

**Written Submission for the Pre-Budget  
Consultations in Advance of the Upcoming  
Federal Budget**

***By: Carbon Engineering***

## **Recommendation**

- **Recommendation** – That the Government of Canada introduce a carbon capture tax credit similar to the Section 45Q tax credit in the United States.

## **Body of Submission**

August 07, 2020

The Honourable Wayne Easter, MP  
Chair of the House of Commons Standing Committee on Finance  
House of Commons  
Ottawa ON K1A 0A6  
*Sent via email to:* [fina@parl.gc.ca](mailto:fina@parl.gc.ca)

### **Re: Pre-Budget Consultation in Advance of the 2021 Budget**

Mr. Easter:

Carbon Engineering appreciates the opportunity to provide a submission and articulate our recommendations for the 2021 federal budget. As a home-grown Canadian developer of clean energy technology, we believe that we have a helpful perspective on how the Federal Government can restart the Canadian economy as it recovers from the COVID-19 pandemic.

**Carbon capture deployment has slowed in Canada. To re-invigorate progress, Canada should evaluate and implement a carbon capture tax credit similar to the Section 45Q tax credit in the United States.**

#### **Background:**

Carbon Engineering is a home-grown Canadian developer of clean energy technology. CE was originally spun out of work conducted at the University of Calgary, and has since grown to attract over \$100M CAD of private capital and now employs over 100 people. CE is viewed as a global leader in Direct Air Capture technology, which is gaining significant international attention for its ability to feasibly and affordably generate emissions reductions.

Direct Air Capture allows capture of carbon dioxide directly from atmospheric air, which can then be permanently stored underground or used to manufacture products and fuels with very low environmental impact. Direct air capture, and “traditional” carbon capture and storage (which involves capture from flue stacks), can together tackle large volumes of Canadian GHG emissions, while also putting Canadians back to work in high quality construction, trades, and manufacturing jobs. A growing set of international climate institutions now predict that billions of tonnes of *both* carbon capture and atmospheric carbon removal will be required to achieve Paris climate commitments. This means that carbon capture, both from flue gas and from air, will form major 21<sup>st</sup> century growth sectors. These are sectors where Canada has many of the right ingredients to lead.

#### **Current Status in Canada:**

Canada has ambitious and commendable goals for 2030 emissions reductions, and a 2050 net-zero commitment. In addition to other mitigation opportunities across the economy, including in industry, transportation and buildings, we see carbon capture (pre-combustion capture, post-combustion capture and direct air capture – hereafter referred to as “carbon capture”) as critical elements to meeting Canada’s climate objectives.

Canada has what it takes to be a global leader in carbon capture, as well as in low and potentially carbon-negative commodities, hydrogen and hydrocarbons. Canada places fourth globally in terms of generating patented novel carbon capture and utilization (CCUS) technologies, and is home to over 25 of the world's 181 carbon utilization ventures<sup>1</sup>. However, *commercial-scale* deployment of carbon capture facilities has been very slow, and at present there are almost no serious projects development efforts.

Commercial-scale carbon capture projects have to-date been executed as “one off’s”; there has been no reliable market-based revenue that allow project developers to finance out of private markets and to replicate successful projects to scale up a self-perpetuating industry. While Canada has many of the right technical, industrial, and policy ingredients that could lead to a thriving carbon capture sector, **it lacks a reliable and dedicated support mechanism that enables project financing from private markets. A carbon capture tax credit would fill this gap, and would make carbon capture projects financeable, as they now are in the United States.**

### The U.S. Experience:

Canada is implementing carbon policies – namely Output Based Pricing and the Federal Clean Fuel Standard – that may support the business case for carbon capture once in full force. However, examination of the U.S. example suggests such policies alone may be insufficient to drive investment in the near term. The U.S. also has high-value and mature carbon policies, notably the Renewable Fuel Standard and California's LCFS and cap-and-trade program. Further, the U.S. has a strong pre-existing EOR sector, which benefits carbon capture by offering the ability to transport and inject captured CO<sub>2</sub> through existing infrastructure and under the expertise of experience operators. Yet despite all this, **most of the 27 carbon capture projects currently in development did not commence until the current U.S. 45Q tax crediting system was enacted.** The U.S. lesson is that multiple policy measures are required to enable commercial financing of carbon capture, chiefly among them, a reliable tax credit with clear and transparent criteria and a defined price, which allows developers the revenue certainty needed to finance their projects.

