POLICY LEVERS

Toolkit

Using government policy to help cleantech succeed

CANADAWEST FOUNDATION

energyfutureslab
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The Energy Futures Lab is an Alberta-based coalition of innovators and leading organizations working together to advance solutions aligned with our 2050 vision for Canada's energy future.

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INTRODUCTION

Getting the ‘ask’ right

Successfully commercializing innovation is hard – and good ideas too often end in failure. The cleantech industry in Canada has no shortage of transformative ideas to address environmental impacts and improve energy efficiency. Getting these ideas over the finish line is often a different question. As a result, organizations that are interested in seeing cleantech businesses succeed – industry organizations, economic interest groups, chambers, think tanks, foundations and others – often ask government to step in and help. Requesting government intervention makes sense, as one of the roles of government—whether federal, provincial or municipal—is to manage the conditions that create economic prosperity.

But do organizations ask government for the right things?

Maybe what potential investors need isn’t a tax break, but regulatory certainty. Maybe what would be most helpful to a new cleantech business isn’t an R&D grant, but procurement opportunities. Maybe the place the government could make the biggest difference is by backing a product certification scheme, or providing credible data.

To make good asks, organizations need a robust understanding of what potential government actions or interventions exist. They need to be able to identify what they can and should be asking or advocating for—and what is even in the remit of government to provide. Without a well-developed understanding, businesses and the organizations that want them to succeed may not know where to begin, and there is a good chance that opportunities will be missed.

This policy toolkit is intended to act as that starting point: to lay out the set of government policy actions that can be used to shape the behaviour of consumers, of markets, of producers, of investors and of competing jurisdictions to help cleantech companies succeed. This toolkit can be used both by organizations that advocate for policy changes in support of cleantech commercialization, and by governments that want to review whether they are maximizing the value they provide.

The definition of cleantech is extremely broad, and includes innovations at different stages of development and different scales, and—as a result—with vastly different needs. What is needed to incentivize carbon capture and storage is different than what is needed for clean battery development; the scale of support for developing a hydrogen network is different than the scale of support for developing new waste-to-energy facilities.

While the discussion in this document is framed around using policy to support cleantech innovation, the tool – and the principles that underlie it – can be applied to a wide range of innovation types.

About the tool

The policy levers tool is shown on page 5. At the heart of the tool are 20 different policy levers—such as carbon regulation, international trade agreements, tax incentives and regulatory harmonization—each of which comprises a specific set of actions that can be taken by government in order to help businesses with the successful development, adoption and commercialization of cleantech. Each of the 20 levers is explained in more detail, with examples, starting on page 6.

For each policy lever, the middle column identifies what level of government (federal, provincial, municipal) may be the right one to take action. For many policy levers, there is a role for all three levels of government, although the role may be different because the scale and scope of the different levels of government is different.

The final column identifies six ways in which each policy lever could help companies to successfully commercialize their cleantech—for example, by increasing predictability, increasing available capital or improving market access. In other words, it shows the advantage that this policy lever could provide.

