POWERING PROGRESS:

2024 UPDATE TO CFA'S DRIVING TO 2050 VISION

Canadian Fuels ASSOCIATION

Driving to 2050
Powering Progress

In 2024, the Canadian Fuels Association continued to advance our "Driving to 2050" vision for decarbonizing the transportation sector and translated our vision into action through a wide array of member-led projects across the country. These initiatives span the full spectrum of decarbonization strategies, including advancements in biofuels, hydrogen technologies, carbon capture and storage (CCS), sustainable aviation fuel and more.

This year's update highlights some of the progress we are making and innovations that demonstrate our commitment to a low-carbon transportation future, while also outlining the multifaceted approach required to effectively achieve our 2050 vision.

Moving Forward on All Fronts

Canada will make strides toward a cleaner transportation system by embracing a range of decarbonization pathways. While electrification is offering significant promise for cleaner personal and public transport, electric vehicles (EVs) are not a standalone solution. A truly effective strategy must include a variety of new technologies and alternative fuel options. Each of these pathways play a crucial role in moving Canada toward a low-carbon future and continue to decarbonize the transportation fuel sector.

The Importance of Liquid Fuels to 2050 and Beyond

Low-carbon liquid fuels play a crucial role in reducing emissions as they can be used in existing engines and infrastructure, offering an immediate, practical solution to lower carbon outputs. With advancements in technology, the ability to use a variety of biofuels in transportation is steadily improving, making them an increasingly viable option for addressing climate change today. Continued innovation and investment in low-carbon fuels are essential to help reduce transportation emissions today as electric technologies continue to advance. They will also remain important in the future especially in hard to electrify sectors such as heavy transport, marine and aviation.

Canada has the potential to be a leader in the global low-carbon fuel market and drive innovation in technologies that are setting new standards for sustainability. By scaling up low-carbon fuel and other decarbonization projects, the country can enhance its energy security, support economic growth, and create jobs across the fuel value chain. This includes benefiting agriculture and forestry sectors that provide feedstock for biofuel production.

Expanding biofuel production and distribution will reduce Canada's reliance on fuel imports and improve energy security. Maintaining and utilizing the current fuel infrastructure while diversifying the energy mix will ensure reliable, affordable, and efficient transportation fuels for both businesses and consumers, contributing to a more sustainable energy future.

A Renewed Case for Ethanol

Over the past few decades, ethanol has played a crucial role in reducing greenhouse gas emissions by serving as a cleaner alternative to conventional fuels. Its use in transportation fuels has contributed to lowering carbon intensity, reducing air pollution, and supporting the shift towards more sustainable energy sources.

As the industry reduces carbon intensity and raises ethanol blend levels to meet Canada's 2030 emission targets, demand for ethanol in Canada is expected to rise by about 50% from 2022 levels, reaching around 5 billion liters per year by 2030. CFA members like Greenfield Global, Suncor, Federated Co-operatives Limited, and new member Cenovus are leading the way in ethanol production in Canada today. Their investments in facilities and infrastructure create jobs and help local economies grow.

With the right policies in place, our members can continue to grow their production of this important biofuel to support Canada's climate goals and promote a more sustainable energy future. This will not only help the environment but can also position Canada as a leader in low-carbon fuels, paving the way for a cleaner and stronger economy.

Harnessing Our Potential

How CFA and Our Members are Continuing to Actively Advance Our Goals

Our members are at the forefront of innovative solutions from coast to coast to reduce emissions and accelerate large-scale production and distribution of biofuels - leveraging our existing energy infrastructure including refineries, cleaner fuel facilities, terminals and retail sites.

Hydrogen

Hydrogen's versatility and efficiency offer immense potential to reduce emissions in hard-to-electrify sectors like heavy-duty transport and marine.

Braya and ABO Wind Launch Toqlukuti'k Project

Braya Renewable Fuels and ABO Wind are teaming up for an exciting project called Toqlukuti'k Wind and Hydrogen Ltd, where they'll use wind power to produce clean hydrogen and ammonia. The project's green hydrogen will be used to further decarbonize renewable fuel production at Braya's Come By Chance refinery, solidifying the company's future as a world class renewable fuels producer. Toqlukuti'k Wind and Hydrogen Ltd. is expected to provide sizable local job and procurement opportunities.

