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CLEARING THE AIR

Cleaner jet fuel made from CO2? Local entrepreneur is dreaming big

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Jean Paquin wants to make Montreal's east end a mecca for the development and production of alternative jet fuel.

SAF+, the local consortium that Paquin heads, is planning to build a plant in Montreal East to make kerosene from carbon dioxide. SAF+ would use the CO2 generated by the Parachem chemicals company nearby, reducing the typical greenhouse gas emissions by 80 per cent. (Hence the consortium's initials, which stand for "sustainable aviation fuel.")

"Montreal can become a clean technology hub for aviation fuel," Paquin said in a telephone interview this month from Madrid, where he was attending the United Nations

conference on climate change as a Canadian delegation member. "The alternative jet fuel industry is just starting to take shape. It's not too late for Montreal and Quebec to take a leadership position."

With aviation one of the world's biggest sources of air pollutants, member countries of the International Civil Aviation Organization have committed to cutting CO2 emissions in half by 2050.

In May, SAF+'S project was selected by Natural Resources Canada as a finalist in the "Sky's the Limit" challenge, a federal government initiative that aims to curb aviation pollution. The award came with a \$2-million prize that will help SAF+ build a pilot plant before beginning commercial production by the middle of the next decade.

SAF+'S project relies on an existing technology to convert carbon dioxide into synthetic kerosene, which has the same characteristics as regular jet fuel.

"When we successfully capture a CO2 molecule, it doesn't get released into the air," Paquin said. "Just with that, we've managed to reduce the industrial user's environmental footprint. Our production process uses hydroelectricity, which also cuts emissions. So yes, the kerosene we put in the plane will pollute as much as conventional kerosene, but the fact we have recaptured the molecules that would otherwise have been released significantly reduces the total footprint."

SAF+'S facility will probably be located next door to the Parachem plant to cut down on emissions as well as transport costs. Parachem produces about 120,000 tons of CO2 every year, Paquin said.

Paquin envisions three phases for the project — a pilot phase, in which a demonstration plant is built to optimize the technology; a pre-commercial phase, which will see output ramp up from 2022 until 2025; and a commercial phase, which would see the plant pump out as many as 30 million litres of jet

fuel starting in about 2025 or 2026.

The CEO'S stay in Madrid allowed him to meet politicians — including federal Environment Minister Jonathan Wilkinson — and industry players such as airline officials to present his project.

SAF+ is supervising engineering, procurement and construction work, which involves a handful of employees in addition to the CEO. Up to 15 people may be required for the pre-commercial phase, while about a dozen people would be required to operate the jet fuel plant commercially, Paquin said.

Commercial production won't come cheap — and it will involve raising money from governments, airline partners and venture capital firms. (Montreal-based carrier Air Transat is a member of the SAF+ consortium.)

Paquin estimates SAF+ will need to raise as much as \$70 million to reach "pre-commercial" outputs of

3 million litres of fuel annually, and a further \$400 million to \$500 million to produce about 10 times as much. At full capacity, SAF+ would capture about 100,000 tons of carbon each year, he said.

"This is very important for the economic development of Montreal East," Paquin said. "It will attract foreign investors to the area, and give us an expertise that's recognized globally."

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