

Carbon Capture: The False Prophet of Climate Salvation

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According to the United Nations' Intergovernmental Panel on Climate Change (IPCC), we have less than eight – EIGHT! – years remaining to cut global emissions in half by 2030. IPCC experts have warned humanity that emissions reductions are paramount if we are to avoid more than 1.5° of global warming, and the worst impacts of the climate crisis that would follow. As we inch ever closer to this looming deadline, there is an increasing urgency to innovate and implement technologies to help remove emissions from our atmosphere, to decarbonize human activities, and to protect the planet we call home.

Carbon capture, utilization, and storage (or CCUS) is one of the many technologies being touted as a solution to help us remove greenhouse gas (GHG) emissions from our atmosphere in the face of climate change. CCUS is a multi-step process that attempts to produce concentrated carbon dioxide that can be transported and stored. The process aims to prevent carbon dioxide from entering the atmosphere at the point of production, such as in the smoke stacks of fossil fuel power plants. This captured carbon is then compressed, transported, and typically stored underground, but it can also be used for other industrial purposes.

These technologies are heavily promoted by the fossil fuel industry as a way to minimize or neutralize the emissions from their operations. Carbon capture might help to offset emissions created through the production of fossil fuels, but it doesn't help in any way to offset those produced when oil

or gas are burned by consumers. AWA recognizes that carbon capture will likely form a part of our toolkit in the fight against climate change, but if we are to meet our climate commitments and make a real difference, any implementation of CCUS needs to be paired with an overall reduction and the eventual phase out of fossil fuel production.

Canada is one of the largest producers of greenhouse gas emissions in the world (both per capita and total emissions), so we have a greater responsibility to do our part in reducing emissions to prevent climate disaster. The Government of Canada signed onto the *Paris Agreement* in 2015 – a legally-binding international treaty – committing Canada to 40 to 45 percent GHG reductions by 2030, and net zero by 2050. To meet these climate targets, recent findings show we must be significantly more aggressive with our phase out of the fossil fuel industry than we have been to date.

A February 2021 article by Dan Welsby et al., published in *Nature*, found that the majority of all currently-known fossil fuel reserves must remain in the ground to allow for a 50 percent chance of limiting warming below 1.5°. A May 2021 report by the International Energy Agency stated that all new fossil fuel development projects must be halted in order to meet net zero emissions by 2050, and we will likely need to close half of all existing fossil fuel production facilities prematurely according to research by Kelly Trout et al., published in May 2022. Any one of these scenarios alone is bad news for the fossil energy sector, and these corporations are looking

to carbon capture as a potential saviour. Corporations hope that they will be allowed to continue operations so long as they are judged to be carbon-neutral. What is increasingly concerning is that governments at all levels seem more than willing to proceed down this path, rather than limiting or scaling back production.

In April 2022, the Government of Canada (GoC) announced its most recent federal budget, which included substantial incentives for the development of CCUS technologies. These incentives included a 50 percent tax credit for investments into projects that capture and store carbon, and a 37.5 percent credit for investments into equipment for carbon storage and transportation. The GoC expects these credits to cost \$2.6 billion over the next five years (starting in 2022-23), with annual costs of \$1.5 billion from 2026 until 2030. These credits will be reduced by half from 2031 onwards in an effort to encourage industry to invest in these technologies sooner rather than later. By contrast, the federal government announced \$780 million over the next five years to support nature-based climate solutions as part of this same budget – on top of \$4 billion already committed as part of the Natural Climate Solutions Fund. This funding is intended to support projects that plant trees and conserve, restore, and enhance wetlands, peatlands, and grasslands for the natural capture and storage of atmospheric carbon. It's encouraging that the GoC is taking a diversified approach to their investments into climate solutions, but CCUS still looks to be receiving more than their fair share of taxpayer dollars.



Oil and gas companies are hoping that carbon capture will allow them to continue business as usual operations without reducing production.
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The Government of Alberta (GoA) has also contributed public money to the development and implementation of CCUS technologies in our province. In November 2021, the GoA announced that seven Alberta-based CCUS projects would receive \$100 million in government funding with the explicit intent of reducing emissions in the energy sector. But rather than seeking to phase down and phase out fossil fuel operations in the province, this investment seems intended to prolong business as usual scenarios through offsetting. Investments into climate solutions are a step in the right direction more broadly, but the effectiveness of operational CCUS projects has been questionable to date.

Two industrial-scale CCUS projects are already underway in Alberta – Shell's Quest project and the Alberta Carbon Trunk Line, with \$1.24 billion spent between them. A recent report from Global Witness, released in January 2022, highlighted that Shell's Quest CCUS project has produced more emissions

than it has been able to capture. The Quest plant, located near Edmonton, emitted 7.5 million tonnes of GHGs between 2015 and 2019, 2.5 million more than it was able to capture over this same time period. These findings have raised serious doubts over the claims made by industry in favour of this technology. Based on these findings, we should question any further investment of public money into these technologies. If CCUS is to be pursued, it should be paid for out of the wallets of corporations. The public should not be subsidizing an industry that's directly fuelling the climate crisis.

Another aspect of this issue is that many of the fossil fuel corporations pursuing CCUS are doing so for the sake of 'enhanced oil recovery.' This is a process that involves taking the compressed carbon dioxide captured through CCUS and injecting it deep underground for greater oil recovery. Extracting additional oil from the ground gives industry additional revenue and lowers the overall

cost of implementing CCUS into their operations. This is likely part of the reason they are such vocal supporters of this technology. Unfortunately for the planet, the carbon dioxide used in enhanced oil recovery doesn't permanently remain underground, with evidence showing that up to 70 percent escapes back into the atmosphere. Encouragingly, these enhanced oil recovery projects are disqualified from the CCUS incentives available as part of the recent federal budget.

