

POLICY BRIEF: 25 Innovative Carbon Tech Examples

James Skinner and Colin Craig | November 2021



Executive Summary

The late architect R. Buckminster Fuller famously stated, *“pollution is nothing but the resources we are not harvesting. We allow them to disperse because we’ve been ignorant of their value.”*

Indeed, when it comes to climate change, a paradigm shift is now emerging. What started out as efforts to reduce greenhouse gas emissions has led to more and more businesses working on ways to use those greenhouse gas emissions to make useful products. At the same time, many companies are working on developing new technologies to reduce emissions before they happen.

Despite these positive advances, much of Canada’s climate change discourse is dominated by cataclysmic commentary – politicians, pundits and celebrities using charged terms like *“climate crisis”* or unsubstantiated claims to agitate the public into a frenzy. We have also seen governments working to punish and shut down industries that, if given an opportunity, could innovate and create real, exportable, made-in-Canada solutions.

This policy brief documents some inspiring and innovative efforts by entrepreneurs to reduce greenhouse gas emissions.



Some highlights from the 25 examples we identified include:

- **Badminton rackets, bicycles and more** – A Calgary-based start-up is building a facility to create carbon nanofibers using captured CO₂ and methane. These nanofibers are stronger and lighter than steel, and provide for a net-negative carbon alternative. Carbon nanofibers are used to make a wide array of products: badminton rackets, bicycles, running shoe soles, intersection sensors and batteries to name a few.
- **Vodka and hand sanitizer** – A New York company is producing vodka and hand-sanitizer using captured carbon dioxide. The company’s innovative process results in net-negative carbon emissions.
- **Shared technology** – Several companies who are invested in Alberta’s oilsands have created a partnership – the Canadian Oil Sands Innovation Alliance (COSIA) - to share technologies and resources to reduce greenhouse gas emissions. COSIA members account for over 90% of all oil sands products and their cooperation has resulted in emissions falling by 28% per barrel between 2000 and 2017.
- **Blue M&Ms, animal feed and biofuels** – A Markham company, Pond Technologies, is capturing CO₂ and feeding it to algae. The algae then grow and are processed into biofuels, bioplastics, nutraceuticals, animal feed, cosmetics and phycocyanin – a food colorant that is used for blue M&Ms.
- **Diamonds** – A New York-based company is using captured carbon dioxide to produce diamonds that are almost indistinguishable as their natural counterparts. For every one-carat diamond produced, 20 tonnes of CO₂ are removed from the atmosphere.

To be sure, there are countless other examples of innovative new technologies that are not contained within this report. What this cursory review shows is that Canadians have every reason to be optimistic about technological changes that are helping to fight climate change.

Just as the world's leading environmental challenge at the dawn of the last century – “the great horse manure crisis” – was solved through technological change, our current environmental problems will also be addressed, not by government regulations, but by entrepreneurs.

Introduction

Much of Canada's political discourse on climate change involves extreme language and catastrophic scenarios. For example, the terms “*climate crisis*” or “*climate change crisis*” were used in parliament 67% more frequently (377 vs 226) over the past five-and-a-half years than the term “carbon capture” – a reference to entrepreneurs using technology to reduce emissions.¹

Former Green Party leader Elizabeth May [tweeted](#) in 2019 that, “*If humanity doesn't transition off fossil fuels (before the [2023] election) the earth will heat to unsafe levels and there will be climate catastrophe.*” As of 2021, this view does not appear to be widely embraced by scientists.

It is also not uncommon to hear public schools, post-secondary institutions and some pundits in the media using similar extreme language.

Canada's public policy response to this issue has included significant new spending, regulations and major tax increases. For example, by 2030, the federal government's carbon tax will cost Canadians \$170 per ton on carbon-based fuels. This works out to an extra \$20 in carbon taxes to fill a typical vehicle (over and above other fuel taxes) and more than \$700 in additional taxes to heat a typical home.²

But what governments seldom acknowledge is that most major public policy challenges in society are not solved through massive government intervention, but through technological change.

Consider that in 1898, government officials gathered at the first urban planning conference in New York to discuss the most pressing problem of the day – the “Great Horse Manure Crisis.”³

At the time, city streets around the world were full of horses and buggies transporting people and products from place to place. But those same streets also had a growing problem with horse manure – and in some cases, horse carcasses – lying on the roads for days at a time. All this culminated in clouds of flies that spread typhoid fever and other diseases.

