

FUELING TODAY FOR A BETTER TOMORROW

How biodiesel benefits Michigan communities

Supporting a robust biodiesel industry is good for our environment, our economy and our people.



MICHIGAN
ADVANCED
BIOFUELS
COALITION



What is biodiesel?

Biodiesel is an advanced biofuel that reduces engine emissions for healthier air and a better environment. It is a drop-in fuel that requires no engine modifications nor new fuel infrastructure for blends up to B20. Fleets have easily and economically reduced their carbon footprint by replacing petroleum-based diesel with cleaner-burning biodiesel for over 30 years.

Communities benefit when transportation, construction, municipal and other fleets fuel with biodiesel.

Key benefits of biodiesel

Lower emissions compared to petroleum diesel¹

- 74% ↓ greenhouse gases
- 67% ↓ hydrocarbons

Made from renewable sources

- Soybean oil
- Recycled cooking oil
- Other fats and oils



Safer to handle

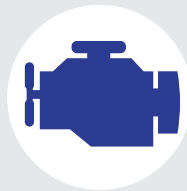
- Non-toxic
- Biodegradable
- Higher flashpoint than petroleum diesel

B20 is a drop-in replacement

- Approved by major manufacturers
- No engine modifications required
- No additional infrastructure needed

Better engine performance

- Improved lubricity for less engine wear
- Higher cetane for smoother operation
- Less soot production for reduced wear on diesel particulate filters
- All-weather fuel



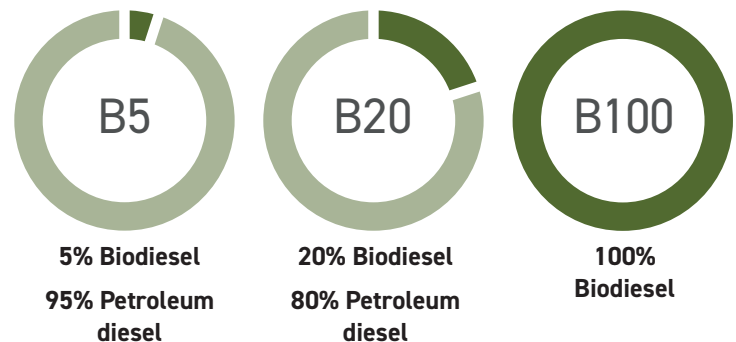
Supports the U.S. economy²

- 1.8 billion gallons produced annually
- 65,000 jobs
- \$17 billion in economic opportunity



Biodiesel blends explained

Biodiesel is typically blended with petroleum diesel for fueling vehicles and other equipment. B20 is a biodiesel blend widely adopted by fleets throughout the United States. A B20 blend will achieve a 15% carbon reduction today without requiring changes to vehicles or expensive infrastructure. Fuel system modifications allow vehicles to use B100 in cold weather for even greater emission reductions.



¹ U.S. Department of Energy Alternative Fuels Data Center

² Capital Policy Analytics

BIODIESEL FOR MICHIGAN

How a strong biodiesel industry benefits our state

Many Michigan fleets take advantage of the proven benefits of biodiesel fuel. This renewable alternative to petroleum diesel provides a cleaner environment and adds economic value to our state.

Despite the benefits biodiesel offers, a recent survey of more than 250 retail fuel stations across Michigan showed that only three stations carried biodiesel blends of B5 to B20.³

Many Midwestern states offer tax incentives to encourage adoption of higher biodiesel blends at the retail level. Similar programs in Michigan would increase biodiesel availability for diesel operators.



What biodiesel means for Michigan

Healthier communities



- *Harmful emissions from diesel engines contribute to lung disease and other health issues. Cleaner-burning biodiesel reduces emissions for better air quality*
- *Switching to B20 would bring \$53 million, while B100 would bring \$267 million in potential annual health benefits to Detroit residents – including less respiratory disease and fewer lost work days.⁴*

Economic growth



- *Biodiesel supports Michigan's economy, builds revenue and creates jobs through in-state production, distribution and sales*
- *Biodiesel adds value to soybeans grown by Michigan farmers*

³ Indigenous Energy, MI retail fuel survey, 2022

⁴ Trinity Consultants, Assessment of health benefits from biodiesel as a transportation fuel, 2022.

