Smart Prosperity Institute

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**Written by:** William Scott and Katherine Monahan

**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.

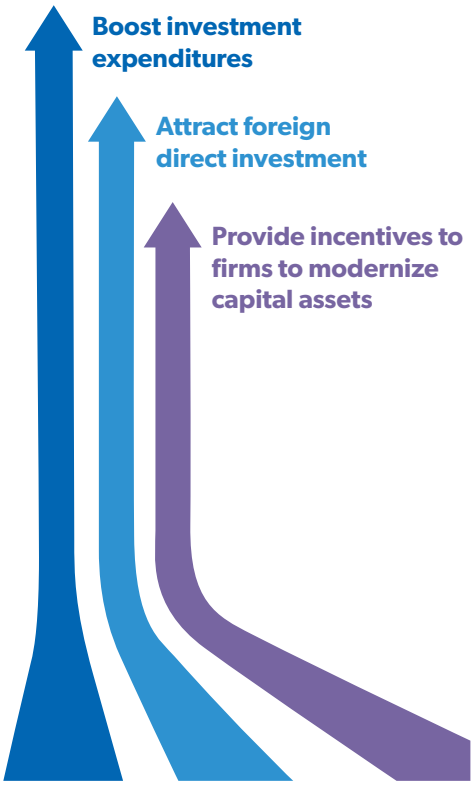
# TAX INCENTIVES TO BOOST CLEAN GROWTH: ACCELERATED CAPITAL COST ALLOWANCE

## Key Messages

- **Tax policy changes in the US have reduced Canada's historical corporate tax advantage.** This includes by allowing first year depreciation deductions of 100% for all tangible property investments through a bonus depreciation allowance. In Canada, this is referred to as accelerated capital cost allowance (ACCA).

- **In response, the Canadian government announced a more tailored approach that encourages capital expenditure in specific areas, such as clean growth.** They announced an increase to the depreciation write-off rate of clean energy and manufacturing equipment to 100% in the first year, as well as quicker tax write-downs in other categories such as machinery and equipment.

- **There is a need to accelerate the adoption of a broader suite of clean technologies across the economy.** ACCA for clean energy equipment is currently limited to 19 specific clean energy technologies. Although the Canadian government's approach is a step in the right direction, it needs to be extended to more clean technologies – in order to lower carbon emissions, spur innovation, and help our businesses in all sectors compete in a cleaner, more innovative global economy.




- Targeting the acquisition of clean and innovative technologies can be done by greatly **expanding the list of eligible technologies, or imposing a minimum performance standard** that allows the capital asset to qualify for immediate write-off.

- **Governments have a well-established role in promoting business competitiveness while minimizing market failures.** This includes environmental externalities wherever possible. A well-designed ACCA for clean technologies can do both.

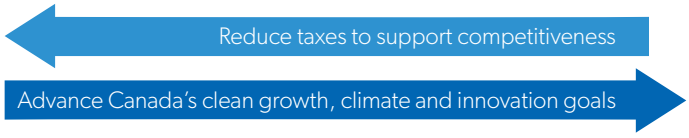
# THE ISSUE

Recent tax policy changes in the US have reduced Canada's historical corporate tax advantage. This includes by allowing first year depreciation deductions of 100% for all tangible property investments through a bonus depreciation allowance (*see box below*).[1] In Canada, this type of accelerated capital cost allowance (ACCA) is traditionally intended to: boost investment expenditures as a means of spurring economic activity, attract foreign direct investment, and provide incentives to firms to modernize capital assets. The US 100% depreciation rate allows for the immediate write-off of investment expenses for tangible new or used business property with a class life of 20 years or less. Stimulus measures of this kind can boost business investments in machinery and equipment that can lead to a long-run positive impact on productivity and competitiveness.[2] However, increased stimulus in the US could come at the cost of capital investment forgoing Canada to move south of the border.[3]

In order to address concerns over competitiveness, and in response to recommendations from the federal Economic Sector Strategy Tables, the federal government's 2018 Fall Economic Statement announced **an increase in the eligible write-off for investments (ACCA) in clean energy and manufacturing equipment to 100% in the first year.** It also announced an *Accelerated Investment Incentive* **that will increase the capital cost allowance for all types of capital equipment in all sectors "up to 3 times the current first-year amount"**. This is not the full 100%, which is just for the above-noted types of equipment. Also included were steps toward regulatory innovation and clean innovation investment.*

Expanding the use of ACCA for clean technologies is a two-prong opportunity for Canada: first, to bring down business-related taxes to support competitiveness in light of recent tax policy changes in the US; and second, to do so in a targeted way that helps advance Canada's clean growth, climate and innovation agendas.