This problem was eventually addressed not through government intervention, but through technological change as automobiles replaced the horse and buggy.

A century later, governments are now looking to address the emissions that come from automobiles, factories, power plants and other sources.

As with the replacement of horses for transportation purposes, we are once again seeing entrepreneurs stepping up with new technology to address our current problem.

Methodology

SecondStreet.org searched online for unique ways in which businesses, both in Canada and across the world, are utilising new technologies to reduce greenhouse gas emissions in the first place, or to repurpose them into useful products and services for the public.

Throughout September and October 2021, we researched examples using reliable and respected online sources. SecondStreet.org focused on the following criteria where established companies, start-ups and organizations were located; the technologies or methods they used to capture carbon dioxide or other pollutants; how said pollutants were utilised in products or services; and how the products or services created a positive impact on reducing Greenhouse Gas (GHG) emissions overall. For additional information about the examples cited in this report, please visit the respective companies' websites.

Examples of Innovation

1. Vodka and hand sanitizer – Air Company

Air Company is a new and innovative company that captures carbon dioxide from the air and turns it into useful products, such as vodka and hand sanitizers.⁴

For example, the company's patented technology uses only air, water and sunlight as inputs for its vodka. It uses captured carbon dioxide from air-capture technology and generates electricity from sunlight using solar energy to power a conversion system. This conversion system breaks apart the captured carbon dioxide over catalysts and reforms it to produce alcohol, with oxygen as the only by-product.

The process has net-negative carbon emissions, removing one and a half kilograms of carbon dioxide from the atmosphere per kilogram of alcohol produced.

2. Competitors sharing technology to reduce emissions – COSIA

Companies that regularly compete in Canada's oil sands sector have come together to create a unique partnership to share technology that reduces emissions.

The cooperative, known as COSIA (the Canadian Oil Sands Innovation Alliance), includes Canadian Natural Resources Limited, Cenovus, ConocoPhillips, Imperial, Suncor, Syncrude and Teck.⁵ While oil companies traditionally keep their trade secrets confidential, these companies share experiences, technologies and intellectual property with other member companies that relate to emissions reduction. This partnership helps all members accelerate the pace of environmental performance improvement.

COSIA members account for over 90% of oil sands products in Canada, and by sharing research and intellectual property, members are able to work together to reduce Canada's GHG emissions across the natural resources sector. This is one way the oil sands have been able to reduce per barrel emissions by 28% between 2000 and 2017.⁶

This form of collaboration is found nowhere else in the world being unique to Canada through our nation's commitment to environmental protections and emissions reductions.

3. Soaps and cleaners – CleanO2 Soaps and Softeners

CleanO2 was founded by a Calgary-based plumber and gas fitter. The company removes carbon from the flue exhaust of commercial boilers, and by using heat in a reactor, produces potassium carbonate. This white, powdery substance is then mixed into a line of soaps and cleaners, with benefits similar to a water softener.⁷

To date, the company markets soap with natural ingredients to some of Canada's best-known retailers and is an innovative way to ensure carbon dioxide is used beneficially rather than emitted into the atmosphere.

4. Concrete, soaps, crayons and more – Carbon Upcycling Technologies

This start-up in Calgary has developed a process that combines carbon dioxide captured from a natural gas power plant in Southeast Calgary with waste products, such as ash left over from burning coal or petroleum coke. In doing so, it creates *nanoparticles* that can be used as additives for a variety of products including concrete, soaps, crayons and plastics.

These additives enhance performance and increase efficiency of the respective products. More importantly, they prevent emissions from the leftover coal and coke entering the atmosphere.⁸

5. From CO₂, to algae, to useful products – Pond Technologies

Pond Technologies is a Canadian company that has developed technology that converts carbon dioxide and other greenhouse gas emissions into biofuels, bioplastics, nutraceuticals, animal feed, cosmetics and other useful products.⁹

One product, phycocyanin, can be used as a food colorant – such as the one used to make blue M&Ms.¹⁰

In short, Pond Tech's system diverts emissions from exhaust pipes at cement factories, oil refineries and power plants into tanks full of algae. The algae then consume the carbon dioxide, grow and can eventually be processed into the aforementioned usable products.¹¹

6. Paper, plastics and fertilizers – Hyperion Global Energy Carbon Recycling

Hyperion Global Energy, based in Ottawa, is creating the world's first carbon recycling business which removes carbon dioxide from smokestacks in industrial complexes.