Policy Levers

			Level of government			How it can help cleantech commercialization					
			Federal	Provincial	Municipal	Increases predictability	Increases available capital	Shapes or directs investment	Decreases time/friction to commercialize	Enhances ecosystem	Improves market access/adoption
Vision	1	A **clear, long-term vision** that guides policy development and implementation	●	●		✓	✓	✓		✓	✓
Economic tools	2	**Direct financial support** (grants, subsidies, matching funds, etc.)	●	●	●		✓	✓	✓		
	3	**Procurement** (public purchase of goods / services)	●	●	●		✓				✓
	4	**Tax incentives and disincentives** (tax credits, investment incentives, carbon taxes, etc.)	●	●	●		✓	✓			
	5	**Making capital available** (e.g. via Canada infrastructure bank)	●	●			✓	✓	✓		
Asset planning	6	**Workforce development** (education, training, upskilling or attracting workers)	●	●	●	✓				✓	
	7	**Physical infrastructure** (energy corridor, ports, hydrogen fueling stations)	●	●	●	✓				✓	
	8	**Natural assets** (land use, regional planning)	●	●	●					✓	✓
Regulatory	9	**Carbon regulation** (methane regulations, Clean Fuel Standard, offset markets)	●	●		✓	✓	✓		✓	✓
	10	**Financial regulation** (e.g., securities regulations)	●	●		✓		✓			
	11	**Other regulation and directives** (royalty schemes, land use, reporting requirements, etc.)	●	●	●						✓
	12	**Regulatory harmonization** (across agencies, levels of government, jurisdictions)	●	●	●	✓	✓		✓	✓	✓
	13	**Red tape reduction** (e.g. compliance costs, timelines for decision-making)	●	●	●	✓	✓		✓		✓
Markets	14	Stimulating **consumer demand** for products/processes	●	●	●		✓				✓
	15	**International trade agreements** and cross-jurisdiction collaboration agreements	●	●		✓		✓			✓
	16	**Other export market development** (creating market literacy, awareness and access)	●	●				✓			✓
Technical standards & info	17	**Developing technical standards** or providing product certification or endorsement	●	●		✓			✓		✓
	18	**Providing data and information** (monitoring, data collection / dissemination)	●	●				✓	✓		✓
Other	19	**Research and commercial collaboration and support** (R&D activity, incubators, accelerators)	●	●	●				✓	✓	
	20	**Convening and partnering** (bringing together stakeholders to catalyze action)	●	●	●				✓	✓	✓

The policy levers

This section provides additional detail about what each policy lever means. Many of the categories are massive – for example, a full explanation of "tax incentives and disincentives" could easily run to hundreds of pages. The value of this tool, however, is not in providing a complete explanation of the ins and outs of each lever (or of evaluating the policies and regulations that federal, provincial and municipal governments have already established for each). Rather, the tool is intended to help organizations to reflect on what policy areas could be helpful, but are not already being considered for a particular use or circumstance.

Vision

By providing vision and direction at a high level through strategies, goals, targets, or roadmaps, government can provide predictability and stability to companies and investors. Government vision also informs the direction of subsequent policies and regulations that may be developed or amended.

1. A clear, long-term vision

A clear, long-term vision can guide policy development and implementation. Recent examples include the federal hydrogen strategy, the small modular reactor (SMR) action plan and the Healthy Environment, Healthy Economy plan.

Economic tools

The government is in a unique position to direct fiscal resources — its own or that of others — towards areas where it wants to incentivize development.

2. Direct financial support

Direct financial support is money—cold, hard cash—given by government directly to companies or consumers to subsidize commercialization and adoption of technologies.

There are numerous government programs that provide companies with direct financial support, and the amount of funding available is very large. For example, since 2001, Sustainable Development Technology Canada (SDTC) has provided $1.28 billion in non-repayable funding to companies that have pre-commercial projects with significant benefits in climate change, clean air, clean water or clean soil. Provincial governments also commonly provide funding—as with B.C.'s Centre for Innovation and Clean Energy, which launched in October, 2021 with a $105 million pool. Often, government will require matching funds from the private sector, which amplifies the impact of the government's investment.

Financial support can also be directed to consumers or end-users, such as through the federal government's Greener Homes Grant program, or B.C.'s Go Electric passenger vehicle rebates.

3. Procurement

Procurement refers to the government purchase of goods or services. This is a large "kitty"; the federal government alone procures over $20 billion per year of goods and services, and this money can be used to help jumpstart cleantech businesses or to create demand.

Governments often create policies and rules around how procurement funding will be directed. In some cases, procurement policies are used to favour certain types of outcomes, such as the purchase of renewable energy; in other cases, procurement opportunities are limited to certain classes or categories of businesses, such as Indigenous entrepreneurs.

4. Tax incentives and disincentives

Tax incentives and disincentives are rules created by government that shape how money flows. They can be used to either incentivize certain behaviours (such as through providing tax credits for investors, or deductions for companies that engage in cleantech R&D) or disincentivize other behaviours (via penalties or charges, such as with the carbon tax). This is a particularly large and complex topic, with numerous existing rules at the federal and provincial—and occasionally municipal—levels.

