



 INFO

# Capturing CO<sub>2</sub> from the atmosphere: a Canadian company sees big

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**Francis Plourde**

**Capturing the carbon of the atmosphere at an affordable cost is the bet of a company in Squamish, British Columbia. Carbon Engineering has managed to attract the attention, and the money, of great players in the oil industry. While technology can play a major role in the fight against climate change, there are still many challenges.**

The concept strikes the imagination: a plant purifying the air of CO<sub>2</sub> contained in the atmosphere and transforming it into synthetic fuel that will serve to propel the cars and planes of tomorrow.

By making these factories as common as water treatment plants or power plants, Carbon Engineering is counting on helping to avoid the worst scenarios from the IPCC, the

Intergovernmental Panel on Climate Change.

"The aviation industry may not be able to reduce emissions," said Steve Oldham, CEO of Carbon Engineering. But by building factories to bury CO<sub>2</sub> underground, people will be able to continue driving or flying. "

This crazy bet is already possible.

Last June , after three years of testing at its Squamish pilot plant, Carbon Engineering announced that it was able to capture carbon in the atmosphere for less than C \$ 133 per tonne (US \$ 100).



The Squamish Carbon Engineering pilot plant, in operation since 2015, has demonstrated that it is possible to capture carbon from the atmosphere. Photo: Carbon Engineering

Its next goal, announced in March, is the construction of a commercial-sized plant that will capture one megatonne of carbon a year, the equivalent of planting 40 million trees, and turn it into synthetic fuel.

The project, valued at C \$ 90 million and a first in the country, has attracted many. Among them are billionaire Bill Gates, founder of Canadian Natural Resources Murray Edwards, and giants such as the BHP mining company and the Chevron oil company.

India, China, countries in South America and Europe have also expressed interest, says Steve Oldham, who would like to see such factories become "essential infrastructure".

*« A factory costs hundreds of millions of dollars to build. We need business partners who are willing to invest, this is our next challenge. »*

— Steve Oldham, CEO of Carbon Engineering

### **A technical and economic challenge**

Capturing carbon directly from the atmosphere is a considerable and expensive challenge: its concentration reaches only 0.04% of the air we breathe.

So far, only one other company, Climeworks, based in Switzerland, has managed to do so commercially.



The founders of Climeworks, Christoph Gebald and Jan Wurzbacher. Photo: Climeworks

Climeworks has 14 plants operating across Europe and is highly dependent on European subsidies. At US \$ 600 a ton extracted from the atmosphere, its cost of production is, however, considered prohibitive.

If Carbon Engineering is able to reduce this cost to less than US \$ 100 per tonne, it believes it can achieve financial viability through the production of synthetic fuel resold to the oil industry at a cost of one dollar per liter, make it competitive with biofuel producers.

### **An important potential**

According to the Pembina Institute, carbon capture could be a \$ 800 billion global market.

More than 180 carbon capture projects are listed around the world. A dozen are located in Canada.

And big companies seem more and more interested in their potential.

"Over the past three or four years, interest in carbon capture has increased," said Climeworks spokeswoman Louise Charles, who is a Swiss Banks investor.



Last July, Inventys announced that it had received US \$ 11 million in funding from Husky Energy Inc. for its pilot plant to capture the equivalent of 30 tonnes of carbon per day. The company also received financing from OGCI Climate Investments LLP, an oil industry fund. Photo: Inventys

For Claude Létourneau, CEO of Inventys Thermal Technologies, a Burnaby company that is trying to capture carbon emissions at the source, these are strategic investments: "The industry is looking for a portfolio of options that will allow, in the medium term, a solution to remove CO<sub>2</sub> from the atmosphere. "

His company, which received funding from Husky, is targeting a different market.

It is developing a technology to capture CO<sub>2</sub> from stacks and concentrated sources and is attempting to achieve a cost of US \$ 30 per tonne.

*« Capturing carbon in the air captures the imagination. But it's the tip of the iceberg, it's the most expensive alternative. »*

## **An industry that depends on government measures**

At the moment, the Carbon Engineering market is limited because it relies heavily on the introduction of a carbon tax, as well as clean fuel standards, which make the purchase of synthetic fuels financial.

In Canada, only British Columbia currently has such measures. In February [↗](#), the federal government released a framework for analysis later this year.

Steve Oldham also believes that the mindset of carbon emissions in the atmosphere must change. "We need to clean up the air and invest in it," he says. Our governments are investing to treat drinking water, so must the air we breathe. "

## **Monster efforts to plan**

According to the IPCC Special Report, tabled in October, global emissions must be reduced by 45% by 2030 and reach zero by 2050 to avoid a global climate crisis.

In Canada, to stop the growth of CO<sub>2</sub> in the atmosphere, it should quickly be able to eliminate about 700 megatonnes of CO<sub>2</sub> per year, says Steve Oldham. "To eliminate emissions from Canada, we should build 700 plants. "

Some worry that solutions put forward by companies like Carbon Engineering divert attention from reducing emissions at the source.

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For Tom Green, a climate solutions analyst at the David Suzuki Foundation, this is a false debate.

"We are going to need all the possible solutions given that we are in a very serious situation with the climate. Even if we stop our programs tomorrow morning, our levels are too high. "

Chris Bataille of Simon Fraser University agrees.

"These technologies are extremely expensive and seem to be science fiction," he says. But to reach the Paris targets, we must stop emitting greenhouse gases. We must even capture it. "