

The background of the entire image is a photograph of a multi-lane highway stretching into the distance. The sun is low on the horizon to the right, creating a strong orange and yellow glow across the sky and reflecting on the road surface. A guardrail is visible on the left side of the road.

RISE

2021 NATIONAL BIODIESEL
CONFERENCE & EXPO



Biodiesel & Renewable Diesel 101

Cody Graham and Matt Herman

The National Biodiesel Board (NBB)

Biodiesel Trade Association

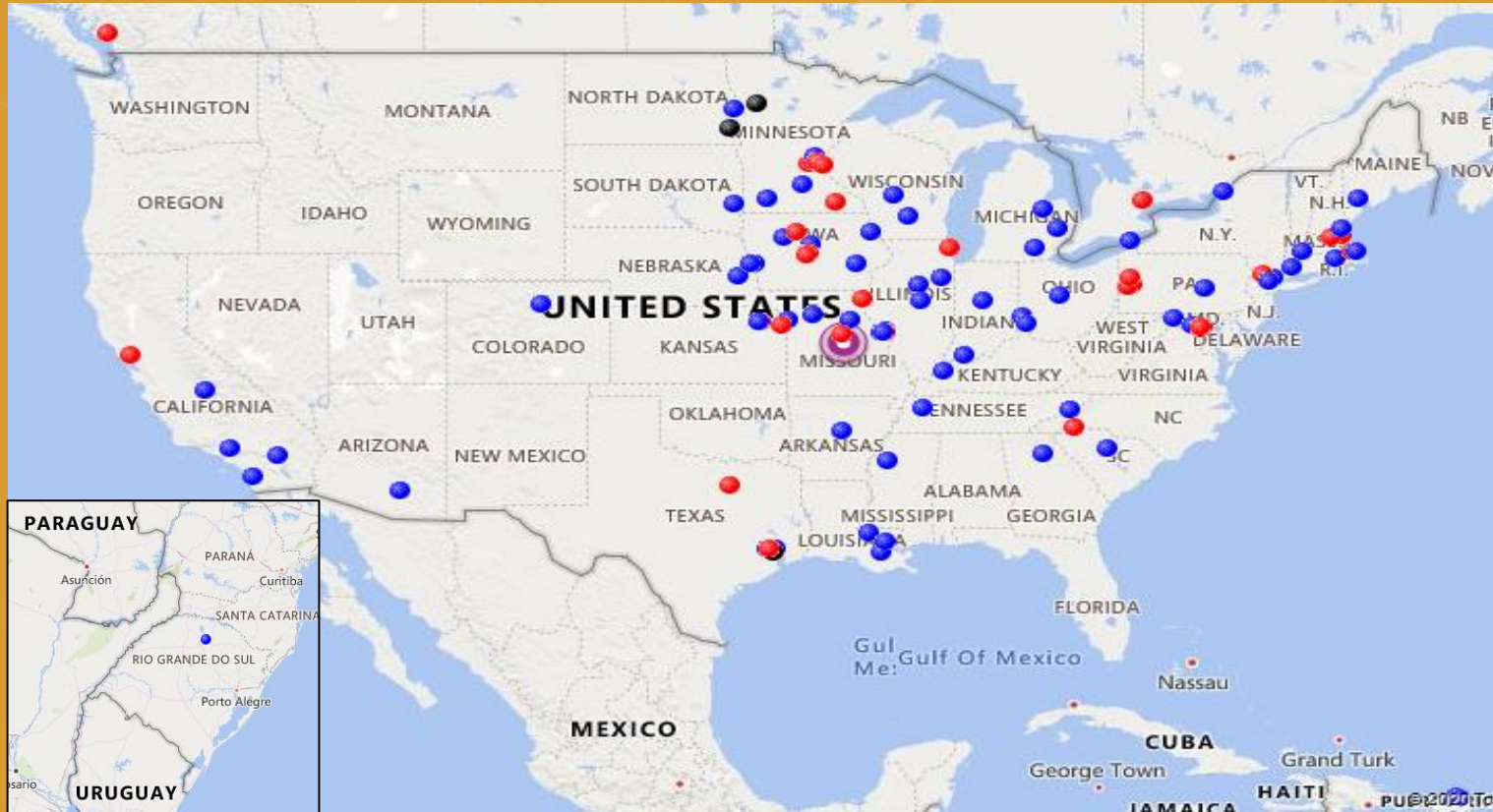
- Established in 1992
- Serves as the single coordinating voice
- Focused on Members

