



The Transition
Accelerator



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A Canadian Advantage

How Canada can capture low-carbon capital leaving
the United States

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About us

Clean Prosperity is a Canadian climate policy organization. We advocate for practical climate solutions that reduce emissions and grow the economy. Learn more at CleanProsperity.ca.

The Transition Accelerator is a pan-Canadian organization that drives projects, partnerships, and strategies to ensure Canada is competitive in a carbon-neutral world. Learn more at TransitionAccelerator.ca.

Abbreviations

45V/Q/X/Y	Sections of the United States Internal Revenue Code on clean-energy tax credits
CCfD	Carbon contract for difference
CCS	Carbon capture and storage
CCUS	Carbon capture, utilisation and storage
DAC	Direct air capture
DOE	Department of Energy
IRA	Inflation Reduction Act
ITC	Investment tax credit
LCFS	Low-carbon fuel standard
OBBBA	One Big Beautiful Bill Act
PPA	Power purchase agreement
PTC	Production tax credit
RINs	Renewable identification numbers
SAF	Sustainable aviation fuel
TIER	Technology Innovation and Emissions Reduction (Regulation)

Executive summary

In an era of great-power rivalry, new risks to Canada’s long-term sovereignty and competitiveness demand an ambitious agenda of nation-building projects. As tariffs punish key industrial sectors, Canada has tremendous opportunities to build its industrial base by drawing in low-carbon capital fleeing the U.S.

In addition to unparalleled talent and natural resources, Canada holds a competitive advantage in a volatile and uncertain world: domestic stability. Amid an unprecedented geopolitical rupture, Canada can combine bold industrial, energy, and climate policies with a more dependable investment environment.

This paper compares incentives in Canada and the U.S. for investment in 14 low-carbon technologies, [updating and extending previous work](#) by Clean Prosperity and the Transition Accelerator. We assess five categories: low-carbon fuels, carbon management, electricity, critical minerals, and the battery supply chain. We focus on “bankable incentives,” economic incentives in the U.S. and Canada that provide upfront certainty to project developers and investors. These include production tax credits, investment tax credits, and – potentially – carbon credit revenue.

Many low-carbon technologies and projects offer significant value up and down the supply chain. The U.S. has pivoted away from climate policy, but has not entirely turned its back on low-carbon technologies. Canada must find the right openings and opportunities, commit to a plan, coordinate public and private resources, and follow through with determination and urgency. Becoming a globally competitive actor in emerging industries requires technology-specific policies.



Based on our findings, we recommend that the federal government and provincial governments work together to take two key actions:

Recommendation 1: Seize bankable advantages through Canadian carbon markets

The U.S. is sunsetting its production tax credits (PTCs) for hydrogen, wind, and solar, and diluting PTCs for carbon capture and storage (CCS) and critical minerals. It continues to claw back bespoke programming, grants, and loans for infrastructure of all kinds. These changes create openings that Canada can seize by implementing two key provisions in the 2025 federal-Alberta memorandum of understanding (MOU). Demonstrable progress would be a bankable investment signal.

1. **Carbon credit prices of \$130/tonne in Alberta's TIER carbon market.** Achieving \$130 requires swift action, clear timelines, and responsive carbon market rules that proactively address ongoing challenges like credit oversupply. Other efforts, such as harmonizing and linking Canada's carbon markets, can help sustain credit prices.
2. **A "financial mechanism" to ensure both governments uphold commitments to strong carbon markets.** A program of broad-based carbon contracts for difference (CCfDs) jointly backstopped by Alberta and the federal government would satisfy this provision. CCfDs would create the certainty that projects need to make final investment decisions.

Securing a bankable carbon price of \$130 per tonne in the TIER markets would offer a template to strengthen and harmonize carbon markets across Canada and unlock billions worth of low-carbon infrastructure projects.

Recommendation 2: Deliver *targeted* supports as part of a broader industrial strategy

Canada requires a more focused industrial strategy that prioritizes technologies and projects that maximize upstream and downstream value across domestic supply chains. Bankable policy incentives can help crowd in private investment in technologies with high strategic value.

As the U.S. pivots away from climate policy it is still aggressively pursuing low-carbon technology. The 2025 One Big Beautiful Bill Act (OBBBA) preserved many tax credits enacted in the 2022 Inflation Reduction Act to accelerate low-carbon investment. As it pursues "[energy dominance](#)", the Trump administration is also wielding non-bankable supports like loan guarantees, R&D grants, and price stability mechanisms. Geothermal, nuclear, hydropower, and critical minerals remain priorities of U.S. industrial policy.

Canada should tailor its policy mix to respond to the U.S. pivot. Canada should combine financial support with well-coordinated collaboration across the private sector, governments, civil society,

Indigenous leaders, and independent experts. A holistic approach involves an effective mix of bankable supports, grants, strategic procurement, R&D funds, loans and human capital to strategically induce investment.

Coherent industrial strategy requires that **bankable** and **non-bankable** supports balance durability and flexibility. Some financial supports apply on a per-unit basis (production tax credits, compliance credits, procurement, contracts for difference), others on a **one-time** basis (grants, investment tax credits, loan guarantees, accelerated depreciation).

Canada should stick to the fundamentals of successful industrial strategy: prioritize where to compete, coordinate with leading firms and stakeholders to determine their needs, and adjust the policy mix dynamically.

Canada's bankable investment advantage across 14 low-carbon technologies

- If carbon credits are not bankable — meaning future carbon credit revenues remain uncertain — Canada only has a bankable advantage in direct air capture.
- If carbon credits become bankable through a mechanism like carbon contracts for difference, Canada gains a bankable advantage in blue hydrogen, sustainable aviation fuel, carbon capture and storage for cement and gas-fired power, and wind and solar power.
- Even if carbon credits are not bankable, Canada will gain a bankable advantage for blue hydrogen, green hydrogen, wind power and solar power by 2029 due to the OBBBA's early sunset of several of the IRA's production and investment tax credits.
- Canada has a bankable advantage for critical mineral mining, including nickel and lithium, as well as some graphite projects depending on the size of the mine.
- Bankable gaps persist in several sectors that are not eligible to generate carbon credits, namely geothermal energy and battery manufacturing.

Canada has tremendous opportunities to build its industrial base by drawing in low-carbon capital fleeing the United States.

Introduction

This paper reports new findings from Clean Prosperity and the Transition Accelerator’s ongoing joint research project to analyze differences in Canadian and U.S. policy-based economic incentives for low-carbon technologies.

We focus on the bankable gap, the difference between economic incentives that are clear upfront, excluding one-off and bespoke instruments such as loans, grants, and other forms of financing. Tax credits are the main focus of the **bankable gap**.

In some cases we also look at the **total incentive gap**, which includes a broader set of economic incentives – both bankable revenue streams like tax credits, revenue streams that are uncertain like carbon-credit sales, and often bespoke grant and loan programs.

We examine 14 low-carbon technologies, assessing the bankable gap and the overall value of policy-based incentives for hypothetical projects. **We assume carbon credit values reach \$130 per tonne**, as described in the 2025 federal-Alberta memorandum of understanding (MOU), and rise with inflation thereafter.

All currency amounts are in Canadian dollars except where otherwise noted.

