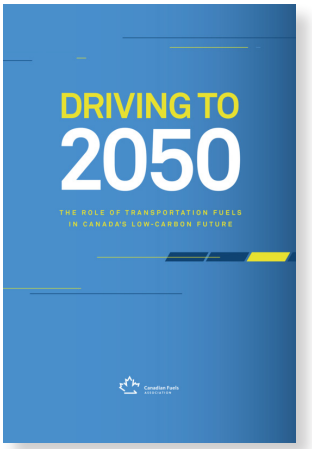
FUELLING CHANGE:

AN UPDATE TO CFA'S DRIVING TO 2050 VISION

Canadian Fuels ASSOCIATION

Our Driving to 2050 vision

Three years ago, the Canadian Fuels Association released Driving to 2050, our vision for decarbonizing the transportation sector in support of Canada's goal of Net Zero by 2050.



Since that time, we have put words into action with member projects from coast to coast spanning the full range of decarbonization pathways, including biofuels, hydrogen, carbon capture utilization and storage (CCUS) and electrification. Many of these projects are featured in this year's update.

"As the suppliers of 95% of Canada's transportation fuels, we are committed to making a foundational contribution to achieving Canada's climate goals both today and tomorrow. "

Scaling up the use of Biofuels

Low carbon fuels such as biofuels are already playing an important role in sector decarbonization and the Clean Fuel Regulations which took effect in July – will create significant additional demand. Scaling up the use of biofuels is also key to an orderly and cost-effective transformation of our energy system out to 2050 and beyond.

Leveraging partnerships

Partnerships are key to scaling up low carbon fuels and our industry. Together with the airline sector, we are working through the Council on Sustainable Aviation Fuel (C-SAF) to accelerate the production and use of sustainable aviation fuel.

Working collaboratively with stakeholders and the industry

The Canadian Fuels Association and its members continue to work collaboratively with governments, industry, researchers and supply chain partners to advance innovative clean transportation energy choices that support Canada's climate objectives.

Low-carbon fuels projects - Biofuels

Canada's fuel industry has been increasingly incorporating biofuels such as ethanol and biodiesel into conventional gasoline and diesel. These biofuels are made from renewable resources and agricultural waste. By blending these biofuels with conventional fuels, the industry is reducing the carbon intensity of transportation fuels.

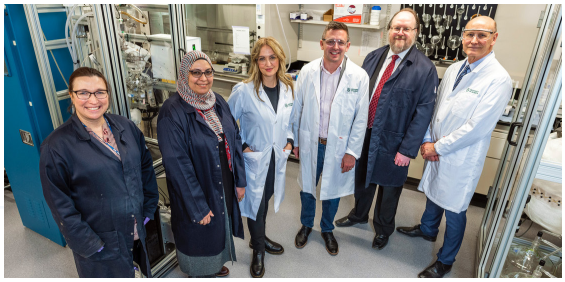
CFA members account for roughly 75% of biofuel production in Canada.
Learn more about some of the ongoing projects:

Federated Co-operatives Limited (FCL)

FCL is progressing towards the development of an Integrated Agriculture Complex (IAC). As a vital part of the IAC, FCL and AGT Foods have entered a joint venture partnership to construct a proposed canola crush facility in Regina. The proposed facility will supply a FCL fully-owned renewable diesel facility with approximately 50-60 per cent of the feedstock required to produce 15,000 barrels-per-day. The remainder of the supply is expected to be contracted from third-party oilseed crush facilities, animal tallow producers and used cooking oil aggregators.

Greenfield Global Inc.

Canada's leading ethanol producer Greenfield Global, in close collaboration with the University of Alberta's Faculty of Engineering, is spearheading the development of a clean technology that will convert forestry and agricultural waste into renewable diesel fuel and sustainable aviation fuel. This has the potential of reducing emissions in agricultural and transportation sectors by up to 90% compared to conventional fuel.



Imperial

The project at Imperial's Strathcona refinery near Edmonton is expected to produce more than one billion litres of renewable diesel annually, primarily from locally sourced feedstocks. This has the potential to reduce greenhouse gas emissions in the Canadian transportation sector by 3 million metric tons per year.

Suncor

Suncor's ethanol plant in St. Clair, Ontario produces more than 400 million litres of ethanol per year to lower the carbon intensity of conventional fuels.

