Presentation to the Standing Committee on Natural Resources on the low-carbon and renewable fuels industry in Canada

By

From

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Context

Understood that we all share a common goal for transitioning the Canadian economy to a low carbon economy and creating jobs by decarbonizing the transportation industry using sustainable fuels, our intention is to bring to your attention how supporting and investing into **Sustainable Aviation Fuels (SAF)** development will support short-term economic recovery, long-term growth and will decarbonize of the Canadian economy.

The COVID-19 pandemic is having an unprecedented impact on Canada and most countries. Canada is facing many challenges, including exacerbated economic and job market condition, making climate change issues even more relevant. We strongly believe that the most efficient strategy for governments and the private sector to address existing challenges is the establishment of a shared vision and an integrated approach addressing various issues as one. We believe developing and growing a Canadian Sustainable Aviation Fuel (SAF) sector will support Canadians in addressing current and upcoming economic, environmental, and societal challenges.

Introduction

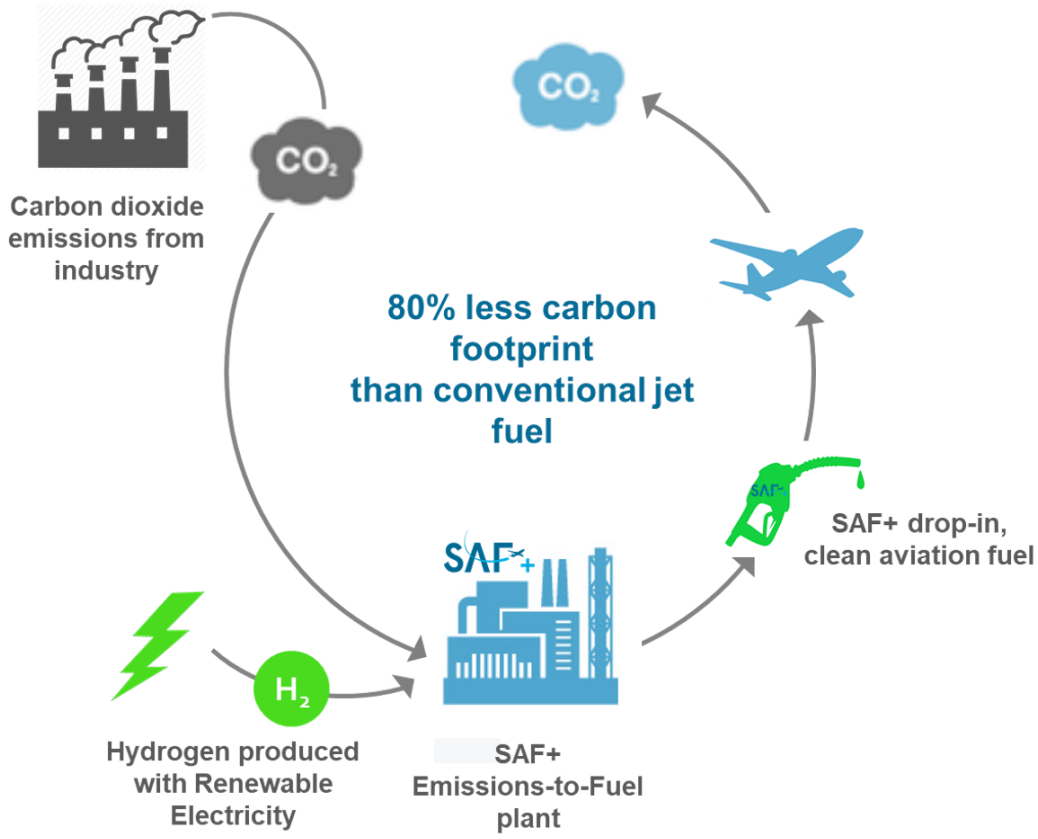
The International Air Transport Association (IATA) has estimated that the aviation sector's carbon footprint will be double of pre-COVID levels by 2037. This trend will significantly increase the aviation sector's GHG footprint, which has most recently accounted for approximately 3% of annual global GHG emissions.

In response, the global aviation sector has begun establishing targets to achieve carbon-neutral growth. In 2016, the International Civil Aviation Organization (ICAO) has decided to implement the Carbon Offset and Reduction System for International Aviation (CORSIA). Once implemented (the pilot phase will start in 2021), it will be the largest regulatory carbon market to date in terms of geographical coverage and the quantity of emission units to be reduced or offset.

The forthcoming mandatory reduction or offsetting requirements set by CORSIA will impose pressure on the aviation industry to purchase clean fuels. **Within Canada, the clean-fuel standard will also lead to increased demand for clean fuels for domestic aviation**. Furthermore, inspired by the EU's flight shame movement, customers in Canada are beginning to pressure airlines to be more climate-friendly. Taken together, the airline industry is therefore facing a difficult challenge: it must remain competitive by reducing costs, while investing in new technological solutions to reduce its carbon footprint.

In response, the aviation industry has invested in new technologies and modernization of the aircraft fleet, reporting carbon efficiency gains of up to 30%. But there are still very few sustainable fuel initiatives for aviation. In view of the changing regulatory environment for reducing GHG emissions, airlines will face an urgent need for low-carbon fuels in the coming years.

The objective of the SAF+ Consortium is to help solve this problem by producing low carbon synthetic jet fuel that offers an 80% reduction in life cycle GHG emissions by relying on an innovative CO2 conversion technology (see diagram below). At the same time, SAF+ will be assisting heavy industries in Canada for reducing emissions at the rate necessary to meet Canadian reduction targets.