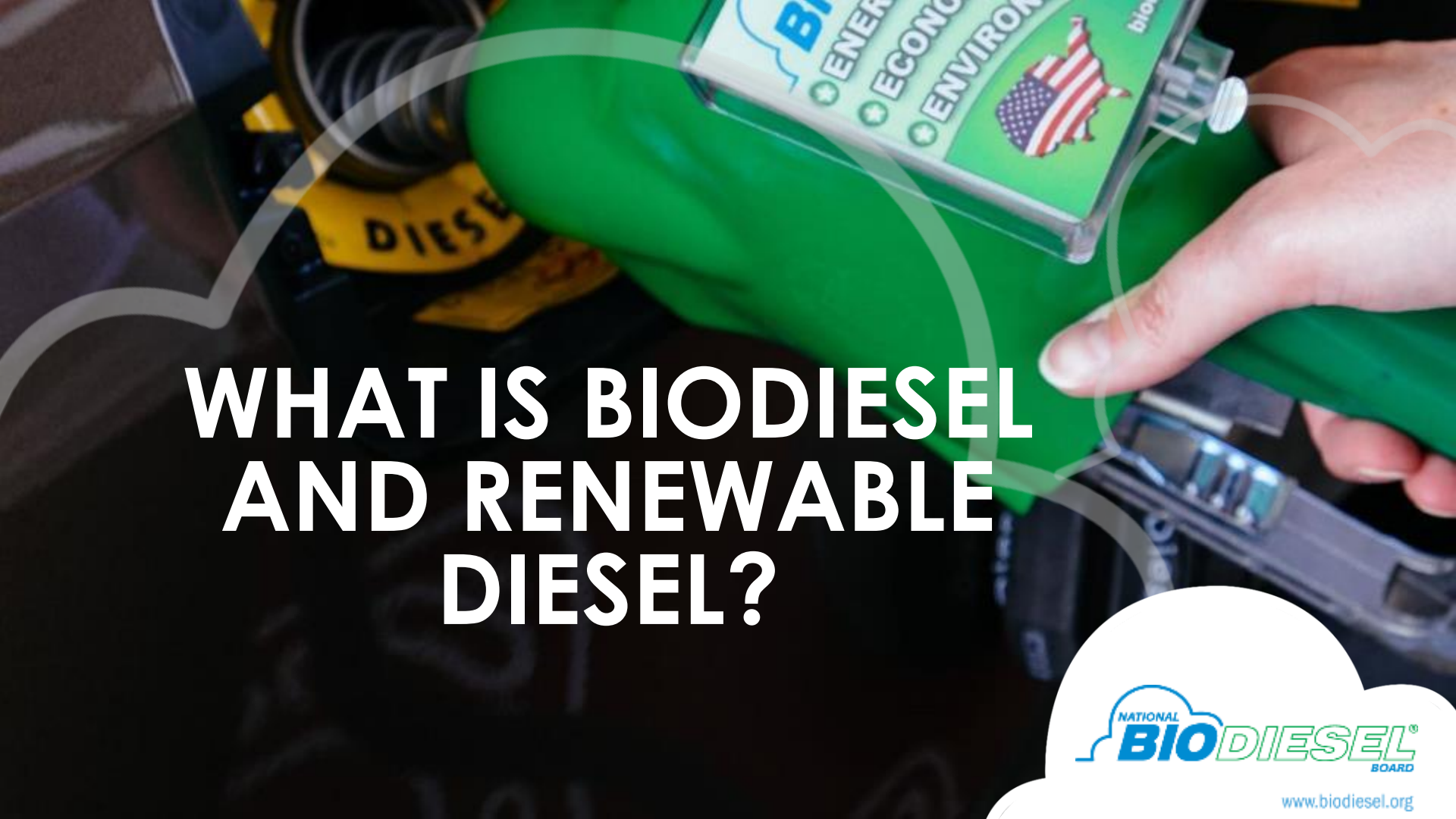


Mission & Vision

- **MISSION:** Representing America's clean diesel replacement fuels, the National Biodiesel Board will advance the interests of its members by supporting sustainable biodiesel, renewable diesel and renewable jet fuel industry growth. NBB serves as the industry's central coordinating entity for technical, environmental, and quality assurance programs and will be the strongest voice for its advocacy, communications, and market development.
- **VISION:** Biodiesel, renewable diesel, and renewable jet fuel will be recognized as mainstream low-carbon fuel options with superior performance and emission characteristics. In on road, off road, air transportation, electricity generation, and home heating applications, use will exceed six billion gallons by 2030, eliminating over 35 million metric tons of CO2 equivalent greenhouse gas emissions annually. With advancements in feedstock, use will reach 15 billion gallons by 2050.

Coast to Coast





WHAT IS BIODIESEL AND RENEWABLE DIESEL?



www.biodiesel.org

Definitions

- Biodiesel – A fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM D6751
- Renewable Diesel – A fuel comprised of straight chain and branched paraffins derived from vegetable oils or animal fats, chemically similar to traditional hydrocarbon diesel, meets the requirements of ASTM D975
- A renewable fuel for diesel engines made from fats and oils

Renewable

- Noun: A source of energy that is not depleted by use, such as water, wind, or solar power.
- Adjective:
 - Capable of being renewed
 - (of energy or its source) Not permanently depleted when used



These fuels are not:

- Raw Vegetable Oil/SVO
- Ethanol
- The catch-all word for biofuels
- Recycled cooking oil
- Other “Renewable Fuels”

Where do they come from?



