



Clean Fuels
ALLIANCE AMERICA

TFCA's 94th Annual Convention

Fuel Deep Dive: *Clean Fuels*

Jeffrey Earl,
Director of State Governmental Affairs



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CLEAN FUELS ALLIANCE

Our History

- National SoyDiesel Development board (1992)
- National Biodiesel Board (1994)
- Clean Fuels Alliance America (2021)

- Started with state soybean groups funding research to study use of leftover soybean oil.
- Membership consists of over 100 companies varying from Fortune 100 companies to small, family-owned production companies and every state soybean organizations.
- Membership represents nearly all 50 states.
- Today, 8% of the total diesel pool – 11% of the on-road diesel pool
 - 4.8 billion gallons in 2023
- Focus on growth for new market demands



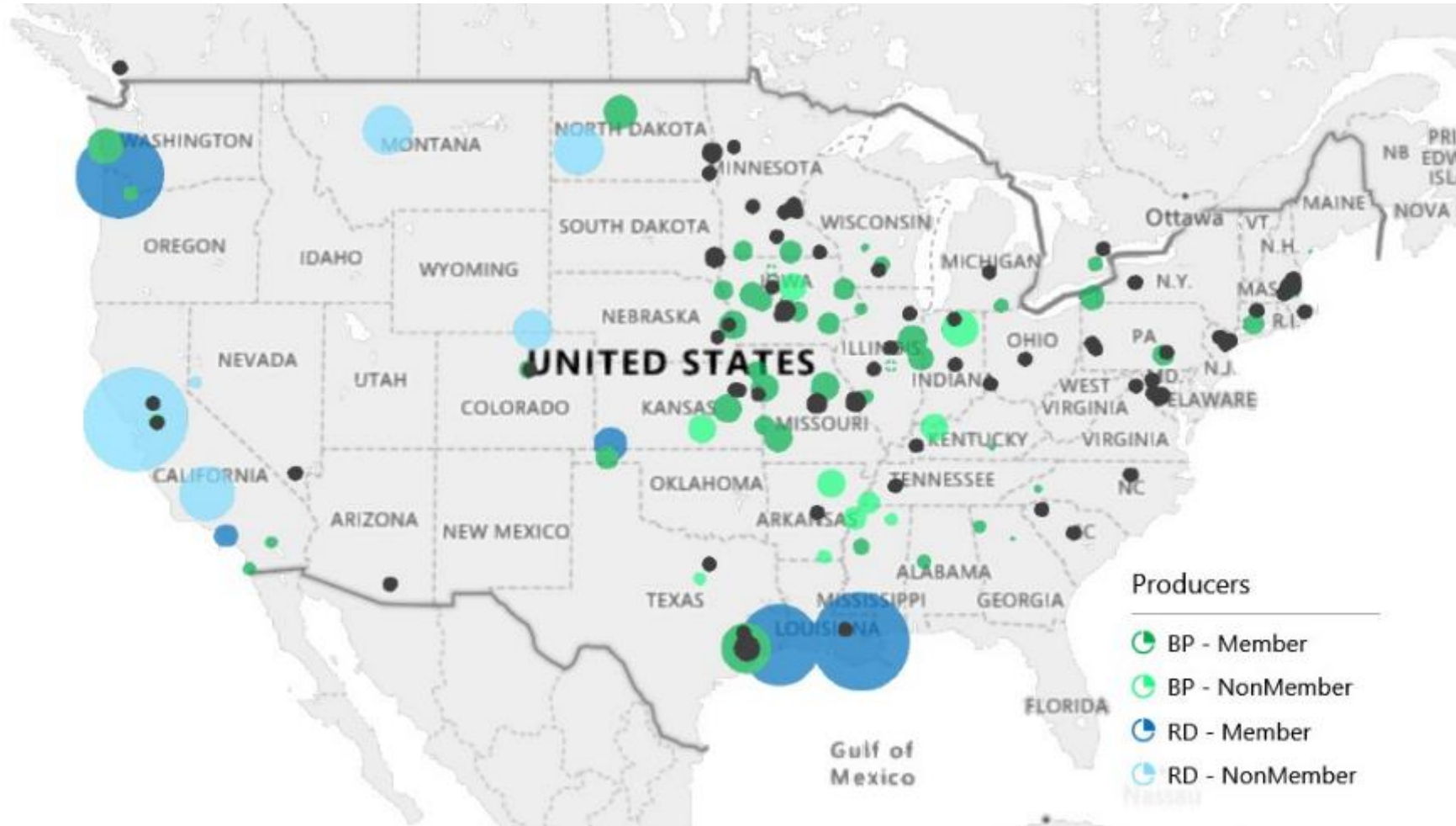
CLEAN FUELS APPRECIATES THE SUPPORT OF OUR FARMERS AND THEIR CHECKOFFS



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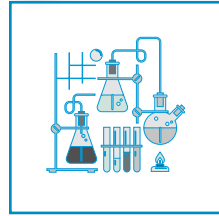


CLEAN FUELS INDUSTRY



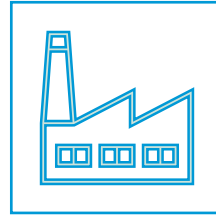


