INTERNATIONAL
CCS KNOWLEDGE
CENTRE

Canadian Budget 2021 – CCS Tax Incentive Considerations

Messaging for industry's participation in the consultation process

INTRODUCTION

With the first Canadian budget to specifically mention carbon capture, utilization, and storage (CCUS/CCS) as a critical part of Canada's plans to get to net-zero in emission targets, the International CCS Knowledge Centre (Knowledge Centre) prepared a summary *Canada's Budget 2021: Carbon Capture & Storage*, as well as compiled key messaging for industry's participation in the consultation process.

Carbon capture technology will be an essential part of Canada's increased 2030 ambitions and net zero commitments and its deployment will see megatonne (Mt) impacts that can extend well beyond 15Mt a year with the correct enabling mechanisms. It is important that there are value streams and business cases to support successful deployment.

With the assistance of the readership and industry stakeholders, the Knowledge Centre has prepared this key messaging document to aid industry organizations, and as a tool for the federal government to supplement (not replace) individual consultations - during the 90-day timeframe regarding the CCUS/CCS investment tax credit (ITC). Engagement in dialogue and responses to the Knowledge Centre questionnaire underscore the importance of this initiative. Viewpoints in this document are an aggregated account from international, national, and provincial corporations operating in the country with large emissions across sectors, as well as transport and storage entities from western Canada. Not all recommendations are the views of all stakeholders but reflect the majority of those approached.

OVERVIEW

In this document major elements for consultation discussions are identified, specifically: Who Gets The Credit?; Emissions Reductions & Timelines; Investment Tax Credit (ITC) Design; and, Value of The Tax Credit. Under each, recommendations based on input are outlined; applicable lessons learned from the 45Q production tax credit in the United States (US) are incorporated; and other considerations are identified. Additional comments relating to the key elements of Front-End Engineering Design (FEED), Storage Permanence, and Enhanced Oil Recovery (EOR) are also included.

WHO GETS THE CREDIT?

- Eligible expenses should be described as the capital for the carbon capture project.
- Other components along the CCUS chain (transport, storage, and utilization) should receive separate government support.
- Projects with certain criteria already met could be expedited.
- All emission reduction opportunities across sectors should receive the ITC.

EMISSIONS REDUCTIONS & TIMELINES

- A cap on eligibility should be placed to December 31, 2029, for final investment decision (FID).
- Putting a cap on the timeframe for the credit will incent projects to occur in the near term.
- There should not be a cap on project numbers, emissions reduced, or on dollars issued.
- Projects which occurred before the release of the budget should not qualify.

INVESTMENT TAX CREDIT (ITC) DESIGN

- An ITC addresses the capital-intensive nature of CCUS projects and helps mitigate development risk.
- The credit should be structured as a refundable capital tax credit.
- The ITC should be issued as close to the time of spend as possible due to concerns surrounding the time value of money.

VALUE OF THE TAX CREDIT

- Without greater certainty from engineering design studies, project costs are difficult to estimate.
- Without knowing project cost estimates, budget dollars cannot be estimated.
- A range of suggestions stem from 75% to less than 50%, from the lower carbon dioxide (CO_2) concentration emitters to the higher CO_2 concentration emitters, respectively.
- Canadian industry would like the value of the credit to be on par with the US 45Q to remain competitive.

FRONT-END ENGINEERING DESIGN (FEED)

- FEED studies are necessary for any CCUS project to move forward.
- FEED studies may be characterized as capital but can create accounting issues if a project does not proceed.
- No dollars were specifically allocated for FEED studies in the budget.
- The International CCS Knowledge Centre will release a FEED briefing document.

STORAGE PERMENANCE

- Canada has some of the best storage opportunities in the world.
- Provincial regulations (e.g., Alberta and Saskatchewan) ha ve established permanence and monitoring requirements that can be models for the rest of the country.
- The US is looking to life cycle analysis for its storage permanence considerations of CO_2 utilization (other than EOR).

ENHANCED OIL RECOVERY (EOR)

- An ITC to fund EOR projects is specified as excluded in the budget.
- CO_2 for EOR has seen the advancement of more than 100 projects worldwide in the last few decades.
- Production requires 30% less greenhouse gas emissions than traditional extraction and results in a 37% reduction in CO_2 emissions per barrel.

WHO GET'S THE CREDIT

It is recommended that the credit goes to those laying out carbon capture capital as eligible expenses.

Facts/Information

- The ITC should be awarded to the entity outlaying capital for the CO_2 capture facility.
- By providing the ITC to the capture entity, the government would be supporting emission reductions.
- The storage or use of the CO_2 would be at the discretion of the capture entity who is required to demonstrate permanence. As such, the ITC would support emission reductions rather than directly funding enhanced oil recovery (EOR) projects.
- Projects with certain criteria already met (such as engineering design work) could have priority access to layering of any benefits, a.k.a "Fast Track" for shovels in the ground by 2026.
- ITCs should be available to all sectors, including the production of blue hydrogen.