Part A: Clean fuels

1. Blue hydrogen

Figure 1: Average gross revenue from policy sources for hypothetical 140,000 tH₂/year autothermal reforming project, 2028-2037 (\$ per kg of hydrogen)

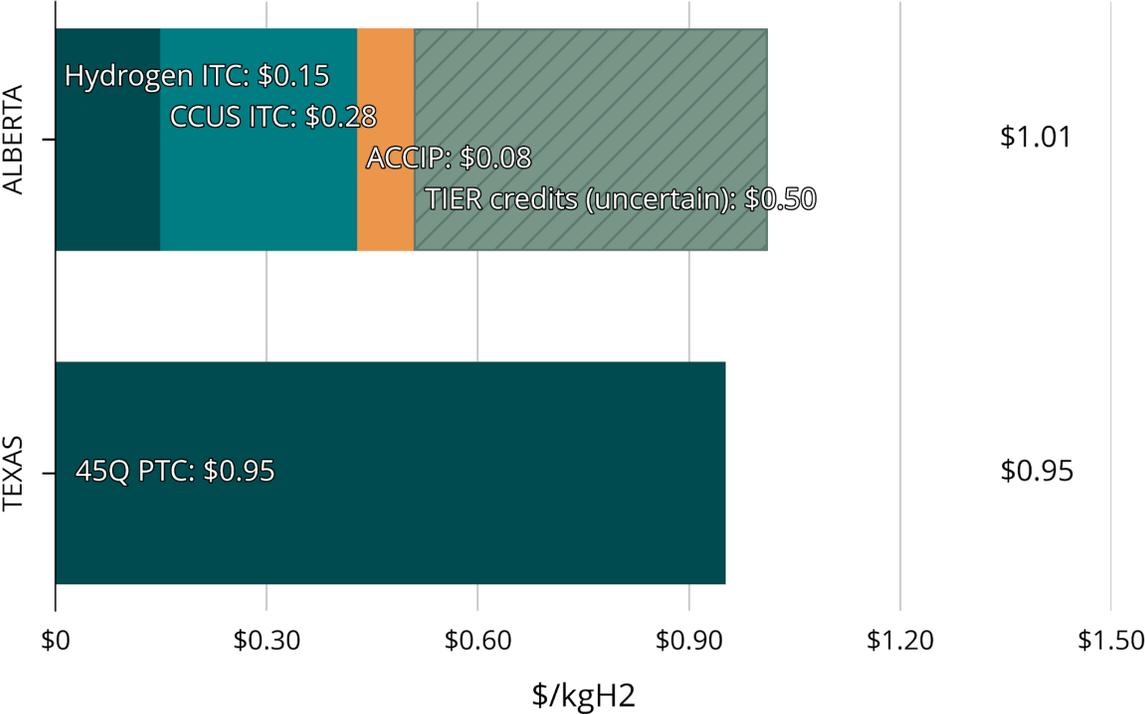


Figure 1 illustrates the gap between identical facilities in Alberta and Texas producing hydrogen from natural gas via autothermal reformation, and capturing the resulting carbon emissions. Blue hydrogen projects in Canada are eligible for several incentives:

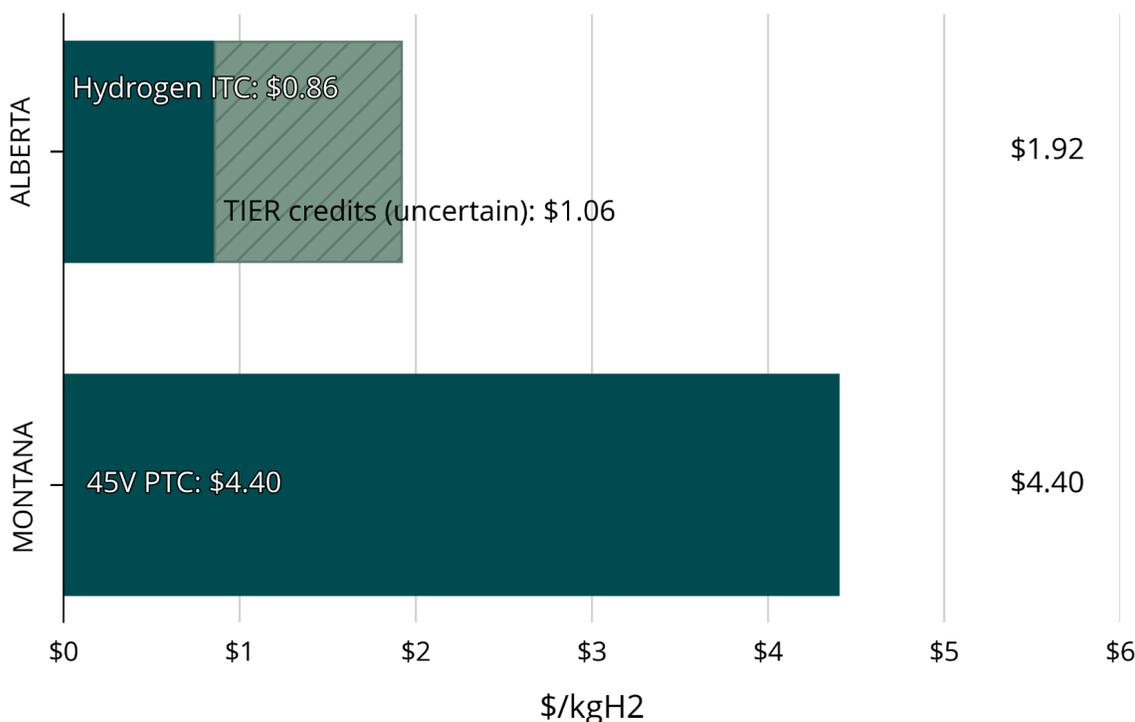
- The hydrogen investment tax credit (ITC) for eligible hydrogen production equipment, worth \$0.15 per kg of H₂
- The carbon capture, utilisation and storage (CCUS) ITC for eligible capture equipment (\$0.28 per kg of H₂)
- Grants from the Alberta Carbon Capture Incentive Program (ACCIP) worth \$0.08 per kg of H₂
- Carbon credits from Alberta’s Technology Innovation and Emissions Reduction (TIER) carbon market, worth \$0.50 per kg of hydrogen produced

Blue hydrogen projects in the U.S. can claim one of two credits, the 45V clean hydrogen production tax credit (PTC) or the 45Q PTC for carbon capture and storage. The 2025 One Big Beautiful Bill Act (OBBBA) sunsets 45V eligibility early; only facilities starting construction before December 31, 2027 will qualify. We assume proponents instead opt for the more stable 45Q CCUS credit. The OBBBA kept the 45Q credits, but their value will no longer be adjusted annually for inflation. After these changes, the **bankable gap is \$0.45 per kilogram in favour of the facility in Texas**. That would be worth over \$60 million a year to a facility producing 140 million kilograms of hydrogen annually.

Alberta could close the gap with carbon credit revenue. If Alberta were to achieve credit prices of \$130 per tonne in its TIER market, it would be equivalent to a PTC worth \$0.50/kgH₂. That would be enough to create a bankable advantage for Alberta of \$0.06/kgH₂.

2. Green hydrogen

Figure 2: Average gross revenue from policy and other sources for hypothetical 92,000 tH₂/year green hydrogen project, 2028-2037 (\$ per kg of hydrogen)



The 45V credit for hydrogen, which analysts previously singled out as uniquely generous among the tax credits offered by the 2022 Inflation Reduction Act (IRA), will quickly phase out under the OBBBA. Green hydrogen facilities that do not start construction by December 31, 2027 will not be eligible for 45V or any other credits.

Figure 2 compares policy-source revenue available to hypothetical green hydrogen facilities in Alberta and Washington state.¹ For facilities that commence construction **before 2028, we estimate a bankable gap of \$2.47/kgH₂**. For any facility that commences construction in **2028 or later, Canada has a bankable advantage of \$1.93/kgH₂**.

In addition to uncertainty caused by the 45V phaseout and revised guidance from the U.S. Treasury Department and the Internal Revenue Service, several U.S.-based green hydrogen projects have been shelved or cancelled in late 2025 because of rescinded loans and grants from the Department of Energy (DOE). This includes the billion-dollar-plus Pacific Northwest Hydrogen Hub and the ARCHES California Hydrogen Hub.