OUR FUELS



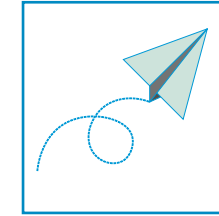
Biodiesel

- Produced through transesterification, a simple chemical reaction between alcohol (typically methanol) and fats or oils to produce a diesel substitute. Must meet ASTM D6751.



Renewable Diesel

- Produced through hydrotreating - like a traditional refinery operation. This high-heat, high-pressure process produces fuel that has the same properties as conventional diesel (ASTM D975).



Sustainable Aviation Fuel

- Produced from a wide variety of raw materials and processes, including sugars, fats, and gases (ASTM D7566).
- First commercial fuels today use hydrotreatment.
- Certifying 100% use.

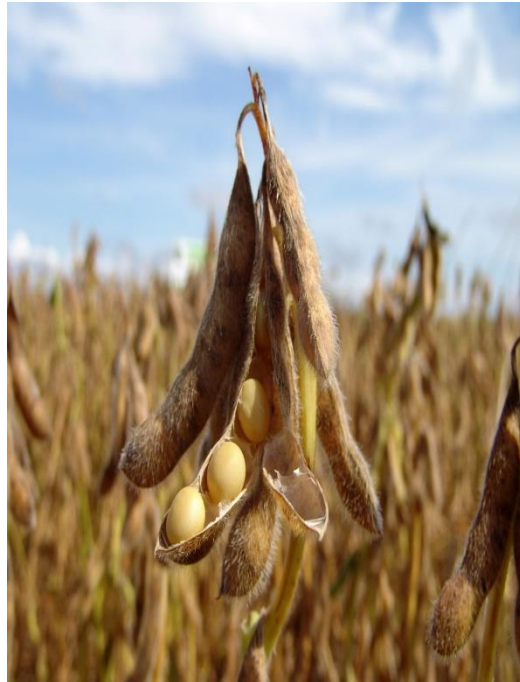


Biomass-based Diesel Feedstocks

Breakdown from 2023



Distillers Corn Oil - 12%



Soybean Oil - 38.4%



Camelina



Canola Oil - 9.9%



Used Cooking Oil/Yellow - 20.7%



Animal Fats - 19%

- cleanfuels.org -

Source: EIA, CARB, farmdocdaily



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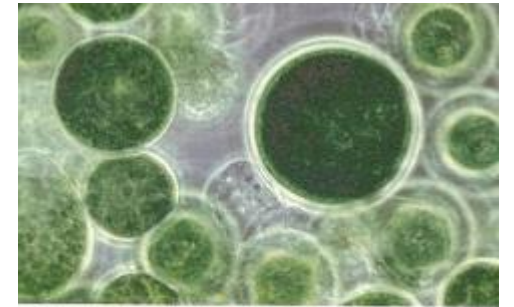
FEEDSTOCKS IN DEVELOPMENT



