

DAIMLER TRUCK

North America

Daimler Truck unveils battery electric autonomous Freightliner eCascadia technology demonstrator

PORTLAND, Ore./LEINFELDEN-ECHTERDINGEN, Germany (May 8, 2024) — Daimler Truck has the clear goal to lead the transformation to sustainable transportation and to address the challenges of tomorrow. The company is pursuing a vision of zero emissions and increased road safety by combining the two most promising technologies to deliver on that vision--battery electric drive and integrated autonomous driving technology--in one semi-truck for the first time in its history: the autonomous Freightliner eCascadia technology demonstrator.

The truck is based on a production battery electric Freightliner eCascadia and is equipped with Torc's autonomous driving software and the latest Level 4 sensor and compute technology. This will eventually enable Level 4 autonomous driving. Torc Robotics is Daimler Truck's independent subsidiary for autonomous virtual driver technology. While still a research and advanced engineering project, the autonomous vehicle has the potential to evolve into a modular, scalable platform that is propulsion agnostic for flexible use in different trucking applications. The goal is to offer customers a choice of the right vehicles for their specific business and transportation needs.

“By combining zero-emission and autonomous technologies in one product, we are testing solutions for challenges our customers are likely to face in the future,” said John O’Leary, president and CEO of Daimler Truck North America. “We want to give them choices that allow them to do what they do best: keep the world moving today and well into the future. That takes a lot of foresight, questioning, testing, learning, improving and co-creating with our customers years in advance to ultimately find the right solution. This truck is a great example of the beginning of that development process.”

Joanna Buttler, Head of Global Autonomous Technology Group at Daimler Truck, added: “Together with Torc, we are making significant progress towards introducing autonomous trucks in the U.S. by 2027. While we target autonomous trucks with conventional propulsion technology for this first market launch, we always look further into the future. We will employ an iterative approach to the development, testing and optimization of autonomous-electric technology, while exploring the most promising use cases in collaboration with our fleet customers.”

Technical specifications: Merging the best of both worlds

The industry-leading battery electric Freightliner eCascadia, a proven vehicle base for the autonomous eCascadia technology demonstrator, went into production in 2022 and has now

reached 6 million real-world miles in more than 55 fleets in the United States. This zero-emission Class 8 truck is designed to provide optimal productivity for fleets looking to transition to efficient, zero-emission tractors. The battery can be recharged to 80 percent capacity in as little as 90 minutes. Several battery and drive axle options are available, providing a typical range of 155, 220 or 230 miles, depending on the specific configuration. The Freightliner eCascadia is equipped with the proprietary Detroit ePowertrain, which delivers performance, efficiency, and reliability. For added safety on the road, the eCascadia also comes standard with the Detroit Assurance suite of safety systems, including Active Brake Assist 5.

For the first time, the autonomous sensor suite and compute power, currently being tested on the autonomous diesel Cascadia, is packaged to fit the smaller day cab configuration of the battery electric eCascadia. To ensure adequate cooling, Daimler Truck North America's engineering team developed an advanced prototype air-cooling concept for the compute stack, which is efficiently positioned between the driver and passenger seats. Customized software provides the autonomous system with control interfaces and feedback on vehicle status. The in-house designed sensor bar cover, which incorporates cameras, lidar sensors and radar sensors, improves aerodynamic performance while providing better protection from damage and soiling. Four additional 12-volt batteries provide enough high voltage power to ensure uninterrupted operation and increased efficiency and safety.

A glimpse into the future

Daimler Truck is dedicated to exploring the potential of emerging technologies to benefit its customers. The company aims to provide them with the optimal vehicle solutions, utilizing various propulsion technologies, to enable the most suitable and efficient transportation of their goods. By developing a propulsion-agnostic autonomous truck platform, Daimler Truck is leveraging its collective strength to make a positive impact on the future of transportation.

The autonomous eCascadia demonstrator provides a glimpse of future autonomous use cases, including shorter, repeatable routes with the use of zero-emissions infrastructure. Depending on the application, future autonomous trucks could also be powered by hydrogen-based propulsion technologies.

In the currently tested hub-to-hub application, the truck's intent is to drive autonomously between freight centers along U.S. highway corridors. By identifying synergies between zero emissions and autonomous infrastructure in a future scenario, the charging infrastructure and autonomous freight hubs could be combined to charge and load simultaneously, further enhancing efficiency for carriers.

The autonomous eCascadia technology demonstrator is designed with many commonalities with the production eCascadia, leveraging synergies in the development process, streamlining engineering processes and increasing customer value through ease of serviceability as customers may already be familiar with the battery electric Cascadia.

Constant progress

Daimler Truck has been developing and testing autonomous truck technology since 2015 with the reveal of the Freightliner Inspiration Truck as the first licensed SAE Level 2 autonomous commercial truck to operate on open public highways in the United States. The company aims to enter the market with production SAE Level 4 autonomous trucks in the United States by 2027. Daimler Truck's technology partner Torc has been testing autonomous-ready Freightliner Cascadia trucks in real-world applications with selected logistics companies such as Schneider and C.R. England, successfully moving customer freight autonomously on its test route between Phoenix and Oklahoma City, over the past year.

Daimler Truck has emphasized that it will leverage the highly scalable and profitable market opportunity that autonomous driving is expected to offer, and that it expects autonomous trucking to generate revenues of 3 billion Euro and EBIT of more than 1 billion Euro as early as 2030.

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About Daimler Truck North America

Daimler Truck North America LLC, headquartered in Portland, Oregon, is a leading provider of comprehensive products, services, and technologies for the commercial transportation industry. Daimler Truck North America designs, engineers, manufactures and markets medium- and heavy-duty trucks, school buses, vehicle chassis and their associated technologies and components under the Freightliner, Western Star, Thomas Built Buses, Freightliner Custom Chassis Corp, and Detroit brands. Daimler Truck North America is a subsidiary of Daimler Truck Holding AG (DTG), one of the world's leading commercial vehicle manufacturers.

About Daimler Truck

Daimler Truck Holding AG ("Daimler Truck") is one of the world's largest commercial vehicle manufacturers, with over 40 main locations and more than 100,000 employees around the globe. The founders of Daimler Truck have invented the modern transportation industry with their trucks and buses a good 125 years ago. Unchanged to this day, the company's aspirations are dedicated to one purpose: Daimler Truck works for all who keep the world moving. Its customers enable people to be mobile and get goods to their destinations reliably, on time, and safely. Daimler Truck provides the technologies, products, and services for them to do so. This also applies to the transformation to CO2-neutral driving. The company is striving to make sustainable transport a success, with profound technological knowledge and a clear view of its customers' needs. Daimler Truck's business activities are structured in five reporting segments: Trucks North America (TN) with the truck brands Freightliner and Western Star and the school bus brand Thomas Built Buses. Trucks Asia (TA) with the FUSO, BharatBenz and RIZON commercial vehicle brands. Mercedes-Benz (MB) with the truck brand of the same name. Daimler Buses (DB) with the Mercedes-Benz and Setra bus brands. Daimler Truck's new Financial Services business (DTFS) constitutes the fifth segment, the product range in the truck segments includes light, medium and heavy trucks for long-distance, distribution and construction traffic and special-purpose vehicles used mainly in the municipal and vocational sector. The product range of the bus segment includes city buses, school buses and intercity buses, coaches and bus chassis. In addition to the sale of new and used commercial vehicles, the company also offers aftersales services and connectivity solutions.