3. Sustainable aviation fuel (SAF)

Figure 3: Bankable revenue from government sources for hypothetical gasification with forest residues project, 150 million litres/year, 2028-2037 (\$ per litre of SAF produced)



Figure 3 compares policy-source revenue available to hypothetical SAF facilities in B.C. and California. The Government of Canada [proposed to multiply by 1.14](#) the value of credits generated under the Clean Fuel Regulations by domestic SAF producers. This would serve to help domestic producers

¹ Hydrogen is expensive and inefficient to transport over longer distances, so North American markets are more likely to be served by regional hubs. A company considering a project in Alberta would likely view Saskatchewan or Montana as alternative locations, rather than California or Texas.

compete against U.S. exporters that benefit from production tax credits.² We incorporate this proposed credit multiplier for domestically produced SAF into our analysis.

The OBBBA extended the 45Z clean fuel production credit by two years through 2029 but removed the extra credit value for SAF. We stack the 45Z credit with credits from California's Low Carbon Fuel Standard and Renewable Identification Numbers (RINs) generated under the Environmental Protection Agency's Renewable Fuel Standards (RFS) program. In B.C., we stack credits available through Canada's federal clean fuel regulations (CFR) and B.C.'s provincial counterpart, the Low Carbon Fuel Standard (LCFS).

It is difficult to calculate the total incentive gap for SAF because the federal CFR and the B.C. LCFS are still maturing markets. With optimistic assumptions about the prices in those markets, we calculate a **bankable advantage** of \$0.16 per litre for a B.C. SAF producer for the 10-year period of 2028-2037. We assume 45Z is not extended past 2029.

² The discussion paper referenced internal modelling finding that a multiplier range of 1.14-1.4x can close the gap with the U.S. on renewable diesel and ethanol. This range is generally consistent with the SAF-specific findings of this report, assuming that 45Z is not extended past 2029.

Part B: Carbon management

4. Cement production with carbon capture, utilization, and storage (CCUS)

Figure 4: Average gross revenue from policy sources for hypothetical 1 MtCO₂ cement CCUS project, 2028-2037 (\$ per tonne of captured CO₂)³



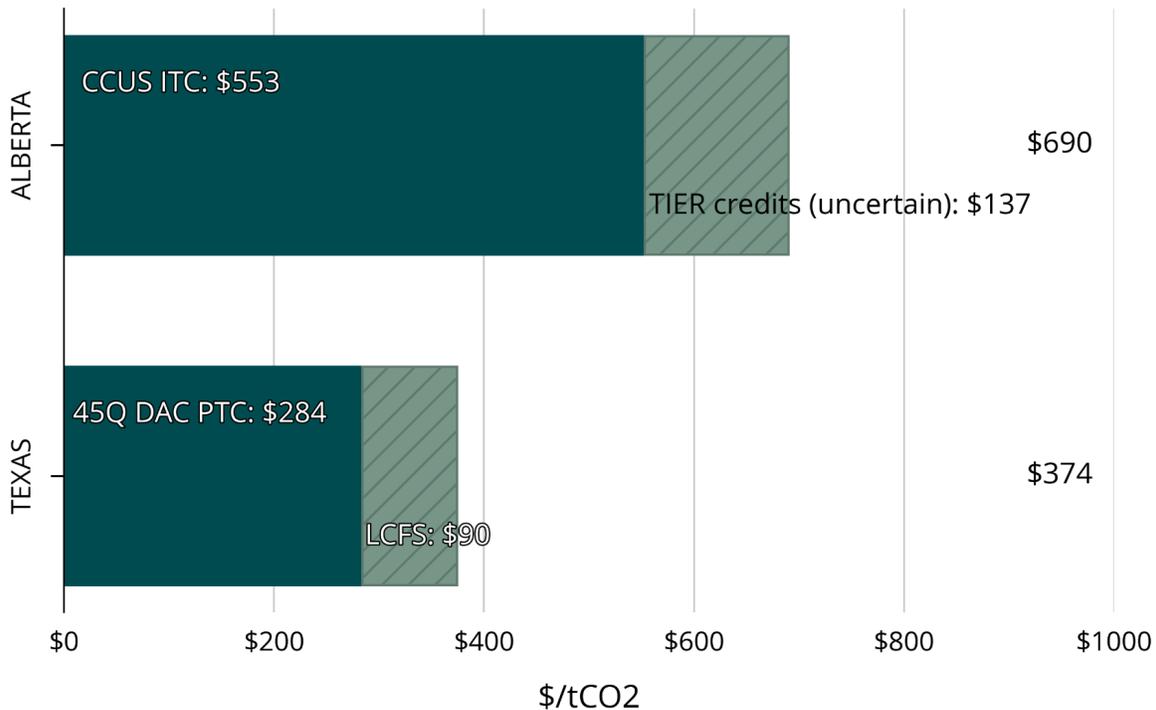
For equivalent large-scale cement plants in Alberta and Texas, Canada’s federal CCUS ITC and the Alberta Carbon Capture Incentive Program (ACCIP) yield in a **bankable gap of \$11/tCO₂** when compared to the revenue available under the U.S. 45Q PTC for carbon capture and storage (Figure 4). Creating a bankable advantage for Alberta, or other provinces that are eligible for the CCUS ITC, hinges on guaranteeing the value of credits generated in carbon markets.

The bankable gap would be much wider in provinces that lack options for CO₂ transport and viable underground pore space for long-term carbon storage.

³ Under a scenario with rising credit prices, Alberta incentives include a negligible \$2/tCO₂ for avoided compliance costs in Alberta, unlabelled in the figure.

5. Direct air capture (DAC)

Figure 5: Average gross revenue from policy sources for hypothetical 30,000 tCO₂ DAC project, 2028-2037 (\$ per tonne of captured CO₂)



Small-scale DAC projects in Canada are making progress. Deep Sky commissioned its 3,000-tonne Alpha Project in Alberta in October 2025 and announced DAC projects in Manitoba that could capture up to 500,000 tonnes per year, starting with a \$500-million, 30,000-tonne project. For a 30,000 tonne DAC facility, **Canada has a bankable advantage of \$269 per tonne.**

As the sector matures, DAC will continue to require both capital and operating support. Canada and the U.S. have opposite challenges. Canada's CCUS ITC offers bankable capital support but operational support, in the form of carbon credits, is uncertain. DOE's 2025 policy shifts have put the status of grants, loans, and other forms of capital support for DAC into question, but DAC facilities remain eligible for the 45Q carbon capture tax credit.

A mix of capital and operational support is necessary for any DAC project, whether the captured carbon is stored or converted into a product like liquid fuels.⁴ Overall, our modelling shows that Canada's CCUS ITC is more valuable on a per-tonne basis for smaller-scale projects relative to megatonne-scale projects.

⁴ Fuels produced from captured carbon would be eligible for CC1 credits under the federal Clean Fuel Regulations, but this is not likely to be an economically viable choice for DAC operations in the near term.

Part C: Electricity

6. Natural gas power plants with CCUS

Figure 6: Average annual gross revenue from policy sources for a hypothetical 900 MW natural gas combined cycle power plant with 90% carbon capture, 2028-2037 (\$ per MWh of electricity generated)

