



## Renewable Diesel Fuel

### Alternatives to Petroleum Distillate Fuels

Renewable diesel is a hydrocarbon that is chemically equivalent to petroleum diesel. It is a completely interchangeable substitute for conventional petroleum-derived hydrocarbons (gasoline and diesel). As such, ***renewable diesel can be used as a drop-in biofuel without having to modify an engine's fuel system.***

Renewable diesel is made from biomass, such as soybean oil. It is made using a hydrogenation process that meets the [American Society for Testing and Materials](#) (ASTM) specification D975 for petroleum diesel.

### *Is renewable diesel the same as biodiesel?*

No. Biodiesel is produced using a trans-esterification process, where the feedstock (mainly soybean oil) reacts with an alcohol in the presence of a catalyst like lye.

Biodiesel meets [ASTM specification D6751](#) and is approved for blending with petroleum diesel/distillate. Most U.S. biodiesel is consumed as blends with petroleum diesel in ratios of 2% (B2), 5% (B5), and 20% (B20).

Most petroleum diesel fuel sold in the U.S. contains up to 1% biodiesel because it provides lubrication that can prolong the life of some engine components.



*Soybean field ready for harvest*

*Image credit: [iStock Photo](#)*

### Renewable Diesel Blends

Renewable diesel can be blended with petroleum diesel and/or biodiesel in various ratios. The federal [Renewable Fuel Standard](#) requires that non-petroleum-derived diesel fuels, including renewable diesel, must be blended with at least 1% petroleum fuel. Look for the Renewable Identification Numbers (RINs) that show compliance with the standard.

Renewable diesel blended with petroleum fuel is labeled with an R followed by the percentage of renewable diesel content. A blend of:

- 20% renewable diesel and 80% petroleum diesel is called R20.
- 20% biodiesel and 80% renewable diesel is called B20R80 to make a 100% biofuel.
- 20% biodiesel, 20% renewable diesel, and 60% petroleum diesel is called B20R20.

### *What is R99?*

A blend of 99% renewable diesel and 1% petroleum diesel is called R99. R99 diesel can cut CO<sub>2</sub> emissions by 50% or more ([NREL](#)). Other advantages noted by R99 users include:

- Lower mechanical costs of operation.
- Less wear of the diesel particulate filter system on modern diesel trucks and fewer regenerations needed for the system.
- Improved fuel storage stability.

## Renewable Diesel Production

From January 2022 to January 2023, the U.S. capacity for producing renewable diesel and other biofuels increased by 1.25 billion gallons per year—a 71% increase. This growth in U.S. renewable diesel capacity is driven by rising targets for state and federal renewable fuel programs and [biomass-based diesel tax credits](#).

In January 2023:

- 11 states reported sites with renewable diesel and other biofuels production capacity, up from six states in 2022.
- U.S. production capacity of renewable diesel and other biofuels reached 3 billion gallons per year, surpassing U.S. biodiesel production capacity for the first time.



*Renewable diesel pipeline.  
Image credit: Liquid Energy Pipeline*

## New & expanded renewable diesel projects

Renewable diesel projects are already available in the Pacific Northwest. Because renewable diesel can be co-processed with petroleum diesel, existing petroleum refineries can be converted for renewable diesel production with only modest retrofits

In a local example, the BP Cherry Point refinery near Bellingham, Washington, now produces 110 million gallons per year of renewable diesel by co-processing petroleum oil with bio feedstocks to produce renewable diesel.

## Renewable Diesel Delivery & Pricing

Renewable diesel is widely available in the Pacific Northwest via 10,000-gallon bulk deliveries. It can be transported in petroleum pipelines and sold at retail stations with or without being blended with petroleum diesel. Rack prices for all fuel types are available from the [Oil Price Information Service energy prices webpage](#).

## Renewable Diesel Procurement

Washington has a fuel supply contract (#08721) through the WA Dept. of Enterprise Services (DES). Per the [DES Contract Summary](#), suppliers provide fuel to seven geographic regions across the state.

To save on contracting costs, public agencies may use interlocal agreements to piggyback onto contracts with the state or other agencies (see [Organizations with current contract usage agreements](#)). For more information about the state's fuel contract, contact: [DESProcurementConsulting@des.wa.gov](mailto:DESProcurementConsulting@des.wa.gov).

## Resources

[Biodiesel and Renewable Diesel](#) – U.S. Dept. of Energy (DOE)

[Biodiesel Fuel Basics](#) – DOE

[FAQ Renewable Diesel](#) – Star Oilco

[Today in energy](#) – U.S. Energy Information Administration (EIA)

[U.S. Renewable Diesel Fuel and Other Biofuels Plant Production Capacity](#) – EIA



Updated Sept. 2025. Content developed by Randy Thorn, principal, and Melinda T. Spencer, technical education.

**Green Transportation Program**  
Washington State University  
**Energy Program**  
905 Plum Street SE  
P.O. Box 43165  
Olympia, WA 98504-3165  
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