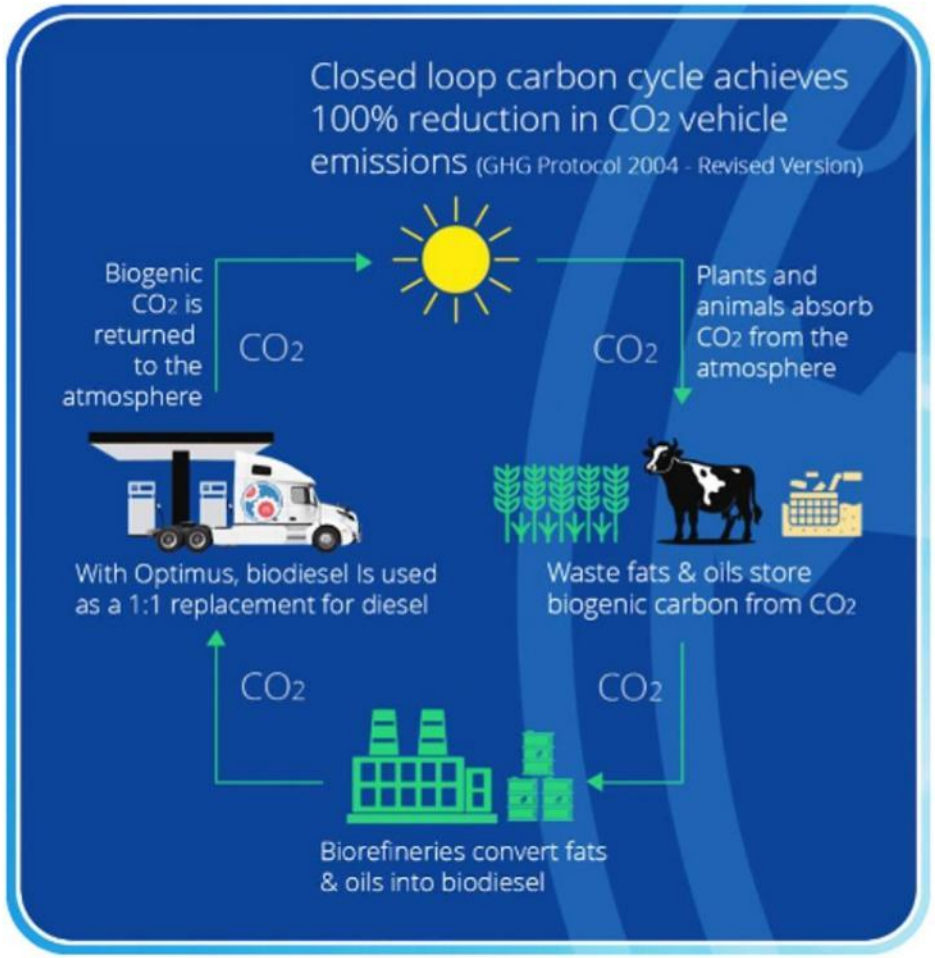
OPTIMUS TECHNOLOGIES

Biodiesel Technical Workshop Updates

October 27th, 2026

CONFIDENTIAL

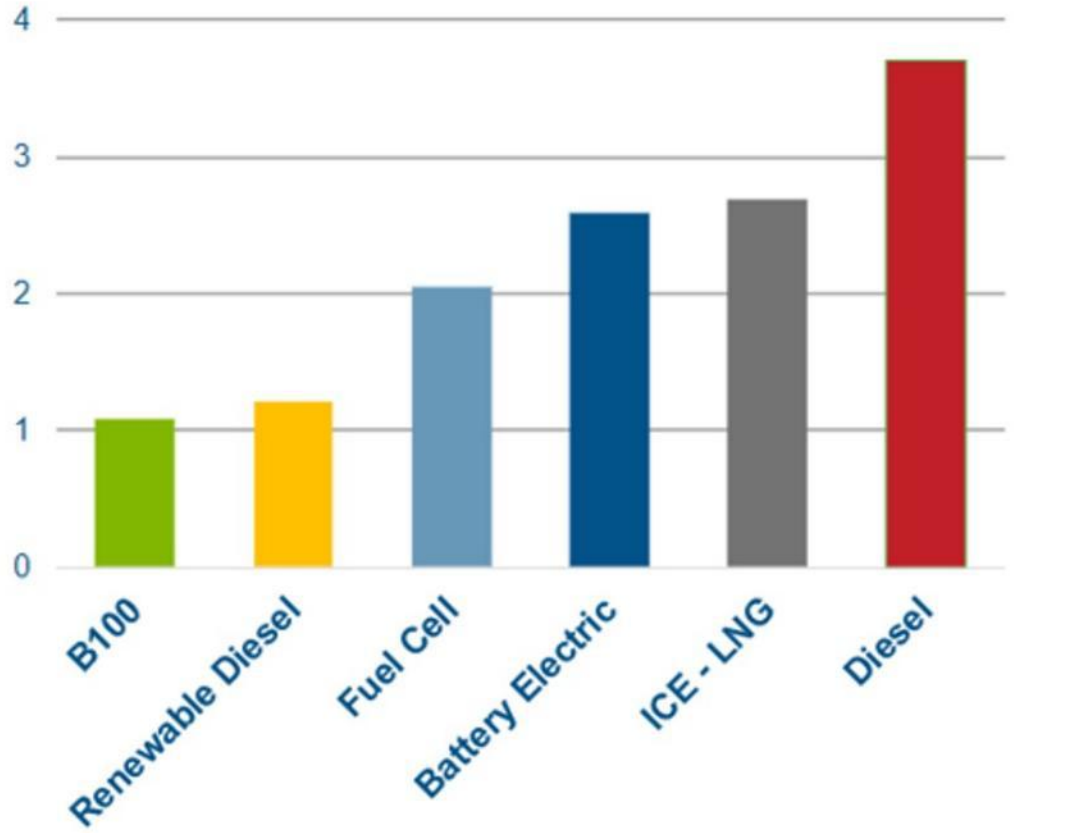
Why 100% Biodiesel?



Carbon Reductions & Cost Savings.

ATRI American Transportation Research Institute

Total Lifecycle CO_2 Emissions: Production, Operations and Disposal (MM lbs.)