**Expanding ACCA for Clean Technologies**




* For a summary of clean growth elements in the 2018 Fall Economic Statement, see: Scott, W. and Elgie, S. (2018) Advancing Clean Growth and Innovation in the Fall Economic Statement, *Smart Prosperity Institute blog*.

**Recent US Policy Changes**

Key elements of the US *Tax Cuts and Jobs Act* that are designed to spur business investment:

- Corporate tax rate cut to 21 per cent from 35 per cent
- Immediate write-off (or full expensing) of investments into tangible capital (100% first year depreciation deduction); Phase-out beginning in 2023
- Removal of taxation on dividends
- New Foreign Derived Intangible Income provision (e.g., intellectual property in the tech sector) income falls to 13 per cent for overseas income/exports.

Although Canada maintains an aggregate effective corporate tax rate advantage over the US, the overall advantage declines from an advantage of 13.6 percentage points to 2.8 percentage points.

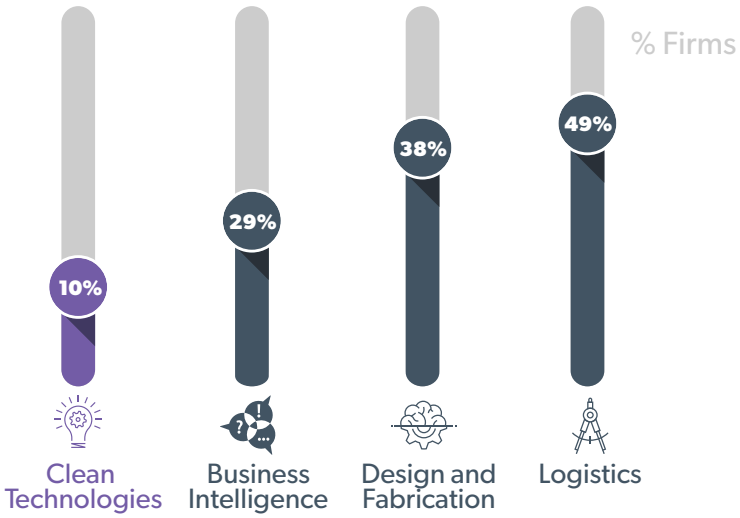

While the US policy does *not* differentiate between which types of tangible capital investments are eligible, there are reasons why a more tailored approach might be preferred. Under Canada's goal to transition to a cleaner, stronger economy, firms should be encouraged to make capital investments in line with low-carbon pathways and other environmental objectives such as cleaner air and water, as well as improved resource efficiency. As such, there are design options within the ACCA that would improve the relative attractiveness of clean innovations. This could also steer investors away from older, dirtier forms of assets that would lock in equipment with poor environmental performance for decades, such as industrial coal-fired boilers. [4]

In Canada, we are still too slow at adopting innovative clean technologies. For example, a 2014 survey by Statistics Canada of advanced technology adoption by businesses found that clean technology adoption was by far the lowest (*see image below*). While many Canadian firms adopted advanced technologies in the areas of logistics, design and fabrication, and business intelligence, only 10% adopted clean technologies (air, energy, water or waste).[5]

**"Under Canada's goal to transition to a cleaner, stronger economy, firms should be encouraged to make capital investments in line with low-carbon pathways and other environmental objectives such as cleaner air and water, as well as improved resource efficiency."**

† While the initial incidence of the regulation falls on the regulated entity, there are costs borne by consumers and individuals as well if cost increases are passed on to them through increases in product/service prices, or if employment or overall economic activity is negatively affected. These may be short-term or more persistent impacts.