Hyperion has created a containerized drop-in unit that can be inserted into smoke stacks and capture CO₂. The carbon dioxide is turned into minerals that can be used in everything from green building materials to pharmaceuticals. The minerals are non-toxic and can be adjusted based on what customers need for their own products – from concrete and paper to plastics and fertilizers.

The process creates two tonnes of minerals for every tonne of carbon dioxide processed, and the material can sell for US\$500 to US\$2,200 a tonne.¹²

7. SaskPower Boundary Dam

The Boundary Dam is an 672MW coal-fired power plant located in Estevan, Saskatchewan.

The plant installed "Unit 3" on October 2nd, 2014, to become the world's first commercial-scale carbon capture and storage (CCS) process on a coal-fired power plant. When coal is burnt in this unit, carbon dioxide is captured from the smokestack, compressed and sent 3.4km underground where it is stored permanently, preventing its emission into the atmosphere.

To date, the unit is a reliable, long-term producer of clean base-load electricity. Installation of the CCS equipment cost approximately \$1.4 billion and reduces greenhouse gas emissions by capturing one million tonnes of CO₂ every year.¹³

8. Canadian Biogas

When organic matter decomposes, it often results in the release of methane (a greenhouse gas) into the atmosphere.

Across Canada, there are 279 facilities that are capturing methane emitted by agricultural waste, landfills, green bin programs and municipal wastewater treatment facilities, and are using that methane to generate electricity.¹⁴

Biogas from this process is used to generate a total of 196 megawatts of electricity and six million gigajoules of renewable natural gas, equivalent to roughly 300,000,000m² of solar panels, or more than nine large hydro dams.

These biofuel projects help fight climate change by preventing the release of methane - which is 21 times more potent than carbon dioxide as a greenhouse gas - while creating a new fuel source that can replace carbon-intensive energy from conventional fossil fuels.

9. Sustainable Aviation Fuel

Biotechnology company LanzaTech (based in the UK), and cleantech company Carbon Engineering (based in Squamish, British Columbia) have partnered on a first-of-a-kind project to create sustainable aviation fuel (SAF) out of atmospheric carbon dioxide.

The project team - with the help of British Airways and Virgin Atlantic - will use Carbon Engineering's Direct Air Capture (DAC) technology to capture carbon dioxide directly from the atmosphere and feed it into LanzaTech's Gas Fermentation process to produce low-carbon ethanol.

The ethanol will then be converted into SAF, which will provide more than 100 million litres of low-carbon jet fuel each year.¹⁵

10. Oil Sands Pathways To Net Zero

The Oil Sands Pathways To Net Zero initiative consists of Canadian energy companies - Imperial, Suncor, Canadian Natural, Cenovus and MEG - working together to help Canada reach zero net emissions by 2050.¹⁶

The initiative is currently looking at a number of methods to reduce GHG emissions in oil sands operations. One such initiative is the Carbon Capture Utilization and Sequestration Project (CCUS), which is a pipeline

that captures carbon dioxide at oil sands facilities and transports it to a central sequestration area. The carbon dioxide would then be stored in underground reservoirs, thereby preventing its emission into the atmosphere. This would be the largest carbon capture and storage facility in the world.

11. Improved Greenhouse Misting – CO₂ GRO Inc.

CO₂ GRO Inc. is an Ontario-based company that combines carbon dioxide and water for greenhouse misting systems.

It has long been known that carbon dioxide in greenhouses can increase plant growth by up to 30%, but the process is highly inefficient as most of the carbon dioxide (up to 90%) will often vent into the atmosphere.¹⁷

However, CO₂ GRO's technology infuses water with CO₂ and "mists" the product onto plants in short bursts, improving the efficiency of the process and preventing carbon dioxide leakage.

12. Enerkem Biofuel Plant

Enerkem, a Canadian waste-to-biofuels developer, has announced plans to construct a \$875 million biofuel plant in Varennes, Quebec.¹⁸

The proposed Varennes Carbon Recycling (VCR) facility will have the capacity to convert more than 200,000 tonnes of non-recyclable residual waste and wood waste from landfills into an annual production of approximately 125 million litres of biofuels.

With support from the Quebec and Canadian governments, the new plant will produce one of the lowest carbon-intensive fuels and reduce the carbon footprint of Canadians who use these fuels.

13. The Power of Hydrogen

Numerous energy companies across Canada are utilising “blue hydrogen” to reduce their GHG emissions. Blue Hydrogen is where natural gas is split into hydrogen and CO₂ using processes involving steam or direct heat, but the CO₂ is captured and then stored, hence mitigating environmental impacts.

