Smart Prosperity Institute

Policy Brief | APRIL 2019

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About Smart Prosperity Institute
Smart Prosperity Institute (formerly Sustainable Prosperity) is a national research network and policy think tank based at the University of Ottawa. We deliver world-class research and work with public and private partners – all to advance practical policies and market solutions for a stronger, cleaner economy.

TAX INCENTIVES TO BOOST CLEAN GROWTH: INVESTOR TAX CREDITS AND FLOW-THROUGH SHARES

Key Messages

- **Clean growth represents an enormous market opportunity.** While Canada has a promising cadre of cleantech firms poised for growth, lack of financing remains a major barrier, which has been further exacerbated by recent tax policy changes in the US that have reduced Canada's historical corporate tax advantage.
- **Clean innovation faces particular obstacles to commercialization and scale-up that other types of innovation do not encounter**, particularly the environmental externality and market barriers such as policy risk, capital intensity, and technology risk.
- **Providing targeted incentives for investment in small cleantech companies represents an opportunity to help Canada's cleantech sector realize its potential and catalyze a dynamic growing industry**. In this policy brief, we explore two potential tools to incentivize investment in clean innovation: investor tax credits or flow-through shares.
- An **investor tax credit** allows a business or individual that makes an equity investment in a qualifying firm to claim that investment as a credit against their personal or business income tax.
- A 'made in Canada' financing tool originally targeted toward resource exploration, **flow-through shares** allow a firm the option of renouncing and passing along tax deductions to equity investors. In this way, the firm can charge a price premium for equity investment in exchange for tax deductions that they may not otherwise be able to use immediately, lowering risk for investors.

THE ISSUE

"The countries and companies that are able to develop innovative low-carbon and resource-efficient ways of doing business will be rewarded by global markets."

Pressing environmental challenges, such as climate change, resource depletion, and biodiversity loss – as well as government policies to address them – are creating market opportunities across the economy while also calling on Canadians to reduce environmental impacts. They are providing the opportunities for technological solutions that can produce the products and services people want. For example, the global cleantech market is projected to grow to $2.5 trillion by 2022 (larger than Canada's annual GDP), and the global market for resource and energy efficiency is expected to reach $36 trillion by 2030.[1] Experts agree: the countries and companies that are able to develop innovative low-carbon and resource-efficient ways of doing business will be rewarded by global markets.[2]

Canada has many of the ingredients needed to succeed in capturing a significant share of these growing global markets: strong education, research capacity, and entrepreneurship. Combined with high levels of expertise in many of the sectors seeking clean technology solutions – including electricity, oil and gas, mining, forestry, manufacturing, while also calling on Canadians to reduce environmental impacts, agriculture, and buildings – Canadians have enormous potential to develop the cleaner technologies, products, and services that will increasingly be in demand as the world shifts to a low-carbon, resource-efficient model.

Canada also has a promising array of early stage clean technology firms poised for growth, but lack of growth capital remains a major challenge.[4] Equity investments, through venture capital (VC) and other means, are an important source of financing for cleantech firms; however, while Canada has a growing pool of investment capital, the amount available is significantly lower than in the US, relative to the size of the two economies.[5] A study by Cycle Capital and Sustainable Development Technology Canada (SDTC) study found that from 2010-2016, while the number of VC rounds in Canada is comparable to that in the US, round size is about half (56%) so that total amount invested is about half as well, relative to the size of the two economies. For example, Canada has 5.5% as much total VC investment, while its GDP is 9% the size of that of the US.[6]

Top Challenges to Cleantech Growth[3]

1. Lack of financing/investment
2. Lack of government incentives/policies
3. Low customer demand/no market

Clean innovation faces particular barriers that other types of innovation do not encounter. Most notably, the environmental **externality market failure,** because the cost imposed on society by environmental damage is not currently accurately reflected in the price of goods and services. The result is that there is less market demand (and economic reward) for cleaner goods and services. While carbon pricing helps to correct this market failure, until it reaches a sufficient level of stringency to reflect the social costs, a gap remains.

Clean innovation also faces market barriers such as:

Policy risk – Unlike other technologies, much of the demand for clean technologies is driven by government policies like pollution pricing, regulations, and public procurement. However, it is very hard for investors to predict the pace and scale of these future policy changes (unlike other types of market risks), and later governments can undo these policies with little notice, which tends to chill investment in these technologies.

Technology risk – Many lenders and potential adopters are unfamiliar with the profile of the clean technology sector and have a poor understanding of the potential markets and future returns from investments, even for clean technologies that have been proven.