Irving Oil

Irving Oil has entered into agreements with waste-to-renewable natural gas (RNG) entities that are supplying Canada's largest refinery with carbon-negative RNG, as well as their other operations such as Delivered Natural Gas. The RNG, which is made from food waste and other organic wastes that would otherwise have been landfilled, are transformed into renewable fuel. This RNG is recognized as carbon-negative due to its ability to capture more methane emissions than the organic waste would have otherwise created when landfilled. The company believes RNG provides a powerful opportunity for the efficient decarbonization of its operations.

Petro-Canada EcoDiesel™

Petro-Canada EcoDiesel™ is made with hydrotreated renewable diesel and can be used in place of conventional diesel in construction equipment and heavy trucks. This lower-emissions alternative is produced from 100% renewable materials like food waste and cooking oil.

Parkland Co-processing

Parkland continues to be a global leader in producing low-carbon fuels to help governments and consumers achieve their carbon reduction goals. Parkland's co-processed fuels are one-eighth as carbon intensive as conventional fuels and Parkland's production accounts for approximately 92% of Canada's renewable refining throughput. Building on this success, Parkland is currently engineering a co-processing expansion at their Burnaby Refinery and also exploring the use of next-generation feedstocks including forest residuals, emerging crudes, and municipal wastewater in partnership with Metro Vancouver.

Tidewater

The Tidewater Refinery, located in Prince George, British Columbia, has long been recognized as a hub of innovation and sustainability in the energy sector. For many years they have been refining petroleum products, but have recently shifted their focus towards renewable energy solutions. Since 2021, Tidewater has lowered the carbon intensity of their fuels through the introduction of co-processing of renewable feedstock and have achieved the historical milestone of being the first company to produce made-in-Canada renewable diesel. By leveraging their renewable hydrogen production facility, renewable diesel produced at the facility is expected to reduce consumer carbon intensity by 80-90% compared to traditional fuels.

Low-carbon fuels projects - Hydrogen

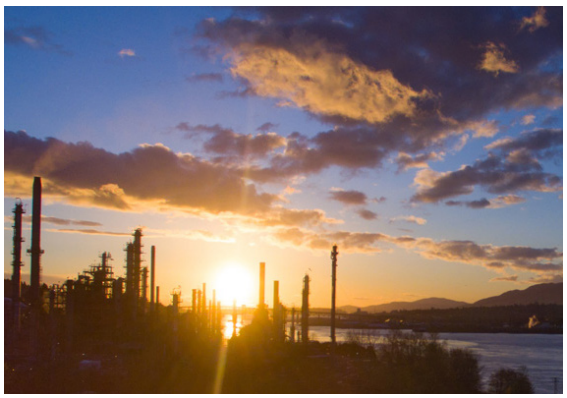
Learn more about how CFA members are actively investing in hydrogen technology

Irving Oil

In September, Irving Oil became one of the first to bring hydrogen-powered vehicles to Atlantic Canada as part of a demonstration to showcase this energy option for the region. Irving Oil continues its hydrogen journey, exploring opportunities for its customers and working toward a more sustainable future.

Parkland BC ports

Parkland Corporation's cardlock site located on Tsawwassen First Nation land will be home to a hydrogen fuelling station, with HTEC supplying clean hydrogen to support the project.



Shell Canada

In collaboration with HTEC, Shell launched Canada's first retail hydrogen vehicle refuelling station in Vancouver. Hydrogen fuel cell electric vehicles convert hydrogen into electricity and produce only heat and water when driven. They can drive up to 700 kilometres before being refuelled in a few minutes at a standard station with a hydrogen dispenser.

Low-carbon fuels projects – Carbon Capture Utilization and Storage (CCUS)

CCUS technologies capture carbon dioxide emissions from industrial processes and either convert them into useful products like synthetic fuels or sequester them safely. By investing in CCUS, the industry is not only reducing emissions but also creating opportunities for sustainable fuel production.

Natural Resources Canada recently released their Carbon Management Strategy, which recognizes the need for CCUS technology in Canada. It notes, **"As part of Canada's continued clean economic growth, a competitive carbon management industry in Canada offers opportunities to decarbonize many industrial sectors and develop new ones in support of a prosperous, net-zero economy of the future."**

Learn more about how CFA members are unlocking the potential of CCUS technology:

North West Redwater Partnership

Alberta's Sturgeon Refinery uses gasification to convert a portion of the waste product from bitumen into both the hydrogen required for refinery operations and a pure, dry CO2 stream that is captured instead of vented into the atmosphere, reducing the refinery's total CO2 footprint by as much as 70%.