CoverCress (Pennycress)



Brassica carinata



Algae



Cottonseed Oil



Corn Oil—Wet Milling



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STATE OF THE INDUSTRY

CLEAN FUELS ALLIANCE AMERICA VISION

- ***Biodiesel, renewable diesel and sustainable aviation 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 6 billion gallons by 2030***, avoiding over 50 million metric tons of CO₂ equivalent greenhouse gas emissions annually. With advancements in feedstock, use will reach 15 billion gallons by 2050.

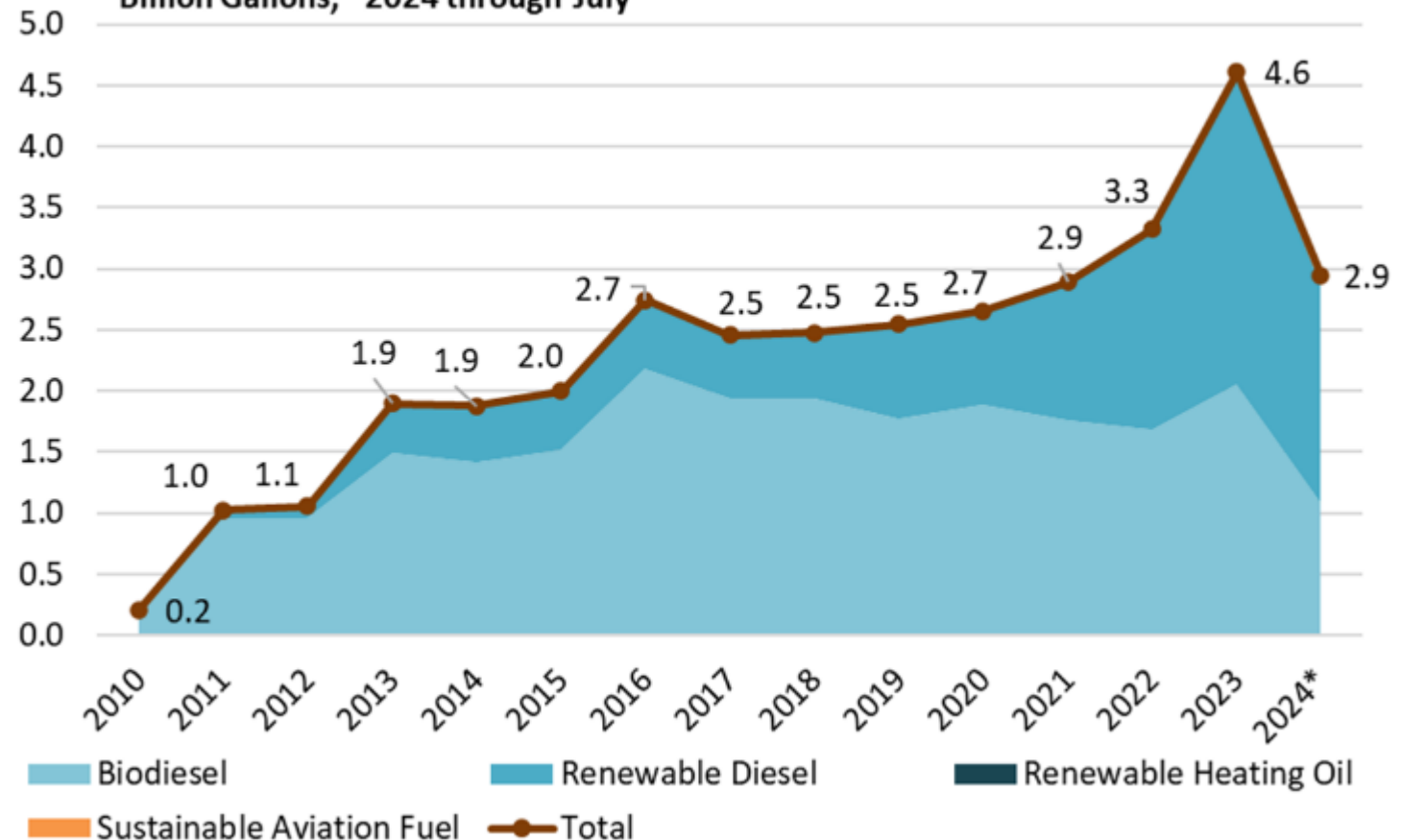


CLEAN FUELS' VISION

- By 2030 – 6 billion gallons
 - SAF(sustainable aviation fuel)
 - Rail
 - Ocean-going shipping/marine
 - Home heating
- Factors driving industry growth:
 - Demand for immediate carbon reductions.
 - Federal Policy
 - State Policy
 - Corporate Policy
 - Energy security & diversity
 - Changing energy markets
 - Value added to agriculture

