# New Generation DAF
# Alternative fuels

The trucking industry is a vital component of the global economy, responsible for transporting goods and products across vast distances. However, it is also a significant contributor to greenhouse gas emissions and air pollution. As governments and organizations worldwide push for more sustainable practices, the adoption of alternative fuels in the commercial vehicles sector is gaining momentum. Below you will find more information on various available alternative fuels, their benefits, and trade-offs.

**The heavy reliance on diesel fossil fuel is affecting the environmental impacts, fuel availability, and economic stability. To address these challenges, alternative fuels present an opportunity to reduce the carbon footprint of freight transportation while also enhancing energy security and diversifying fuel sources.**

### Alternative sources

Three main resources are used for producing fuel: fossil, biomass, and renewable energy sources.

Fossil is the classic one: oil and gas are obtained from the earth and processed to create diesel, gas, and so on. It also emits the most well-to-wheel $CO_2$ emissions.

Biomass contains all natural sources used to produce fuel. The use of biomass has increased rapidly in the recent years to reduce $CO_2$ emissions by up to 90 per cent. We distinguish between generation sources: the first-generation meaning the natural source is grown for intended use to produce fuel such as coleseed, while second-generation sources are recycled natural sources.

Renewable energy sources can be used to produce clean electricity to either use for hydrogen production or direct electric drive applications.

### Most widely available fuels

| Fuels | Well-to-Wheel Greenhouse Gas savings* | Fuel label | Norm |
|---|---|---|---|
| HVO \| Hydrotreated Vegetable Oil | up to 90% | XTL | EN15940 |
| Biodiesel \| B100 (pure biodiesel) | up to 60/90%** | B100 | EN14214 |
| B30 \| 30% biodiesel blended with fossil fuel diesel | 22% | B30 | EN16709 |
| B20 \| 20% biodiesel | 13% | B20 | EN16709 |
| B10 \| 10% biodiesel | 10% | B10 | EN16734 |
| B7 \| **up to** 7% biodiesel | 7% | B7 | EN590 |

* Source: Argent fuels

** Well-to-Wheel GHG emission savings of biodiesel rely heavily on its source. If produced from recycled materials (such as used cooking oils) savings up to 90% can be achieved. If produced from RME (rapeseed methyl esters), 60% savings can be achieved.

