Investment Tax Credit for Clean Technology

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Legislative Costing Note

The 2022 Fall Economic Statement proposed to introduce a refundable Clean Technology Investment Tax Credit equal to 30 per cent of the capital cost of eligible equipment. Eligible investments include equipment to generate electricity from renewable sources, stationary electricity storage equipment, low-carbon heating equipment as well as non-road zero emission vehicles (ZEV) and charging equipment. Budget 2023 expanded eligibility under the credit to include geothermal energy systems. The credit is available for the capital cost of property that is acquired and that becomes available for use after Budget 2023. It will be phased out in 2034.

The PBO estimates that this Clean Technology Investment Tax Credit will reduce federal revenues by $6.2 billion over 5 years.

5-Year Cost

$ millions

Fiscal year	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
Total cost	1,141	1,312	1,290	1,246	1,245	6,234

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).

Estimation and Projection Method

Canada's Energy Regulator's (CER) projections for electricity generating capacity and capital costs by primary fuel source were used to project annual new capital expenditures on electricity generating equipment from 2023 to 2028. Projections are based on the CER's Canada Net-zero scenario. Construction timelines for new electricity projects by primary fuel source were taken from Lazard's Levelized Cost of Energy Analysis (2023). Statistics Canada's Infrastructure Economic Accounts was used to distinguish new capital investment by taxable entity including private, public, utilities and small-scale private enterprises. Historical price deflators for capital equipment were also derived from this data set and projected forward using PBO's March 2023 economic projection for investment prices.

Investment projections were augmented to include retrofits, refurbishments and rollover of existing assets using the annual depreciation rate (by asset) from Statistics Canada's Infrastructure Economic Accounts.

Projected storage capacity and capital cost under the Canada Net-zero scenario that was published by CER were used to project annual new capital expenditures on stationary electricity storage systems from 2023 to 2028. A linear interpolation was used to estimate the annual values.

Investment in low-carbon building equipment was projected using assumed annual changes from 2022 to 2030 in energy demand per commercial building from heating and cooling under the federal government's Emission Reduction Plan. Capital cost of commercial building retrofits was taken from Hayley & Torrie (2021) and Natural Resource Canada's Energy Use Database (2017). The private share of investment is from Statistics Canada's estimate of the private share of commercial and institutional building permits over 2018 to March 2023. The estimate was adjusted for the relative share of new construction and renovations of commercial buildings using Statistics Canada Table 34-10-0175.

Historical investment over 2015 to 2020 in non-road ZEVs is estimated using Class 56 capital acquisitions from Schedule 8 of the T2 corporate income tax database. The non-road ZEV capital stock is estimated using capital expenditures on other transportation equipment from Statistics Canada's Table 34-10-0039-01. Investment is projected using an assumed capital stock turnover consistent with an annual 2 per cent increase in the market share of non-road zero emission vehicles from 2022 to 2030. The 2 percent annual improvement is based on the pathway for the electrification of industrial equipment from the modelling underpinning the federal government's Emission Reduction Plan.

Based on the CER's Canada Net-zero scenario, the annual revenue impact of this measure could be significantly higher beyond 2028 primarily due to large investments in small modular nuclear reactors and wind power equipment.

Sources of Uncertainty

The estimate assumes that investment in clean technology equipment will increase significantly relative to historical levels. There is uncertainty over how quickly private investment can respond to incentives and regulations in order to meet the sector-specific targets outlined in the Emission Reduction Plan, particularly concerning non-road zero emission vehicles. Future capital costs are an important area of uncertainty as recent price deflators suggest that the prices of investment goods in the electricity sector have

outpaced inflation but the literature suggests that capital costs will fall over time for important technologies like wind and solar. A large behavioural response is not expected given that many of these investments would have been required by regulation. However, the investment tax credit could incentivize greater investment by private enterprises outside of the electricity generation sector which represents an upside risk to our cost estimate.

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Data Sources

Historical investment in electricity generating equipment by entity
Statistics Canada. Table 36-10-0608-01 and Table 34-10-0036-01

Net new electricity capacity by primary fuel
Canada's Energy Future 2023

Capital cost of electricity investments by primary fuel
Canada's Energy Future 2023 and *The Cost of Decarbonizing the Canadian Electricity System*, Dolter & Rivers (2018)

Construction time periods by primary fuel
Lazard's Levelized Cost of Energy Analysis (2023)

Projection of installed electricity storage capacity
Canada's Energy Future 2023

Energy demand per commercial building from heating and cooling
Canada's 2030 Emission Reduction Plan

Capital cost of commercial building retrofits
NRCAN Energy Use Database (2017), Hayley & Torrie (2021)

New acquisitions of non-road zero emission vehicles and charging equipment
Schedule 8, 2020 T2 corporate tax return

Electrification in key industrial sectors
Canada's 2030 Emission Reduction Plan

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