

Get Fleet Fit Fact sheet

Fuel Switch

Changing what you put in your tank can help cut down on emissions without replacing your trucks

Compared to buying a new low-emission truck fuelling your existing trucks with a low-carbon diesel alternative can be operationally easier. The idea is to develop a clean, green liquid fuel that can simply 'drop in' to the existing diesel mix – and we're getting close!

Biofuels are a realistic way to cut down on emissions. They are liquid fuels like diesel and produced from plants or other organic matter instead of drilling for oil. Biofuels produce less emissions from the tailpipe when burnt in the engine and are more sustainable across their entire lifecycle.

The natural ingredients or "feedstocks" used to make biofuels vary greatly. For **biodiesel**, they can include food crops like soy, canola, and palm oil; non-food biomass like algae; and even waste products like animal fats, tallow, and used cooking oil. Because feedstocks are not fossil fuels, they **have already absorbed carbon dioxide from the air**. Burning a biofuel effectively releases the same carbon the feedstock absorbed in the first place. The overall emissions benefit depends a lot on the feedstock. 'First generation' biofuels didn't reduce lifecycle emissions very much and created other problems (e.g. competing with food production). Advanced 'second generation' biofuels use different feedstocks and can reduce overall emissions a lot.

Australia has experimented with cleaner trucking fuels before, the **two most promising alternatives to diesel** are biodiesel and renewable diesel. Acknowledging their potential, <u>governments are now pushing</u> to make these fuels a key part of the net zero pathway for trucks.



1. Biodiesel has been available in Australia for decades and can be easily blended with conventional diesel at low concentrations without changes to the engine (e.g. 10% for B10). To avoid problems, biodiesel must meet a fuel quality standard. It still has natural corrosive qualities though, meaning more engine servicing, and more frequent cleaning of fuel tanks.

Pros Cons × Can't be blended beyond 20% without some ✓ Up to 90% less carbon impact than changes to engine. conventional diesel (full lifecycle calculation). × Has natural solvent properties that require Can be 'dropped in' as a diesel substitute more frequent servicing and cleaning. at low concentrations (5% or B5 with no labelling). × Still emits tailpipe pollutants. Can be used in diesel engines × Very little is still produced in Australia. from most OEMs up to B20. × Food vs fuel trade-off (most feedstocks are Available around produced from farmland crops). Australia as B20. Australian fuel × Feedstock price fluctuations. standards mean you could have up to 5% biodiesel in your tank already!



Access all the resources here



2. Renewable diesel is made from organic feedstocks, it cuts lifecycle emissions, and it too can be 'dropped in' to Australia's existing diesel mix. Unlike biofuels you don't need to blend renewable diesel. One of the most promising types of renewable diesel (HVO) is already being used in Australia as a direct substitute for diesel – a 'blend' of 100% HVO. However, given its hefty price-tag, lower blending rates of renewable diesel may be a more viable option for many fleets.

While it may be new to Australia, renewable diesel is not a new product: in the USA, the amount of renewable diesel being made and used each year would power more than three quarters of all the trucks on the road in Australia.

2-3 times conventional diesel, per litre. idely available at service stations (yet). mits tailpipe pollutants. produced commercially in Australia. n't have a formal fuel quality standard
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Other fuels

There are other alternatives to diesel that have seen varying success.

for dedicated fleet customers.



However, these three alternatives cannot be simply dropped into the current diesel mix and all require new engine technology. This would mean a full turnover of your vehicle fleet, not to mention a brand-new refuelling network. Read more about low emission technology options in the Get Fleet Fit Low-Emission Truck fact sheet.



Access all the resources here



Taking action

If you're looking at cleaner fuels, biodiesel and renewable diesel are good options because the changes you need to make could be quite small beyond getting access to the fuels. Some of the most important considerations include the following:

Availability – Where can you get the fuel, and who are the suppliers? At the time of writing (2024) there is virtually no availability at public fuel stations, so getting access enroute may not be viable. If you have some depot-based fuelling then bulk deliveries to site are an option and you'll need to find a supplier that services your area.

Suitability – Renewable diesel 'should' be a simple drop-in to current diesel trucks, but biodiesel may affect the engine if used in high blend concentrations. You will have to check with your truck/engine manufacturer or local dealer to understand what they see as a suitable formulation, especially if you want to maintain engine warranty. Biofuels can have specific storage requirements so may require additional onsite tanks or dispensing equipment – check with the supplier.

Viability – Assuming you don't need to make changes to the engine or fuel system, the financial case comes down to the price difference between diesel and the new/blended fuel. The cost is likely to be higher than diesel, so your business case needs to factor in other benefits like attracting a new contract or customer, potential levies to cover the cost (if customers agree), any changes in maintenance, and even potential income from carbon credits.

Find out more

Read a full chemistry lesson on how biodiesel and renewable diesel are produced.

Ampol is commercialising R100 in Australia, a renewable diesel that can reduce lifecycle emissions by up to 90%.

Cummins has Biodiesel Questions and Answers that can provide you with further details.

Global biofuel producer <u>Neste has an explainer</u> on the differences between biodiesel and renewable diesel.

Scania has an engine that runs on 100% biodiesel.

Follow the progress of waste collection company, Cleanaway, who are demonstrating HVO in two Victorian trucks.

Get Fleet Fit has been designed by NatRoad to guide truck operators towards improved fuel efficiency and reduced emissions in alignment with future government regulations and customer expectations. We've developed a 5-step roadmap to help create a clear, actionable plan for your business, plus more detailed information on important topics to help you along your unique journey.



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