Confidential

Vector System Overview



Biodiesel Tank



Customer Dashboard



Vector Manifold



Fuel Selector Valves



User Interface



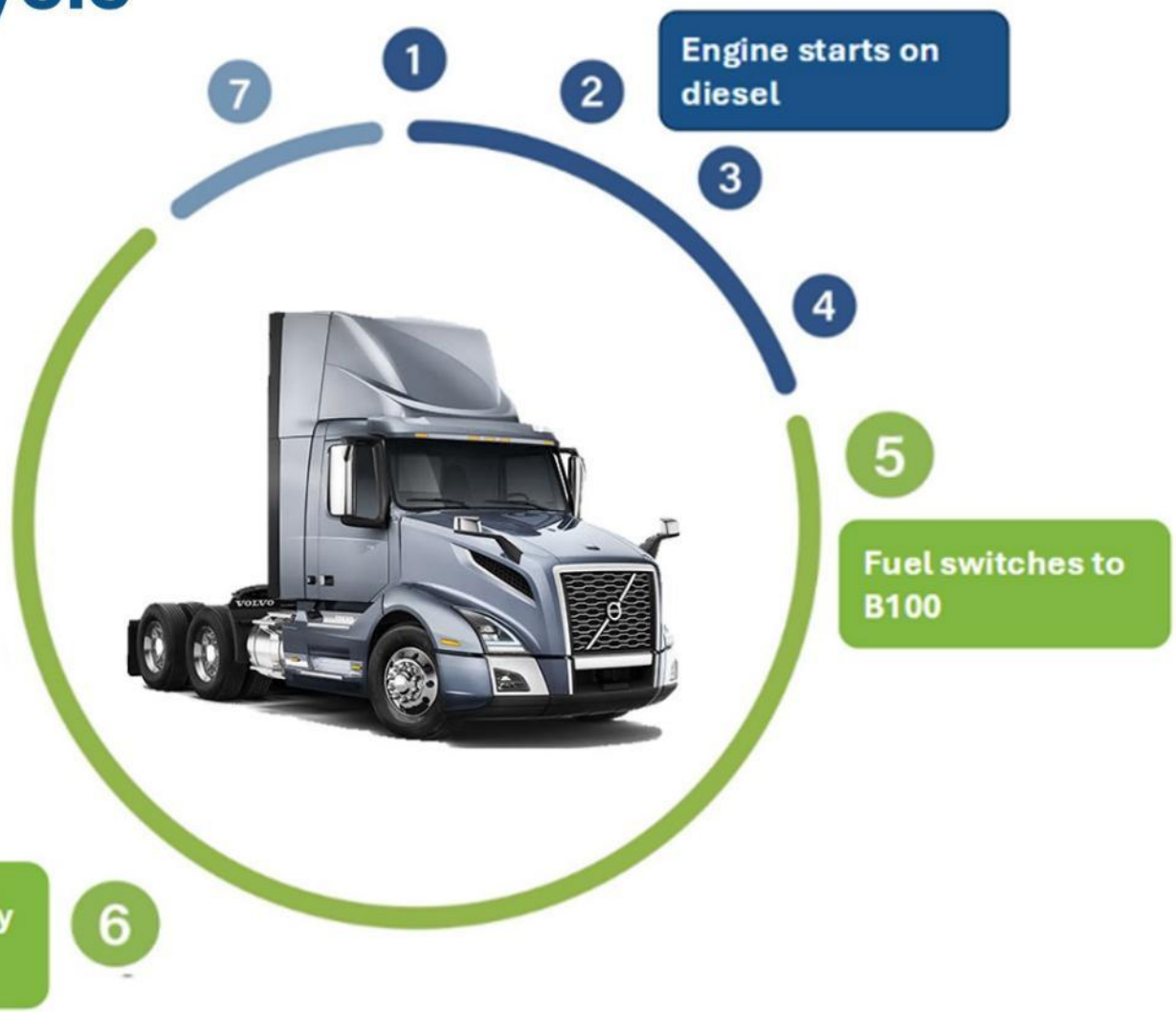
1300+

Class 8 trucks and buses are equipped and operating with the Optimus Vector System

Confidential

Vector System Duty Cycle

1. Driver turns key—system wakes up
2. Driver starts engine on diesel
3. B100 is preheated with waste heat from engine using coolant
4. After set points are met, B100 pump turns on and circulates fuel through entire Vector System and up to valves
5. When next step points are met, the fuel selector valves automatically switch the fuels from diesel to B100
6. The vehicle runs on B100 until it is turned off except during DPF regenerations or if any fault occurs
7. Driver turns the key off—engine keeps running, switches fuels and purges B100, shuts off engine

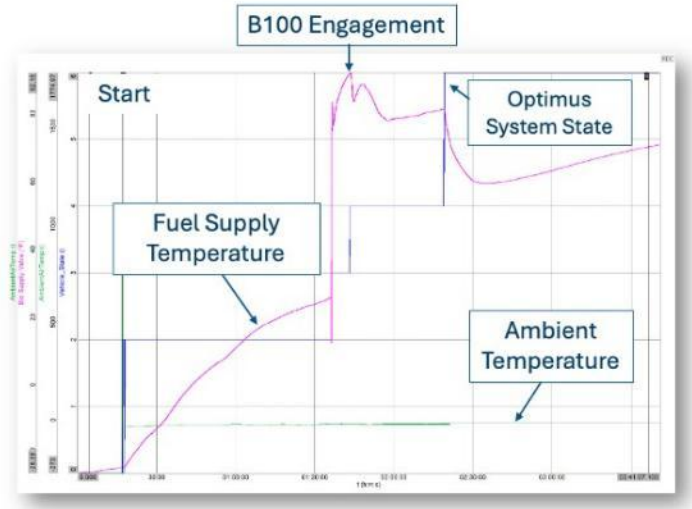


The Optimus Vector system is designed to operate on B99/B100 biodiesel for 85%+ of the vehicle's duty cycle.