Imperial Oil is moving forward with plans to construct a world-class renewable diesel complex at its Strathcona refinery near Edmonton, Alberta. The company will use blue hydrogen to combine it with biofeedstock and additives to produce premium low-carbon diesel fuel.¹⁹

Through carbon capture and production, this will prevent 500,000 tonnes of carbon dioxide from being emitted into the atmosphere annually, and the facility will be able to produce more than 1 billion litres of renewable diesel annually from locally sourced and grown feedstocks.

According to Imperial Oil, *“Third-party studies have shown renewable diesel from various non-petroleum feedstocks can provide life-cycle greenhouse gas emissions reductions of approximately 40 percent to 80 percent compared to petroleum-based diesel.”*

Furthermore, Enbridge announced a \$5.2 million project that will blend “renewable hydrogen gas” into the existing Enbridge natural gas network in Ontario.²⁰ Renewable hydrogen gas is created from low-carbon or no-carbon energy sources (such as wind or solar) and through electrolysis, splits water into hydrogen and oxygen.

The hydrogen-blending project, which is supported by Sustainable Development Technology Canada, is the first of its kind in North America and represents an important step in “greening” the gas supply of millions of Ontario homes and businesses.

The renewable hydrogen gas is currently produced at an existing facility in Markham, Ontario and will continue to reduce emissions and lower the energy grid’s emissions.

14. Yoga mats, paintings and crayons, oh my! – Expedition Air

Expedition Air is a Calgary-based online store that sells items made, in part, using greenhouse gas emissions. Items sold are manufactured from carbon dioxide and include concrete planters, yoga mats, crayons and paintings.

According to the CBC, *“most of the carbon emissions are captured from a natural gas power plant in southeast Calgary. Instead of those emissions being released into the air, they are captured in a machine and turned into a powder. That substance is then used as one of the ingredients for the products featured on Expedition Air.”*²¹

15. Carbonova Corp.

Carbonova Corp., based in Calgary is a start-up that uses the University of Calgary’s trapped carbon dioxide and methane supplies to produce carbon nanofibres.²²

Nanofibre is a material that is lighter, stronger and more flexible than steel, and is now drawing growing interest amongst industry leaders for use in batteries, electric vehicles, concrete, tires, reinforced plastics, semiconductors, running shoe soles and many other products.

The company states that carbon dioxide’s natural strength and stability as a compound element make it an ideal component for fuels, industrial gases, soap, and various new industrial chemicals and materials. The company’s methods also ensure that carbon dioxide is reused rather than emitted into the atmosphere.

16. The “MooLoo”

Cow urine has a high concentration of nitrate, a substance that, as it breaks down in contact with soil, produces nitrous oxide – a greenhouse gas 300 times more potent than carbon dioxide.²³

The University of Auckland in New Zealand and the Leibniz Institute for Farm Animal Biology in Germany have designed a new program that rewards calves with food when they successfully urinate in a specific latrine pen, called a “MooLoo.” The MooLoo captures the urine and prevents nitrous oxide escaping into the atmosphere.

After 15 days of training, three-quarters of the calves learned how to fully use the MooLoo. More importantly, the process ensured a reduction in greenhouse gas emissions and nitrate leaching (where the urine causes land contamination and the pollution of nearby waterways).

17. Organic Flow Battery

A major problem with batteries is that they are not as long-lasting as fossil fuels. Researchers at Harvard University found the same problem with their organic flow battery, where the molecules/cells that powered the battery were slowly decomposing over time, reducing its long-term usefulness.²⁴

However, scientists have figured out not only how the battery molecules decompose, but also how to drastically slow down the decomposition.

Using a molecule named DHAQ (dubbed the “*zombie quinone*” in the lab) they can cut the fade rate of organic flow batteries by at least a factor of 40. The molecule is incredibly cheap to produce and enables the battery to be produced at a low cost. The molecule itself is composed of naturally abundant elements such as carbon, hydrogen and oxygen, which stores and releases energy.

The DHAQ molecule therefore extends the life of organic batteries and provides a greener alternative to chemical-intensive counterparts. This ultimately reduces wastage and creates tremendous opportunities for energy sources to be powered by renewable batteries as opposed to fossil fuels.

18. Aether Diamonds

Aether Diamonds is a New York-based company that makes diamonds that are chemically and physically the same as naturally occurring diamonds.

