Investment tax credit for clean electricity

Legislative Costing Note

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Budget 2023 proposed an Investment Tax Credit for Clean Electricity which introduces a 15 per cent refundable tax credit for eligible investments in non-emitting electricity generating systems, abated natural gas-fired electricity generation, stationary electricity storage systems and equipment for the transmission of electricity between provinces and territories. Importantly, both taxable and non-taxable entities such as public utilities would be eligible for the credit. The credit would be available as of the day of Budget 2024 for projects that did not begin construction before the day of Budget 2023. The credit would not be available after 2034. The Department of Finance is engaging with provinces, territories, and other relevant parties to develop the design and implementation details of the tax credit.

The PBO estimates that the Investment Tax Credit for Clean Electricity will reduce federal revenues by $6 billion over 4 years.

5-Year Cost

$ millions

Fiscal year	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
Total cost	0	722	1,562	1,855	1,887	6,025

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 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 CER's Canada Net-zero scenario was 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.

Potential new interprovincial electricity transmission lines were taken from the optimal transmission connections and associated capacity under the Complete Decarbonization Scenario as published by Dolter & Rivers (2018). Lines were assumed to begin construction in 2024 and annual real investment is assumed to be constant until completion in 2050. Construction costs as per line capacity and distance was taken from the Canadian Wind Energy Association (CanWEA)-GE study (2016). The Trottier Energy Futures Project (2016) was used to estimate the distance of new interprovincial transmission lines. Construction costs were adjusted for the change in electricity transmission network prices over 2016 to 2023 using Statistics Canada's Infrastructure Economic Accounts and by PBO's projection for inflation thereafter.

It was assumed that the majority of investment eligible for this tax credit will be undertaken by non-taxable entities. 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 primary source of uncertainty is the timing with which the Canadian electricity sector transitions to non-emitting (or abated) fuel sources. Faster (slower) adoption of technologies such as carbon capture, utilization and storage and small modular nuclear reactors could increase (decrease) the near-term revenue impact. The timing of large projects by public utilities could significantly impact the annual cost of this measure. Potential projects that transmit clean electricity between provinces require significant stakeholder consultation and carry additional political risks compared to those within a single jurisdiction. Future capital costs are another important area of uncertainty as price deflators suggest that the price growth of investment goods in the electricity sector have outpaced inflation but literature suggests that capital costs will fall over time for technologies like wind and solar. A large behavioural response is not expected given that

many of these investments would have been required by forthcoming clean electricity regulations. PBO did not attempt to model the potential impact of conditions related to labour and lowering electricity bills. Complying with these conditions could impact take-up of the investment tax credit.

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Data Sources

Historical investment in electricity generating equipment by entity and price deflators
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

Optimal transmission connections between provinces and associated capacity
The Cost of Decarbonizing the Canadian Electricity System, Dolter & Rivers (2018)

Distance of lines between provinces
Trottier Energy Futures Project (2016)

Capital cost in ($/MW/km) of transmission lines
Canadian Wind Energy Association (CanWEA)-GE study (2016)

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