Investment tax credit for clean technology manufacturing

Legislative Costing Note

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Budget 2023 proposed to introduce a refundable investment tax credit for Clean Technology Manufacturing equal to 30 per cent of the capital cost of eligible property associated with eligible activities.

Eligible property includes new machinery and equipment used to manufacture or process key clean technologies, and extract, process, or recycle key critical minerals.[1] Eligible activities include extraction, processing, or recycling of critical minerals; manufacturing of renewable or nuclear energy equipment; processing or recycling of nuclear fuels and heavy water; manufacturing of grid-scale electrical energy storage equipment; manufacturing of zero-emission vehicles; and, manufacturing or processing of certain upstream components and materials for the above activities.[2]

The credit would apply to property that is acquired and becomes available for use on or after January 1, 2024, subject to a phase out starting in 2032 and ending in 2034.

The PBO estimates that the investments Tax Credit for Clean Technology Manufacturing will reduce federal revenues by $4.3 billion from 2023-24 to 2027-28.

5-Year Cost

$ millions

Fiscal year	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
Total cost	199	873	936	1,067	1,236	4,310

Notes

- Estimates are presented on an accrual basis as would appear in the budget and public accounts.
- A positive number implies a deterioration in the budgetary balance (lower revenues or higher spending). A negative number implies an improvement in the budgetary balance (higher revenues or lower spending).

[1] Eligible activities include extraction and certain processing activities related to the following critical minerals: lithium, cobalt, nickel, graphite, copper, and rare earth elements.

[2] For the full list of eligible activities, see Tax Measures: Supplementary Information.

· Totals may not add due to rounding.

Estimation and Projection Method

Cost of extracting, processing, and recycling key critical minerals

Data from Natural Resources Canada (NRCan) on historical expenditures for critical mineral extraction by expenditure category was used to compute the cost of investments in new machinery and equipment as a share of total capital expenditures. NRCan also provided data on advanced projects and planned total investment in the critical mineral industry over the next 10 years. Total capital spending intentions and the historical share of machinery and equipment was used to project new investments to 2028.

Cost of manufacturing zero-emission vehicles

Total vehicles produced in Canada was projected considering historical vehicle production, supply chain issues, trends and other economic variables. During the pandemic, the number of vehicles produced in Canada declined, dropping from nearly 2 million vehicles produced in 2019 to 1.1 million in 2021. We estimated a gradual return to pre-pandemic levels.

Data from T2 tax returns, from 2010 to 2021, was used to identify total capital acquisitions for corporations that manufacture vehicles.[3] We then estimated the ratio of capital costs per vehicle produced in Canada and took a weighted historical average.

Using the historical average of capital acquisitions to production, we multiplied this ratio by our projected total vehicle production to approximate the yearly total capital acquisitions in the motor vehicle manufacturing industry. We grew costs by the PBO's internal projection of price deflator of investment in machinery and equipment.

Next, we isolated total electric vehicles (EV) manufacturing in Canada using T2 and public data. Currently, EV manufacturing in Canada is minimal. Therefore, to project forward the proportion of EV manufacturing in Canada we considered both the demand and supply side. On the demand side, we treated the federal government's announced sales targets[4] as exogenous and assumed a 3 per cent growth in new vehicle registrations per year, adjusting for the decline seen during the pandemic. To calculate the growth in EV

[3] We identified these corporations by filtering for corporations that used the self-reported NAICS codes 3361 (motor vehicle manufacturing), 3362 (motor vehicle body and trailer manufacturing) and 3363 (motor vehicle parts manufacturing). Capital acquisitions were estimated using schedule 8, line 203.

[4] "[It will be a] requirement that at least 20 percent of new light-duty vehicles offered for sale be ZEVs, and would increase annually to at least 60 percent by 2030 and 100 percent for 2035." Proposed regulated sales targets for zero-emission vehicles - Canada.ca

manufacturing, we considered the change in EV sales and production in Canada. These projections considered historical EV sales trends, changes in the supply chain, the federal government's sales targets for EVs, announcements by vehicle manufacturing companies in Canada, capital acquisitions for motor vehicle electrical and electronic equipment manufacturing and other economic variables.

Lastly, we multiplied the forecasted share of EV manufacturing in Canada by the ratio of total acquisitions to production in order to get the cost of manufacturing for EVs.