Confidential

Validated in the Harshest Conditions







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Global Brands Operating on B100

PEPSI

BRENNTAG

PERDUE

thyssenkrupp

P&G

CITY OF ames

Covenant

PILOT COMPANY

dc DCWATER.COM

ADM

DISTRICT OF COLUMBIA DEPARTMENT OF PUBLIC WORKS

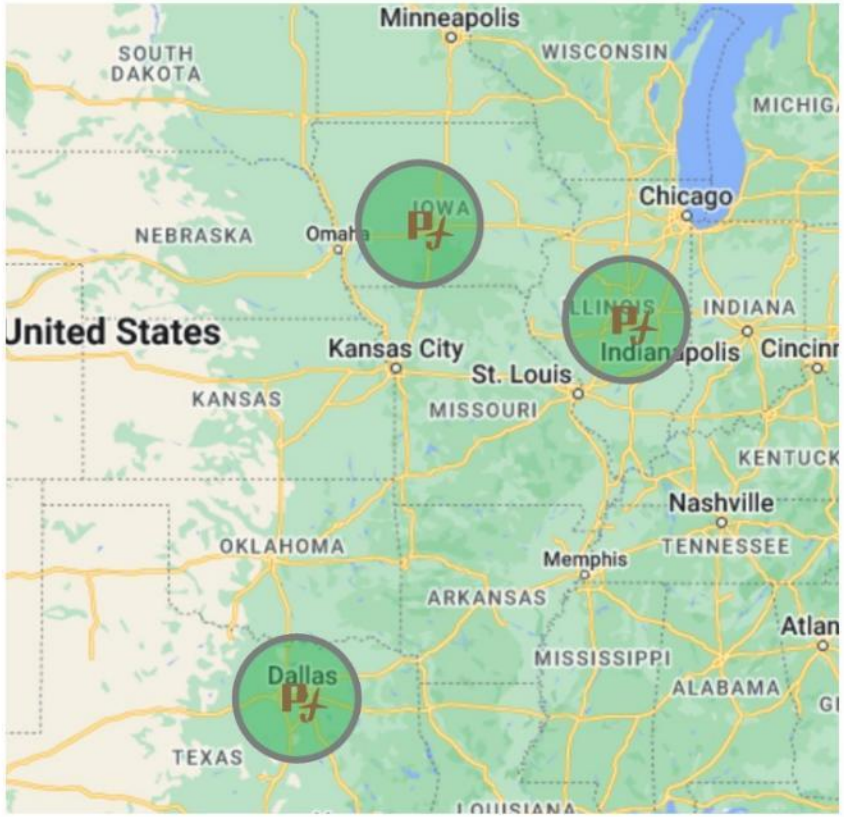
PRINCE GEORGE'S COUNTY MARYLAND

250+ Million Miles

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B100 Retail Availability Increasing





Decatur, IL | Des Moines, IA | Dallas, TX

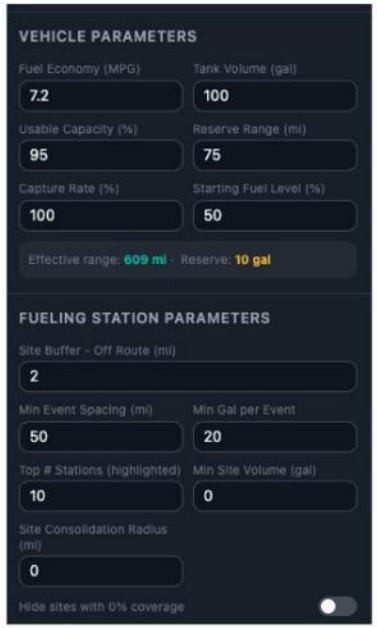
Coming 2027: Marysville, OH | Georgetown, KY