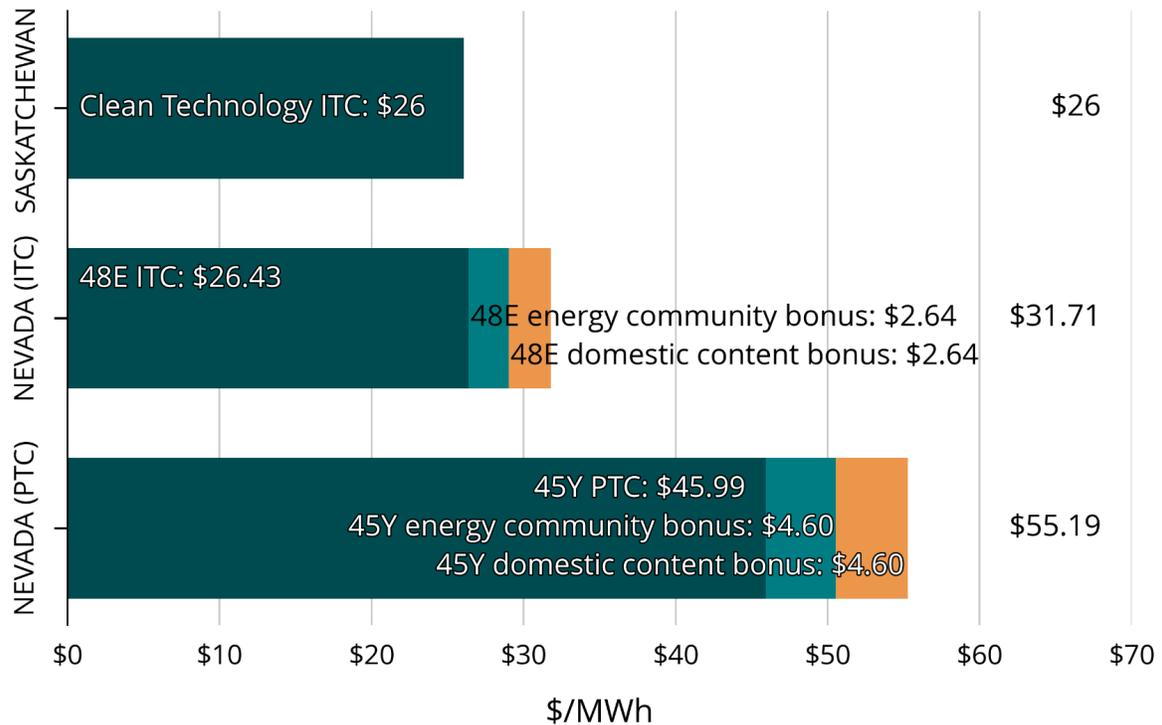


Several large-scale carbon capture projects for gas-fired power plants in Alberta have been shelved in recent years as a result of uncertainty in the TIER market. For a large-scale, greenfield 900 MW natural gas facility equipped with carbon capture, we calculate a **bankable gap of \$17.52/MWh** relative to a comparable project in Kentucky, without any credit revenue from the TIER market. If carbon credits in the TIER market were guaranteed to reach \$130 per tonne as agreed in the federal-Alberta MOU, this would convert to a **bankable advantage of \$17.20/MWh**.⁵

⁵ As with other projects that include a CCUS component, we assume that tax credits cannot be stacked for any individual piece of equipment, but that different credits can be claimed for different pieces of equipment within a single project. Here, we assume that the capex for the electricity-generation portion of the project claims the federal clean electricity ITC, while capex for the CCUS portion of the project claims the federal CCUS ITC.

7. Enhanced geothermal energy

Figure 7: Average annual gross revenue from policy sources for a hypothetical 100 MW enhanced geothermal power plant, 2028-2037 (\$ per MWh of electricity generated)



Where the resource is easily accessible, geothermal energy has been used to generate heat and electricity for nearly a century. Next-generation geothermal power plants include nascent technologies that expand siting options relative to traditional projects. Projects are capital intensive but have relatively low operating costs.

The OBBBA did not alter the 48E clean electricity ITC or 45Y PTC for geothermal projects. Surface plants, power islands, field gathering systems, and integral piping directly tied to the energy conversion process are all eligible, while exploration and resource development are not.⁶ In a sector with many startups and few established firms, capital support (e.g. ITCs, grants, loans) is typically more valuable for proponents than operational support (e.g. PTCs, carbon credits). So despite the significant gap between the value of the 48E ITC and the 45Y PTC, we would expect some U.S.-based proponents to opt for the ITC given geothermal's high upfront capital requirements.

Canadian geothermal energy projects can claim equipment costs under the Clean Technology ITC. Only a portion of drilling expenses, which can make up more than 50% of total capital expenditures,

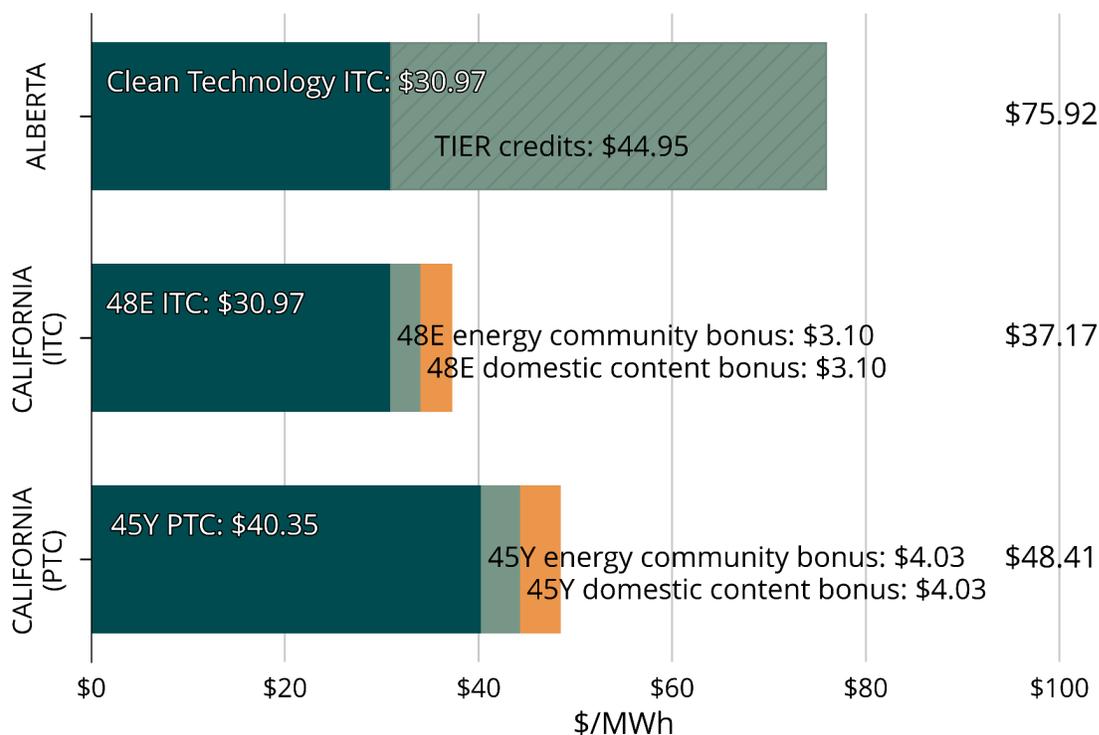
⁶ Drilling and production wells are typically treated as intangible drilling costs under tax rules, not "energy property."

are eligible.⁷ Canada’s most promising geothermal resources are concentrated in Western and Northwestern Canada,⁸ and none of the carbon markets in these regions have offset protocols for geothermal energy. Even if these markets did have geothermal offset protocols, carbon credits are not a strong incentive for projects given that most of the costs are front-loaded.

We calculate a **bankable gap of \$45.20/MWh** between the U.S. and Canada for geothermal projects. If smaller projects were to opt for the 48E ITC to reduce upfront costs instead, we calculate a **bankable gap of \$5/MWh** assuming the U.S. project were eligible for the Energy Community and Domestic Content Bonuses. Given its unique cost structure and lack of established firms, unlocking geothermal resources in Canada requires more than carbon crediting and ITCs.

8. Solar power

Figure 8: Average gross revenue from policy sources for a hypothetical 300 MW solar energy project, 2028-2037 (\$ per MWh of electricity generated)



⁷ Rig fees, labour, and fuel, which represent roughly 50% of drilling costs, are not ITC-eligible; steel and cement that goes in the ground, also roughly 50% of costs, are eligible.