Capital intensity – Many clean innovations require costly plants and equipment, as well as longer time frames for testing and scaling up before they can get to market and realize a return on investment. They then have to compete against established incumbents as price-takers – making the cost of capital more of a driver of overall cost.

Canadian Companies Listed in the Cleantech Group *2019 Global Cleantech 100** [7] Companies most likely to make a significant market impact within the next 5-10 years	
Axine Water Technologies Vancouver, BC	Low-cost, chemical-free solution for treating high concentrations of complex, toxic organics and ammonia in industrial wastewater.
CarbonCure Technologies Dartmouth, NS	Retrofits concrete plants with a technology that recycles waste carbon dioxide to make affordable, greener concrete products.
Cooledge Lighting Richmond, BC	Provides adaptable LED lighting solutions to help the design industry integrate light into the built environment.
ecobee Toronto, ON	Developed Wi-Fi-enabled smart thermostats for residential and commercial applications that are intuitive to use and maximize comfort and savings.
Enbala Toronto, ON	Provides distributed energy resources through a real-time energy-balancing and distributed control system to keep the grid balanced, while also creating a dispatchable load that can be bid into energy markets.
GaN Systems Ottawa, ON	Range of gallium nitride power switching transistors (as a more efficient alternative to silicon) for consumer, datacenter, industrial, and transportation markets.
Inventys Burnaby, BC	Commercializes a low-cost and energy efficient technology for capturing post-combustion CO_2 from various sources, such as natural gas boilers and gas turbines, as well as industrial facilities, such as cement plants.
Metamaterials Technologies Vancouver, BC	Develops smart materials and photonics to provide solutions in the field of optics for several industries, including aerospace and defence, healthcare, energy, education, and cleantech.
MineSense Technologies Vancouver, BC	Sensor technology for operational efficiency in the mining industry, helping to consolidate low concentration ores and reduce energy, water and chemical inputs

* Table adapted from the Government of Canada (2019) Backgrounder: Canadian companies on the 2019 Global Cleantech 100 list.

Opus One Solutions Toronto, ON	Developed GridOS®, an intelligent data analytical platform for smart grids that delivers optimal energy planning and management to generate, distribute, store and consume energy in a distributed network, paving the way toward a distributed energy economy.
Semios Technologies Vancouver, BC	Innovative agriculture technologies that include precision agriculture, biological pest control, and data management.
Terramera Vancouver, BC	High-performance plant-based pesticide products for agriculture and consumer use.

There has also been a recent shift away from early stage companies while later stage companies have seen an increase in investment.[8] This is worrisome news for cleantech companies seeking to further test and prove their ideas – venture capital has been their key source of finance but it's shifting away from them.*

In other words, Canada has great potential, but it's not yet being fully realized. We have real strengths in the early stages of clean innovation, but we're not doing enough to scale and commercialize them into successful companies with exportable solutions.

Therefore, providing targeted incentives to invest in small cleantech companies represents an opportunity to help Canada's cleantech sector realize its potential and catalyze a dynamic growing industry. In this policy brief, we explore two potential tools to incentivize investment in clean innovation: investor tax credits and flow-through shares.

What does an investor tax credit look like?

Take, for example, an angel investor considering making a $100,000 investment in a small company for a 10% equity share. If the small company qualifies for an investor tax credit, the investor not only receives the 10% share in the company, they are also able to claim 30% of that investment against their personal income tax, in this case $30,000. In effect, this decreases the cost of investment to $70,000, reducing the risk and increasing the likelihood of future profits.

INVESTOR TAX CREDITS

An investor tax credit allows a business or individual that makes an equity investment in a qualifying firm to claim a portion of that investment as a credit against their personal or business income tax. They are designed to encourage investment in target sectors poised for growth, such as clean technology.

Investor Tax Credits in Practice

Existing small business investor tax credits in Alberta, British Columbia, and New Brunswick offer a model for design. For example, British Columbia's Small Business Venture Capital Tax Credit offers a 30% tax credit and specifically prioritizes clean

* The challenge is further exacerbated for high capex deals and for those that have elevated working capital needs, as investors increasingly seek only the most capital-efficient, scalable companies, such as those with no hardware.

technology as one of six target areas. An evaluation of the program found it generated more tax revenue than it expended and contributed to positive outcomes in job creation and revenue growth.[9]

As part of its Jobs Plan, the Government of Alberta allocated $90 million over three years for the Alberta Investor Tax Credit to encourage investment in target sectors with strong growth potential. The program offers a 30% tax credit to investors into small businesses (less than 100 people) in targeted sectors, including technology development. It is estimated that the program will support up to 4,400 new jobs and contribute up to $500 million to GDP.[10]

