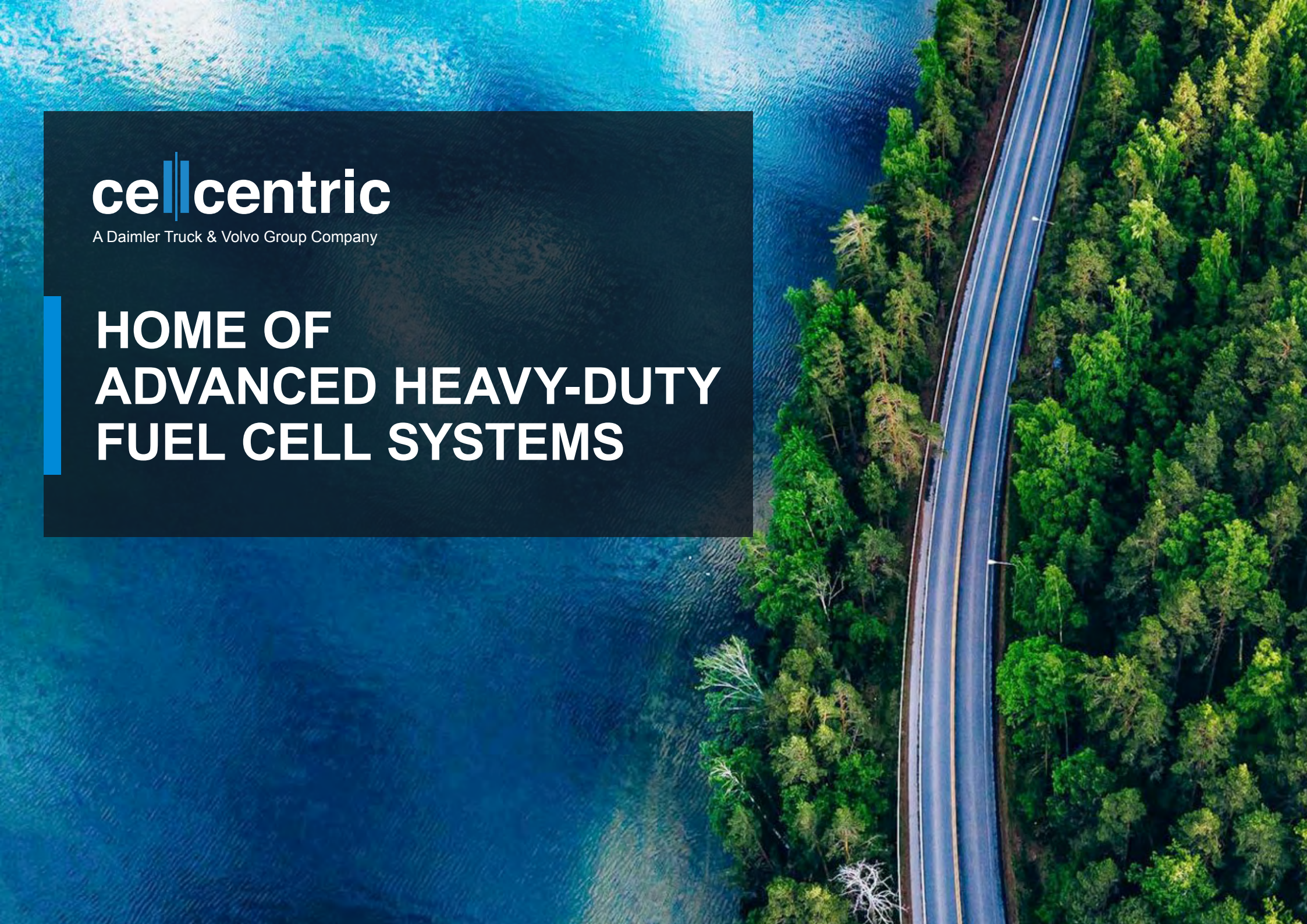


An aerial photograph showing a two-lane asphalt road winding through a dense green forest. To the left of the road is a large body of water with a blue-green hue. The road has white lane markings and a guardrail on the right side. The forest is composed of tall, thin trees, likely pines or firs.