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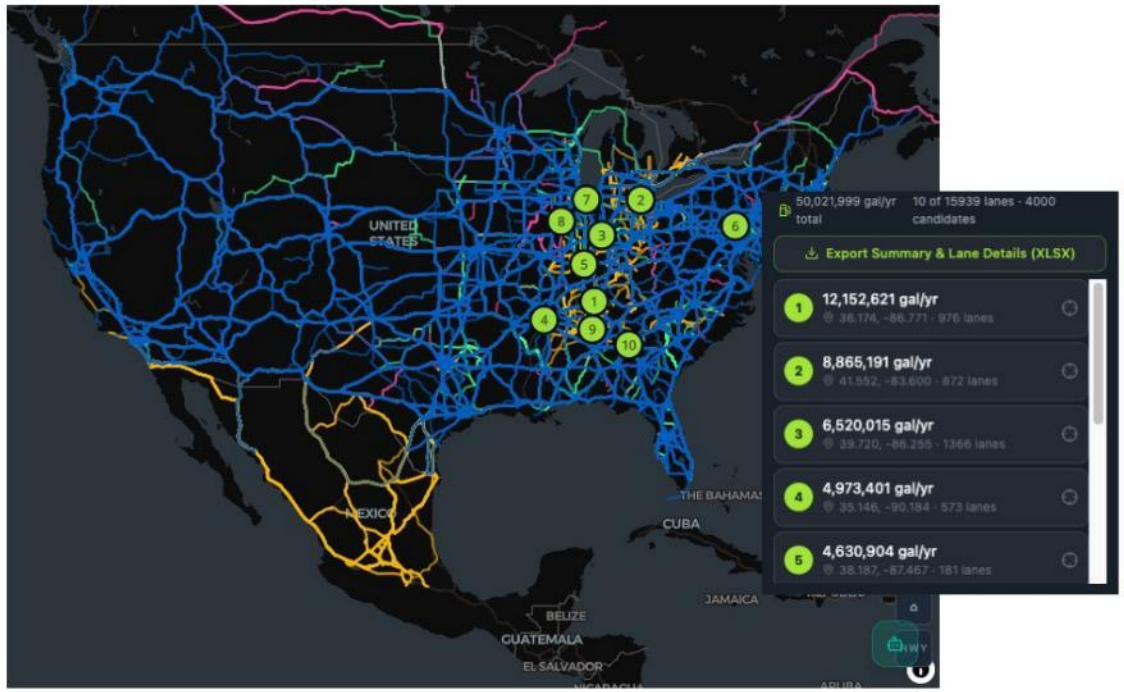
Shipping Lane Optimization Software

Shippers upload freight lane files. The software analyzes optimal fuel placement locations and expected volumes. Shippers can share datasets to aggregate volume and accelerate retail B100 demand.

10 stations ➔ ~50M gallons of B100 fuel opportunity







Only 4 major shipper partners represented in the analysis above.

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OEM Engagement Steadily Growing

"Any vehicles that are upfit with the Optimus system to operate on 100% biodiesel will not have their warranties and/or extended service contracts from International Motors voided."



INTERNATIONAL

International Motors, LLC d/b/a International Motors USA LLC in Illinois and Ohio

International Motors' Position on Biodiesel Blends Exceeding 20%, B100, and the Optimus Vector Fuel System

International Motors understands our customers are pursuing net zero emissions and technologies that assist in meeting that objective.

One such technology is Biodiesel, specifically B100, enabled by Optimus Technologies' Vector System.

While International Motors powertrains are not currently approved for Biodiesel blends exceeding 20 percent or neat B100, customers have the right to leverage upfitters to modify their equipment as they see fit for their operations.

Taking the aforementioned into consideration, International Motors will outline below how it will handle warranty, service, and liability for matters involving B100 and the Optimus Vector System

Warranty

Any vehicles that are upfit with the Optimus system to operate on 100% biodiesel will not have their warranties and/or extended service contracts from International Motors voided. But any claims related to powertrain, aftertreatment, and/or fuel system will be reviewed to determine if the failure is due to either the use of B100 and/or due to the labor, craftmanship, or malfunction of the Optimus system installed to accommodate the use of 100% biodiesel. If it is determined the failure is due to a biodiesel blend exceeding 20%, neat B100, any postproduction system, or its installation, that individual claim may be denied; however, the base warranty and any extended service contracts from International Motors will otherwise remain in effect for any subsequent claims.