In the US, more than 25 states have implemented some form of tax incentive for angel investors, ranging from a credit of 10% in Vermont to 100% in Hawaii.[11] Early empirical evidence from a US state-level study shows that the introduction of an angel investment tax credit was effective at increasing entrepreneurial activity.[12]

Design Considerations

Defining the scope of eligible cleantech firms

An investor tax credit could be extended from a broad definition of 'clean technologies' to include ones that achieve prescribed environmental outcomes. These environmental outcomes would include reducing pollution in our air and water, improving energy or water efficiency, and reducing waste among others. This will ensure it benefits cleantech firms across the country. Alternatively, the programmed could be scoped more narrowly, such as targeting greenhouse gas (GHG) reduction and energy efficiency. The systems in Alberta, BC, and New Brunswick require government *approval* of eligible firms. This can help to ensure that the investments, and firms, fall within the scope of the program.

For example, in the BC program, a clean technology firm is defined as one substantially engaged in "the manufacture and processing and research and development within British Columbia for commercial exploitation of technologies that:

I. increase energy efficiency and conservation,

II. reduce greenhouse gas emissions, or

III. reduce the environmental impact of energy production, generation, storage, transmission, delivery, provision or conversion." (Government of British Columbia, 2010)

Defining the policy cost

If the government wishes to limit the total amount expended, one option is to allocate a finite amount available, to be issued on a first-come first-serve basis. For example, the Government of Alberta has allocated $90 million over three years for the 30% Alberta Investor Tax Credit. This is granted by application on a first-come first-serve basis, to investors into small businesses (less than 100 people) in targeted sectors, including technology development.[13] Another option would be to limit the total amount that a person or corporation may claim each year.

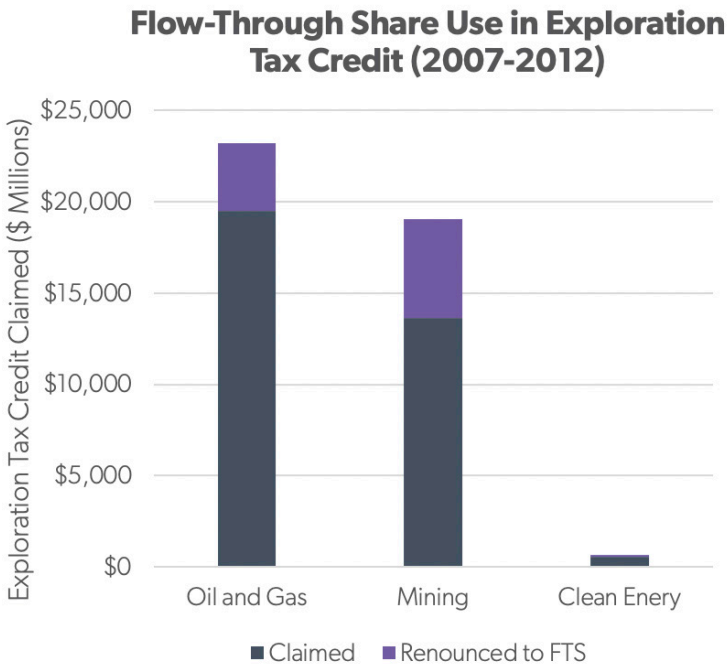
"We have real strengths in the early stages of clean innovation, but we're not doing enough to scale and commercialize them into successful companies with exportable solutions."

What does a flow-through share look like?

Consider a firm making an investment in renewable energy generation. With the Canadian renewable and conservation expenses (CRCE) they are eligible to claim start-up and development expenses, however they are not yet making a profit and thus cannot yet benefit from the tax incentive. With flow-through shares, they have the option to pass-through that credit to investors in exchange for a premium price for equity investment, allowing the firm to attract financing and benefit from the tax credit immediately.

FLOW-THROUGH SHARES

Another approach to incentivizing investment in small cleantech businesses is incorporating the option of flow-through shares (FTS) for targeted tax incentives. Originally a Canadian invention targeted toward resource exploration, flow-through shares allow a firm the option of renouncing and passing along tax deductions (such as the Canadian Exploration Expense tax credit) to equity investors. This allows the firm to charge a price premium for equity investment in exchange for renouncing tax deductions the firm may not otherwise be able to use immediately and helps lower risk for investors. While the firm loses the ability to claim the eligible expense in the future, that may be of low net-present value to a firm that is looking for financing to grow. Additionally, by give nascent firms that may not yet be generating enough taxable income the ability to immediately benefit from tax deductions. Flow-through shares can help level the playing field between start-ups and incumbents that are already able to benefit from tax incentives.