Cost of manufacturing of batteries and recharging systems

The Investment Tax Credit for Clean Technology Manufacturing is not available for property used in the production of battery cells or modules if such production benefits from direct support through a Special Contribution Agreement with the Government of Canada. Therefore, the Volkswagen and Stellantis agreements are not eligible. Due to the limited information available for battery production, we used company and media press releases to estimate the future capacity of battery manufacturing in Canada. Material and price assumptions were taken from the Trillium report. To get the eligible costs under this tax credit, we estimated the capital to output ratio for machinery and equipment and multiplied that by the current expenses.

To estimate the capital to output ratio for this sector, we took our projection of EV sales previously used to estimate the manufacturing costs for EVs and estimated a ratio of recharging system for each new EV sold. We grew the forecasted cost of manufacturing and installing a recharging station by the PBO's projection of price deflator of investment in machinery and equipment. We calculated a capital to output ratio to predict the cost eligible under this investment tax credit.

Cost of manufacturing other clean technologies

PBO used past data from schedule 8 of the T2 to determine the amount qualifying corporations spent in total acquisitions, excluding classes 1, 3, and 6, on other clean technologies manufacturing. Total acquisitions were grown using the average growth rate over 2023-2028 of the total net new eligible investments to the Investment Tax Credit in Clean Electricity and Clean Technology.[5]

[5] The total net new eligible investments to the Investment Tax Credit in Clean Electricity and Clean Technology are derived from our previous costing on clean energy, see ITC for clean Electricity and ITC for Clean Technology.

Sources of Uncertainty

The latest data for projects was estimated as of September 11th, 2023. Only projects publicly announced as of this time were included in our projection.

Our estimate includes only the most advanced projects in the mining sector, but there is no guarantee that all projects will be carried out and qualify for the tax credit.

Historical data for clean technology manufacturing is very limited, especially in the EV sector. Investment is expected to increase significantly, but as of writing this note, very few EVs are currently produced in Canada. The federal government's sales targets were treated as exogenous for new EV sales. From 2020 to 2022, supply chain issues have impacted motor vehicle manufacturing and investment. We assumed a gradual increase back to pre-pandemic levels.

We used NAICS codes to identify corporations that may have eligible capital acquisitions under this tax credit. NAICS are self-reported in the T2 leap and therefore all qualifying corporations and investments may not have been captured in our estimation.

Battery manufacturing is extremely limited in Canada at this time and therefore we relied on company releases and took that as given. This may result in a possible overestimation in the short term on the capacity of battery production.

Costs to produce EVs and related products such as recharging systems may decline as new technology is introduced resulting in uncertainty to our cost estimates.

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Data Sources

Cost of new investment in machinery and equipment of critical minerals extraction
Natural Resources Canada

Cost of new investment in machinery and equipment of zero-emission vehicles, batteries, recharging stations

Capital Acquisitions – T2 Leap. We took the sum of line 203 from schedule 8, filtering for corporations with self-reported NAICS 3361, 3362, 3363 and 336320. We excluded capital acquisitions related to CCA classes connected with buildings such as class 1, 3 and 6.
Historical Vehicle Production - Canadian Vehicle Manufacturers' Association
Economic Variables – PBO's Economic and Fiscal Outlook March 2023
EV New Vehicle Registrations – Statistics Canada Table: 23-10-0308-01
Material Cost Assumptions – Trillium Report Developing Canada's Electric Vehicle Battery Supply Chain
Capital Output Ratios – Statistics Canada Table 36-10-0488-01 and Table 36-10-0096-01
Sales Targets - Proposed regulated sales targets for zero-emission vehicles
Fuelling stations - Electric Charging and Alternative Fuelling Stations Locator

Media & Corporate Releases

All New Jeep, Chrysler, Ram Products Will Be Electric From 2026 (cleantechnica.com)
Stellantis to Launch 55 Electric Vehicles by 2025 – Autowise
Ford, partners pick Canada for $900 mln battery materials plant | Reuters
Q1 2023 Earnings Release (thelionelectric.com)
EV maker Lion Electric is now producing its own Li-ion batteries (electrek.co)
Li-Metal preps to supply lithium for next-gen EV battery makers
Minister Wilkinson Releases Report on Public Charging Needs for Electric Vehicles in Canada
DC Fast Charging Stations Cost - A Comprehensive Guide (energy5.com)

Cost of new investment in machinery and equipment of other clean technologies
Capital Acquisitions – T2 Leap. We took the sum of line 203 from schedule 8, filtering for corporations with self-reported NAICS: 332410, 334512, 333416, 334410, 333611, 335312, 333990, 335990, 335910, and 331410.

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