Soybean Oil



Yellow Grease



Brown Grease



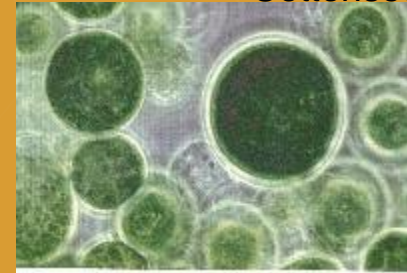
Canola Oil



Corn Oil from ethanol
production



Cottonseed Oil



Algae



Animal Fats

How is it made? - Biodiesel

Reacting:

100 lbs. vegetable oil

+

10 lbs. alcohol



Yields:

100 lbs. biodiesel

+

10 lbs. glycerine

Transesterification: process produces mono-alkyl esters – chemically similar to diesel fuel.

How is it made? – Renewable Diesel

Reacting:

Vegetable oil

+

Hydrogen



Yields:

90% Renewable Diesel

5% Naphtha (gasoline)

5% Liquid Propane

Hydrotreating: process convert fats and oils into hydrocarbons that are chemically identical to petroleum.

Fuel Quality Standards

- ASTM D6751 (B100)
- ASTM D975 (Petroleum Diesel/Renewable Diesel)
- ASTM D396 (Heating oil)
- ASTM D7467 (B6-B20)



Who Uses Biodiesel and Renewable Diesel?



Diesel Users



Diesel Power Dominates Goods Movement

(Percentage Powered by Diesel Engines)

100%



Freight Rail Locomotives

+90%



Heavy-Duty Trucks

+90%



Cargo Handling Equipment

100%

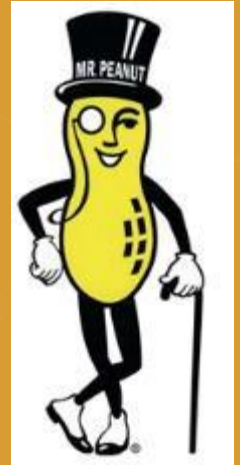


Boat and Barge

DIESEL
TECHNOLOGY FORUM



Major Applications



ENTERPRISEHOLDINGS.



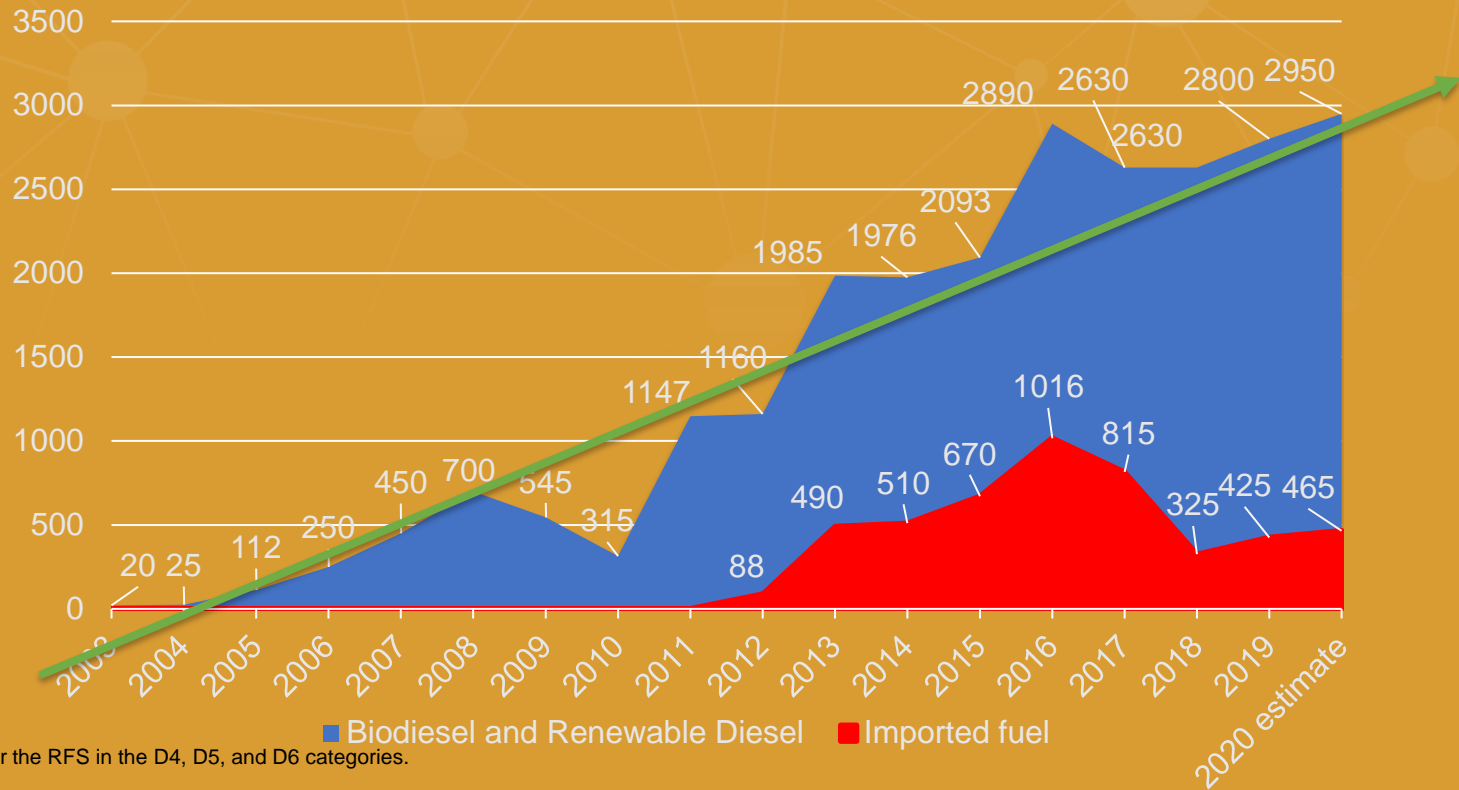
How do they compare to petroleum diesel?