Service

International Motors and customers will continue to utilize our standard offerings (N2 devices and telematics reports) to monitor faults on all vehicles. It is the customer's responsibility to

08.21.2025 Page 1/2



Volvo Trucks. Driving Progress

FACT SHEET

Fuel type DIESEL-B

Fuel blend 100 percent biodiesel

Biodiesel is correctly called FAME (Fatty Acid Methyl Esters). The requirements for Biodiesel is covered in the EN14214 standard.

A fuel made of 100% biodiesel is called Biodiesel B100. This is the type of biodiesel Volvo recommends.

As biodiesel according to EN14214 has in average 8% lower energy content than standard diesel, performance and driveability might be reduced and fuel consumption might increase.

EN14214 is the minimum quality level allowed. Volvo Truck Corporation only accepts usage of biodiesels fulfilling this standard preferably or better. No warranty will be accepted in case of damage when using other biodiesel qualities.

DIESEL-B

The reason for the requirement of a specific biodiesel variant (DIESEL-B) is due to that biodiesel has different characteristics which affects emissions and regeneration in the DPF (Diesel Particulate Filter) included in the Euro 6 muffler. Furthermore, the Euro 6 emission legislation requires a separate certification towards every fuel type not fulfilling EN590 (Diesel standard).

The DIESEL-B variant includes an updated engine software adapted to run the engines on both EN590 (Standard diesel) and EN14214 (Biodiesel).

For Volvo FM / Volvo FMX / Volvo FH EU6 DIESEL-B includes a switch in the dashboard for manual DPF Regeneration (only for starting DPF regeneration).

For Volvo FL / Volvo FE EU6 DIESEL-B includes a fuel quality sensor, which controls the fuel mixture in the tank.

The use of biodiesel fuel can increase the need, and thus the frequency, of DPF regeneration.

SPECIFICATION

B100 RME must meet the requirements in EN14214 and:

Monoglyceride	Max 0.3 %
Ester	Min 98 %
Water (if the fuel comes from the supplier)	Max 300 ppm
Phosphorus	Max 1 ppm
Total contaminants	Max 10 mg/l

Note: The fuel shall be filtered and suitable for 100% use.

FEATURES AND BENEFITS

- Biodiesel is a non-fossil fuel and reduces climate impact.
- Lower fuel cost for biodiesel than on standard diesel in some countries.



Jon Ewing
VP of Strategic Initiatives
Optimus Technologies
Pittsburgh, PA

Dear Jon,

Thank you for your inquiry regarding the effect of aftermarket products or components on the Cummins warranty.

Cummins Inc. engine warranty covers failures resulting from defects in Cummins materials or factory workmanship under normal use and service. The warranty does not cover failures caused by products or components not manufactured or sold by Cummins Inc.

Cummins Inc. neither approves nor disapproves products that it does not manufacture or sell. The use of such products is at the discretion of the end user. The use of a non-Cummins product does not, by itself, affect warranty coverage; however, any engine performance issue, damage, or failure caused by a product or component not manufactured or sold by Cummins is not a warrantable failure.

The applicable Cummins Limited Warranty governs all warranty rights and obligations.

Please note that the Cummins name, trademarks, and logos are the property of Cummins Inc. and may not be used without prior written authorization. Nothing in this letter should be construed as an endorsement, approval, or authorization of any product or supplier, nor as permission to use the Cummins name, trademarks, or logos. Any reference to this letter should include the complete text to ensure proper context.

Sincerely,

Zach Dawson
Director, Global Warranty – Claims Operations

Cummins Inc.
500 Jackson Street
Columbus, Indiana, 47201
Tel: (812) 341-4994
cummins.com

Future Recommendations

- B100 neat fuel specification
  - Consensus based fuel standard required for CARB ADF Program
- UL B100 dispenser certifications
  - Site specific certification challenges delay inspection, permitting, and scale
- OEM B100 Warranty Standards
  - Common testing and protocols for OEM acceptance

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OPTIMUS
TECHNOLOGIES

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