Lessons Learned (45Q)

- The US's 45Q is attached to the storage and use of CO_2 at the back end of the CCUS chain. It requires that the CO_2 injectors or users must have predictably large annual tax payments to make full use of the credits This adds some complexity to the project financing arrangements and excludes some prospective projects.
- 45Q was delayed in its roll out. As such, several large projects have mentioned they could have moved sooner but awaited policy certainty.

Other Considerations

- Other components along the CCUS chain (transport, storage, and utilization) should receive separate government support such as funding through Canada's Strategic Innovation Fund and/or Canadian Infrastructure Bank . If such funding is not available, ITC credits should be an option.
- Shared infrastructure for transport and hub storage can be viewed as a public good whereby government involvement would compliment a greater public value. Therefore, options other than an ITC may be appropriate.
- Any projects which can move sooner than others should not be stalled due to policy uncertainty. If the ITC is delayed, those who move sooner should have retroactive consideration back to the time of Canada's Budget 2021.

EMISSION REDUCTIONS AND TIMELINES

The tax incentive comes into effect in 2022 as stated in the Canada's Budget 2021. However, it is recommended that projects that outlay capital be eligible for the ITC as of the budget's release date (April 19, 2021). A cap on eligibility should be placed to December 31, 2029, for final investment decision (FID).

Facts/Information

- Projects which occurred before the release of the budget should not qualify.
- Putting a cap on the timeframe for the credit will incent projects to occur in the near term so they do not lag.
- The reason that FID is suggested, as opposed to shovels in the ground, for application of the ITC is to avoid a backlog of projects competing for labour and resources in 2029.
- If the 2030 timeframe is not accepted, the government should consider a suitable time cap to incent action.
- It is possible to at least double, if not triple, the 15Mt goal stated in the budget. More emissions should be targeted to reflect the government's increased ambition of emission reductions to 2030.
- Projects that already have acted towards cost certainty and can also be shovel ready by 2026 may be able to qualify for greater access to contributions in the near term - such as grants through Canada's Strategic Innovation Fund, or low interest loans from the Canadian Infrastructure Bank, that can be stacked for greater benefit.

Lessons Learned (45Q)

- The original 2008 45Q tax credit had a 75 million metric ton cap of CO_2. This uncertainty prevented the credit from being considered in project financing and prevented the incentive effect necessary to encourage the development of carbon capture projects.[i,ii] Due to uncertainty as to whether a project would receive the credit, the cap was removed in the 2018 45Q that is operating today.
- Projects must begin construction before January 1, 2026,[iii] and may claim the credit for up to 12 years after being placed in service.[iv]
- Emissions thresholds to spur CCUS on large facilities are part of 45Q. At least 45Mt of emissions are not covered by the threshold for coal and gas power plants, and industrial facilities. In addition, new technologies, production of low carbon fuels, building materials and chemicals that are not able to be scaled-up, can be disqualified from the 45Q program. Even though some facilities narrowly exceed the threshold, they may not be able to secure financing due to the risk posed by potential operational or market disruptions (i.e., pandemic). This may cause the facility to fall below the threshold and not be able to claim the tax credit.[v]

Other Considerations

- Many stakeholders feel that the program should not be limited in duration.
- Companies often allocate Front-End Engineering Design (FEED) for projects on their capital expenses. If FEED costs are applicable under the ITC, the portions of a FEED that occur prior to 2030 could potentially qualify, but the rest of the project should not.
- There is an opportunity for a three-track parallel approach where some projects will be prepared to be shovel in the ground by 2026; while others will push against a 2030 timeframe; with the remaining being research and development projects that enable Canadian technology advancement. All three are important, can require capital but may also require different layering of supports and financial contributions.

TAX CREDIT OPTION – REFUNDABLE

It is recommended that the credit be structured as a refundable capital tax credit.

Facts/Information

- Providing early-stage capital support will reflect the capital-intensive nature of CCUS projects and help mitigate development risk.
- Enabling support for companies with limited or fluctuating tax liability should be considered. A refundable tax credit can enable proponents to remedy this potential roadblock.
- The ITC should be issued as close to the time of spend as possible due to concerns surrounding the time value of money. Receipt of the ITC should occur, at a minimum, in each year of spend and not at the end of the project.

