to build their businesses. At the federal level, the absence of a strong structural framework is a hindrance to expanding the domestic cleantech economy. Programs are needed at both the provincial and federal level that target cleantech export development, and provinces can look to other sectors of the economy that have well-established export markets (e.g. natural resources, manufacturing) for examples of leading policies. There is also an opportunity for the provinces and federal government to build on the success of the R&D, start-up and commercialization policies that currently exist; for example, by tailoring them specifically to the needs and conditions of the cleantech sector. Furthermore, greater stability and support for these programs could improve their effectiveness in the marketplace.¹⁶

¹⁵ Ibid.

¹⁶ Guy Holburn, *Guidelines for Governance of the Electricity Sector in Canada* (Richard Ivey School of Business, 2011).
<http://www.thinkingpower.ca/PDFs/Governance/Guidelines%20for%20Governance%20of%20the%20Electricity%20Sector%20in%20Canada%20-%20Final%20Report%20-%20January%202011.pdf>