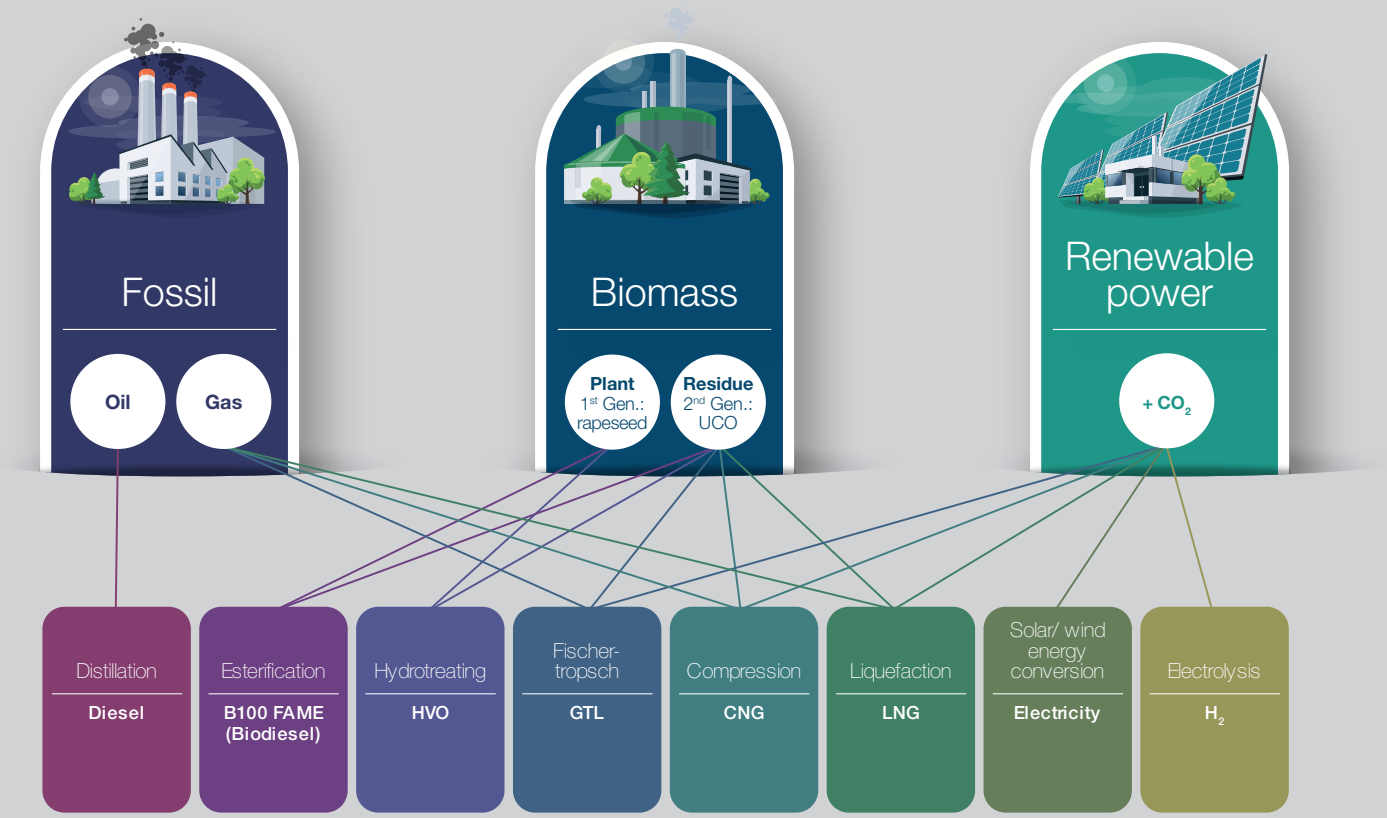

**Biodiesel: B100 (and B7, B10, B20, B30)**
B100 is biodiesel made from 100% FAME (fatty acid methyl esther), produced using bio material, either first or second generation. Through esterification of plant oils (RME, rapeseed methyl esters) and used cooking oils (UCO), biodiesel is created. To enable a vehicle to drive on B100, minor adjustments to the engine are required. Whereas B100 consists of 100% biodiesel, B7 to B30 are mixed with up to 30% biodiesel added and can usually be used for fuel without engine modification.

**HVO**
HVO (hydrotreated vegetable oil) is a synthetic diesel, one of the XTL (X-to-Liquid) type of diesels. It is a so-called second-generation biodiesel that is produced through hydrotreating. During this process, vegetable oils and animal fats are treated under high temperature and pressure with hydrogen. This results in a high quality synthetic fuel.


| | B7 | HVO | Biodiesel |
|---|---|---|---|
| Energy content | REF | Equal to B7 | – |
| Fuel cost | REF | – – | ++ |
| Fiscal benefits | REF | + | ++* |
| $CO_2$ reduction | REF | +++ | ++ |
| Fuel consumption | REF | Equal to B7 | – |
| Service cost | REF | Equal to B7 | – – |
| Availability | Everywhere | Region specific | Region specific |

* Depends on your region and local legislation.

**Alternative fuels at DAF**
In short, all diesel variants mentioned above can be used in most DAF vehicles, except for B100. PACCAR PX engines can use up to B20, while all PACCAR MX engines are also suitable for B30. B100 can only be used in DAF's with specific MX-13 480 B100 engines. These are mapped and prepared to run on B100, and require additional maintenance and require shorter maintenance intervals. When using B20 or B30, additional maintenance and a larger full-flow oil filter (08311) are required.




**Alternative fuel benefits**

As explained, there are several reasons for using alternative fuel. Firstly, you will be reducing your carbon footprint, which may be a customer requirement or may even offer financial benefits. As a business case, running alternative fuel can also be interesting, specifically in the case of B100. Fuel cost of B100 does not depend on, and is currently lower than, traditional diesel. Specifically for long haul applications, these fuel savings may well compensate for additional maintenance costs that you may have. In some regions, such as France, B100 comes with additional financial government incentives.

**Summary**

- Alternative fuels reduce up to 90% Well-to-Wheel $CO_2$ emissions
- All DAF vehicles run on HVO
- HVO is slightly more costly than regular B7, but has no additional maintenance requirements
- DAF vehicles with PACCAR MX-13 480 B100 engine run on B100
- B100 is lower in cost than diesel, but requires increased maintenance