Flow-Through Shares in Practice

Flow-through shares have been used in Canada for more than 60 years, originally targeted towards mining and oil and gas sectors as a way to maintain resource exploration during cyclical downturns. In 1996, flow-through shares were extended to certain renewable energy and conservation start-up expenses through the *Canadian renewable and conservation expenses (CRCE*) program. This innovative, Canadian-made financing tool has helped Canada emerge as a global leader in resource finance.

Two reviews by the Department of Finance (in 1994 and 2013) found that flow-through shares generated significant investment in mining and petroleum exploration, however they did not necessarily result in successful investment outcomes (profits for investors).[14] Over the period of 2007-2012, flow-through shares accounted for $440 million in foregone tax revenue annually and generated $1.4 billion in equity was raised (though only a small portion of this went to clean energy).[15]

Flow-through shares allow firms to charge a price premium on common shares in exchange for tax advantages. For instance, shares issued between 2007 and 2012 earned a premium in the range of 18-26%.[16]

Flow-through shares gives firms the option to pass-along the tax advantages if they are unable to use them. In practice, the amount renounced through flow-through shares is generally a small proportion of the total issued tax credits. From 2007-2012, approximately 21% of Exploration tax credits were renounced as flow-through shares and only 17% of credits to clean energy companies were renounced.[17]

Yet, flow-through shares have been criticized for incentivizing investment in a sector without necessarily drawing in the 'smart capital' necessary to help businesses grow into commercial successes. Jog (2016) argues that poor rates on return for

flow-through shares for resource exploration are indicative that the investments they incentivize are not necessarily "good" investments and pull capital away from other investments that may be more productive.[18] However, due to the additional market failures and barriers that plague clean innovation, incentivizing investment in the area can create co-benefits to investment returns, such as improved environmental and health outcomes.

Design Considerations

Defining the scope of eligible technologies

Flow-through shares for renewable energy and energy conservation are currently available for start-up and development expenses where at least 50% of project expenses are eligible for accelerated capital costs allowance (ACCA). This specifies that under the CRCE flow-through shares can be used by: "a corporation whose principal business is:

- The generation or distribution of energy or the production of fuel, using property described in Class 43.1 and 43.2;

  and/or

- The development of projects for which it is reasonable to expect at least 50 percent of the capital costs incurred for the project would be the capital costs of equipment described in Class 43.1 or 43.2."[20]

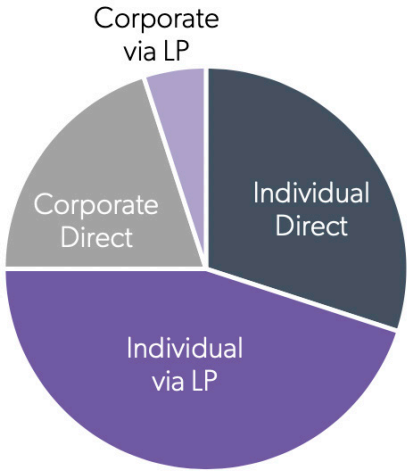
Since categorization of firms eligible for the CRCE deduction (and the ability to issue flow-through shares) is the same as those developed for ACCA, the expansion of these categories would include a wider range of clean technologies, as explored in our recent **policy brief**, *Tax Incentives to Boost Clean Growth: Accelerated Capital Cost Allowance*. This would then extend the scope of companies eligible to issue flow-through shares. This could take a variety of forms, such as:

  - Accelerated expansion of the technologies list
  - Performance standard
  - Canadian renewable and conservation expenses (CRCE)

Defining the scope of FTS eligible expenses

Presently, flow-through shares for renewable energy and energy conservation are only available for development and start-up costs such as feasibility studies and pre-construction development expenses under the CRCE, which are increased to 100% first-year depreciation. And the value of flow-through shares passed along to investors is limited to the value of eligible expenses for deduction under the CRCE.

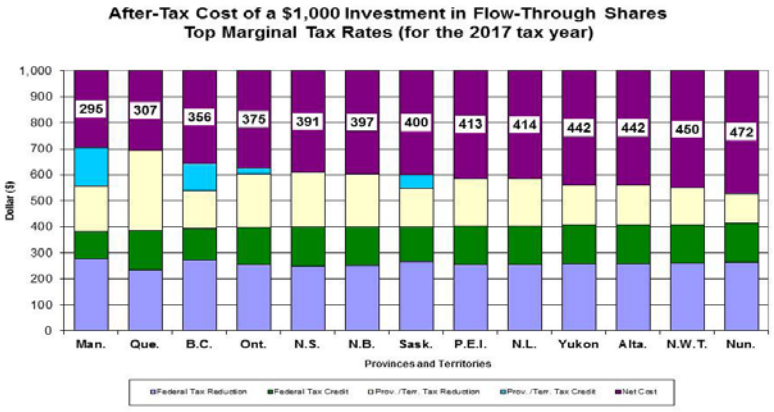
Flow-Through Shares by Type of Investor (2007-2012)