cellcentric

A Daimler Truck & Volvo Group Company

HOME OF ADVANCED HEAVY-DUTY FUEL CELL SYSTEMS

Welcome to cellcentric – The Home of Advanced Heavy-Duty Fuel Cell Systems

A new company with more than 30 years of experience

cellcentric was founded on 1 March 2021 as a 50:50 joint venture between Daimler Truck AG and Volvo Group AB. It builds on decades of fuel cell research by its parent companies. At cellcentric, we aim to become a global leader in fuel cell technology. Our mission is to provide climate-neutral and sustainable transport by 2050. We focus on the development, production and commercialisation of fuel cell systems for heavy-duty trucks and applications with comparable requirements, supplying to our parent companies and other customers.

We have a clear commitment to a cleaner and more sustainable environment, and we want to address a segment of the mobility sector where fuel cells can have a significant impact on reducing overall emissions. The development of hydrogen infrastructure can build on existing petrol and diesel refueling stations and complement battery electric mobility. As there is no single solution for everything, we are providing a complementary step towards a sustainable future.

Visit us



OUR VISION

Zero emission in
the heavy-duty
segment

OUR MISSION

We power
sustainable
life

cellcentric is a leading
tier 1 supplier for heavy-duty
fuel cell systems



V O L V O DAIMLER TRUCK

The **Volvo Group** drives prosperity with transport and infrastructure solutions, providing trucks, buses, construction equipment, and power solutions for marine and industrial uses, along with financing and services to boost customer productivity. Established in 1927, Volvo is dedicated to advancing sustainable transport and infrastructure. The brand portfolio includes Volvo, Volvo Penta, Terex Trucks, Renault Trucks, Prevost, Nova Bus, Mack, and Arquus.

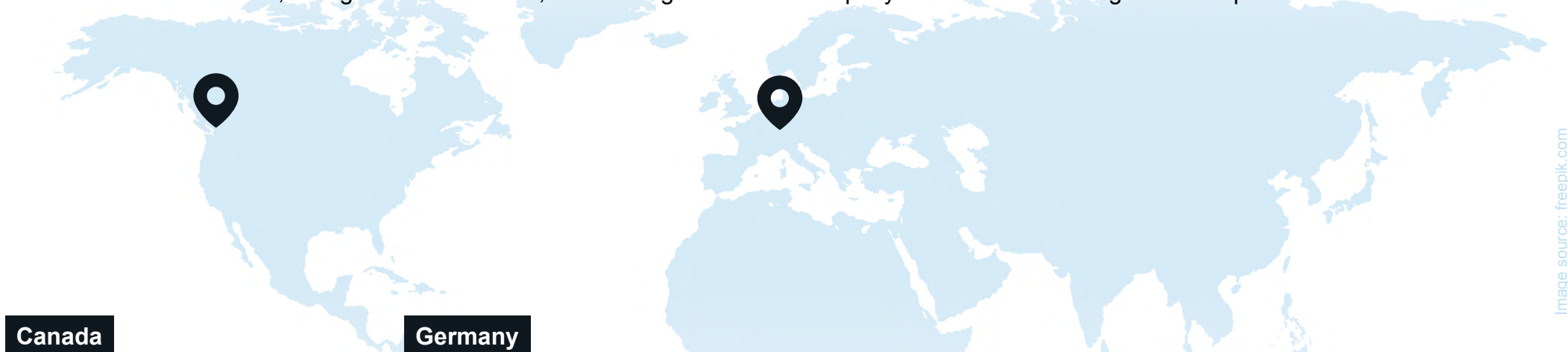
Daimler Truck AG is a leading global manufacturer of trucks over 6 metric tons and operates a worldwide network, producing trucks under the brands Mercedes-Benz, Freightliner, Western Star, and BharatBenz as well as different bus brands. With over 40 production facilities in North America, Europe, Asia, and Latin America, it offers a significant global presence.