5. Making capital available

The federal government can make capital available from publicly owned financial lending institutions such as the Canada Infrastructure Bank or Aboriginal Financial Institutions (AFIs). Capital can be provided as equity, loans, derivatives, letters of credit or other instruments that can be used by businesses or by other organizations looking to finance projects (such as a municipality wanting to fund a greener transit upgrade). The provision of capital in this way often unlocks access to private capital as well. For example, the Canada Infrastructure Bank's $4.3 billion in loans attracted an additional $5.7 billion in private and institutional capital.

Asset planning

The government can use its power to influence the development and deployment of different classes of assets, including people, physical infrastructure, and natural assets.

6. Workforce development

New technologies require new skills, and governments often take a prominent role in workforce development. This may be through establishing or funding programs that enable retraining or upskilling, or attracting from other jurisdictions those workers who have the needed skills and capabilities.

Pandemic recovery has accelerated many governments' investments in creating jobs in "green" sectors, and entities such as the federal government's Future Skills Centre are collaborating with industry to retrain today's oil and gas workers for the cleantech jobs of tomorrow.

7. Physical infrastructure

Physical infrastructure such as ports, roads, transmission lines, pipelines and fueling stations are the backbone on which many energy ventures rely. The government's role with respect to physical infrastructure includes identifying needs and gaps (as is currently being done with the National Infrastructure Assessment), developing strategies for building or managing physical assets (such as the Halifax Port Authority's strategic plan), and approving infrastructure development (through multiple permitting processes, including—in some cases—impact assessments). In some cases, the government itself may be the owner of the infrastructure, as is the case with some ports that are federally owned or transmission lines that are provincially owned.

8. Natural assets

Natural assets include land, water, air, forests, minerals and hydrocarbons. Governments are the stewards of these resources on behalf of the public, and government processes that plan for their use and their protection include land use and regional planning; natural resource management planning; projects such as the two billion trees commitment; and the environmental provisions found in other regulations, such as the sustainability requirements for biofuels under the Clean Fuel Standard. Natural asset management intersects with cleantech both because some cleantech innovation may provide ways of lessening impact on these assets among "traditional" industries; and because some cleantech companies may wish to directly draw on natural assets (e.g., water for hydropower, biomass for renewable fuels, minerals for battery development).

Regulatory approaches

Regulatory approaches are rules created by government that individuals and organizations — companies, investors, even the government itself — must abide by. They include regulation of capital markets and regulation of GHG emissions, but also land use regulations, royalty schemes, and other rules that shape market and policy agendas.

9. Carbon regulation

When government provides clarity and long-term certainty about how carbon emissions will be regulated, it bolsters investment in new technology and processes. Governments at both the provincial and federal levels have implemented regulations that govern emissions of greenhouse gases such as carbon dioxide and methane, including include methane regulations, renewable fuels regulations, and the Clean Fuel Standard. New regulations are likely to be added, especially to stay in step with the U.S. and other trading partners. Government also has the leading role in creating market structures that enable the positive monetization of CO_2 emissions, such as offset credit generation and trading.

10. Financial regulation

Financial regulators oversee the functioning and fairness of financial markets and organizations that engage in financial activity. Financial regulation is relevant to cleantech innovators because it can guide investment through establishing definitions, credentials or rules (such as developing a Canadian taxonomy for transition finance); govern disclosure of risks (including climate change risks); and create the rules around the conditions under which capital investment can occur. In Canada, securities regulations are managed by provincial and territorial governments, although the federal government has a role in regulating financial institutions.

11. Other regulation and directives

Numerous additional regulations and directives can be developed by government in areas other than capital markets and GHG emissions. "Other" regulations and directives that can influence commercialization success include reporting requirements, royalty schemes, land use requirements or regulations that allow for the pooling of smaller projects. They also include the types of regulations that established B corporations, and/or any others that create organizing principles to shape market and policy agendas.