Qualifying Projects[19]

CRCE and flow-through shares are currently available for development costs when at least 50% of capital costs will fall under class 43.1 and 43.2, specifically:

- Cogeneration and Specified-Waste Fueled Electrical Generation Systems
- Thermal Waste Electrical Generation Equipment
- Active Solar Heating Equipment and Ground-Source Heat Pump Systems
- Small-Scale Hydro-Electric Installations
- Heat Recovery Equipment
- Wind Energy Conversion Systems
- Photovoltaic Electrical Generation Equipment
- Geothermal Electrical Generation Equipment
- Landfill Gas and Digester Gas Collection Equipment
- Specified-Waste Fueled Heat Production Equipment
- Expansion Engine Systems
- Systems to Convert Biomass into Bio-Oil
- Fixed Location Fuel Cell Equipment
- Systems to Produce Biogas by Anaerobic Digestion
- Wave or Tidal Energy Equipment
- District Energy Systems/Equipment
- Electric vehicle charging infrastructure
- Electrical Energy Storage Property
- Geothermal Heat Generation Equipment



This narrow scope of existing flow-through shares limits the potential of this innovative Canadian financing tool. Expanding the use of flow-through shares for clean innovation could help to crowd-in much needed equity finance to the sector. The use of flow-through shares could be expanded by:

- Expanding the range of eligible activities for the CRCE (as described above); or
- Building an additional investment tax credit, as in the case of super flow-through shares for mining.

Super flow-through shares

In addition to the use of flow-through shares for mineral exploration under the 100% Canadian Exploration Expense deduction, investors can also receive flow-through shares for additional tax incentives such as the 15% federal Mineral Exploration Tax Credit as well as certain provincial investment tax credits.[21] These "super" flow-through shares allow investors to claim 115% or more as an income tax credit from investing in mining exploration activities, further increasing the incentive to invest. A similar model could be used to expand the magnitude of the incentive for investment in cleantech. Additionally, new tax credits for cleantech investment that are also deemed eligible for flow-through, beyond the limited scope of the CRCE, could help support investment in emerging cleantech firms that are not yet making a taxable profit.

"Investor tax credits define the firm as cleantech, whereas flow-through shares define the investment as cleantech."

CHOICE OF INSTRUMENTS

The tax incentives explored in this brief offer two alternative options that function in different ways, but which help to address the same issue: lack of financing for emerging cleantech firms. Investor tax credits go directly to the firm investing in an SME for their equity investment, whereas flow-through shares are based on another tax incentive a firm has, giving them the *option* to pass tax credits on to the flow-through shareholders to drive equity investment.

The distinction between the two is important in considering how we categorize eligible investments. Investor tax credits are for investments in a firm that would need to be defined as cleantech, which would be simpler to administer but may not support firms in other sectors that are developing technology with improved environmental performance. Flow-through shares are a tool for firms to incentivize equity investment and pass along savings from eligible investments which could include resource and energy efficiency investments by non-cleantech firms. However, the program currently applies to only a small subset of investments and expanding would require greater administration and careful eligibility scoping. In short, investor tax credits define the *firm* as cleantech, whereas flow-through shares define the *investment* as cleantech.

CONCLUSION

Clean growth represents an enormous market opportunity. While Canada has a promising cadre of cleantech firms poised for growth, lack of financing remains a major barrier to scale-up and commercialization, which has been further exacerbated by recent tax policy changes in the US that have reduced Canada's historical corporate tax advantage. Targeted tax incentives such as an investor tax credit or flow-through shares may be able to jump-start Canada's clean innovation ecosystem. They could help drive clean growth, in order to seize this market opportunity while responding to pressing environmental challenges.

"Clean growth represents an enormous market opportunity."

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Acknowledgements

The author would like to thank Mike Moffatt for research support and insightful comments. Smart Prosperity Institute would like to thank Environment and Climate Change Canada and the Canadian Museum of Nature for supporting this project. Special thanks to the Smart Prosperity Leaders Initiative for their valuable guidance.

Research and writing was conducted by William Scott. Responsibility for the final product and its conclusions is Smart Prosperity Institute's alone, and should not be assigned to the reviewers or any external party. Review of the report does not necessarily mean endorsement, and any errors remain the author's responsibility.

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