North Atlantic Expands Hydrogen Production and Refueling Network

North Atlantic is planning to significantly expand its hydrogen production through its Green Energy Hub project, focusing on both renewable and conventional sources to meet growing demand for alternative energy. They are also building a network of strategically placed hydrogen refueling stations to support the adoption of hydrogen fuel cell vehicles.

Renewable Diesel

Biofuels such as ethanol and renewable diesel offer immediate emission reductions and can be blended with current fuels, supporting the transition as electric technologies continue to evolve.

Tidewater Renewables Ltd: Canada's first commercial-scale renewable diesel production

Tidewater Renewables Ltd.'s Renewable Diesel & Renewable Hydrogen (HDRD) Complex was Canada's first standalone renewable diesel facility to start production last year. The HDRD Complex is designed to process 3,000 barrels per day of renewable feedstock and uses renewable hydrogen to reduce its carbon intensity. The HDRD Complex is complemented by the company's co-processing infrastructure, which also produces renewable fuels.

Braya Renewable Fuels Converts Refinery into Major Renewable Diesel Facility

Braya Renewable Fuels achieved a major operational milestone this past February when it completed the upgrade of its Come by Chance refinery into a cutting-edge renewable diesel facility and started producing 18,000 barrels per day. The company has plans to increase renewable diesel production, and explore production of sustainable aviation fuel (SAF) and green hydrogen, positioning itself as a major player in advancing renewable energy solutions in Canada.

Strathcona County to Host Canada's Largest Renewable Diesel Facility

Strathcona County will soon host **Imperial Oil's** $720-million renewable diesel facility, set to be the largest of its kind in Canada when it opens in 2025. The plant is expected to produce over one billion liters of renewable diesel annually by converting canola and other locally-sourced agricultural feedstocks.

Sustainable Aviation Fuel

Sustainable Aviation Fuel (or SAF), which is produced from renewable resources, provides a cleaner alternative to conventional jet fuels, and it is compatible with existing infrastructure.

Imperial Oil Eyes SAF in Canada

Imperial Oil is exploring ways to ramp up SAF production and bring this new technology into their operations, all while teaming up with other industry players to advance SAF research. As a founding member of the Canadian Council for Sustainable Aviation Fuels (C-SAF), Imperial is exploring ways to accelerate the commercial production and use of Canadian-made low-carbon SAF in Canada.

Tidewater Renewables Advances Engineering Design for 6,500 Barrels per Day SAF Project

Tidewater Renewables Ltd. continued to make meaningful progress on the engineering design of its proposed 6,500 barrels per day SAF project in 2024. This included integrating learnings from their Renewable Diesel & Renewable Hydrogen Complex into the SAF project's design. The project is subject to a final investment decision which is expected in 2025.

WestJet purchases first SAF supplied in Canada by Shell Aviation

Last April, WestJet announced that it has purchased the first SAF supplied in Canada by **Shell Aviation**. SAF acquired from Shell Aviation is blended with conventional jet fuel to meet all certification and safety requirements, while requiring no new investments in aircraft engines, fuel infrastructure or distribution processes.

Carbon Capture and Storage

Carbon Capture and Storage (CCS) is a key technology for reducing CO_2 emissions from industrial processes. The captured CO_2 can be stored or repurposed, enabling cleaner energy production that supports global climate goals.

Shell Canada Launches Polaris and Atlas: Carbon Capture and Storage

Shell Canada has announced two major carbon capture projects, Polaris and Atlas. Polaris is designed to capture approximately 650,000 tonnes of CO_2 annually at Shell's Scotford facility. The first phase of Atlas, developed with ATCO EnPower, will provide permanent underground storage for the CO_2. These initiatives, expected to begin operations by the end of 2028, build on the success of Shell's Quest CCS facility and will reduce carbon emissions related to fuels production.

Solar Power

Solar power is an alternative energy solution that uses sunlight to generate electricity with solar panels or concentrated solar power systems. By turning sunlight into energy, solar power helps reduce greenhouse gas emissions and supports a cleaner environment.

Silicon Ranch Launches Scotford Solar Farm to Power Shell Refinery

Silicon Ranch announced in August 2024 that it reached commercial operation of the Scotford Solar Farm. The 58-megawatt behind-the-meter facility has the ability to supply renewable energy to power approximately 20% of the **Shell Scotford** refinery's electricity needs for the next 25 years. At peak capacity, the solar farm can provide 100% of the refinery's electricity needs.