Biodiesel's supply chain: The path from farm to fuel

STEP 1

12,000 Michigan farmers produce soybeans on 2 million acres of farmland⁵. Biodiesel adds value to this crop.



STEP 2

Michigan soybean processors separate protein and oil from 50 million bushels of soybeans each year, generating 2.35 billion lbs of high protein soy meal and over 70 million gallons of soybean oil for food and biodiesel production⁶



STEP 3

- Soy protein is fed mostly to livestock. Livestock processors generate waste animal fat
- Some soybean oil goes directly to biodiesel production
- Soybean oil used for frying food gets recycled
- Ethanol industry generates distillers corn oil byproduct



STEP 4

Michigan biodiesel manufacturers use these feedstocks to produce 16 million gallons of biodiesel annually⁷



STEP 5

- Regional and local fuel marketers blend biodiesel for customer use
- Blended biodiesel fuels trucks, construction equipment, farm tractors and other diesel vehicles



STEP 6

Michigan residents benefit from cleaner air, a lower carbon footprint and greater local energy security.



⁵ 2021 USDA National Agricultural Statistics Service data

⁶ American Soybean Association

⁷ US Energy Information Administration

DIVERSE PARTNERS FUEL MICHIGAN'S GREEN ECONOMY

The **biodiesel industry** creates jobs, builds revenue and protects our environment by supplying high quality renewable fuel for Midwest fleets. Supporting a robust biodiesel industry is good for our communities, our economy and our people.

● Biodiesel manufacturers

- Thumb BioEnergy (Sandusky)
- W2 Fuel (Adrian)

■ Soybean processors

- Zeeland Farm Services (Zeeland and Ithaca)
- Quality Roasting (Reese)

◆ Biodiesel feedstock trader (used cooking oil, etc.)

- Third Coast Commodities (Buchanan)

★ Biodiesel marketers and haulers

- Altom Transport (Clare and Detroit)
- Cooperative Elevator Co. (Pigeon)
- Corrigan Oil (Brighton)
- Warner Petroleum Corporation (Clare and Detroit)

▲ Example biodiesel users

- City of Kalamazoo (B20)
- University of Michigan (B20)
- Detroit Salt Company (B99)

■ Top soybean producing areas

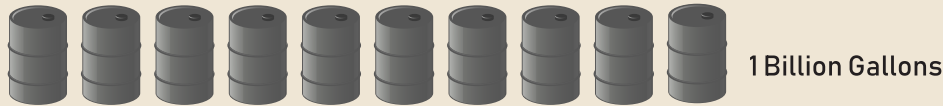


OPPORTUNITIES FOR MICHIGAN'S FUTURE

Michigan has significant potential to improve the quality of life for its citizens by encouraging greater biodiesel use, whether it's through a biodiesel standard or through incentives to encourage investment in soybean processing or biodiesel production, blending and distribution.

Many Midwestern states offer incentives and other programs to encourage adoption of higher biodiesel blends. These programs correspond to higher biodiesel consumption.

Michigan's Current Annual Diesel Consumption and Carbon Footprint



Annual Diesel CO₂ Emissions⁸
~10 million metric tons

Michigan's Projected Annual Biodiesel Consumption and Carbon Reduction, if the Following Average Blends are Used

Biodiesel Blend	Projected Annual Consumption	Reduction in CO ₂ Emissions from using Biodiesel ⁹
B5	 50 Million Gallons	↓ 3.7% ↓ .38 million metric tons
B10	 100 Million Gallons	↓ 7.5% ↓ .75 million metric tons
B20	 200 Million Gallons	↓ 15% ↓ 1.5 million metric tons

⁸ One gallon of diesel emits 0.0102 metric tons of CO₂ - Source: US Environmental Protection Agency

⁹ B100 usage reduces lifecycle CO₂ emissions by an average 74% - Source: US Department of Energy

BIODIESEL STATE INCENTIVES

How Midwestern state policies support biodiesel

Many Midwest states offer incentives to encourage the use of biodiesel fuel, with extra incentives for higher biodiesel blends. States with biodiesel incentives reduce carbon emissions and gain significant environmental, health and economic benefits for residents in both rural and urban areas.