US Biomass-Based Diesel Consumption

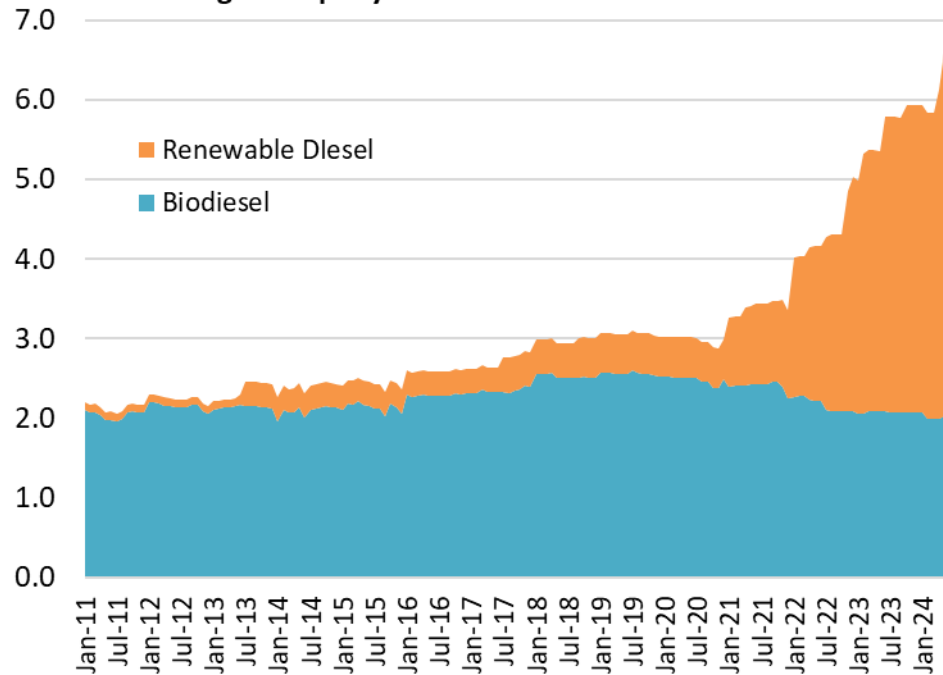
Billion Gallons, *2024 through July



SUPPLY: HISTORIC GROWTH

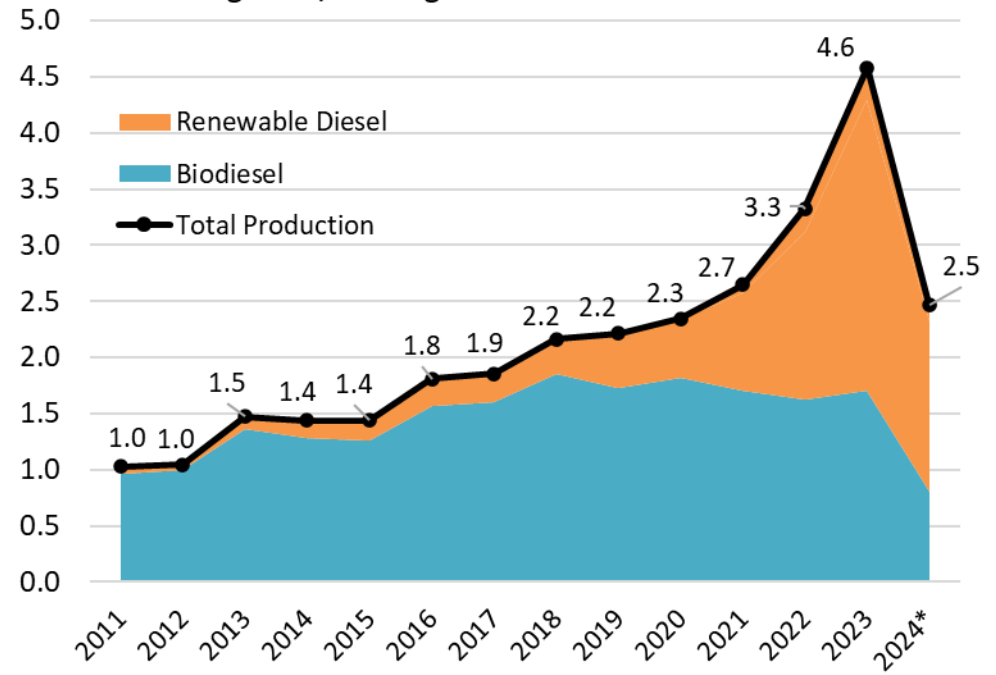
Biomass-Based Diesel Capacity

Billions of gallons per year



Biomass-Based Diesel Production

Billions of gallons, *through June 2024





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ECONOMIC IMPACT & VALUE ADDED TO AGRICULTURE



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UNITED STATES
Good for the *Economy*
Good for the *Environment*



CLEAN FUELS: AMERICA'S ECONOMIC ENGINE

U.S. Economic Impact (2021)

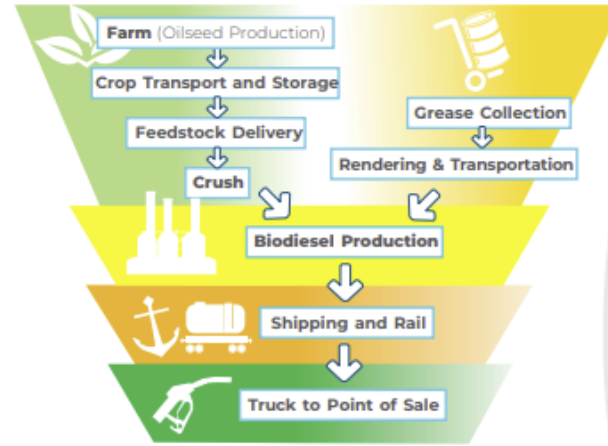

3.1 billion
Gallons


75,200
Jobs


\$3.6 billion
Wages Paid


\$23.2 billion
Total Economic Impact

The Clean Fuel Value Chain



PRODUCING MORE CLEAN FUEL ADDS MORE VALUE TO THE U.S. ECONOMY

Increasing homegrown biodiesel
and renewable diesel production
to meet future demands:



Producing a total of
6 billion gallons of
biodiesel and renewable
diesel would support:

187,000  full-time/full-time
equivalent jobs


\$8.8B  wages


\$61.6B  total economic
impact

Current Clean Fuel Production Impact by Sector


Farm Sector
(Oilseed Production)


\$7.41 B  **30%**
of total impact


28,236  jobs

\$1.36B  wages


Crush Sector
(Oilseed Processing)


\$4.97B  **21%**
of total impact


6,000  jobs

\$380M  wages

Clean Fuel Production Sector
(Biodiesel and Renewable Diesel)

\$9.57B  **41%**
of total impact

17,120  jobs

\$880M  wages

PLUS the short-term temporary impact of increasing supply:

144,500  full-time/full-time
equivalent
construction jobs

\$5.8B  wages

\$4.3B  total economic
impact

Sources: LMC International, Economic Impact of Biodiesel on the US Economy 2022, New York: September 2022.

cleanfuels.org
biodiesel.org
mybioheat.com

Materials supported by United Soybean Board, soybean farmers and their checkoff.