⁸ See: Brasnett, G., Eyre, M., and Massie, P. 2025. The Deep Heat Advantage: A techno-economic analysis of enhanced geothermal systems in western and northwestern Canada. Cascade Institute:

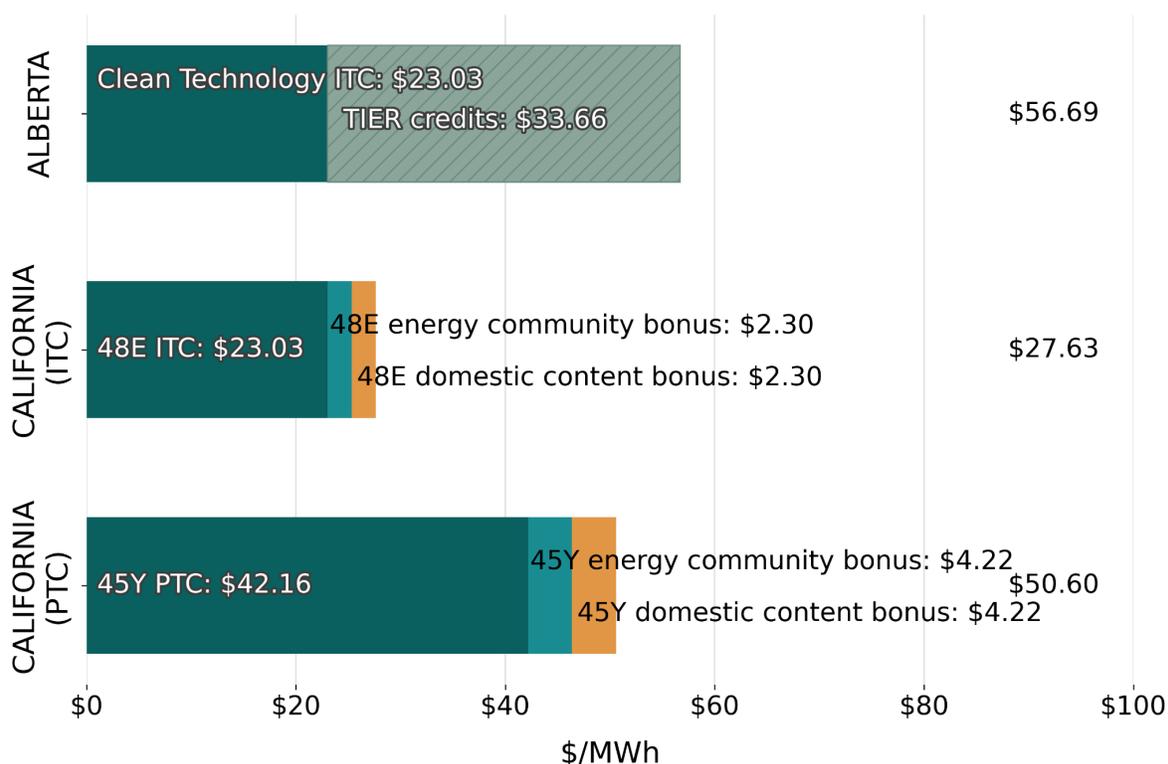
<https://cascadeinstitute.org/technical-paper/technoeconomic-analysis-of-enhanced-geothermal/>

The OBBBA shortened the eligibility timelines for the IRA's 45Y/48E credits for clean electricity. Projects must commence construction no later than July 4, 2026 or be placed in service by the end of 2027. In addition, U.S. solar projects on federal land, and projects on private land that involve federal resources or consultation, must now obtain permitting sign-off from the Interior Secretary.

As a result of these changes, combined with ongoing cost declines for solar power, the **\$9.38/MWh bankable gap** for a 300 MW solar plant is unlikely to have a material effect on investment in new solar power projects in Canada in the near term.⁹ When the OBBBA incentives sunset in 2028, Alberta and all other jurisdictions in Canada would obtain a **bankable advantage of \$30.97/MWh**.

9. Wind power

Figure 9: Average gross revenue from policy sources for a hypothetical 300 MW onshore wind energy project, 2028-2037 (\$ per MWh of electricity generated)



Wind power projects in the U.S. face the same sunseting timelines for the 48E and 45Y tax credits as solar projects. Like solar, challenges for U.S. wind projects extend well beyond the rapid sunseting of ITCs and PTCs. In December 2025, the U.S. Interior Department paused leases and issued a stop work order for all large-scale offshore wind projects currently under construction. Large developers like Equinor and Ørsted are pursuing legal action in response.

⁹ For ease of comparison, we assume a capacity factor of 22% for both projects, but California's solar resources are much higher quality than Alberta's. A 22% capacity factor is the high end of the range for an Alberta project but very conservative for California, where solar capacity factors average 28%.

For projects that can commence construction prior to 2028, we calculate a **bankable gap of \$17.32/MWh to \$25.38/MWh** for wind projects, depending on bonus eligibility. As with solar, this gap is unlikely to affect Canadian wind investments in the near term. Guaranteed TIER revenues would create a **bankable advantage of \$6.10/MWh between 2026 and 2028**.

All Canadian provinces are eligible for the Clean Technology ITC (30%) and Clean Electricity ITC (15%). Once the 48E and 45Y credits sunset in 2027, every Canadian province will have a bankable advantage for both solar and wind power.

Part D: Critical minerals

10. Nickel, graphite, and lithium mining

Nickel, graphite, and lithium are critical for the production of lithium-ion batteries, particularly for electric vehicles. The OBBBA will sunset the IRA 45X advanced manufacturing PTC that applies to the production of critical minerals at 25% per year starting in 2031. This PTC is worth 10% of production costs. Canada's 30% critical mineral ITC became law in 2024.

We compare the value of these credits for lithium, nickel, and graphite mining projects. We estimate production costs based on economic assessments for projects in development. We look at two representative projects for each metal to illustrate the impact of varying capital and operating costs. In each of the three figures below, "Project 1" represents a smaller project and "Project 2" a materially larger project, in terms of recoverable tonnage over the lifespan of the mine. We analyze production of these minerals in terms of cost per kWh of battery capacity.

Across these sample projects (Figures 10, 11, and 12), we find substantial bankable advantages for Canada. This is mostly the result of the OBBBA sunsetting of the 45X PTC. **For nickel mining projects, we show a bankable advantage of \$0.26 to \$0.45/kWh.** At the low end of this range, the incentive gap would translate into an estimated \$1.27 billion in bankable incentives by locating this mine in Canada. This is a reversal from the last edition of this report in 2023, which found substantial bankable gaps for both nickel and graphite. **For graphite, the bankable gap for Canada could be as large as \$0.17/kWh.** On the other end, for more capital intensive projects we calculate a bankable advantage of \$0.06/kWh. **For lithium, we show a bankable advantage of \$0.06 to \$0.39/kWh.**

The bankable gap is only part of the story for critical minerals. The U.S. and allies alike are making greater use of **non-bankable or bespoke incentives**, using contracts for difference, price floors, offtake agreements, loan guarantees, and equity investments to tilt project economics their favour. For example, [MP Materials](#)' recent deal with the U.S. Department of Defense includes \$400 million in convertible preferred stock plus a warrant (together up to 15% of MP's shares), a \$150 million loan, a 10-year \$110/kg price floor, and a 10-year agreement purchase agreement for its rare earth magnets.

