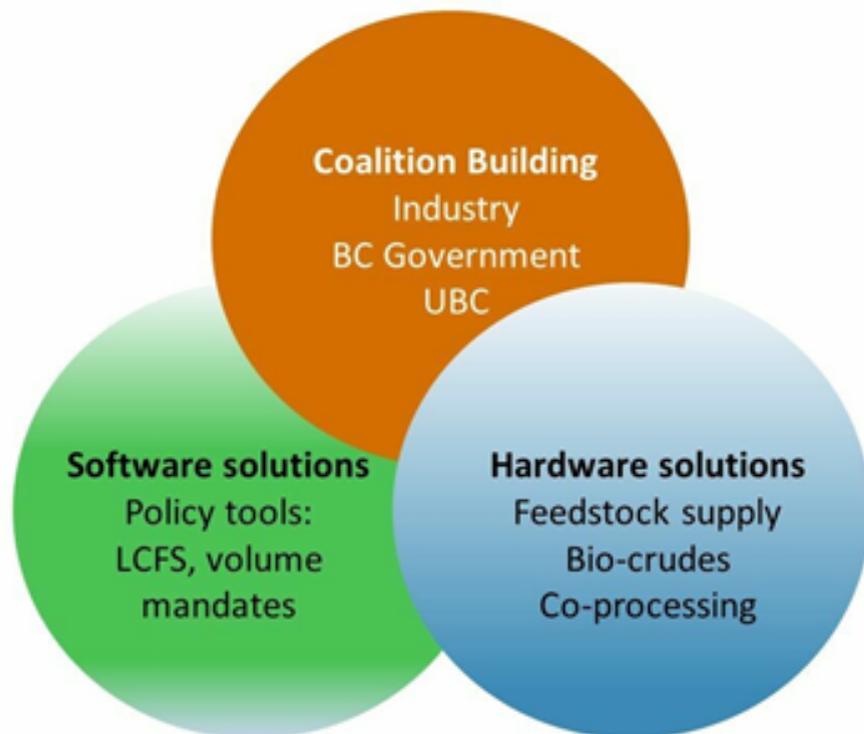


BC-SMART: Developing a Strategy to Decarbonize Long-Distance Transportation in British Columbia

Jack Saddler

About the projects

British Columbia is a major logistics hub, connecting markets in Western Canada, the Pacific Northwest, and Asia, bringing the opportunity to develop low carbon intensity biofuels that can lower GHG emissions from long-distance transport. The BC-SMART Consortium aims develop strategies that will decarbonize long-distance transportation in the province through collaboration of government, academia, and industry. The BC-SMART Consortium evaluates the viability of projects including, among others, co-processing some of the 10 million tonnes of oleochemicals that pass through the province each year in oil refineries. This project could prevent 1.7 MtCO_{2e} by 2030, which accounts for 28% of the target emission reductions in the CleanBC plan.



For more details of this project, visit:

- Profile of Dr. Jack Saddler ([link](#))
- BC-SMART ([link](#))

BC-SMART Roadmap to decarbonise long-distance transport

The BC-SMART Roadmap recommends action in three, related areas:

- Expand the BC-SMART low carbon fuels Consortium that brings together a “coalition-of-the-willing” that will develop a long-lived, commercially viable process to supply and help decarbonise the long-distance transport sector operating in British Columbia and beyond. This stipulates the signing of a Memorandum of Understanding, to confirm commitment to promoting drop-in biofuel production and use while identifying specific goals, objectives and the time lines needed to establish commercial production and use of drop in biofuels
- “Software” recommendations. Build on, and further develop, the policies and regulatory measures that will help establish the production and use of feedstocks and low carbon drop in biofuels by the long-distance transport sector (Government lead)
- “Hardware” recommendations. Invest in the supply chain and infrastructure that already exist to help produce and distribute low carbon intensity biofuels while facilitating a co-processing strategy at local refineries (Industry lead)

Project Summary:

British Columbia is uniquely positioned to support and develop low carbon intensity fuels. BC is a major logistics hub that connects markets in Western Canada, Asia and the Pacific Northwest, making Vancouver home to the busiest port and second busiest airport in the nation. However, the transportation sector contributes approximately 14% of global greenhouse gas emissions, and although electrification can be effective in decarbonizing urban transportation, it is not a viable solution to lower the impact of long-distance travel in the short term. BC has access to key resources that can lower the environmental impact of marine, rail, aviation, and long-distance trucking within a 10-year horizon. The biomass from 55 million hectares of sustainably managed forests and 10 million tonnes of oleochemical feedstocks (e.g., canola oil and seeds) that are handled in the province and can be processed into biofuels with a lower carbon intensity than conventional petroleum-based fuels. Moreover, BC has a policy climate favourable to biofuel utilization including a carbon tax and the CleanBC plan that includes, among other targets, a 20% low carbon fuel standard.

The British Columbia Sustainable Marine, Aviation, Rail, and Trucking (BC-SMART) Consortium aims to develop strategies to decarbonize long-distance transportation in the province through collaboration of government, academia, and industry. Decarbonization is driven by industry-led hardware solutions, such as low-carbon fuel technologies, supply chains, and life cycle analysis as well as government-led software solutions like the carbon tax, renewable fuel volume mandates, and the low-carbon fuel standard. The BC-SMART Consortium encourages the implementation of sustainable and commercially viable biofuels by connecting hardware and software solutions. Specifically, the BC-SMART consortium establishes goals to support the CleanBC plan by encouraging the supply of biobased feedstocks and identify the funding needed to co-process them in petroleum refineries in BC.

The BC-SMART Consortium evaluates the viability of projects that can help decarbonize long-distance transport. To meet the provincial target of 650 ML/year, BC-SMART assessed the potential to co-process lipids and oleochemicals in oil refineries in the province using a 30% co-processing ratio. Meeting such a target could prevent 1.7 million tonnes of CO₂e, accounting for 28% of the target reductions from the transportation sector outlined in the CleanBC plan by 2030. Other ventures to reduce emissions from transportation have been taken with Seaspan Corporation, which operates the largest fleet of tugs, ferries, and barges in Canada, consuming 33 million litres of ultra-low sulfur diesel. Seaspan is modernizing its fleet to be powered by natural gas and be equipped with lithium battery banks that could help reduce CO₂, SO_x and NO_x emissions. Other efforts to produce low carbon-intensity fuel include research on pathways to make biojet fuel, a collaboration between UBC, Boeing, and the Green Aviation Research and Development Network. Biofuel produced with a high compliance to ASTM standards for jet fuel certification was produced from upgraded biocrude. BC-SMART brings together industry, government, and academia to devise a plan for a plan to decarbonize long-distance transport in the short-term using projects from the laboratory scale up to the provincial scale.