Lessons Learned (45Q)

- The entity that stores or utilizes the captured CO_2 is often different than the entity that generates the CO_2 being captured raising questions about ownership of the tax credit. Requests have been made for the credit to be offered as an upfront cash grant so it can be transferred amongst the entities in the chain of CCS, in whole or in part.
- If partnerships exist, with 45Q, taxpayers that own the carbon capture equipment can elect to transfer the credit to the party that sequesters or uses the CO_2.[vi]
- New recommendations to amend 45Q include an election to have direct pay. This allows taxpayers to treat the tax credits earned as a payment of taxes. Direct payment means more value flows to the project developer than to a tax equity transaction at no extra cost to the government. This provision will also enable the pool of investors to increase since the ability to claim the credit would not be restricted to those who have a tax liability.[vii]

Other Considerations

- Some stakeholders believe that the credit could be carried back or forward from past or future years for the same project.
- The concept of an advanced refundable tax credit is also of interest to industry for project proponents who require dollars up front for capital spend, issuing the refundable credit in advance would alleviate this burden. The advanced amount could be related to dollars prescribed in FEED studies prior to a final investment decision.
- If refundable tax credits are not welcome, the allowance of transferability of credits has been proposed.
- If there is shared infrastructure or partners in paying capital towards the project, understanding how credits will be issued will require certainty.
- An outstanding question relates to crown corporations who have no federal tax liability, some of which have high CO_2 emissions at their facilities. Will there be other guaranteed government support for these companies?

VALUE - MONETIZATION

To determine value, certainty is necessary. Certainty on project costs comes from engineering and design studies. The majority of potential projects have yet to conduct such studies. However, industry has suggested an ITC value as high as 75% of project capital costs in conjunction with other government capital funding mechanisms.

Facts/Information

- A range of suggestions for the ITC reach as high as 75% to well under 50%, proposed by lower CO_2 concentration emitters to the higher CO_2 concentration emitters, respectively.
- Without greater certainty from engineering design studies, project costs are difficult to estimate. Therefore, without knowing project cost estimates, a total budget estimate for the dollars to be allocated to ITCs is very difficult.
- Despite recognizing that the ITC is different from the US 45Q, industry wants to ensure that the value of the credit is on par with the US to remain competitive.
- To ease complexity, the credit should be a flat rate for all CCUS capture projects throughout the duration of the program.
- Any public dollars outlaid should consider the attachment of public knowledge sharing requirements (outside of specific technology intellectual property) to accelerate deployment and lower costs through iterations.
- For instance, the integration of carbon capture with the existing power plant at the Boundary Dam 3 CCS Facility cost almost $1.5B for a 1Mt/yr capacity project. Based on lessons learned, Canada's next projects can cost less if they rely on first mover knowledge (up to 67% less per tonne in the Shand CCS Feasibility Study). Relying on such cost reductions through iterations will lower the need for ITC dollar outlay later as more projects develop using the input of past projects.

Lessons Learned (45Q)

- The amount of the 45Q credit will increase annually to 2026 at $50/ton for permanent sequestration and $35/ton for EOR and other utilization processes, subsequently indexed to inflation.[viii]
- The US has yet to define CO_2 from different technologies. However, a 2021 Bill proposes that the tax credit value should increase to $120/ton for direct air capture (DAC) facilities that store CO_2 in saline geologic formations and $75/ton for DAC facilities that store CO_2 utilizing EOR.[ix]

Other Considerations

- Those asking for a 75% value, aggregate all government incentives in this number. If the ITC is complimented by contributions such as Canada's Strategic Investment Fund -type grants and low interest Canadian Infrastructure Bank-type loans, the ITC could be less – if the total of the layering for capital is 75%.
- Other government proposed policy options such as the Canadian Clean Fuel Standards, carbon price, and offsets are factors that make the economic case for the ongoing operations/revenue of a CCUS project. They would be viewed separately from the layering of ITC credits with other government contributions that pertain to project development capital.
- The need to have certainty and less risk is a common concern. With most uncertainty stemming from the carbon price, Clean Fuel Standards, and offsets (especially interactions with federal and provincial programs), confidence linked to capital for CCUS projects is essential .
- Some stakeholders suggest that the ITC be front-end loaded to incent first movers to proceed with projects considering early-stage technology risk and lower benefits derived from carbon tax avoidance in earlier years.

FRONT-END ENGINEERING DESIGN (FEED) STUDY

Facts/Information

- FEED studies are necessary for any CCUS project to move forward.
- No dollars were specifically allocated for FEED studies in the budget.
- FEED studies may be characterized as capital but can create accounting issues if a project does not proceed.
- The goal of a FEED study is to support a capital Final Investment Decision (FID). Typical FEED study estimates are in the cost range of +/- 10-15% and are often supported by probabilistic cost models for major projects with significant engineering effort to complete.
- The Boundary Dam 3 CCS Facility used the $240M from the Canadian government to support the FEED study.
- The US Department of Energy provides dollars for FEED studies separate from 45Q. With $55.4M for FEED studies in the power sector recently.
- In its advancement of its CCUS roll out, the United Kingdom and Norway are also providing funding contributions towards FEED studies.