- Give and take from both fuels
- Biodiesel
 - Roughly 8% less energy in B100 than No. 2 diesel
 - Higher Cetane than petroleum diesel
 - Higher Lubricity
 - Better particulate matter reductions
- Renewable Diesel
 - Nearly indistinguishable from petroleum diesel
 - Even higher Cetane
 - Better NOx emissions reductions

U.S. Biodiesel & Renewable Diesel Market

(millions of gallons)

Source: EPA EMTS*



*Volumes reported under the RFS in the D4, D5, and D6 categories.

Cumulative Effect of US Biodiesel and Renewable Diesel Marketplace

SINCE **2004**



CARBON

REDUCED
BY 143 MILLION
METRIC TONS

CO2 REDUCED
IS EQUAL TO 

REMOVING
30.6
MILLION



CARS

(ALL THE REGISTERED CARS IN CALIFORNIA)

OR

PLANTING
3.7
BILLION



TREES

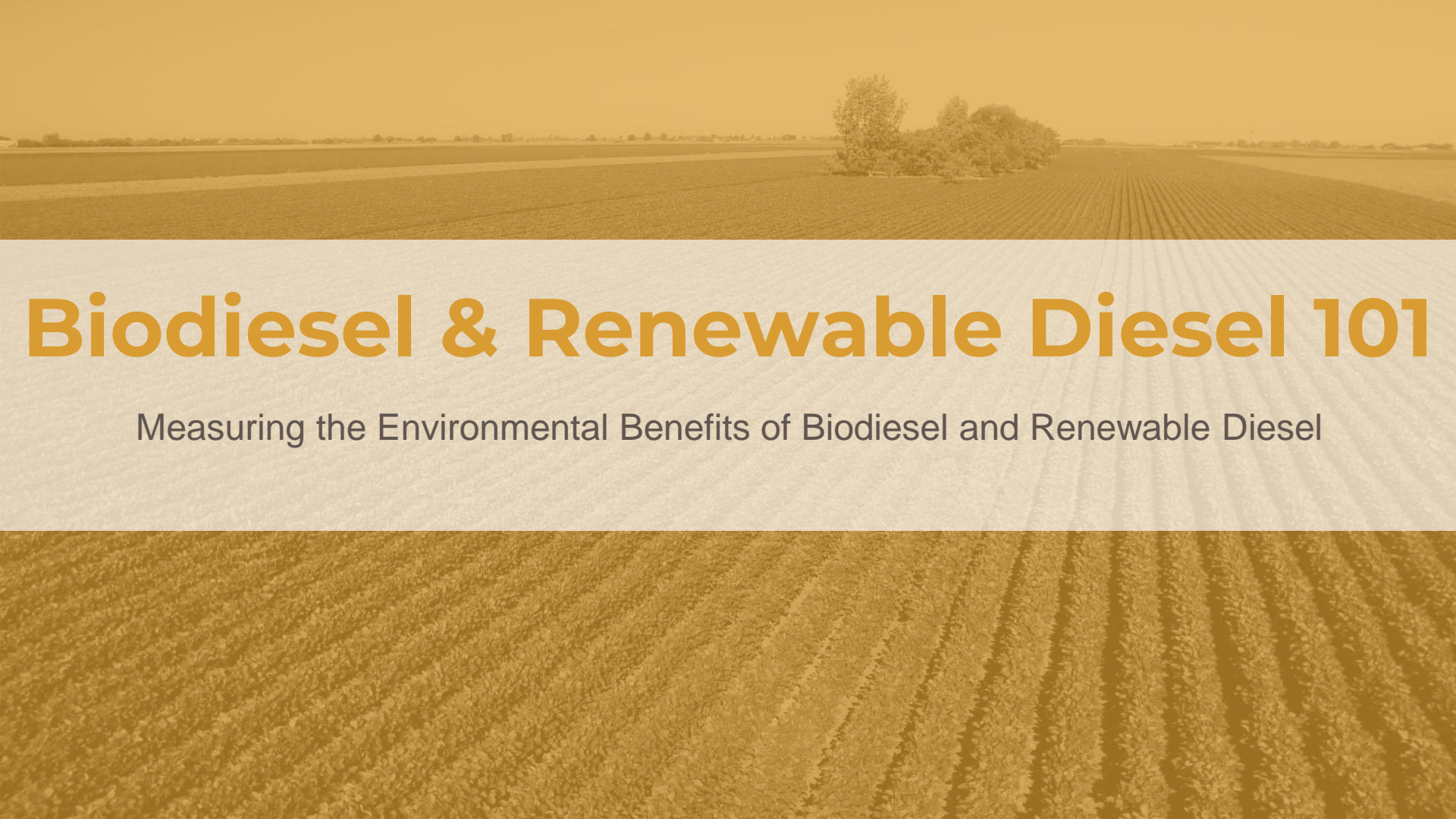
OR

PRESERVING
168
MILLION
ACRES



MATURE
FORESTS

(AS MANY ACRES AS OREGON & CALIFORNIA)

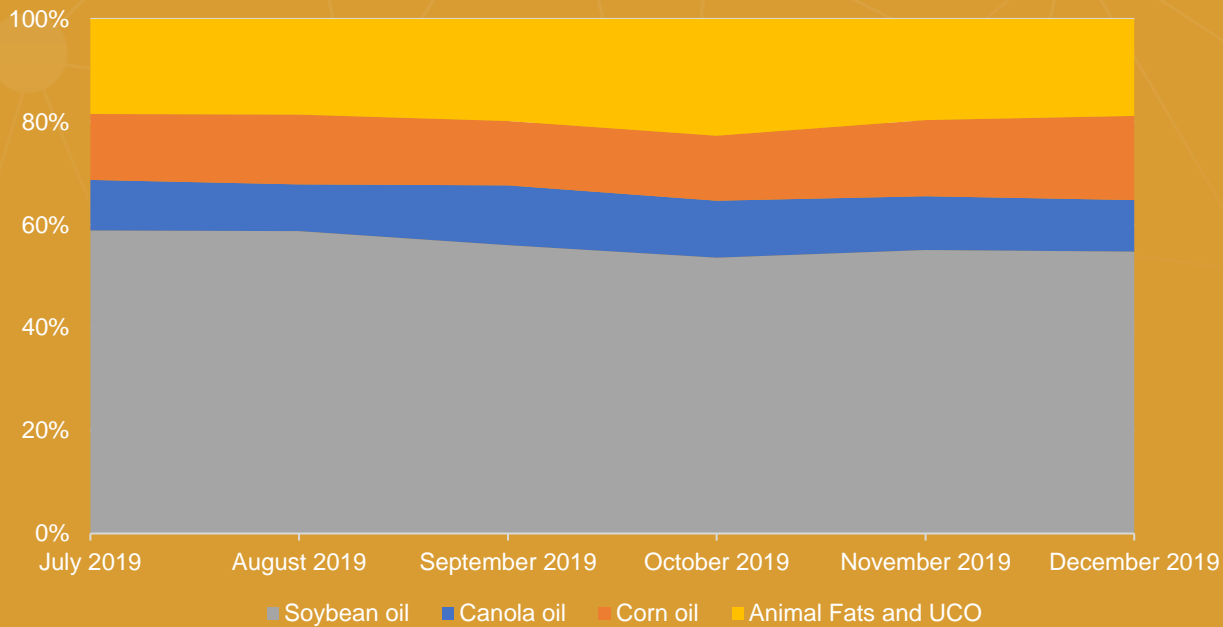


Biodiesel & Renewable Diesel 101

Measuring the Environmental Benefits of Biodiesel and Renewable Diesel

Feedstocks

Feedstock Mix for Biodiesel*



Stages of Soy Biodiesel Production

Feedstock Production (9.05 g CO₂e)

Fuel Production (12.00 g CO₂e)