Figure 10: Annual production tax credits and ITC equivalents for nickel mines in the U.S. and Canada, 2028-2037 (\$ per kWh of battery capacity produced)

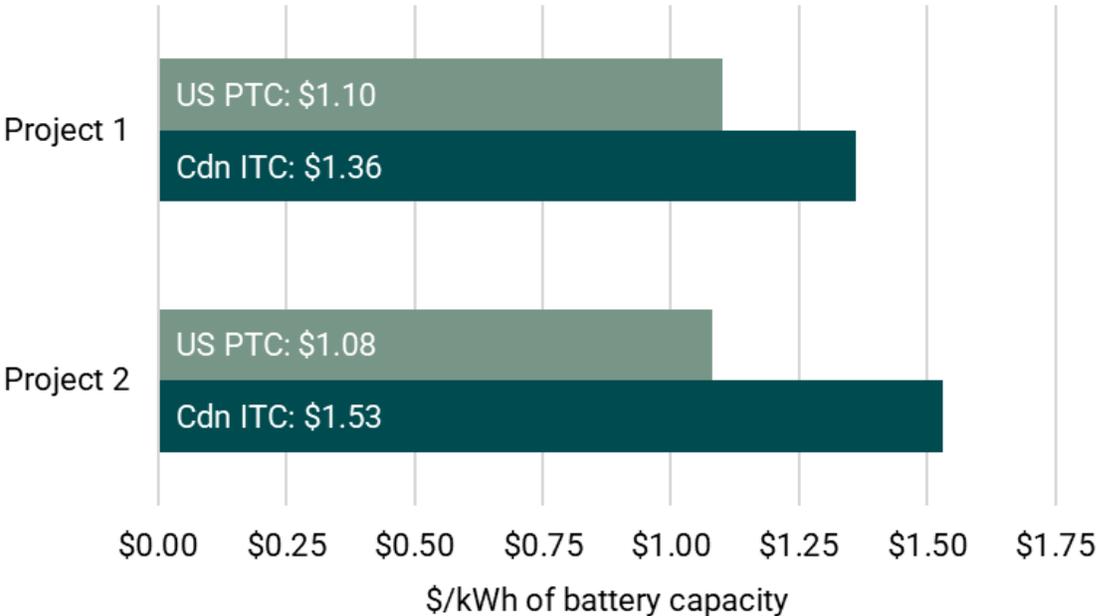


Figure 11: Annual production tax credits and ITC equivalents for graphite mines in the U.S. and Canada, 2028-2037 (\$ per kWh of battery capacity produced)

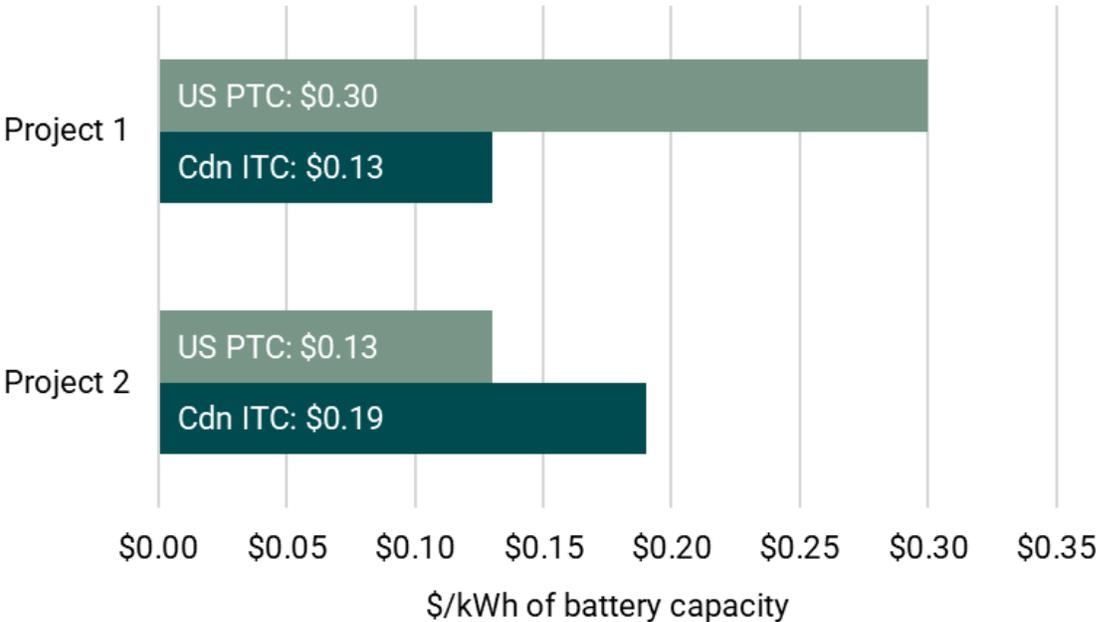
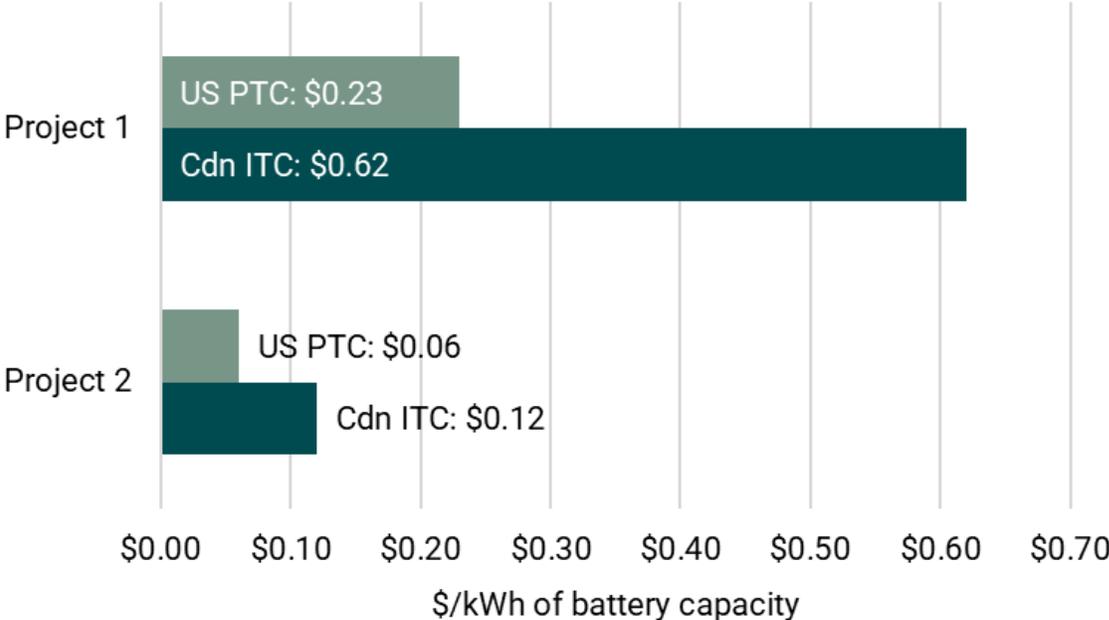


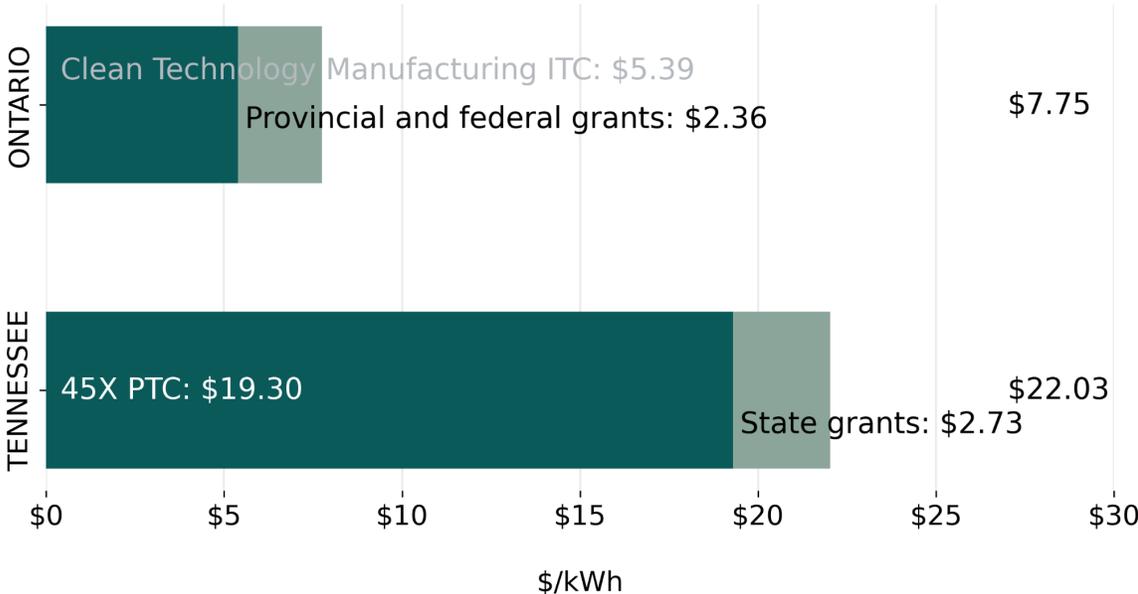
Figure 12: Annual production tax credits and ITC equivalents for lithium mines in the U.S. and Canada, 2028-2037 (\$ per kWh of battery capacity produced)



Part E: Battery value chain

11. Battery manufacturing

Figure 13: Average gross revenue from policy sources for 45 GWh/year hypothetical battery production facilities, 2028-2037 (\$ per kWh of battery capacity produced)



The 45X advanced manufacturing PTC offers 13 different credit amounts and formulas depending on the components being produced. Two of the most striking are a US\$35/kWh incentive for battery cells and a US\$10/kWh incentive for modules, declining by 25% per year beginning in 2030. The OBBBA did not change these incentives.