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VALUE ADDED TO AGRICULTURE

BD/RD IMPACT TO TN FARMERS

- Adds ~\$1.06 to the soybean value
- Adds \$80.5m of value to Tennessee soybean producers
- \$26,500 of value for a grower with 500 acres of soybeans
- Total Revenue - \$279,355,173
- Total Jobs – 778
- Total Wages - \$38,118,249



* Source: LMC International (2022)



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POLICY IMPACT AND DRIVERS

FEDERAL PRIORITIES

- Renewable Fuel Standard (RFS)
 - Requires transportation fuel sold contain a minimum volume of renewable fuels
- Tax & Energy Policy
 - Biodiesel Tax Credit - \$1 per gallon blenders tax credit
 - Extended through 2024 via Inflation Reduction Act
 - Transitions to a clean fuel production credit in 2025
- Infrastructure Funding
 - HBIIP – USDA program helps build markets and increase consumer access
- Fair Trade
 - Clean Fuels’ Fair Trade Coalition advocates for trade protections against unfairly subsidized and dumped biodiesel imports



STATE POLICY OPTIONS

State Fleet Requirements

- Most states have a state fleet requirement for renewable fuels
- Require state fleets to run on renewable fuel blends
- Initiatives lack teeth in implementation
- Don't drive high levels of volume

Incentives

- Common policy in the Midwest
- Focus on retail, production, & blending
- ROI can be measured by impact to industry and agriculture
- Bipartisan support from lawmakers
- Broad coalition support

Infrastructure Programs

- Helps promote the fuel through improvements to pumps, tanks, & blending equipment
- Support from fuel retailers wanting to offer renewable fuels
- Economic development investment

Mandates

- MN & PA only states with biodiesel mandates (transportation)
- NM & LA mandates not currently enforced
- Most Northeast states have home heating oil mandates
- Hard to get passed

Clean Fuel Standards

- Modeled after CA's Low Carbon Fuel Standard (LCFS)
- Has created significant market demand for biodiesel and renewable diesel
- Preferred policy from environmental groups



MIDWEST RETAIL INCENTIVES

Four states over the past three years have passed biodiesel policies prioritizing biodiesel in their state.

Illinois

Sales Tax Exemption*

\$.25 per gallon

April 1, 2024 - B13+

April 1, 2025 - B16+

April 1, 2026 - B19+

Iowa

Retail Incentive

\$.05 per gallon for
B11 - B19

\$.07 per gallon for
B20 - B29

\$.10 per gallon for
B30+

Missouri

Retail Incentive

\$.02 per gallon for B5
to B10

\$.05 per gallon for
B11 & higher

Total funding - \$16m

Nebraska

Retail Incentive

\$.14 for B100 gallon

B30 = \$.042

B20 = \$.028

B10 = \$.014

B5 = \$.007

Total funding - \$5m

* Includes renewable diesel



2025 TARGETS

Indiana

- Retail and Blender incentives for biodiesel, renewable diesel, and ethanol
- Priority for Indiana Soybean Alliance

Michigan

- Retail and Producers incentive for biodiesel
- Also working on other renewable fuel policies (SAF & LCFS)

Kansas

- Opportunity next year for ethanol, SAF, biodiesel, and renewable diesel incentives

Ohio

- Interests in policy supporting SAF and renewable diesel

Virginia

- Working with stakeholders on policy supporting biodiesel – Retail & Blending incentives