Farming

Grain Transport

Storage

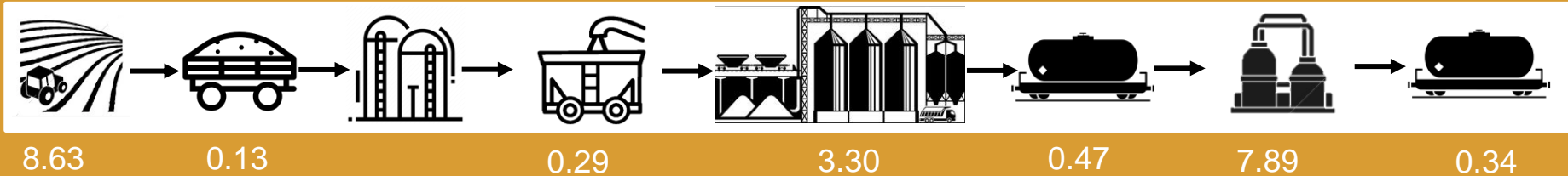
Grain Transport

Soy Crushing

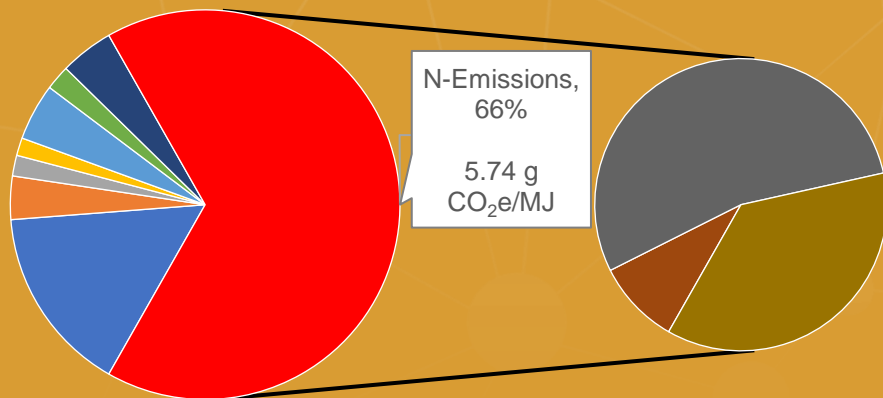
Oil Transport

Biodiesel Production

Biodiesel Transport



Emissions from Soybean Farming

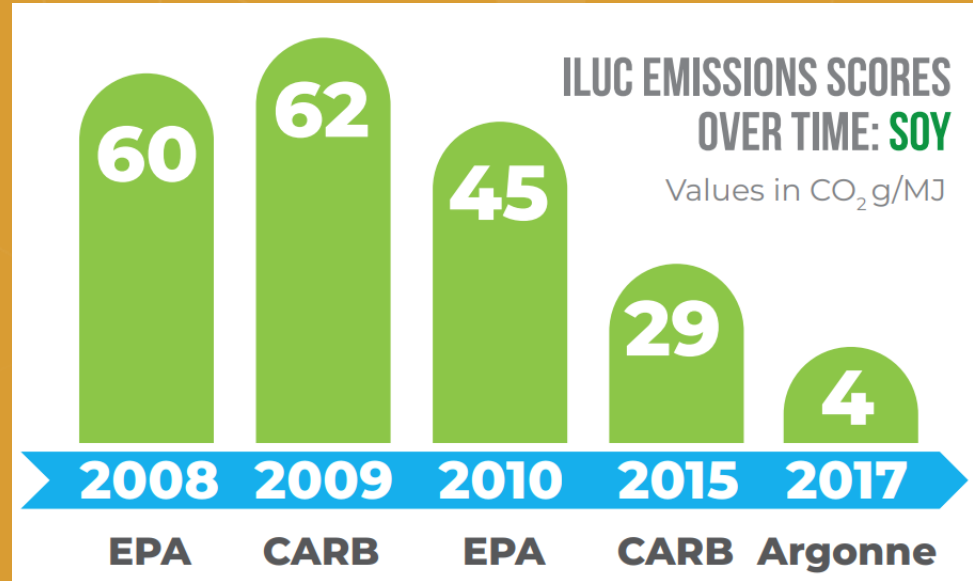


- Diesel Fuel
- Electricity
- Herbicides and Pesticides
- N from Fixation
- Gasoline
- P2O5
- N Fertilizer Production and Use
- Natural Gas & LPG
- K2O
- N from Biomass Decomp.