Canada’s Clean Technology Manufacturing ITC supports eligible battery and other energy-storage manufacturing investments from 2024 to 2034, with the 30% credit phasing down to 20% in 2032, 10% in 2033, and 5% in 2034. Our models also include an estimated value for the proposed Electric Vehicle (EV) Supply Chain Investment Tax Credit – a refundable 10% ITC on eligible building costs for companies with projects in multiple EV supply-chain segments.

As Figure 13 shows, a combined cell and module manufacturing plant in Ontario would have a **bankable gap of \$13.90/kWh** between 2028 and 2037 compared to a similar plant in Tennessee. The U.S. PTC phaseout in 2030 narrows this gap from our previous estimate of \$40.36/kWh, last calculated in 2023.

For a factory with a \$5.58 billion capital cost producing 45 GWh of battery capacity per year between 2028 and 2037, the U.S. PTCs would generate a **total benefit of approximately \$868 million on average** per year over the 2028-2037 period.¹⁰ In contrast, a 30% ITC for the same plant in Canada would generate a total benefit of approximately \$2.43 billion, or approximately \$243 million per year if spread evenly over 2028-2037.

The EV Supply Chain Investment Tax Credit and the reduction in Canada's marginal effective tax rate announced in Budget 2025 would not close the gap. For our 45 GWh battery factory, the EV Supply Chain ITC is only worth approximately \$202 million in total over 2028-2037.¹¹ The approximate 12% tax advantage created by Budget 2025's Productivity Super Deduction would only be worth approximately \$1.04 billion over the same period.¹²

The gap between the Canadian and American jurisdictions remains relatively unchanged after estimates of Canadian federal and provincial grants, and U.S. state grants are factored into the analysis of the **total incentive gap**. For example, government grants and direct incentives were similar for the [Stellantis plant in Windsor](#) and the [Ford Blue Oval City plant in Tennessee](#).

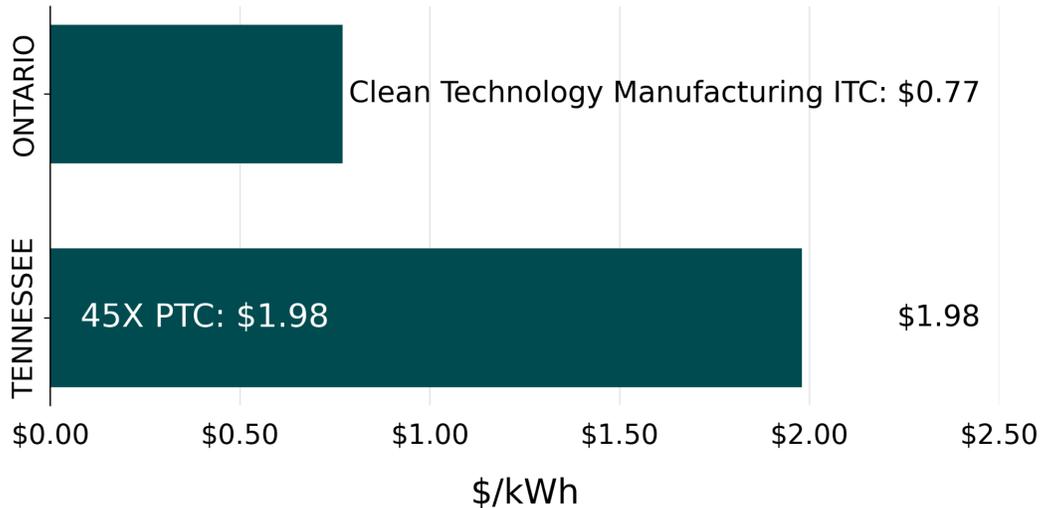
¹⁰ This model assumes that output is 55% (25GWh) of maximum annual capacity (45GWh) for the first year of production (2028).

¹¹ This is calculated assuming buildings represent 25% of capex.

¹² This calculation uses very generous assumptions, treating the 12% benefit as an ITC on the full capex, when in reality it would only apply to the taxes for eligible components of capex.

12. Battery active materials

Figure 14: Average gross revenue from policy sources for a hypothetical cathode active material facility producing enough material for 75 GWh of batteries, 2028-2037 (\$ per kWh of battery capacity produced)



The IRA/OBBBA's 45X advanced manufacturing tax credits also cover critical minerals (10% of production costs) and electrode active materials (10% of production costs).¹³ The latter credit covers cathode active materials (see Figure 9), anode active materials, electrolyte salts, and more. The OBBBA did not change the value or timing of this credit.

In Canada, the 2023 federal budget established an ITC for critical minerals and battery materials worth 30% of all capital expenditure. One critical battery material is cathode active material. Canada has already staked out a key position in the North American cathode active material market and is seeking to become a supplier of choice. However, even after these measures, there remains a significant **bankable gap of \$1.21/kWh** versus U.S. producers. This is much smaller than the \$3.63/kWh gas we identified in the 2023 edition of this report due to the shorter eligibility window for U.S. PTCs (2028-2032).¹⁴

¹³ Credit values here rely on cost estimates. We take the U.S. Department of Energy's average pack price (\$153/kWh) and calculate cathode and anode cost based on International Energy Agency estimates of the share of the battery pack, reduced by standard internal rates of return to convert prices to costs. Production costs for mining credits are estimated directly from preliminary engineering assessments for U.S. mining projects.

¹⁴ This report estimates the U.S. PTC incentive at \$5.41 per kWh, up from \$5.25 per kWh in the previous edition, due to changes in the exchange rate used to estimate costs.

Conclusion: Canada should seize bankable advantages and complement them with smart industrial strategy

With bankable carbon credits and a smart industrial strategy, Canada can open up a bankable advantage across most of the technologies we analyze (see Table 1 below for a summary). All orders of government across Canada should pursue two important actions in the near-term to help create a Canadian advantage in priority sectors.

Table 1: Canada's competitive position after the OBBBA

Technology class	Project type	Changes following the U.S. OBBBA	Does Canada have a bankable gap or a bankable advantage?	
			If carbon credits are not bankable	If carbon credits are bankable
Clean fuels	Blue hydrogen	Early sunseting	Gap until 2029	Advantage
	Green hydrogen	Early sunseting	Gap until 2029	Gap until 2029
	Sustainable aviation fuel (SAF)	Reduced value over project life	Gap	Advantage
Carbon management	Cement with CCUS	Reduced value	Gap	Advantage
	Direct air capture (DAC)	Reduced value	Advantage	Advantage
Electricity	Natural gas with CCUS	Reduced value	Gap	Advantage
	Enhanced geothermal	Unaffected	Gap	Gap
	Solar	Early sunseting	Gap until 2028	Advantage
	Wind	Early sunseting	Gap until 2028	Advantage
Critical minerals ¹⁵	Nickel	Early sunseting	Advantage	Advantage
	Graphite	Early sunseting	Project dependent	Project dependent
	Lithium	Early sunseting	Advantage	Advantage
Battery value chain	Battery manufacturing	Unaffected	Gap	Gap
	Battery active materials	Unaffected	Gap	Gap

¹⁵ For critical mineral projects we consider the averages of the gaps and advantages across two projects per mineral.