Opportunities

The international aviation community has clearly emphasized its global alignment and commitment to reduce the environmental impacts of air transportation. Tremendous work has been done over last years to pave the path forward. Several pillars have been identified as contributors to reach aviation decarbonization targets: technology, ATM and operations optimization, Market Based Measures and Sustainable Aviation Fuels. The first commercial flight in the world using Sustainable Aviation Fuels (SAF) took place in 2008 with over 300,000 flights since.

Canada has been a pioneering country in the emerging Sustainable Aviation Fuels (SAF) sector through various innovation success stories, including the world first flight using only 100% Sustainable Aviation Fuel by the National Research Council Canada (NRC) back in 2012 and more recently Natural Resources Canada (NRCan) Sky's the Limit Challenge and potential procurement to support the Government of Canada 2050 net zero targets.

The air transportation sector alone represents 442,000 jobs and **2.5% of the Canadian GDP** and has been heavily impacted by the coronavirus pandemic, with full recovery not expected before 2024. Despite very difficult economic conditions, our sector is committed to a sustainable future requiring the production and use of Sustainable Aviation Fuels (SAF) in Canada.

Stabilizing GHG emissions from domestic flights at 2019 level would have required 100 million litres of Sustainable Aviation Fuels (SAF) in 2020, with an extra 100 million litres every year and more than 1 billion litres in 2030. Producing enough SAF in Canada to meet 2030 targets has the potential to increase Canadian GDP and create new jobs.

By supporting investment into commercial scale production, the Government of Canada could unleash significant capital investments by 2030 and have even larger impacts by facilitating the energy transition of the overall liquid fuel sector.

Sustainable Aviation Fuels (SAF) represent one of the most efficient viable solutions to decarbonize air transportation because it can be used in existing

aircraft, engines, and airport fuel distribution system. This means that we could potentially achieve more than 80% reduction of CO2 emissions by mostly investing into Sustainable Aviation Fuels (SAF) production capacity, but we need to act now. The SAF community is mobilizing to move forward, and strong governmental support and private-public collaboration will be needed to jump-start production and ensure success in the next years.

Power to Liquid

Our approach is known as Power-to-Liquid (PtL). By using hydro-generated electricity to convert CO2 from industrial flue gas into hydrocarbons, our project has the potential to deliver a drop-in clean fuel to the aviation market with a GHG footprint of 80% lower than that of conventional jet fuel.

According to German Environmental Agency's recommendations for the aviation sector, "**PtL jet fuel should be investigated on equal terms alongside jet fuel from biomass.** The potential of PtL for significant absolute reductions of the climate impact of aviation should be highly acknowledged and the pathway be strengthened within ICAO's basket of measures for greenhouse gas emission reductions in aviation."

Canada is especially well positioned to become a pioneer in PtL since it has significant access to renewable energy (several provinces with hydro, solar and wind energy), and will eventually have access to green hydrogen projects across the country.

Proposed Solution

SAF+'s proposed circular economy solution would drastically reduce domestic aviation and industrial emissions by providing a regular clean fuel supply at the Montréal, Toronto, and Ottawa airports, thus establishing a regional hub for sustainable aviation. Our goal is to expand our production and capacity supply network to the rest of Canada, the EU, and the US. In the context of our initial market focus, we have primary and secondary customers.

Our primary customers include progressive airlines flying in and out of these airports. By progressive, we are referring to airlines that have demonstrated a proactive engagement with sustainability and with sustainable aviation fuel in particular. Our core value proposition for this customer type is to provide cost-competitive, low-carbon ("clean") jet fuel that complies with coming domestic and international carbon regulations (i.e., CORSIA and Canadian fuel standards). Our competitors for this customer base include other emerging sustainable aviation fuel producers,

Our secondary customers include Canadian industrial emitters, who have been finding it difficult to comply with Canadian emissions targets. Our solution helps different emitters to overcome technical issues and reduce their emissions. Our competitors in this area include carbon capture and conversion solution providers.

Our team of industry experts and our partners are continuously monitoring different competing companies and substitute technologies that are emerging in both of these spaces.

Recommendations

To accelerate Canada's transition to a low carbon economy, support economic recovery and long-term growth and a greener air transportation sector, we ask the federal government to recognize and support the development of "Made in Canada" Sustainable Aviation Fuels (SAF) industry through the following actions:

1. Financially support Sustainable Aviation Fuels (SAF) projects to financially de-risk commercial deployment.
2. Ensure that eventual policy recognizes the carbon footprint reduction potential– put in place incentives or support measures in-line with the carbon reduction achieved for each SAF pathway.

3. Encourage federal - private collaboration on procurement to support the development of larger projects with lower production cost.
4. Eliminate carbon tax on Sustainable Aviation Fuels (SAF) and optimized the design of the Clean Fuel Standard to provide better incentives for the production and purchase of Sustainable Aviation Fuels (SAF).
5. Encourage the development of bioports structuring projects and access to the newly announced $10 billion infrastructure plan.
6. Promote the overall development and commercialization of Sustainable Aviation Fuels (SAF) through a coordinated public-private approach with the support of the emerging Pan-Canadian SAF Initiative.

We would like your support in finding the most suitable way to discuss the above recommendations with representatives of the ministries that you are leading.

About SAF+ Consortium

SAF+ Consortium is developing a circular economy solution that recovers CO2 emissions from industry and transforms them into a clean synthetic fuel with a carbon footprint 80% smaller than conventional aviation fuel. With our partners Air Transat and Aéroports de Montréal, our goal is to make Montreal a hub for responsible aviation in Canada. As part of the Sky's the Limit Challenge, we are building a pilot unit that will demonstrate the entire process in 2021.

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