12. Regulatory harmonization

Regulations enacted by different agencies, levels of government or jurisdictions may present conflicting requirements, or send mixed signals. To smooth the path for investment and commercialization, regulations need to be

harmonized so that there is clarity, certainty and congruency. This may mean that a government needs to resolve jurisdictional overlap; coordinate the work of different agencies to manage resources; or align priorities across agencies. These actions both increase access to the market and solve jurisdictional disputes.

13. Red tape reduction

Government can improve the ease of doing business by reducing complexity and compliance costs. Red tape reduction measures can focus on reducing the administrative burden on companies—through removing outdated rules or simplifying submission of information, for example. Red tape reduction may also focus on improving outcomes for actions/activities that are in the government's purview – such as reducing timelines for decision-making on project approval.

Market development

Domestic and international market receptivity can be shaped by government actions and agreements, such as international trade agreements, export market development, and creating opportunities to stimulate consumer demand for certain products.

14. Stimulating consumer demand for products or processes

Stimulating consumer demand can be done through regulations that direct consumers away from current consumption patterns and towards options that have an environmental benefit. Examples include the carbon tax, which increases the cost of gas purchase; the deposit on bottles and cans, which encourages recycling; the ban of single-use plastic products, intended to create a demand for substitute products; and the mandated phase-out of vehicles with internal combustion engines. Even without regulations, marketing and education can increase consumer demand – an area where municipal government can be particularly effective.

15. International trade agreements and cross-jurisdiction collaboration agreements

International trade agreements provide a much larger market for Canadian cleantech suppliers to sell into. Often international trade agreements are led by the federal government, such as with Canada-EU Strategic Partnership on Raw Materials. However, provincial governments can also take the lead, such as with the Quebec-California carbon market, or the power purchase agreements between Manitoba and Minnesota.

16. Other export market development

The government can also take action to stimulate export market access by creating literacy and awareness among purchasers and investors domestically and internationally. This is what the Invest Alberta Corporation (as one example) was set up to do; the Canadian Trade Commissioner Service also works to increase export market development.

Technical standards & information

There is a role for government in providing information about products, technologies, processes and outcomes. This may come in the form of developing technical standards (including emissions standards, performance standards or certification schemes); or as providing data or other information that boosts confidence in outputs and outcomes (as with Canada's several forestry performance management certification options).

17. Developing technical standards or providing product certification

In partnership with industry, government can participate in the development of technical standards for products or processes. This action is particularly helpful for those situations in which a lack of standards can be a barrier to technology adoption. Although product certification is usually done by organizations outside of government (such as the Canadian Standards Association and SGS Canada), there may be instances in which government provides certification or endorses specific certification schemes—for example, through the Canadian General Standards Board. Government participation in developing standards and certification may also take the form of participation in industry initiatives, as was the case with the development of performance management programs for forestry and mining.

18. Providing data and information

Provincial, federal and municipal governments all collect and disseminate a great deal of data and information, including environmental monitoring data, surveys and census data, and economic and market data. This information—when made available—is useful to businesses, to investors, and to organizations both inside and outside government that are responsible for forecasting and planning.

Other

Finally, there are several policy levers that don't fall neatly into the categories above.

19 Research and commercial collaboration and support

Government often provides both funding and direction for spaces and organizations that stimulate research and commercial collaboration, including incubators, accelerators, centres of excellence, government research labs, etc. Examples include the Saskatchewan Research Council, Alberta Innovates' R&D labs, and NRCan's CanmetENERGY research centres. Universities – ultimately funded by government – are also places that support research and collaboration. The government can also help ensure that intellectual capital developed through this research is secured.

20. Convening and partnering

Convening and partnering means bringing stakeholders together to catalyze action. This can result in engagement, education and capacity building, and can lead to collaborations and partnerships that might not otherwise have emerged. An example is the federal government's assembling 109 partners to develop the small modular reactor action plan.