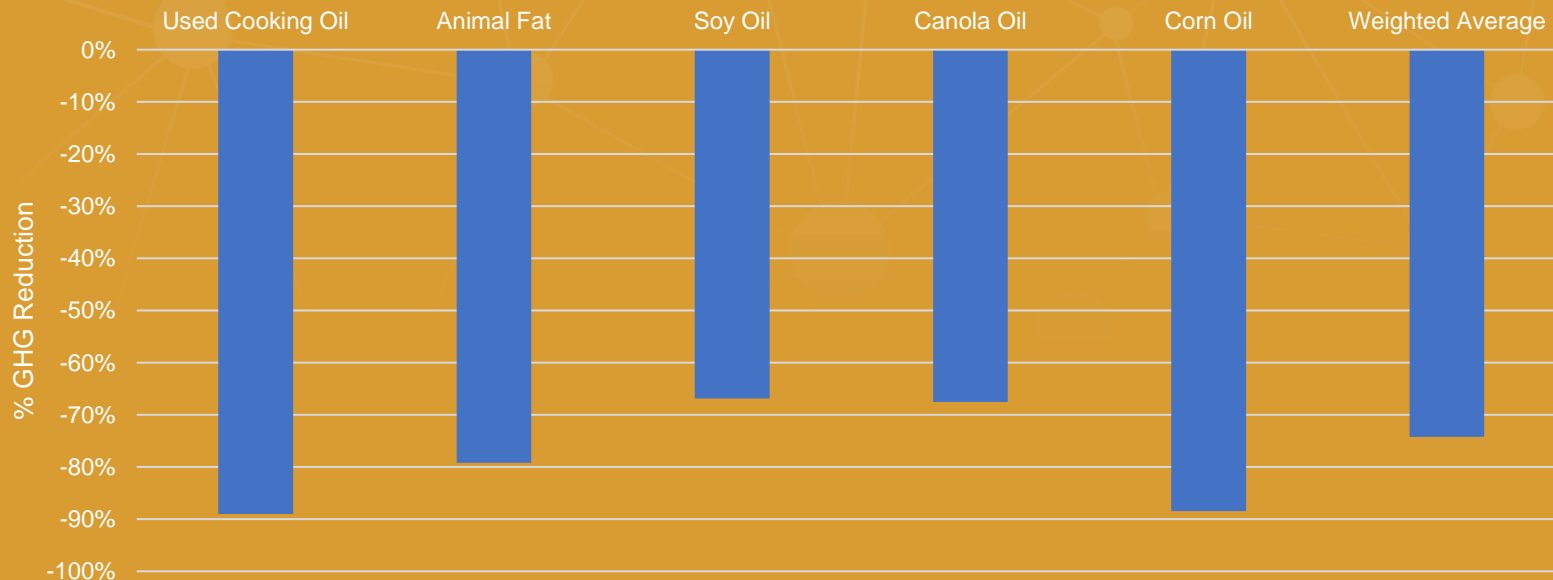
Indirect Emissions

- Commonly referred to as Indirect Land Use Change (ILUC)
- Based on *potential* economic effects due to increased demand for a resource