The Knowledge Centre will be releasing a document on the considerations for FEED studies soon – stay tuned!

STORAGE PERFORMANCE

Facts/Information

- The ITC should focus on emissions reductions related to CCUS technology and spur the technology's development through capital support, enabling its deployment.
- It is recognized that Canada has some of the best storage opportunities in the world. Permanence in Canada is already established under some provincial regulations (e.g., Alberta and Saskatchewan) with attached Monitoring, Reporting, and Verification Plans. Additionally, storage permanence can be shown through ISO standards.
- The US accepts ISO standards or US Environmental Protection Agency protocols for permanent geological storage (both in saline aquifers and for EOR) in addition to MRV Plans.x This is like the Pore Space Tenure permitting requirement in Alberta.
- For utilization other than EOR, the US is looking to life cycle analysis for its permanence considerations.

ENHANCED OIL RECOVERY (EOR)

Facts/Information

- Canada's Budget 2021 indicates that incentives are not intended to be available for EOR projects. However, the budget boasts that Canada currently captures and stores 4Mt of CO_2 annually, which neglects to mention that most of that permanent storage is with EOR.
- EOR, utilizing CO_2, is a proven recovery mechanism and has seen worldwide applications with more than 100 projects in the last few decades. With three of the four large-scale projects in Canada using EOR.
- Using CO_2 for EOR prevents the emissions from a large point source from entering the atmosphere – those emissions are instead injected into an oil field to help release crude oil and in the process the CO_2 becomes permanently trapped in those pores.
- Allowing oil wells to use CO_2 to maximize production requires 30% less greenhouse gas emissions than traditional extraction due to the pressure created through injection. It also helps to prolong the life of a well that may be tapering in production.
- Life cycle analyses, which include impacts from potential increases in oil consumption, show that EOR results in a 37% reduction in CO_2 emissions per barrel of oil produced as compared to conventional oil production.[xi] Opportunities for sequestration and EOR in Canada are considered some of the best in the world.

REFERENCES

[i] Van Ness Fieldman, (2019) “Implementation of Recent Amendments to the 45Q Carbon Sequestration Tax Credit”. https://www.vnf.com/implementation-of-recent-amendments-to-the-45q-carbon-sequestration-tax-credit

[ii] U.S. Congress, (2018) “Bipartisan Budget Act of 2018”. https://www.congress.gov/bill/115th-congress/house-bill/1892/text

[iii] U.S. Congress, (2021) ‘‘Consolidated Appropriations Act, 2021’’. https://www.congress.gov/116/bills/hr133/BILLS-116hr113enr.pdf

[iv] See note ii.

[v] Carbon Capture Coalition, (2021) “Federal Policy Blueprint”. https://carboncapturecoalition.org/wp-content/uploads/2021/02/2021_Blueprint.pdf

[vi] U.S. Department of the Treasury, Internal Revenue Service, (2020) “Reg-112339-19 Credit for Carbon Oxide Sequestration”. https://www.irs.gov/pub/irs-drop/reg112339-19.pdf

[vii] ClearPath, (2021) “Carbon Capture, Utilization, and Storage Tax Credit Amendments Act of 2021 Summary”.

[Viii] See note ii.

[ix] U.S. Congress, (2021) “Carbon Capture, Utilization, and Storage Tax Credit Amendments Act of 2021”. S.986 - 117th Congress (2021-2022): Carbon Capture, Utilization, and Storage Tax Credit Amendments Act of 2021 | Congress.gov | Library of Congress

[x] U.S. Department of the Treasury. Internal Revenue Service. (2021) “Instructions for Form 8933 (2020)” https://www.irs.gov/instructions/i8933

[xi] Clean Air Task Force, “CO_2 EOR Yields a 37% Reduction in CO2 Emitted per Barrel of Oil Produced” (2019), https://www.catf.us/wp-content/uploads/2019/06/CATF_EOR_LCA_Factsheet_2019.pdf#:~:text=CO%E2%82%82%2

The International CCS Knowledge Centre (Knowledge Centre) is dedicated to advancing the understanding and use of large-scale carbon capture and storage (CCS) as a means of managing greenhouse (GHG) emissions. Through experience-based guidance, the Knowledge Centre provides the know-how to implement and optimize large-scale CCS projects through the base learnings from both the fully-integrated Boundary Dam 3 CCS Facility and the comprehensive second-generation CCS study, known as the Shand Study. The Knowledge Centre was founded in 2016 as a non-profit organization by BHP and SaskPower. ccsknowledge.com

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