Thinking about nature-based solutions to climate change, Alberta is fortunate to be blessed with one of the greatest carbon storage tools available on the planet. Peatlands, such as bogs and fens, are wetlands dominated by the growth of sphagnum (or peat) mosses. Alberta's boreal region contains more than 100,000 km² of peatlands, roughly 11 percent of the total peatland area existing across Canada. According to the International Union for Conservation of Nature (IUCN), peatlands are critical for

preventing and mitigating climate change, in addition to preserving biodiversity and clean drinking water. Peatlands occupy only three percent of Earth's terrestrial surface area, but store a staggering 30 percent of all land-based carbon – more carbon than all other vegetation types in the world combined. This means that peatlands are the best terrestrial carbon storage we have available to us, and one of the strongest tools we have at our disposal for preventing the worst impacts of climate change.

The IUCN recommends that peatland protection, conservation, and restoration should be included by countries in their international commitments to the fight against climate change and biodiversity loss. Unfortunately for us, much of Alberta's oil and gas development occurs across the boreal region, overlapping with many of our most significant peat deposits. This means that our peatlands are constantly at risk of fragmentation, desiccation or outright destruction for new or expanding fossil fuel extraction projects. When you consider the amount of carbon contained within these ecosystems, their destruction poses a major threat to our climate goals. Destroying peatlands not only releases stored carbon back into the atmosphere, but it also hinders our ability to capture and store those emissions in the future. Furthermore, destroying peatlands to make way for the creation of new oil and gas infrastructure will only result in pumping more GHGs into our atmosphere. Peatland destruction is a threat to our own survival.

It would be reasonable to expect Alberta to be taking the lead in peatland conservation to maximise its carbon-storage potential, but this is not the case. For example, the Fort Hills Oil Sands Project (FHOSP) intends to destroy a sizable portion of one of Alberta's most beautiful peatland ecosystems as part of its planned expansion. The McClelland Lake Wetland Complex (MLWC) lies 90 kilometres north of Fort McMurray and contains a rare ecosystem known as a patterned fen – featuring long rows of peat ridges separated by shallow pools of water. The expansion of the Suncor-

owned FHOSP is proposed to begin excavation and draining in MLWC in 2025 pending AER regulatory approval. Not only will this project destroy a valuable and charismatic peatland, but the mine is scheduled to operate until 2060, producing oil ten years beyond 2050, when Canada is legally committed to reaching net-zero emissions to stay on track with the IPCC 1.5° targets. Rather than pouring more money into unproven carbon capture technology to offset fossil fuel production, we would be better off protecting our remaining peatlands.

Another AWA concern with the growing emphasis on carbon capture is the potential for an even larger footprint on the landscape from CCUS infrastructure, which might include capture and injection facilities, pipelines, and monitoring wells. The development and expansion of CCUS without being paired with the decommissioning and reclamation of other infrastructure will only create one more land use pressure on an already fragmented landscape. Literature describing the area of surface disturbance that's required for the construction and operation of CCUS is hard to find, and we cannot support any new development that would increase land disturbance and further threaten Alberta's wilderness ecosystems and biodiversity. The cumulative effects of existing industrial disturbances on the landscape are not well understood and, as things stand, implementing CCUS would only add another level of disturbance into the mix.

Such concerns are not specific to Alberta alone. On June 9, 2022, the City Council of New Orleans, Louisiana, voted unanimously to prohibit the underground storage of carbon dioxide and the associated facilities intended for the purpose of carbon storage. This decision was the result of work done by the Deep South Center for Environmental Justice (DSCEJ). The DSCEJ pushed local authorities to consider the potential consequences that carbon storage might have on marginalized communities in the region who have suffered at the hands of the fossil fuel industry for decades. The DSCEJ were concerned about how

the storage of carbon dioxide would be regulated, the potential for pipeline leaks due to the corrosive nature of condensed carbon streams, and potential groundwater contamination from the breakdown of underground disposal sites. AWA believes the aggressive stance New Orleans has taken against the development of CCUS might set a significant precedent that other municipalities could pursue.

The history of fossil fuel extraction has not been kind to the Indigenous communities within and/or downstream of the oil sands region of Alberta. Harm from this industry has included the displacement from – and destruction of – traditional territorial lands as well as the pollution (i.e. air, water, and noise) of once pristine ecosystems. The decision made by New Orleans due to concerns over the negative impacts to marginalized communities provides an example of local governments prioritizing the health and wellbeing of people over corporate profits. Protecting and restoring Alberta's wilderness and prioritizing the wellbeing of Indigenous communities is long overdue.

With only eight years remaining until 2030 and the need to begin rapidly decarbonizing our entire way of life, we need to question the choices governments are making to support CCUS. Carbon capture may be one tool for helping address the climate crisis, but other solutions exist – like protecting our incredible peatlands. AWA believes we need to invest at least an equal amount in the protection and restoration of Alberta's wilderness. AWA cannot support public investments into the development of CCUS unless it is paired with the decommissioning of existing fossil fuel infrastructure and reduced oil and gas production. Carbon capture permits business as usual, allowing oil and gas corporations to continue to profit from products that generate emissions, and leaving the majority of the world to suffer if we fail to meet our climate targets. 🌱