Global effort for fuel cell innovation

Today, more than 560 highly specialized colleagues work on the success of fuel cell systems in inter-disciplinary teams at locations in Kirchheim/Teck-Nabern, Stuttgart-Untertürkheim, and Esslingen

as well as Burnaby (Canada). Roughly 700 individual intellectual property rights were filed, underlining the leading role played by the company in terms of technological development.



Canada



Germany



Burnaby

- Advanced engineering for product and production process development primarily for the fuel cell stack

Kirchheim/Teck-Nabern

- Headquarter
- Fuel cell system and stack development
- Testing facilities
- Public relations to the H2 world

Esslingen-Pliensauvorstadt

- Development and test of large-scale production processes
- Development and production of Catalyst Coated Membrane (CCM)
- First large-scale machinery and fuel cell system production

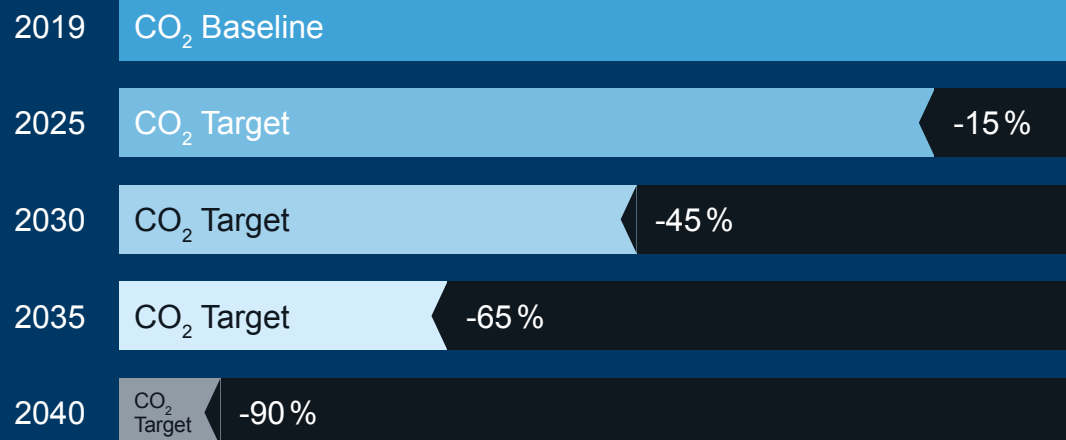
Stuttgart-Untertürkheim

- Series manufacturing processes development and testing strategy
- Catalyst Coated Membrane (CCM) coating development
- Catalyst Coated Membrane (CCM) production

Why there is a clear way forward with fuel cells

The European Green Deal has set some challenging CO₂-targets for heavy-duty vehicles and buses over the next years. These goals can only be achieved by focusing on two complementary technologies to gradually replace diesel trucks in the future: Battery electric vehicles (BEV) **and** fuel cell electric vehicles (FCEV).

European CO₂ targets for heavy-duty vehicles

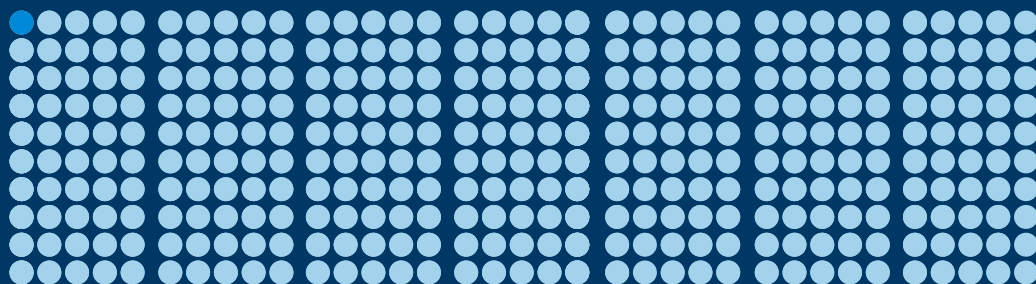


The combination of two infrastructures makes the difference

Comparing the operation of BEV trucks and fuel cell trucks, it is clear that the two technologies will play different roles in the future. Where BEV trucks will be ideal for short and medium distances, fuel cell vehicles will be ideal for long distances of 1,000 kilometers or more - comparable to today's diesel vehicles.