However, for each 1 carat diamond that Aether produces, 20 tons of CO₂ is removed from the atmosphere.²⁵

Aether diamonds are created by pulling air in and capturing carbon dioxide in a special filter. The CO₂ is synthesized into a hydrocarbon raw material, which is then placed into reactors which create a perfect environment for diamond growing. This is done one atom at a time for about three to four weeks. The raw diamond is then sent to jewellers to be cut and polished.

Aether is currently working to become a fully carbon-negative operation by 2023, with the goal of pulling 100 million tons of CO₂ from the atmosphere within ten years.

19. Restore Foodware

Restore Foodware makes straws and cutlery from PHB (*polyhydroxybutyrate*), a natural material that microorganisms in the ocean make every day with saltwater and carbon dioxide.

Restore has found a way to mimic this underwater process using the same ocean microorganisms in a saltwater tank to produce “AirCarbon” – its version of PHB. This product is purified into powder, transformed into pellets and then melted into straws and cutlery.²⁶

Since they are made of a naturally occurring material, the straws and forks can biodegrade in the ocean or in compost. They also never get soggy, unlike their paper straw counterparts. Most importantly, the products are all carbon-negative since they’re made from atmospheric carbon dioxide.

20. Covalent: Accessories

Covalent produces sunglasses, tote bags, handbags and wallets made from AirCarbon (see above). However, instead of using carbon dioxide from the ocean, the company uses methane trapped from an abandoned coal mine to create its AirCarbon.

Its products also contain natural rubber and 15% or less synthetic materials, meaning they can be recycled and reused time and time again.

21. Bioplastics – Made of Air

Berlin start-up, Made of Air, has developed a bioplastic made of forest waste, farm waste and trapped carbon that can be used in a variety of ways; from furniture and building materials to interiors, transport and urban infrastructure.

Made of Air's bioplastic is 90 percent carbon and stores around two tonnes of carbon dioxide equivalent (CO₂e) for every tonne produced.²⁷ By 2050, Made of Air hopes to be storing up to a gigatonne of CO₂e a year in the material.

The bioplastic, also called "Made of Air", is a non-toxic material made from biochar. This is a charcoal-like material made by burning biomass (such as forestry offcuts and secondary agricultural materials) without oxygen. It is then mixed with a binder from sugar cane to create a material that can be melted and moulded like a regular thermoplastic. As such, it is 100% renewable and carbon negative.

22. Methane capture – Berg Chilling

Ontario-based Berg Chilling Systems has also developed technology that's quite innovative. Their equipment reduces the amount of volatile organic compounds (VOCs) that are burned at sites where oil and gas is extracted.

Instead of oil companies burning methane and other gases when they extract oil and gas from the ground, Berg Chilling System's equipment allows the companies to capture these gases and reduce their greenhouse gas emissions.

According to Berg's website, just one of their units can reduce carbon dioxide emissions by 11,500 tons in a single year. For perspective, that's the equivalent of taking approximately 2,500 cars off the road.^{28 29}

23. Entropy

Entropy is a subsidiary of Canadian oil and gas company, Advantage Oil and Gas Ltd., which has developed a new technology called Modular Carbon Capture and Storage (MCCS).³⁰ This new technology will capture, store and offset approximately 46,000 tonnes of carbon dioxide equivalent per year (tCO₂e/year), eventually capturing an additional 136,000 tCO₂e/year by 2023 and storing it permanently in a deep saline aquifer.³¹

The first phase of the project will upgrade carbon capture units at its Glacier gas plant in Grand Prairie, one of the largest producer-owned gas processing facilities in Canada. The company will capture 90 per cent of carbon emissions from the facility and eventually expand across North America. Entropy has already identified 1,478 facilities³² across Canada and the United States that emit less than 182,000 tonnes of carbon dioxide each year, and that would be ideal candidates for its carbon capture and storage installations.

24. CO₂ to Food - Deep Branch

A UK-based startup has developed a new technology to turn carbon dioxide into food for livestock.

The company uses a fermentation process - similar to that in wine-making - where microbes feed on CO₂

and hydrogen instead of sugars. The result is a product that is 70% protein (called “Proton”) that can replace conventional livestock feed such as fishmeal and soybeans.³³

This ingenuity has the potential to solve two global issues: removing carbon dioxide from the atmosphere to mitigate climate change, and preventing the depletion of wild fish stocks and large-scale deforestation that are often attributed to mass-scale agricultural activities.