IOWA

Iowa Biodiesel Incentives¹⁰

State excise tax reduction for retailers selling B20+:

- 3 cents/gallon

State income tax credit for retailers selling these blends:

- B11 = 5 cents/gallon
- B20 = 7 cents/gallon
- B30 = 10 cents/gallon

Sales and use tax refund for biodiesel producers:

- 2 cents/gallon, up to 25M gallons per year

Iowa Biodiesel Successes¹³



470M gallons production capacity



72M gallons consumed

\$4.2B

in Iowa economic activity

6%

average biodiesel blend

10,574
jobs supported

11
production plants



ILLINOIS

Illinois Biodiesel Incentives¹¹

Biodiesel blends receive a 6.25% state sales tax exemption at the following levels:

- B10+ in effect since 2003
- B13+ effective April 1, 2024
- B16+ effective April 1, 2025
- B19+ effective April 1, 2026
- B10 is the minimum threshold set for the winter months from December to March

2022 average value of tax exemption = 20.5 cents/gallon



MISSOURI

Missouri Biodiesel Incentives¹²

Sales tax credit for biodiesel retailers:

- B5 to B10 = 2 cents/gallon
- B11+ = 5 cents/gallon

Tax credit for qualifying biodiesel producers:

- 2 cents/gallon

Illinois Biodiesel Successes¹³



192M gallons production capacity



176M gallons consumed



average biodiesel blend

7,803
jobs supported

4
production plants

\$2.7B
in Illinois economic activity



238M gallons production capacity



40M gallons consumed



average biodiesel blend

5,567
jobs supported

6
production plants

\$2B
in Missouri economic activity

¹⁰ Iowa Code 2022 Section 422.11P Iowa Revenue Dept. Chapter 277

¹¹ Illinois Senate Bill 1146

¹² Missouri Senate Bill S160

¹³ U.S. Energy Information Administration and LMC International: Economic Impact of Biodiesel on the United States Economy 2022.

WHAT IS MiABC?

The **Michigan Advanced Biofuels Coalition (MiABC)** promotes the use of advanced biofuels to help improve the quality of life in Michigan. Using biomass-based diesel fuels – biodiesel, renewable diesel and sustainable aviation fuel – protects our air and environment by reducing carbon and harmful emissions from diesel-powered vehicles, equipment, vessels and aircraft.

Formed by the Michigan Soybean Committee, MiABC provides resources to help Michigan communities and fleets take full advantage of the benefits of using biodiesel, the most commonly available advanced biofuel. Funding for MiABC comes from Michigan farmers through the soybean checkoff program.

WHO ARE MiABC STAKEHOLDERS?



The Michigan Soybean Committee formed MiABC in cooperation with multiple stakeholders that include:

- Biodiesel manufacturers
- Feedstock producers
- Fuel distributors
- Fleets
- Non-profit organizations

Joining MiABC signals an organization's commitment to improving Michigan communities and achieving lower carbon emissions, cleaner air and a healthier environment.

For a list of MiABC stakeholders, and to consider joining visit miadvancedbiofuels.com/stakeholders.

FOUR WAYS MiABC SUPPORTS STAKEHOLDERS



Education

MiABC communicates to fleets and communities about biodiesel benefits, educates users on fuel quality best practices and provides expert speakers to advance biodiesel understanding.



Technical Expertise

Fuel experts available through MiABC can answer questions, help source quality fuels, guide transition to biodiesel, and quantify biodiesel health and environmental benefits.



Networking

Stakeholders share biodiesel successes and best practices through events, presentations and conferences. MiABC also connects fleets to grant opportunities to fund biodiesel-related projects.



Promotion

Through its website, promotional materials and outreach activities, MiABC recognizes Michigan fleets using biodiesel and motivates others to adopt advanced biofuels.





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WANT TO KNOW MORE ABOUT BIODIESEL?

Visit miadvancedbiofuels.com or contact
Michigan Soybean Committee at 989-652-3294
or soyinfo@michigansoybean.org.

Funded by the Michigan Soybean Checkoff



**MICHIGAN
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COMMITTEE**

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