Infrastructure investment will be needed for both technologies. Looking at the investment required and the number of megawatt chargers and H₂ refueling stations, it is clear that the two technologies need different numbers to achieve high economies of scale. The combination of both technologies can and will make a huge difference for the heavy-duty sector.

Required infrastructure to match European truck CO₂ targets for both technologies – heavy-duty truck BEV and H₂



Megawatt charger (MCS) >800kW **as is 2024** vs need 2030 = ca. 35.000 units*



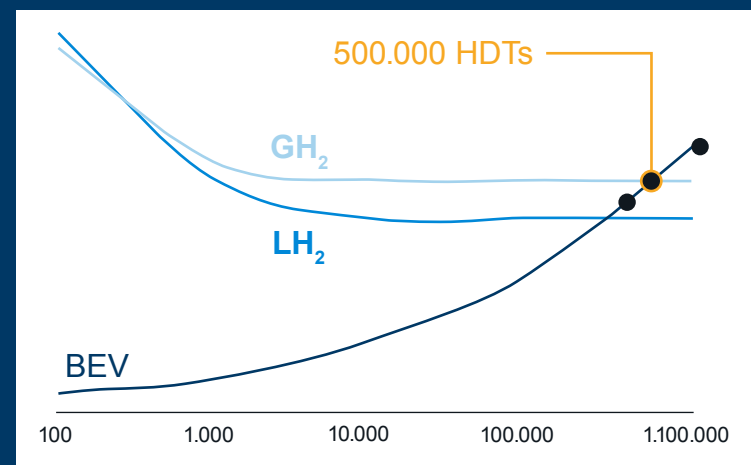
H₂ refueling stations **as is 2024** vs need 2030 = ca. 2.000 units*