## Adoption of Advanced Technologies in Canada




**"Economic experts agree: the countries and companies that find low-carbon, resource-efficient ways of doing business will be rewarded in the future global economy."**

Accelerating innovation and adoption of cleaner technologies requires a holistic policy approach that includes a mix of *push*, *pull*, *grow*, and *strengthen* policies.† In particular, *pull* policies play an important role in stimulating demand for more environmental-friendly technologies. These can take the form of stringent, flexible, and predictable environmental regulations such as pollution pricing. However, environmental regulations can also add to the cost of doing business, at least in the short-term. Of particular concern to businesses is the compounding effect of multiple policies to drive improvements in environmental performance (such as carbon pricing, clean fuel standard, and methane regulations). **Therefore, there is a need to balance ambitious environmental policies with targeted incentives that can help Canadian businesses accelerate the adoption of clean technologies across the economy *and* boost business competitiveness to compete in a cleaner, more innovative global economy.**

Increased domestic adoption into clean and innovative capital equipment could also bolster Canada's export potential as new technologies are developed domestically to meet demand. Clean growth represents a major economic opportunity, expected to be worth $26 trillion globally over the next 12 years.[6] Economic experts agree: the countries and companies that find low-carbon, resource-efficient ways of doing business will be rewarded in the future global economy.[7]

There is an opportunity to remain competitive with US policy, and to further encourage investment in technologies with better environmental performance. It is possible and advisable to build upon the recent announcement of 100% first year capital cost allowance for clean energy equipment by broadening the scope of eligible technologies to drive environmental performance across the economy.

† For more on the suite of policies to drive clean innovation see: Brownlee, M., Elgie, S., and Scott, W. (2018) Canada's Next Edge: Why Clean Innovation is Critical to Canada's Economy and How We Get it Right, *Smart Prosperity Institute*.

# ACCELERATED CAPITAL COST ALLOWANCE

## Background

Accelerated Capital Cost Allowance (ACCA) has been used in Canada for decades to encourage investment in a range of sectors poised for growth. For example, the ACCA had been in place since 1972 for oil sands mines, and a 100% ACCA was introduced for in-situ projects in 1996 when oil prices were low, in an effort to stimulate investment in the oil sands. The ACCA for mining and the oil sands sectors was phased-out under Budget 2007 which stated that "*at over 1.1 million barrels of production per day in 2006, Canada's oil sands sector is healthy and vibrant*," and concluded the ACCA was no longer required.

ACCA is currently in place for capital investments in computers and software, vessels, manufacturing, liquefied natural gas facilities, and new mines, as well as certain clean technologies with a focus on energy and climate.[8]

**Existing ACCA for Clean Technologies[9]**

Under class 43.1 and 43.2, ACCA is currently in place for certain clean energy technologies in Canada, including:

- 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

Prior to the 2018 fiscal update announcement, accelerated capital cost allowance for clean energy generation and energy conservation fell under Class 43.1 and 43.2 of Schedule II of the Income Tax Regulations. If a purchase fell into class 43.1, the ACCA rate is 30%; if it fell into class 43.2, the ACCA rate is 50%. For example, the purchase of an electrical vehicle charging station for $10,000 would fall into class 43.2, meaning that the business could claim $5,000 as a business expense the year of purchase. The rule also allowed certain expenses incurred during the development and start-up of renewable energy and energy conservation projects [Canadian renewable and conservation expenses (CRCE)] to be fully deducted in the year they are incurred. Without these accelerated write-offs, many of these assets would have been depreciated for income tax purposes at annual rates between 4 and 30 per cent.

When first announced in Budget 1994, the ACCA for energy technologies included a small list of eligible technologies, but was built to expand the list going forward. The budget said, "the range of energy equipment eligible will be expanded to include newer, environmentally positive activities such as electrical energy from geothermal and solar energy and the collection of landfill and digester gas".[10]

In recent years, the ACCA for clean technology has been expanded to include additional classes of technology. A 2014 bill expanded eligibility for the ACCA to include water-current energy equipment and a broader range of equipment used to gasify eligible waste fuel. Budget 2016 saw the addition of electric vehicle charging infrastructure and energy storage, while Budget 2017 added geothermal heat generation to the list.

