

Intelligence MEMOS



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To: Canadians Concerned About Climate Targets

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Re: **FEDERAL PURCHASES OF DIRECT AIR CAPTURE WOULD HELP BUILD A VIABLE MARKET**

Achieving net-zero emissions by 2050 will be difficult, given the large stock of capital engaged in the production and use of fossil fuels.

Carbon capture has become a policy choice from the federal government, which [introduced](#) a new refundable investment tax credit related to carbon capture and storage (CCS) in its February budget. The credit is to be available for business projects that permanently store captured CO₂ through dedicated geological storage, and storage of CO₂ in concrete (but not for enhanced oil recovery).

In addition to CCS, direct air capture (DAC) is also eligible for support under the new tax credit, an important step in encouraging DAC development in Canada. The tax credit rates have been initially set at 60 percent for investments in direct air capture projects; 50 percent for investments that capture CO₂ in all other CCUS projects; and 37.5 percent for investments in equipment for transportation, storage, and use of CO₂.

This regime should help to encourage early investment in DAC. However, it will likely be a long time before a competitive market for DAC fully forms. Canada will likely need a mechanism to incentivize negative emissions (such as a negative carbon tax for emissions removed), and DAC costs would also have to fall and the carbon tax rise considerably for it to become competitive as an offset.

As a next step, the federal government could support DAC by becoming an early and sizable purchaser of DAC services.

This would have multiple objectives. These could include growing a viable domestic market for air capture; promoting the development of Canada's DAC industry by creating a solid floor for demand and thus lowering investment risk; driving down costs and making DAC more affordable to other buyers; and supporting a tool to address the stock of GHG emissions, not just the flow.

There are a number of macro-economic, competitive and environmental dimensions to consider. Recent as yet, unpublished research by one of the authors found a positive and significant correlation between DAC usage and the level of Canadian GDP across many scenarios, using the proprietary Navius gTech model based on trajectories that achieve the net-zero emissions goal for Canada in 2050.

By using DAC, polluters have the potential to reduce their net carbon emissions at a lower cost than is possible under other options. The research shows that DAC becomes increasingly economically valuable closer to 2050, as the remaining emissions in the economy are likely to be some of the most expensive to eliminate – such as from steel production and aviation.

As a result, direct air capture is good for GDP while still achieving net-zero targets. We estimate that Canadian GDP could be tens or even hundreds of billions of dollars higher in 2050 if direct air capture is available at a relatively low cost, compared to a world where DAC is either expensive or unused. The cheaper the DAC, the better for GDP. For DAC to become competitive, its purchase price, which currently ranges from \$250 to \$600 (US) per tonne of CO₂ captured, will need to decline to align with the cost of abating emissions or the level of carbon taxation.

To date, climate policy has focused on abating the *flow* of current and future emissions by using carbon pricing, regulations and subsidies. However, if the negative effects of GHG emissions due to rising temperatures are to be mitigated (and even eventually reversed), the *stock* of emissions accumulated over many decades will also need to be addressed. Once net-zero is reached, negative emissions methods like DAC (as well as bio-energy combined with CCS, and nature-based solutions) will still serve the crucial role of reducing the existing stock of atmospheric CO₂. Governments collectively, not businesses, are the logical source of funding.

The federal government can also show specific immediate leadership by using direct air capture to offset its own GHG emissions. DAC could be linked to federal government activities where it will be difficult to reduce emissions directly, such as emissions from the use of military equipment and materiel, or from air travel by federal politicians and officials. Direct federal DAC purchases could encourage provinces and territories to do the same, adding to baseline domestic demand for DAC. A competitive Canadian DAC industry could then serve a global market.

DAC could play an integral role in addressing climate change, helping to offset hard-to-reach emissions at a lower cost as the country approaches net-zero. It also offers a straightforward way to reduce the stock of greenhouse gases in the atmosphere. Creating demand now for this nascent technology could have a significant environmental and economic payoff for Canada in the transition to a net-zero economy.

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