Shell Canada

The Quest Carbon Capture and Storage facility, near Edmonton, Alberta, shows that large-scale CO2 capture is a safe and effective measure to reduce CO2 emissions in the industrial production of fuels. Quest captures over a million tonnes of CO2 annually from the Scotford upgrader, which produces crude oil later refined into fuel products.

Expanding infrastructure

Expanding and adapting fuel infrastructure for low carbon energy such as renewable diesel, ethanol, hydrogen, CCUS and electricity supports an orderly and efficient transformation of our energy mix on the way to net-zero which also helps ensure our energy security. It also increases the efficient transportation and distribution of these fuels and will allow low carbon fuels to reach new markets. Infrastructure investments will also boost economic growth by creating jobs in construction, maintenance, and operation of infrastructure facilities. Investing in modern, environmentally friendly technologies during expansion can help also reduce facility greenhouse gas emissions and promote lower-carbon energy sources.

Learn more about recent fuel infrastructure expansion projects that are helping to improve access to efficient and convenient energy resources, for Canadians from coast-to-coast:

Parkland EV Charging Infrastructure

Supported by Natural Resources Canada and the Government of British Columbia, Parkland is building one of Western Canada's largest ultra-fast electric vehicle ("EV") charging networks. Strategically located across the company's existing Chevron and On the Run retail portfolio between Vancouver Island and Calgary, Parkland's On the Run EV charging network will nearly triple Metro Vancouver's ultra-fast EV charging locations.

North Atlantic

Suncor's fuel retail business, Petro-Canada and North Atlantic's fuelling stations and convenience stores have come together in Newfoundland and Labrador, Nova Scotia and Prince Edward Island. Combined, 110 fuelling stations in the three provinces (including 3 commercial cardlock sites) are now operated by North Atlantic under a jointly-owned company called North Sun Energy, with some under the Petro-Canada brand and some under the North Atlantic brand.. This collaboration strengthens Petro-Canada's national coast-to-coast network and facilitates North Atlantic's expansion into Nova Scotia and PEI, while providing Canadians with more value and convenience.

Our RoadMap for the Future

Innovation, investment and collaboration in low carbon energy projects will drive emissions reductions and create jobs and other economic benefits while maintaining a strong, resilient economy and while driving down emissions in support of Canada's climate goals.

Since releasing our Driving to 2050 vision, CFA members have announced several large-scale, low-carbon fuels projects accounting for...

EMISSION REDUCTIONS

CFA members have announced plans to reduce GHG emissions by more than **10 MILLION TONNES.**

CAPITAL INVESTMENT

MORE THAN $10B OF INVESTMENT in low-carbon solutions has been announced so far.

JOB CREATION

OVER 10,000 DIRECT AND INDIRECT JOBS will be created to develop and operate new low-carbon facilities and innovative technologies.

The CFA is proud to actively collaborate

Collaboration continues to play a crucial role in unlocking the potential of low-carbon fuels. Bringing together various stakeholders to share knowledge and pool resources is needed to address the challenges associated with transitioning to a more sustainable energy system. Collaboration among different levels of governments, industries, research institutions, and international organizations is essential for unlocking the potential of low-carbon fuels. It accelerates innovation, reduces costs, and creates a supportive ecosystem that can drive the transition to a more sustainable and environmentally friendly energy system.

CFA is proud to collaborate with the following organizations:

- 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 Energy Marketers Association (CEMA)
- Renewable Industries Canada (RIC)
- Canadian Vehicle Manufacturers' Association (CVMA)
- Global Automakers of Canada
- Canadian Hydrogen and Fuel Cell Association (CHFCA)
- Clean Resource Innovation Network (CRIN)

About the CFA and our members

Our sector contributes over $9 billion to Canada's GDP each year and employs more than 111,000 Canadians at 15 refineries, 8 renewable fuels production facilities, 75 fuel distribution terminals and 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.

CO-OP · Greenergy · GREENFIELD GLOBAL · Imperial · IRVING · North Atlantic · NWR

PARKLAND · PETRO-CANADA LUBRICANTS · SUNCOR · TIDEWATER Midstream and Infrastructure Ltd. · TIDEWATER RENEWABLES · Valero

Canadian Fuels ASSOCIATION

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