25. Colours with DyeCoo

DyeCoo, formed in 2008 and based in Weesp near Amsterdam, is a leader in water-free and chemical-free textile dyeing.

The company has created a way to utilise carbon dioxide in the dyeing process instead of water, thereby eliminating reliance on water reserves and removing CO₂ from the atmosphere.³⁴

The technology takes captured carbon dioxide and pressurizes it to become “supercritical” (SC-CO₂). In this state, carbon dioxide has a very high solvency which allows dyes to dissolve into fabrics with ease. Because of this high permeability, the dyes are easily transported deep into fibres which create coloured textiles while helping remove CO₂ from the atmosphere.³⁵

Policy options

Government initiatives to address climate change have often focussed on high carbon taxes, burdensome regulations on industry and other intrusive methods. This approach often reduces the amount of capital that businesses have to innovate and reduce emissions. It can also lead to carbon leakage – firms simply relocating to other jurisdictions where

environmental restrictions are far less stringent. Thus, all governments have achieved is a loss in jobs and tax revenue.

What’s worse is where provinces such as Quebec have been considering an outright ban on all oil and gas production.³⁶ This is problematic for several reasons.

First, it means higher-than-necessary emissions. In 2020, SecondStreet.org hired Petrel Robertson to assess what the reduction in carbon dioxide emissions would be if Quebec used local natural gas rather than imports. The firm concluded:

“Quebec consumes large quantities of natural gas – 216 billion cubic feet (BCF) (6.12 billion m³) in 2019. Considerable energy is expended in transporting gas from producing areas in Western Canada and the U.S. to Quebec ... Choosing reasonable assumptions, we calculate that producing Quebec’s gas supply in the province instead of importing it from western Canada or the United States could save up to almost 170,000 tonnes of CO₂-equivalent emissions per year, which is comparable to removing about 35,000 cars from the road each year.”³⁷

As Quebec will continue to use natural gas for the foreseeable future, all it has done is outsource its emissions. That brings us to the second problem.

Had the province proceeded with local natural gas projects, there would be an opportunity to create and develop home-based technologies aimed at greenhouse gas emission reductions in the oil and gas sector.

For instance, Calgary-based energy technology firm Questerre is currently seeking to develop natural gas deposits in Quebec and build a carbon storage reserve. The firm’s goal is to achieve the cleanest natural gas production in the world, including near-zero emissions. However, if a ban is placed on natural gas development in the province, this could mean one less Canadian company working on emissions reduction technologies – potentially hurting not just Canada’s efforts to reduce emissions, but abroad as well.³⁸

With this in mind, three policy options that governments could consider include:

1. Governments could embrace and promote entrepreneurs in Canada who are working to repurpose, reduce or capture greenhouse gas emissions. Promoting such entrepreneurs through earned media attention, social media, K-12 classes and post-secondary institutions could inspire students, budding entrepreneurs and help attract venture capital for Canadian entrepreneurs.
2. Elected officials could approve more energy projects in Canada while earmarking government revenues from those initiatives (corporate income taxes and resource royalties) for efforts to reduce emissions. Specifically, the federal government could use the funds to expand its *Investment Tax Credit for Carbon Capture, Utilization, and Storage*. While details of the proposed tax credit are still being developed, it has the potential to help entrepreneurs in Canada who are working to reduce emissions.

However, the initiative appears to be quite limited as the federal government has stated it will provide the credit for “at least 15 megatonnes” of CO₂ annually.³⁹ For perspective, Canada’s emissions in 2019 were approximately 730 megatonnes.⁴⁰ Thus, the proposed credit will only cover approximately 2% of the nation’s emissions. Earmarking additional revenues to support this tax – especially if provincial governments did the same – could help grow Canada’s budding clean tech sector.

3. Governments could also redirect existing post-secondary research funding from low-priority areas towards efforts to develop new technology to reduce emissions. If climate change truly is the “crisis” that some politicians claim, it’s difficult to make the case for Canada’s federal government to continue funding research into projects like Japanese artist Enokura Koji’s work and “transnational and diasporic Iranian digital performances”, to name a couple of examples.^{41 42}

Conclusion

Entrepreneurs in Canada and across the world are developing innovative technology to ensure that the products we buy and the services we use have lower carbon footprints.

Governments in Canada could better support these entrepreneurial efforts instead of reducing the capital Canadian firms have to develop new emissions reduction technologies and export them abroad. The innovative ventures described in this brief have the potential to not only revolutionize our industries and reduce emissions but also create jobs and wealth for our nation.

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