Wisconsin

- Opportunity for legislation supporting biodiesel production and blending

Midwest LCFS

- Minnesota, Illinois, Michigan

Northeast

- Several states working on low-carbon fuel policies



INFRASTRUCTURE PROGRAMS

Missouri Biofuel Infrastructure Incentive Program (BIIP)

- Goal of increasing the distribution and use of biofuels in the state of Missouri
- Funds awarded to fuel distributors, terminal companies, and fleet operations that dispense blends of E15 or B6
- Infrastructure projects include construction, installation, upgrade/retrofit of dispensers/pumps, storage, tank system components
- Grant Amount:
 - Tier 1 (terminal company, fuel distributor, or fuel retailer with 5+ locations) – 50% of eligible costs, or \$500k, whichever is less
 - Tier 2 (fuel retail with 5 or less stations, fleet operations, or individual business) – 75% of eligible costs, or \$250k, whichever is less

Iowa Renewable Fuel Infrastructure Program (RFIP)

- Goal to assist retail or fueling stations with installing, replacing, or converting eligible infrastructure to expand use of renewable fuels in Iowa.
- Approved biodiesel cost-share applications can receive up to \$50k per project,
- Approved biodiesel terminal projects can receive up to \$50k or \$100k per project depending on biodiesel blends



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OEM ACCEPTANCE OF BMBD



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COMPATIBILITY

Biodiesel *Works for America*

HIGH STANDARDS

Biodiesel must be produced to strict ASTM International fuel specifications to be legally sold in the United States. These specifications ensure proper performance in all engines and equipment in the marketplace. Biodiesel specifications include ASTM D975 for blends up to B5, ASTM D7467 for B6-B20 blends, and ASTM D6751 for B100.

BIODIESEL & WARRANTIES

The vast majority of OEMs support use of biodiesel blends up to 20%. For those that do not, warranties cannot be voided or impacted in any way by use of biodiesel, due to existing federal law (Magnuson-Moss Warrant Act, P.L. 93-637).

ABOUT BIODIESEL AND RENEWABLE DIESEL



WIDESPREAD SUPPORT FOR BIODIESEL

Nearly all medium- and heavy-duty original equipment manufacturers (OEMs) support using biodiesel blends of 20% or more in the vehicles they produce.



Sources: U.S. Environmental Protection Agency Moderated Transaction System; U.S. Energy Information Administration, Biodiesel Consumption Estimates, 2018; National Biodiesel Board, OEM Support Summary, 2019.



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ENVIRONMENTAL & HEALTH BENEFITS OF BMBD



ENVIRONMENTAL IMPACT

- ✓ **Reduces GHG Emissions**
 - ✓ BMBD can reduce GHG emissions by up to 86%
 - ✓ Mitigating climate concerns by lower CO2 and other GHG levels
- ✓ **Lowers Particulate Matter & Pollutants**
 - ✓ BMBD produces fewer harmful pollutants such as particulate matter (PM), carbon monoxide (CO), and sulfur oxides (SOx)
 - ✓ Improves air quality & reduces smog formation
- ✓ **Biodegradable**
 - ✓ Biodiesel is biodegradable and non-toxic





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BIODIESEL'S HEALTH BENEFITS

Improving Public Health / Reducing Medical Costs



Biodiesel (B100) provides immediate community health improvements that can be measured in reduced medical costs and health care burdens as shown in a two part study completed for Clean Fuels Alliance America by Trinity Consultants.