Recommendation 1: Seize bankable advantages through Canadian carbon markets

Our analysis shows high-value carbon credits can create a bankable advantage for Canada across many project types. The U.S. has effectively scrapped its support for several low-carbon technologies and weakened other incentives enough to create an opening for Canada.

Canadian carbon markets have the potential to drive investment in many technologies for which the U.S. has withdrawn support. This value proposition hinges on the promise that Canadian projects can earn carbon credit revenue. But project proponents and investors currently lack sufficient confidence that carbon credit prices will rise to levels needed to justify these investments.

The 2025 federal-Alberta MOU includes two key provisions that can make revenues from carbon markets bankable for project proponents in Alberta. The first is a commitment to achieving carbon credit prices of \$130/tonne. Achieving \$130 requires swift actions and responsive carbon market rules that proactively address ongoing challenges like credit oversupply. Other efforts, such as harmonizing and linking Canada's carbon markets, can help sustain credit prices. The second key provision of the MOU is for a financial mechanism to ensure that both governments uphold their commitments to strong carbon markets. These provisions should be rapidly implemented in Alberta and adopted across other provinces.

The financial mechanism should take the form of broad-based carbon contracts for difference (CCfDs). Broad-based CCfDs will make credit values "bankable" across Canadian carbon markets and provide the certainty that industry needs to make final investment decisions on major projects.

The MOU commits to concluding a new agreement on industrial carbon pricing by April 1, 2026. This agreement should include a timeline and trajectory for achieving \$130/tonne credit prices, alongside remedies to address any deviations from the trajectory. These details will provide a template that the federal government can offer to other provinces.

Clean Prosperity [has calculated](#) that credit prices in the range of \$130 to \$150 per tonne could unlock over \$90 billion in low-carbon capital investment in Alberta alone, and reduce over 70 megatonnes of emissions annually in just five industrial sectors. There is no time to waste.

Recommendation 2: Build on bankable advantages with targeted supports that are part of a broader industrial strategy

Bankable incentives make certain technologies more or less competitive but are only part of the story. Industrial strategy is much more about coordination of supply chains than it is about individual policies like tax credits.

Given Canada's limited fiscal firepower, Canadian industrial strategy needs to rigorously prioritize a portfolio of technologies where we have the best chance of competing and generating economic benefits up and down the supply chain. Industrial strategy must draw in private capital and build out enduring technological capabilities in these strategic, value-added industries, supported by effective coordination across governments, industry, Indigenous leaders, and independent experts.

International experience and Canadian successes (the development of the oil sands, canola oil, and the satellite industry), suggest that there are three critical elements of a successful industrial strategy. Governments must signal a desire to achieve leadership in a specific strategic technology, fund R&D efforts, and implement supporting policy.

The federal government should:

1. **Prioritize:** Articulate goals, priorities, and targets, and sustain a commitment to realizing them.
2. **Coordinate:** Establish close working partnerships to coordinate action.
3. **Implement** a mix of policy measures adapted to the needs of each technology/sector that can evolve over time.

Two reports from the Transition Accelerator articulate the elements of successful industrial strategy: "[Building the Future Economy Securing: Canada's Competitiveness and Autonomy in a Changing World](#)" and "[The Right Move at the Right Time: A New Canadian Industrial Strategy](#)".

It is too simplistic to say that Canada should focus its industrial policy on areas where it is inherently competitive because competitive advantage is not inherited. It is built through ingenuity. Competitiveness is a cumulative result of technological advancement and successful industrial strategy, and closely coordinated public and private action to achieve progress in a specific technology area.

Bankable, one-time incentives like ITCs can improve competitiveness but are often not enough to secure technological leadership. Non-bankable and bespoke instruments are needed as well. For example, public procurement was essential for driving early demand for EVs in China and commercial satellites in Canada, providing revenue certainty as firms scaled up their technology. Other **non-bankable, per-unit incentives** include contracts for difference, price floor guarantees, and offtake agreements, which Canada is now making use of in response to the use of similar instruments by the U.S. and China.¹⁶

Non-bankable, one-time forms of support were central to the vision behind the IRA, in the form of R&D funding programs and loan guarantees offered through the DOE Loan Programs Office. Under the

¹⁶ <https://transitionaccelerator.ca/blog/catalyzing-demand-critical-minerals-and-canadas-g7-leadership/>

Trump administration, despite budget cuts, the DOE still funds R&D and offers loan guarantees to geothermal, nuclear, hydropower and critical minerals projects.¹⁷

Table 2: Canada must tailor policy mixes for each priority technology

	Per unit	One-time/capex
Bankable	<ul style="list-style-type: none"> ● Production tax credits ● Compliance pricing credits (e.g. TIER, federal OBPS) ● R&D tax supports (e.g. patent boxes) ● Import credit remission system 	<ul style="list-style-type: none"> ● Investment tax credits ● Accelerated depreciation ● R&D tax credits (e.g. Scientific Research and Experimental Development tax credit)
Non- bankable	<ul style="list-style-type: none"> ● Price guarantees ● Contracts for difference ● Offtake agreements (e.g. procurement) 	<ul style="list-style-type: none"> ● Grants ● Loans ● Loan guarantees ● Equity investments ● R&D partnerships (e.g. NRC) ● Intellectual property support ● Infrastructure access (e.g. First and Last Mile Fund)

Technology-specific knowledge in the policy design and implementation process can help calibrate per-unit, one-time, bankable, and non-bankable supports to tilt the techno-economics of specific technologies in Canada’s favour. This knowledge is built through constant coordination in established forums, and enables actors to identify other regulatory changes, coordination failures, and intellectual property or export supports are necessary.

Selection criteria should include the size of Canadian footprint in the supply chain (upstream and downstream), technological capabilities of Canadian firms, scientific expertise in government and academia, size of global market opportunity, natural resource endowment, whether the technology is in alignment with climate competitiveness goals, and suitability for acceleration via the Major Projects Office. Transparent consultation and collaboration are key to the selection process.

¹⁷ <https://www.energy.gov/edf/energy-dominance-financing-program>

Appendix: Modelling assumptions

This appendix outlines some of the major assumptions made in modelling the incentive gaps for low-carbon technology between Canada and the United States; however it is not an exhaustive list. For questions about the modelling methodology, please contact the authors.

U.S. policy incentives

- All PTC and ITC models assume that wage and apprenticeship bonuses are satisfied, in order to maximize the value of U.S. tax credits. Bonus credits for domestic content requirements and energy community requirements are not satisfied unless explicitly noted.
- California Low-Carbon Fuel Standard (LCFS) credits: spot price of C\$87 per tonne of captured CO₂, assumed to increase at the rate of inflation (not bankable). As of December 2025 California LCFS credits were trading at approximately C\$75.
- Renewable Identification Number credits (RINs) at current price, increasing with rate of inflation (not bankable)

Canadian policy incentives

- All models assume that prevailing wage and apprenticeship requirements are satisfied, in order to maximize the value of tax credits.
- DAC, CCUS, hydrogen, solar, wind, geothermal, hydrogen, clean technology, and clean technology manufacturing: Canadian ITCs amortized over 10 years. To enable more direct comparison with the U.S. PTCs, the annualized ITC amounts are scaled up by a cost-of-capital factor (median 7%).
- Carbon credit revenues: Canadian federal headline carbon price reaches \$140 by 2030 and \$155 by 2035. Credit value assumes a 10% discount between credit prices and the headline federal carbon price (optimistic scenario), solar and wind models assume an average spread of 30% between credit prices and the headline federal carbon price (mid-range scenario).