Budget 2018 extended the clean energy ACCA through 2025 (originally scheduled to expire in 2020) representing an investment of $123 million over the 2017–18 to 2022–23 period.[11] And most recently, the 2018 Fall Economic Statement increased ACCA to 100% first year depreciation for clean energy equipment (current Class 43.1 and 43.2 technologies) until beginning to phase-out in 2024.[12]

**"ACCA works by increasing the rate at which depreciation of a capital investment can be expensed annually, thus decreasing immediate tax obligations, improving cash position, and lowering the average cost of capital to encourage investment."**

# ACCA IN PRACTICE

ACCA works by increasing the rate at which depreciation of a capital investment can be expensed annually, thus decreasing immediate tax obligations, improving cash position, and lowering the average cost of capital to encourage investment.[13] As such, the ACCA also reduces the investment risk associated with the property or technology. A 2010 study by the US Treasury Department suggested that 100% ACCA could reduce the average cost of capital for new investments by an average of 75%.[14]

Since firms tend to discount the future prospect of cost savings relative to cost savings today, ACCA also acts to provide value to businesses at a low cost. ACCA represents up-front deductions that businesses would otherwise receive over time, whereas lost government revenues from early year deductions are partially offset by smaller claims in future years, resulting in a low net cost of the policy.

Temporary tax breaks, such as a temporary acceleration in depreciation deductions can, in principle, have powerful effects by advancing capital spending, but may also be associated with deadweight costs.[15] The effectiveness of such measures,

when underlying investment is very weak, remains an open question, although they may play a particularly effective role in loosening financial constraints for small- and medium-sized enterprises (SMEs).[16] This is an important consideration with regard to policy design. If transaction costs are high, the ACCA could only be beneficial to larger firms with higher capital investments.

**What does 100% ACCA look like?**

Take, for example, a firm considering making a $100,000 investment in a new technology that will reduce greenhouse gas (GHG) emissions from their production process. Under existing capital cost allowance (CCA), the business could only reduce a fraction of that investment over the lifetime of the technology.

However, if ACCA was extended to include a broader range of equipment that improves environmental performance as well as the recent increase to 100% first year depreciation, the company could deduct the entire $100,000 from their tax obligation in the first year, freeing up an additional $75,000 for immediate use.

| | CCA (Class 43: 30%) | | 100% ACCA (Class 43.1) | |
|---|---|---|---|---|
| Year | Undepreciated Capital Cost ($) | Maximum CCA ($) | UCC ($) | Maximum CCA ($) |
| 1 | 100,000 | 15,000* | 100,000 | 100,000 |
| 2 | 85,000 | 25,500 | 0 | 0 |
| 3 | 59,500 | 17,850 | 0 | 0 |
| 4 | 41,650 | 12,495 | 0 | 0 |

**Under Canada's half-year rule, only 50% of the maximum CCA can be used in the year of purchase.*

# DESIGN CONSIDERATIONS

## Defining the scope of eligible technologies

Beyond the handful of selected technologies currently defined under classes 43.1 and 43.2, expanding the scope of Canada's ACCA to include a broader range of technologies could improve environmental performance. For example, including technologies that improve energy and water efficiency (as in the case of the United Kingdom) or reduce material waste could help support the sustainability of Canada's traditional resource sectors.

An expanded definition of clean technologies could include any technology that achieves prescribed environmental outcomes, such as: reduced pollution (GHGs, air, water), improved energy, water or resource efficiency, and reduced waste among others. Given that the term 'clean technology' is ill-defined and broad, a policy that looked to extend ACCA to 'clean technologies' would need to clearly outline the terms-of-reference and definition of what clean technology investment entails. This could be done in several ways, which are described below:

**"Expanding the scope of Canada's ACCA to include a broader range of technologies could improve environmental performance."**

**"The list of eligible technologies for ACCA could be vastly expanded... ACCA policies in the United Kingdom, Ireland, and the Netherlands include an array of clean technologies across sectors."**

## 1 Accelerated expansion of the technologies list

The list of eligible technologies for ACCA could be vastly expanded. For example, under a similar program in the Netherlands, 270 technologies which improve environmental performance have been included on their list for preferential tax treatment *(see box below)*.

To inform a Canadian list, Canada could consider using Statistic Canada's *Environmental and Clean Technology Products Economic Account* that defines related goods and services in the Canadian economy, including products such as clean energy, waste management, environmental and clean technology product manufacturing, and other technical services. Hundreds of specific technologies are included under the technology (cleantech) taxonomy. The cleantech taxonomy defines environmental and clean technology as any process, product, or service that reduces environmental impacts (i.e. leads to an improvement in an environmental indicator such as water quality), as well as goods that have been adapted to be significantly less energy- or resource-intensive than the industry standard (i.e. a good that has better environmental performance than its substitutes).