Co-processing

Co-processing is an innovative technique to create low carbon fuels and involves replacing a portion of crude oil with a renewable feedstock, such as canola oil or animal fats (tallow). The resulting fuels are significantly less carbon-intensive with lower greenhouse gas emissions compared to traditional fuels.

Parkland plans to expand co-processing capacity by 2028

Parkland Corporation's refinery located in Burnaby, BC, was the first in North America to successfully co-process bio-feedstock alongside crude oil using existing refinery infrastructure and expertise. Their final low-carbon fuel products require no change to fuel distribution systems, engine design, fleet requirements or consumer behaviour. The company's plans include expanding co-processing to 7,500 barrels per day by 2028 – from approximately 2,000 barrels per day today. Parkland is also partnering with leading Canadian institutions such as the University of British Columbia to investigate innovative pathways for co-processing renewable feedstock from non-traditional sources such as municipal sewage sludge, forest and agricultural residue.

Imperial Oil testing bio-based co-processing technology

Imperial Oil tested bio-based co-processing at their refineries to deliver carbon intensity reductions in their finished products. Expanding its refining operations to blend renewable feedstocks like waste oils and agricultural by-products with traditional crude oil offers great potential to lower the carbon intensity of their fuel products.

Constructive Collaboration

Effective collaboration between the transportation fuels industry and other sectors is essential for reducing emissions, improving energy efficiency, and advancing technology. In Canada, partnerships between government, industry, and communities drive economic growth, job creation, and energy security. By working together, stakeholders can address challenges like emissions reduction and the transition to renewable fuels, while fostering technological advancements and rural development.

A key focus for CFA in 2024 has been its partnership with the Canadian Oilseed Processors Association (COPA) and the agricultural sector. As demand for renewable fuels rises, oilseeds are increasingly vital for biofuel production and canola-based biofuel production is a key emerging contributor to the Canadian economy, averaging annual total economic impacts of nearly $1.4 billion since 2021. This collaboration strengthens the renewable fuels market and benefits the entire value chain—from farmers to fuel producers. By aligning goals and resources, CFA and COPA aim to help drive sustainable growth, create economic opportunities, and contribute to a cleaner, greener future.

CFA is proud to collaborate with numerous organizations including the following:

- Coalition for a Better Future
- North American Rail Shippers Association (NARS)
- Natural Resources Canada (NRCan)
- Canadian Transportation Alliance (CTA)
- Advanced Biofuels Canada
- Canola Council of Canada
- Canadian Oilseed Processors Association (COPA)
- Canadian Energy Marketers Association (CEMA)
- Renewable Industries Canada (RIC)
- Canadian Vehicle Manufacturers' Association (CVMA)
- Global Automakers of Canada
- Canadian Hydrogen Association (CHA)
- Clean Resource Innovation Network (CRIN)
- Government of Canada

The Road Ahead

Investing in decarbonization projects including biofuels is crucial for Canada's energy future. Enhancing domestic biofuel capacity and utilizing existing infrastructure, along with other decarbonization initiatives, drives job creation, strengthens local economies, and improves energy security, all while supporting our environmental objectives. The U.S. is making significant strides with biofuels through incentives like their Clean Fuel Production Tax Credit, which is already driving growth in their renewable diesel and ethanol sectors. Canada must take action to ensure a competitive North American market and stimulate meaningful investments here at home for all decarbonizations pathways.

Moving forward with robust investments in biofuel and other infrastructure will allow Canada to remain competitive in the global clean energy market, reduce reliance on imports to meet domestic growth in demand, and ensure the sustainability and security of our fuel supply. This is a critical moment for our policymakers to act, leveraging Canada's liquid fuels sector to support long-term economic and environmental benefits for Canada.

About the CFA and Our Members

Our sector contributes approximately $12 billion to Canada's GDP each year and employs more than 115,000 Canadians at 16 refineries, 10 biofuel production facilities, 75 fuel distribution terminals and approximately 12,000 retail and commercial sites. The association helps its members meet government environmental policy objectives and the expectations of Canadians without compromising our country's access to a secure, reliable and competitively priced fuel supply. We are recognized internationally as a trusted source of industry information and technical expertise and have worked collaboratively and productively with governments and other sectors for decades.

BRAYA RENEWABLE FUELS
cenovus ENERGY
CO-OP
Greenergy
GREENFIELD GLOBAL
Imperial
IRVING
North Atlantic
NWR NORTH WEST REDWATER PARTNERSHIP
Parkland
PETRO-CANADA LUBRICANTS
SUNCOR
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