



Renewable Diesel

Renewable diesel is a diesel fuel alternative made from plant or animal sources rather than fossil fuels. It has the same molecular composition as petroleum diesel and is fully compatible with existing diesel vehicles and fueling infrastructure, with no modifications necessary.

Climate-friendly fuel

Renewable diesel has a higher cetane value than petroleum diesel, which means it combusts more completely in an engine. This results in a substantial reduction in tailpipe pollution, such as particulate matter, nitrogen oxides, and carbon monoxide.

According to the California Air Resources Board, renewable diesel can reduce lifecycle greenhouse gas pollution by 15-80 percent compared to petroleum diesel, depending on the feedstocks used to produce the fuel. Renewable diesel made from waste oil products such as used cooking oil and tallow provide the greatest environmental benefits, followed by domestic agricultural products such as canola oil. Renewable diesel made from palm oil may not provide any environmental benefit

What is renewable diesel?

Renewable diesel is chemically equivalent to and meets the same ASTM standards (D975) as petroleum diesel. It can be used as a drop-in fuel in all diesel vehicles, pipelines, fuel tanks and other fueling infrastructure.

Renewable diesel's shelf life, resistance to biological contamination, and cold weather properties are all on par with petroleum diesel.

Renewable diesel benefits:

- Ready to use – no vehicle conversion required
- Less air pollution
- Chemically same as petroleum diesel

over petroleum diesel due to direct links between palm farming and deforestation in Southeast Asia.

POLLUTANT	POLLUTION REDUCTON FROM R50 BLEND	POLLUTION REDUCTION FROM R100
Particulate Matter (PM)	15%	34%
Nitrous Oxides (NOx)	5%	10%
Carbon Monoxide (CO)	8%	12%

Replacing renewable diesel with petroleum diesel -- in pure or blended form -- can eliminate air pollutants that are harmful to our health.

Reduces DPF clogging & regen cycles

Fleets in California, where renewable diesel is used more extensively due to the state's Low Carbon Fuel Standard, have reported fewer problems with diesel particulate filters (DPFs) after switching to renewable diesel.

Since renewable diesel combusts more completely than petroleum diesel, the fuel reduces the amount of particulate matter flowing into the DPF.

Pairs well with biodiesel

Biodiesel and renewable diesel are produced from similar materials, and are both used as alternatives to petroleum diesel. The main difference is how each fuel is made and their resulting chemical makeup.

Renewable diesel is produced through a hydrotreating process similar to refining petroleum diesel, creating a fuel that has the same chemical properties as petroleum diesel. Its high oxidative stability ensures a long shelf life, resistance to biological contamination and cold weather performance.

Conversely, biodiesel is produced through a chemical process called transesterification, which converts oils and fats into fuel. The end result is a chemically different, cleaner burning replacement to petroleum diesel. Biodiesel can be used on its own and also blends well with either petroleum diesel or renewable diesel.

Blends of up to 20% biodiesel (B20) are approved for use under warranty by most engine manufacturers. A blend of 80% renewable diesel and 20% biodiesel, sometimes referred to as RB20, takes advantage of both the ease of use of renewable diesel and the higher lubricity of biodiesel.

One of the fastest growing fuel markets

The most sustainable transportation fuel is one that is produced domestically from renewable resources. Renewable diesel made from waste oil sources such as used cooking oil and tallow has the lowest lifecycle climate impact because those materials are repurposed rather than dumped into landfills.

Renewable diesel made from domestic agriculture products, like canola in Washington, also benefit American farmers, and reduce dependence on foreign oil.

Current U.S. producers of renewable diesel include:

- AltAir Fuels, Paramount, California
- Diamond Green Diesel, Norco, Louisiana
- Renewable Energy Group (REG), Geismar, Louisiana

Renewable diesel in Western WA:

Most renewable diesel in the United States is currently consumed in California and Oregon. These states both have a Low Carbon Fuel Standard, which is a rule that provides a market incentive for clean fuels.

Although Washington does not have a Low Carbon Fuel Standard, demand for renewable diesel is increasing and availability is expanding as more domestic producers come on line.

Renewable diesel fuel suppliers:

- Renewable Energy Group Inc. (REG)

Renewable diesel fleet users:

- Port of Seattle
- Tacoma Public Utilities

Considering a shift toward alternative fuels?

Let Western Washington Clean Cities be your guide.

Angela Song, Associate

AngelaS@psccleanair.org | 206.689.4054

Kelly O'Callahan, Associate

KellyO@psccleanair.org | 206.689.4054

Landon Bosisio, Communications

LandonB@psccleanair.org | 206.689.4046

About Us

Western Washington Clean Cities Coalition is a not-for-profit membership organization dedicated to expanding the use of alternative fuels and advanced vehicle technologies. We provide education, technical expertise, and networking opportunities to help our members transition from petroleum to more sustainable energy choices.

Western Washington Clean Cities Coalition

1904 Third Avenue, Suite 105

Seattle, WA 98101

www.cleancities.org

