

# Sustainable Aviation Fuels Roadmap Author Says Canada Has All The Steps To The Value Chain

Josh Skapin : 6-8 minutes : 8/1/2023

People contributing to the development of a sustainable aviation fuels (SAF) industry in Canada now have a foundational document to help light the way.

The C-SAF Roadmap, tagged “[Building a feedstocks-to-fuels SAF supply chain in Canada](#)” was released earlier provides that guide. It involved **Energy Futures Lab (EFL)**, the **Transition Accelerator**, and the **Canadian Council for Sustainable Aviation Fuels (C-SAF)** as partners.

“The real thing that jumped off the page at the very beginning was that all the steps of the value chain are here,” said **Bentley Allan**, the Transition Accelerator’s transition pathway principal, and lead author of the report.

“We are one of the biggest countries by land mass which means we have tons of biomass. If any country could actually build a biofuel supply chain that could serve its aviation sector, Canada could.”

An analysis in the roadmap concludes that Canada has sustainable biomass for 7-10 billion litres of SAF a year.

Allan also authored the summer of 2022-released “Roadmap For Canada’s Battery Value Chain.”

The risk is similar, he said.

“... We could mine the material, ship them overseas or down to the U.S. where they could be processed into high value metals and then we buy them back and put them into batteries. We miss out on that value add in the middle of the supply chain.

“The same thing could happen in SAF, where we grow canola or we have wood waste, we send it down south where all the economic value is added to it and then we buy it back as jet fuel,” noted Allan, adding that it’s about “trying to think about how we could benefit the Canadian economy while decarbonizing the economy and building an innovation ecosystem that we will need to help us compete over the long transition.”

A benefit to these roadmaps, said Allan, is that future industries talk to each other, co-ordinate, align and bring common frameworks to the government. As a result, “the government can see the vision the industry has for itself,” he added.

One of the discoveries in the SAF study, he shared, was even if all of the biomass is converted into diesel, it would only be about a third of the size of the diesel market.

“We are not going to eliminate the diesel market with biofuels, there’s just not enough. It is actually perfectly sized to take the whole aviation market. We have enough biomass to basically make enough fuel for the

aviation market in a sustainable way, not depleting the amount of biomass that we have available.”

Canada’s Aviation Action Plan has targeted, by 2030, SAF reaching 10 per cent of projected Canadian jet fuel use. Based on this marker and the total market for jet fuel in Canada, C-SAF set a target of 1 billion litres of SAF production by 2030.

“This SAF should achieve a minimum 50 per cent reduction in life cycle greenhouse gas emissions compared to conventional jet fuel which would represent a reduction of about 1.6 million tonnes of GHG emissions.”

### ***Ingredients to success***

In feedstocks, Canada has opportunities across all SAF pathways, according to the document.

“In the short-run, commercial volumes will be dominated by HEFA-based SAF from oilseeds,” it reads.

“But to scale SAF to meet the 1 billion litres SAF target in 2030 and beyond, we need technologies and projects that activate Canada’s strengths in forest and agriculture residues, municipal solid waste, ethanol, and power-to-liquids. All feedstocks and potential value chains must be activated to meet these targets and realize the potential.”

Further supporting the industry, Allan emphasized the number of refineries in Canada.

“We are an oil and gas country, we’ve got lots of refineries,” he continued. “Not only do we have refineries, we have innovative ones. There is technological innovation happening in the midstream of the supply chain.”

Allan also singled out demand through airports and potential demand through B.C.’s Low-Carbon Fuel Standard (LCFS).

He added: “We have all the makings of the real opportunity to build the whole supply chain here in Canada. We really could do this.

“We are one of the few countries that could really become self-sufficient in producing aviation fuel in a sustainable future-oriented new economy kind of way.”

Unlike the battery sector, the SAF industry, at a global level, is still developing.

“We could potentially get in on the ground floor with SAF today,” Allan said.

### ***Three steps***

The roadmap outlines a multi-prong approach to competing for and capturing economic value-add from SAF.

This includes incentivizing production and use of SAF in Canada, prioritizing sustainable feedstocks for SAF production and ensuring demand-pull to develop supply chains in specific areas of competitive advantage, along with positioning the country’s technology providers in global markets with programs that support scaling Canadian firms.

“Without doing all three, Canada could end up with a thin SAF industry that does not take advantage of Canada’s opportunity to strengthen its economy while building an industry that is critical to achieving net-zero aviation,” reads the document.

While it is beyond the scope of the report to detail a complete policy package, it says various elements are needed. It lists several objectives, including waiving all federal and provincial carbon tax on SAF that meets a specified minimum carbon intensity standard.

It also mentions federal procurement of SAF for federal fleets to support market demand growth, and delivering SAF production incentives.

“The Clean Fuels Regulation right now in Canada requires refiners to produce renewable diesel, but it doesn’t require them to produce SAF,” said Allan.

“The Clean Fuels Regulation can help reduce the emissions in road transport, but it can’t be net zero compatible in road transport. That is going to require batteries and hydrogen to do that,” he added.

This regulation, said Allan, could be tweaked to include incentivization for SAF production, something he said, “we’re going to need.”

“The other decarbonization options in aviation — hydrogen and electricity — they are probably suitable for short-haul flights but not for long-haul and those technologies aren’t quite ready yet,” he continued.

“We’ll also potentially need adjustments to the provincial systems, like the low carbon fuel standard.”