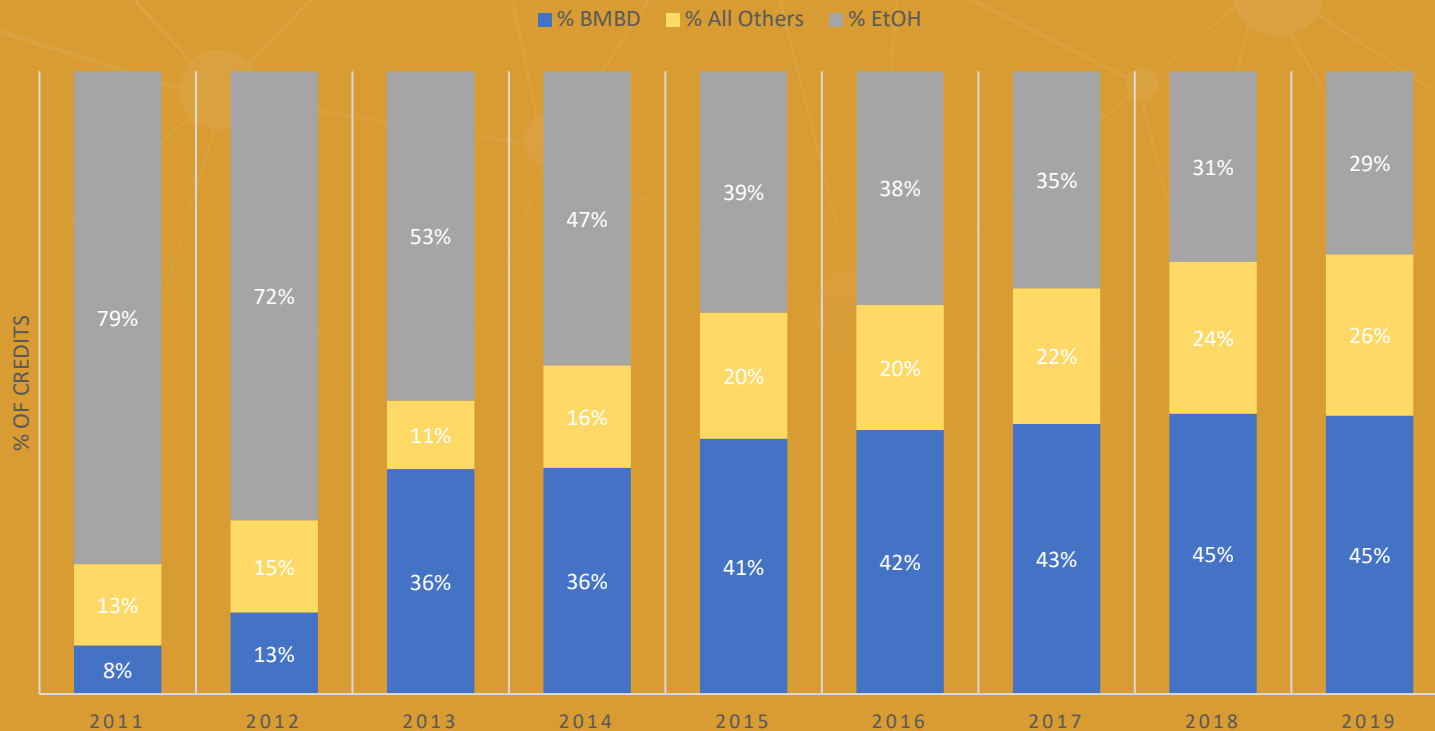
Overall Greenhouse Gas Profile

GHG Reduction of Biodiesel Compared to Renewable Diesel



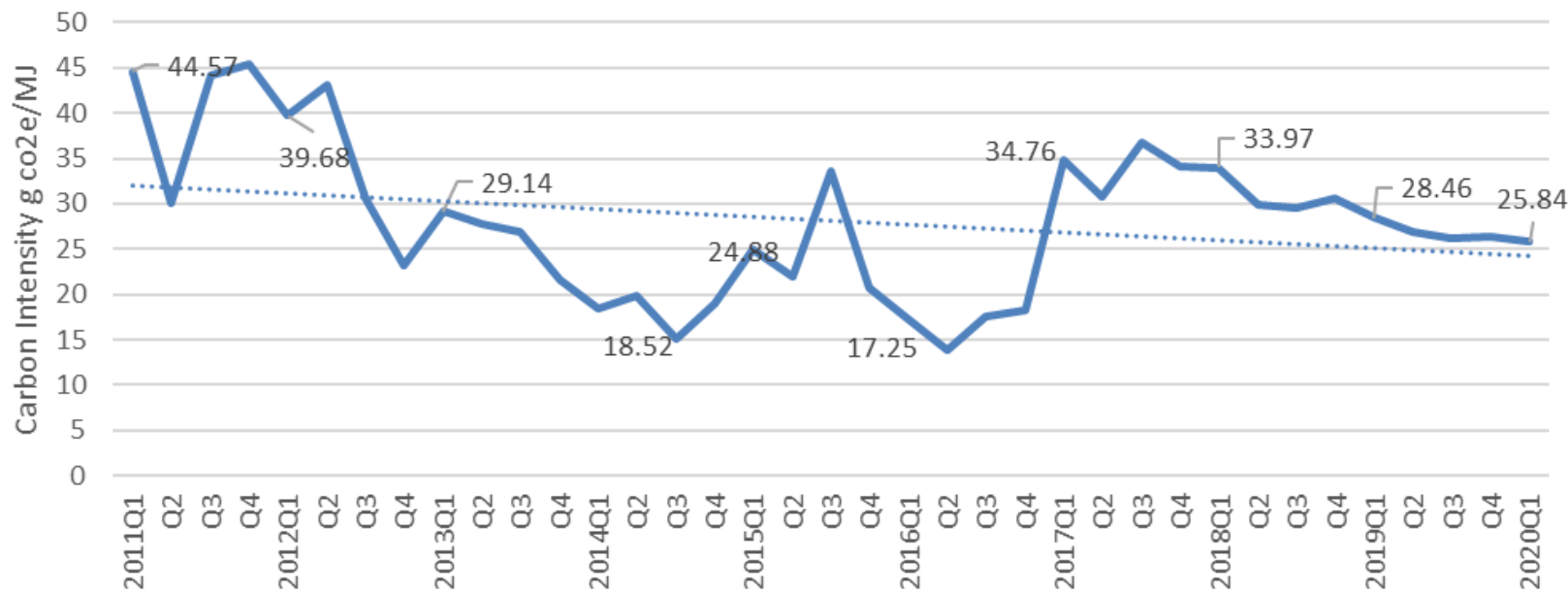
Biodiesel Reducing Emissions, Today

Biomass-based Diesel's Growth in LCFS Credits



Driving a Cleaner Supply Chain

Average Carbon Intensity Of California Biodiesel



Frequently Asked Questions

- Be sure to ask your own questions in the chat!

What about cold weather?

- Biodiesel has a higher cloud point than regular diesel
- Cold weather can cloud and even gel any diesel fuel.
- Similar precautions employed for petroleum
- B20 has been used successfully in climates below -20° F



Is it safe?





Where can you get the fuel?

- Biodiesel and Biodiesel blends available nationwide
 - At least 2000 public locations
- Renewable Diesel spreading quickly
 - Most found along the west coast



How to find it

FINDING BIODIESEL IN YOUR AREA

Whether you are a petroleum distributor sourcing biodiesel or a consumer looking for a pump, finding biodiesel has never been easier. We have maps that show you who produces, distributes and sells biodiesel.

[Are you a biodiesel retailer or distributor?](#)

[Submit your location today!](#)



FINDING RETAILERS IN THE U.S.

See if there is a public pump near you.

There are thousands of retail stations that now make biodiesel blends available to the public both at filling stations and fuel docks. More are coming on line virtually every week, so check often. Also, if your favorite station doesn't carry biodiesel, be sure to request it!

Map of Biodiesel Retailers



List of Biodiesel Retailers



What else should you know?



MARKET DRIVERS

Renewable Fuel Standard (RFS)

- Requires minimum amounts of renewable fuel be blended into the petroleum supply.
- Biodiesel inclusion began in 2011.
- Small Refinery Waivers are an ongoing issue

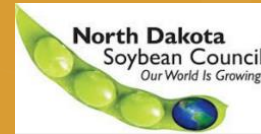
Biodiesel Tax Credit

- \$1 per gallon credit that goes to original blender of the fuel with petro diesel
- On and off since 2005
- Huge win last December

Thank you



nycornsoy.org



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THANK YOU