### Potential uptake and savings to Canadian companies

We could envision a handful of Canada's existing players in energy and power generation, and new proponents, successfully financing carbon capture projects over the next 10 years in response to a tax credit and the continued development of the Pan-Canadian Framework on Clean Growth and Climate Change. For one hypothetical scenario, the Canadian Carbon Capture Tax Credit Coalition, of which we are a member, examined a six-plant deployment scenario, which — over the initial 10 years of a program modelled after the U.S. 45Q system — **drew roughly \$1.4 billion in tax credits to drive \$5.5 billion into the sector. Absent a tax credit, development would be limited to those select few projects able to secure funding support through other mechanisms.**

### Stimulus Benefit

Recent analyses and publications from the U.S. shed light on the job creation and economic stimulus generated by large carbon capture projects. At commercial scale, direct air capture facilities can each create over 3,000 construction phase jobs, and hundreds of ongoing jobs within the operation and

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<sup>1</sup> The Pembina Institute, “CO<sub>2</sub> Capture, utilization, and storage; a snapshot.” (Nov 15, 2018) <https://www.pembina.org/pub/CCUS-factsheet>

supply chains of the project.<sup>2</sup> Flue gas carbon capture projects similarly generate hundreds to thousands of jobs each, depending on the type and scale of facility.<sup>3</sup> These are high-quality jobs involving trades, construction, engineering, and equipment manufacture and would tap into the core competencies of Canada's existing work-force. Further, demand for the equipment – steel, concrete, fibre-glass, wiring, pumps, etc. would play to the strengths of Canada's manufacturing sector and suppliers who have traditionally supported Canada's energy sector. In short, carbon capture projects would be a natural fit within Canada existing industrial and labour competencies, and would re-invigorate many business and individuals whose livelihoods are currently in jeopardy.

Many of Canada's regions have resources that make them advantageous areas to host carbon capture. B.C., Alberta and Saskatchewan have geological resources for underground sequestration. Alberta in particular is able to lease pore space to carbon capture proponents, avoiding potential legal bottlenecks that exist in other jurisdictions. Also, Canada's eastern provinces have clean electrical grids that could energize utilization of captured carbon.

To summarize, a thriving carbon capture sector benefits a host of stakeholders.

- It benefits Canada's leading technology developers like Svante, Carbon Engineering, Shell, Carbon Cure and others who get to deploy their technologies into the domestic market;
- It benefits emitters, Canadian industry and corporate leaders in energy, power generation, cement and other sectors seeking to reach net-zero emissions, by making a suite of emissions reduction options available. The current U.S. projects in development span sectors including ethanol production, biofuels, petrochemical, hydrogen, cement and industrial gas processing;
- It benefits Canada's energy-producing provinces by creating new low-carbon fuel opportunities for oil and gas development that are in line with Canada's 2050 net-zero commitment and clean growth strategy.
- It benefits Canada's equipment and material sectors which will be expected to supply lower-carbon projects. It also benefits the energy sector, which has expertise and equipment that can be applied to build CCS/DAC projects. And it benefits the labour sectors which will build these projects.
- Finally, it benefits all Canadians. Analysis has shown as we move toward achieving our climate targets, Canada's GDP grows faster if we have carbon capture and carbon removal options than if we do not.<sup>4</sup>

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<sup>2</sup> Rhodium Group, *Capturing New Jobs: Growth Opportunities from Direct Air Capture Scale-Up*, 15 (2020). <https://rhg.com/wp-content/uploads/2020/06/Capturing-New-Jobs-Employment-Opportunities-from-DAC-Scale-Up.pdf>

<sup>3</sup> Carbon Capture Coalition, *Carbon Capture Jobs and Project Development Status*, 4 (2020). <https://carboncapturecoalition.org/wp-content/uploads/2020/06/Carbon-Capture-Jobs-and-Projects.pdf>

<sup>4</sup> Internal analysis from Navius Research building off this modeling <https://www.naviusresearch.com/wp-content/uploads/2020/05/2020-05-12-Abatement-opportunities-in-Canada-website.pdf>, further details available upon request

## Conclusion

The world is moving towards low-carbon economies and low-carbon energy. The transition will take decades, but due to the impacts and risks of climate change, urgency is needed and the time to act is now. Carbon Capture will be critical among the technologies and infrastructure required to tackle the climate and energy challenge, and present major growth and export opportunities for those nations and companies that take the lead.

Canada has solid competence in carbon capture and leading intellectual property, in addition to the right industrial and labour assets necessary to lead in this sector. Further, Canada already has, and continues to enhance, leading provincial and federal climate change policies and tools, including a price on carbon, that can be used to advance carbon capture. **The final ingredient needed to form a competitive, self-perpetuating, and commercial-scale carbon capture industry – which Canada currently lacks – is a similar tax credit mechanism to Section 45Q.**

If Canada successfully implements a mechanism that is similar to Section 45Q, project developers and technology providers from the carbon capture sector will be able to replicate in Canada the success that is now taking place in the United States. Such success – leading to a growing fleet of flue-gas and atmospheric carbon capture facilities, built and replicated with well-established project finance structures – would deliver emissions reductions, jobs, economic growth and increased innovation to Canada. **In the absence of a Canadian 45Q equivalent, Canada risks losing those carbon capture-related benefits to the US.**

Sincerely,

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