ACCA policies in the United Kingdom, Ireland, and the Netherlands include an array of clean technologies across sectors.[17] For example, the UK's Enhanced Capital Allowance program (100% ACCA) includes a range of water and energy efficiency technologies ranging from efficient toilets to lighting to high-speed hand dryers.[18] In total, the UK energy and water technology lists include thousands of specific products defined by their performance attributes.

One of the benefits to using this type of list system would be administrative ease. Businesses would be able to check whether their planned technology investment was represented on the list fairly easily, and Canada could use existing lists from other jurisdictions as a foundation. Likewise, Canadian Revenue Agency auditors would only need to compare technology descriptions (and receipts) against the predetermined list.

The drawbacks to this option include the potential criticism that the government is "picking winners" with respect to what clean technologies should be included on the list, without transparently describing their environmental outcomes. In addition, new innovations would not qualify for the ACCA unless the list was updated frequently, which would add a level of administrative complexity.

## 2 Performance standard

Under the performance standard approach, a technology would need to achieve a predetermined improvement in performance (for example, at least a 25% improvement in pollution reduction, energy efficiency, etc.) compared to a baseline estimate.

Using a performance standard, ACCA rates could also be set based on tiers of performance. For example, an improvement of 20% above a baseline could qualify for 50% ACCA while improvement of 30% or more could qualify for 100% ACCA. This option is somewhat analogous to the previous approach, which provided higher

CCA rates for faster charging EV charging stations. For example, chargers that supply 10-90kw fell under Class 43.1 and had a CCA of 30%, while chargers that supply more than 90kw had an ACCA of 50% under Class 43.2.[19]

Using a performance standard would result in a broader scope of eligible technologies that avoids 'picking winners' among innovative technologies. However, it would be challenging for businesses to be sure that the technology would achieve the desired environmental outcome ex-ante. Likewise, it would be challenging for a Canadian Revenue Agency auditor to examine proof that the technology performed as required.

## 3 Hybrid

The hybrid design option would expand the list of eligible technologies as well as create an application protocol for technologies that wish to be considered for ACCA based on their performance. Proponents of a clean technology that meets the criteria can apply to have it added to the class 43.1 and 43.2 lists. This approach involves a substantial administrative burden to governments and (one-time) cost to proponents, but would result in a more tailored list.

**Case Study: Netherland's VAMIL[20]**

Originally introduced to compensate for high environmental taxes, the VAMIL program (*Vervroegde Afschrijving Milieu-investeringen, or Early Depreciation of Environmental Investments)* in the Netherlands allows for the accelerated depreciation for technology investments with improved environmental performance. The Netherlands Enterprise Agency created a list of eligible technologies that are in the interest of protecting the environment known as the 'Environmental Technologies List'.[21] Investments on the list are eligible for bonus depreciation of up to 75% (previously 100%, until 2011). Businesses have the flexibility to use less, for example to defer depreciation until later in a year with low or negative income.

Businesses can propose a technology for inclusion on the list, and must demonstrate that the investment:

- has a clear yield for the environment;
- is innovative or still has a smaller market share than the alternatives;
- is more expensive than the alternative.

The VAMIL list includes approximately 270 technologies across a range of sectors (from agriculture to manufacturing) and is updated annually, including removals for technologies that no longer meet the criteria. The Netherlands also limits potential cost of the VAMIL program by providing an exhaustible budget of approximately €40 million annually, with the option for the Minister of Finance to transfer funds between years or suspend the program once funds are exhausted.

The Netherlands also has an Environmental Investment Rebate program (known as MIA) that allows for a pure tax deduction of between 15-40% for specified technologies on the Environmental Technologies List based on their environmental performance, level of innovation, and cost competitiveness against traditional alternatives.

# CONCLUSION

Providing targeted incentives for clean and innovative investments can offer a financial reward to Canadian businesses in the face of US tax reform, while also swaying the relative attractiveness of investment towards low-carbon solutions.

Governments have a well-established role in promoting business competitiveness while minimizing market failures wherever possible. As both environmental outcomes and innovation are subject to market failures, government policies should aim to boost business competitiveness, while also incentivizing environmentally-friendly investments and spurring innovation. The recent announcement of increasing ACCA for clean energy equipment to 100% is a promising step. Building upon this by expanding the list of eligible clean technologies, using an accelerated expansion, performance standard or hybrid approach, can help extend the positive impact throughout all sectors of the Canadian economy.

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**Smart Prosperity Institute**

1 Stewart St (3rd Floor), Ottawa, ON, K1N 6N5