How to apply the policy levers tool: an example

The policy levers tool is particularly useful during early-stage brainstorming. It can be used to:

Match desired goals or outcomes with those policy levers that can influence that outcome

Uncover potential government actions that may not have been previously considered

Identify how different policy levers or actions could complement one another

Think through what the right level of government is to approach

An example of how the tool can be used in brainstorming is shown in the chart on page 12. The jumping off point for this exercise was the question "**How can government policy be used to attract investment to "future-fit" hydrocarbons in Alberta?**" This question was taken from a project carried out by the Energy Futures Policy Collaborative (EFPC) in 2020-22.[1]

(Please note that the content of the chart does not represent the final thinking of the EFPC project – early stage brainstorming ideas were adapted specifically to illustrate how the policy levers tool can be used, not because the ideas shown have particular merit.)

Five desired outcomes are identified in the left column. These outcomes were taken from the tool itself; however, the user can formulate outcomes in any frame that works for them. The second column shows which policy levers could be applied—in the context of the question—to induce those outcomes. For each policy lever, column 3 shows several ideas that were brainstormed around specific "asks" that could be presented to government (again with the proviso that this represents early-stage brainstorming). The appropriate level of government to address the ask to is identified in column 4, and the last column is a place to make notes on upcoming windows of opportunity, other government policies or activities that are aligned, or which individuals / departments would be appropriate to approach.

The example represents only one way of using the tool—other approaches, as long as they are systematic, would likely produce equally useful outcomes.

[1] For more about the Energy Futures Policy Collaborative and to read the final report on future fit hydrocarbons, please visit https://energyfutureslab.com/initiatives/energy-futures-policy-collaborative/

Conclusion

Policy can be used to shape behaviour: of consumers, of markets, of producers, of investors and of competing jurisdictions. It provides both a vision for the future and the set of rules to be followed in getting there.

This tool has outlined 20 policy levers that governments can use to help cleantech innovators to successfully commercialize their products—and in doing so, the tool helps organizations figure out what they should be asking for.

Ultimately, innovators, industry organizations, governments and others are all on the same side in wanting cleantech innovations to succeed in Canada. Getting the ask right, getting effective policies in place, and growing the cleantech sector are all steps on the same path.

Goal → To attract investment to “future-fit” hydrocarbons in Alberta

Outcome desired	Policy levers that could be used	Specific ideas/asks	Appropriate level of government	Notes
Increase available capital	**9** (Regulatory) – **Carbon regulation**	Increase number of technologies that can generate unlimited credits under the Clean Fuel Standard	Federal	
Shape or direct investment	**4** (Economic tools) – **Tax incentives and disincentives**	Preferential tax treatment for transition bonds	Provincial	
	10 (Regulatory) – **Financial regulation**	Mandatory disclosure of climate risks and plans	Provincial	Securities
	18 (Technical standards & information) – **Providing information**	Develop a standardized platform for tracking ESG metrics	Provincial, possibly federal	Canada Energy Regulator (CER) data portal if federal
Decrease time / friction to commercialize	**13** (Regulatory) – **Red tape reduction**	Adapt regulatory processes to accelerate approvals for new cleantech innovation	Provincial	Alberta Energy Regulator (AER), but also Alberta Utilities Commission (AUC)
	20 (Other) – **Convening and partnering**	Initiate convening conversations with stakeholders	Provincial, Municipal	Possibly ties in to federal government’s “national conversation on a just transition”
Enhance ecosystem	**7** (Asset planning) – **Physical infrastructure**	Connect transmission lines interprovincially to support more access to renewable power for AB industry	Federal, Provincial	CER regulates interprovincial transmission
		Establish an infrastructure oversight agency to accelerate review of big infrastructure lifts	Federal	Aligns with federal National Infrastructure Review
Improve market access/adoption	**3** (Economic tools) – **Procurement**	Government procurement to drive new technology adoption	Federal, Provincial, Municipal	
		Explore strategies to support small business applications for procurement (e.g., aggregate bids)	Federal, Provincial, Municipal	
	15 (Markets) – **International trade agreements and cross-jurisdiction collaboration**	Establish tariff on goods from carbon price free jurisdictions (carbon border adjustment)	Federal	U.S. has just introduced carbon border adjustment bill: *FAIR Transition and Competition Act of 2021*

READING LIST

The following documents were helpful in developing the concepts presented in this report.

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