9,900
Fewer cases

15
Fewer deaths



11
Fewer cases

64
Fewer cases

Reduced cancer risks and burdens

10,000
Fewer cases
(over a lifetime)



970
Fewer deaths

41
Fewer deaths



6
Fewer deaths

99
Fewer deaths

Avoided premature deaths (longer lives)

1,100
Fewer deaths
(per year)



436,000
Fewer asthma attacks

20,200
Fewer asthma attacks



21
Fewer asthma attacks

360
Fewer asthma attacks

Fewer asthma attacks (lesser symptoms)

457,000
Fewer asthma attacks
(per year)



880,000
Fewer restricted activity days

28,000
Fewer restricted activity days



6,800
Fewer restricted activity days

115,000
Fewer restricted activity days

Fewer restricted activity days (more exercise)

1.03 M
Fewer restricted activity days
(per year)



151,000
Fewer sick days

4,800
Fewer sick days



1,100
Fewer sick days

19,500
Fewer sick days

Fewer sick days (greater productivity)

177,000
Fewer sick days
(per year)



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EMERGING MARKETS

From Steam to Green - Union Pacific Embraces Biofuels

Features

Cutting freight carbon emissions with biofuels

Wabtec and BNSF are collaborating on a biofuels project with the aim of reducing carbon intensity for Wabtec locomotives. The project is aimed at quantifying the impact of alternative fuels on emissions, durability, and performance.

Jasleen Mann | May 12, 2022

News Releases

Environment

Wabtec and Union Pacific Railroad Partner to Reduce Emissions with Higher Biodiesel Blends

OMAHA, NEB. AND PITTSBURGH, PA., MARCH 8, 2022

Progress Rail Approves B20 Biodiesel Fuel for Use in EMD® Engines

August 26, 2021

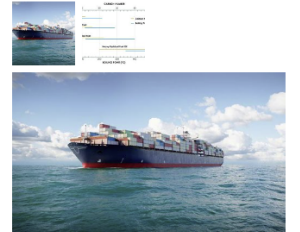
NEW MARKETS

Making The Case For Marine Biofuels

INVALID DATE BY MICHAEL KASS


The maritime industry is one of the most important transportation sectors, with more than 80% of all goods shipped via large container or cargo vessels that are powered using residual heavy fuel oil (HFO). The global economy is, therefore, closely bound to heavy fuel oil and maritime transport. Unlike the automotive industry, this sector has not received much regulatory attention until now. Sulfur reductions in residual fuel oils were imposed by International Maritime Organization starting in 2020, and emission control areas were established in the U.S. and northern Europe to reduce shoreline sulfur and particulate emissions from these vessels.

However, maritime transport also accounts for 2-3% of global emissions of CO₂, which is significant, especially compared to global aviation. To mitigate marine CO₂ emissions, the IMO seeks to reduce greenhouse gas (GHG) emissions from 2008 levels by 50% in 2050. To meet this challenge, the maritime industry is looking heavily at renewable fuels, including biofuels such as biodiesel, renewable diesel, pyrolysis oils, etc., and zero-carbon fuels like hydrogen and ammonia. Some of these fuels, such as methanol, can be synthesized via several routes, including biomass. Because of the global nature of maritime transport, a multiple-fuel strategy is needed based on regional legislative initiatives, economies and unique bioresources. It's not a one-size-fits-all approach and will likely mean a higher degree of fuel flexibility than what is currently available. To reduce infrastructure costs and pressure, biofuels have high potential to be used as drop-in candidates for HFO.





SO, WHY BMBD?

- ✓ **Domestically Produced** — Made in the US using agriculture feedstocks 
- ✓ **Good for the Economy** — Biodiesel supports over 75,000 jobs and over \$20 billion in economic activity
- ✓ **Cleaner Burning** — Produces 86% fewer lifecycle GHG & creates 47% less particulate matter
- ✓ **Approved by OEMs** — Approved by all OEMs and can be used as a drop-in replacement
- ✓ **Increased Lubricity and Cetane** — Superior lubricity and higher cetane value
- ✓ **Used Year-Round** — Used in diesel vehicles year-round and requires no different cold weather management practices that petroleum-based diesel fuel

Thank you!

SAN DIEGO | JANUARY 20–23, 2025

ACCELERATE

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CONFERENCE



CleanFuelsConference.org