Note: 1 dot represents 100 units

*Sources: ACEA, H2 Live

**Source: Daimler Truck

Infrastructure investments



In k€ per heavy-duty truck (HDT)**



Battery charging infrastructure

- + Low initial cost
- Grid expansion requires significant investment

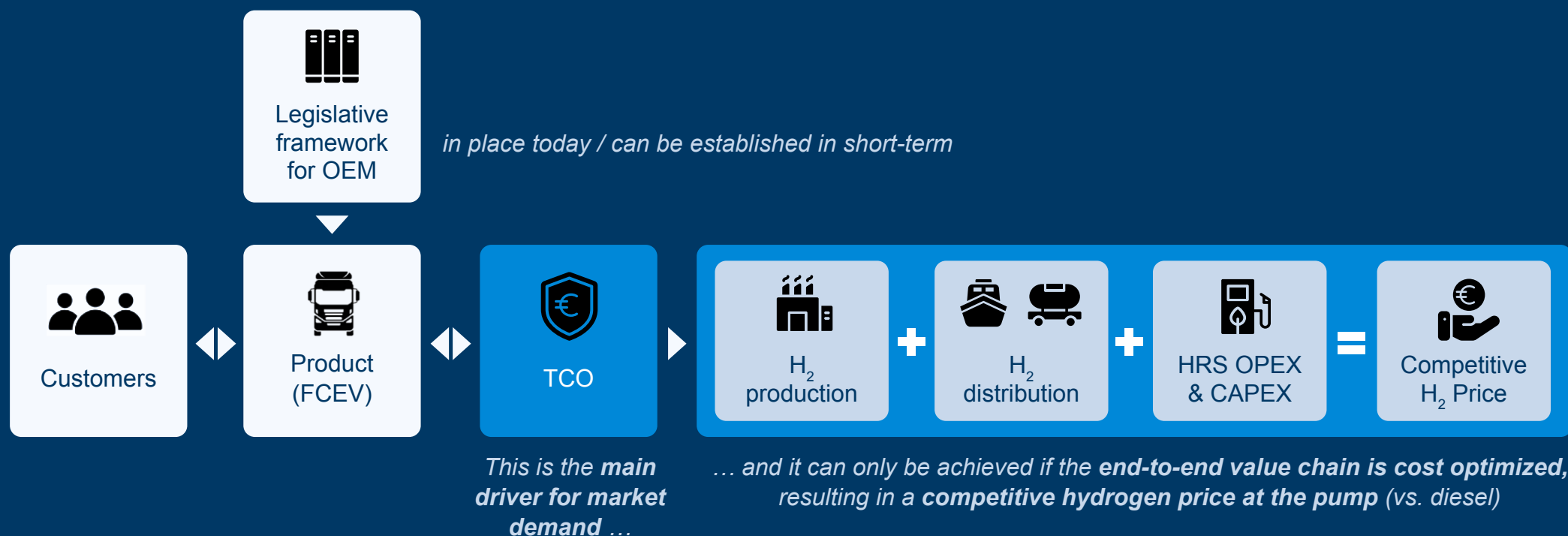


Hydrogen filling stations

- High initial cost
- + Significant economies of scale

Hydrogen ecosystem – currently the biggest challenge

Providing the customer end-product – the Fuel Cell Electric Vehicle – is not enough. The entire H₂ automotive ecosystem must be synchronized during ramp-up: Achieving competitive Total Cost of Ownership (TCO) is key.



cellcentric is committed to the market ramp-up of the automotive hydrogen ecosystem at national and international level!



One optimized solution instead of customization approach

Commercial vehicles offer a broad variety of use cases and requirements. However, designing a custom-tailored product for every application grows complexity and undermines economies of scale which is contradictory to cellcentric's target of achieving competitive TCO for fuel cell technology. We therefore concentrate our development activities on a single product destined for on-road heavy-duty long-haul transportation in the global market.

Our single-product approach ensures our complete focus is set on optimizing one system. The complete inhouse development and production of the components, the stack and our system ensures that everything works together as cleanly and efficiently as possible to enhance and increase performance. We are continuously improving our product and technology. And thanks to the high level of performance required for the long-haul trucking application, our fuel cell systems are also well-suited for a broad range of additional heavy-duty applications.



"We want to deliver the best fuel cell solution for heavy-duty applications."

Four reasons why fuel cells are a central pillar of the future for commercial vehicles

01

Weight

The entire fuel cell powertrain, including the hydrogen tanks and the hybrid battery can reach a weight comparable to a conventional powertrain. As a result, fuel cell technology can support high payloads to meet the needs of long-haul customers.

02

Range & flexibility

Hydrogen tanks of the trucks are specially designed to provide high storage capacity equivalent to conventional internal combustion engines. This makes fuel cell technology comparable to diesel trucks in terms of driving range.

03

Refilling

Refueling with hydrogen as a fuel is comparable to conventional diesel trucks – it's quick and easy. The potential is there to leverage existing infrastructure as hydrogen can be stored the same way as diesel.

04

Emission

The fuel cell system emits only water vapor and heat, making this powertrain solution suitable for a zero-emissions approach. No pollutants or greenhouse gases are emitted.



Constant development leads to major improvements over the years



2010 CITARO F-CELL

- Citaro Bus reached lifetime of >19.000 h



2018 GLC F-CELL

- Power density +100 %
- Platinum content -90 %



2022 BZA100+

- Power output increase from 70 to 100+ kW
- New stack technology
- Production process for medium volumes



2024 BZA150

- Power output increase from 100+ to ~143 kW
- Production process for high volumes
- Expected lifetime target 25.000 hours / up to 10 years (long haul truck)



2026 BZA375

- Up to 375 kW continuous net power
- 20 % lower fuel consumption
- 40 % waste heat reduction
- 40 % more power density & 40 % less complexity

Significant improvements in performance, power density and cost reduction.



The current benchmark heavy-duty fuel cell system: cellcentric BZA150

BZA150 is the current generation of efficient fuel cells for long-haul heavy-duty trucks and already in use on public roads today. Mercedes-Benz GenH2 and NextGenH2 trucks, as well as Volvo Fuel Cell Electric trucks, are out on public roads, and customer feedback is outstanding. The system also achieved the world record for the longest driving distance on a single tank of hydrogen fuel in a fully loaded 40-ton truck in real-world driving conditions: 1,047 kilometers. It was also successfully tested at high altitudes and around the Arctic Circle. These achievements prove that cellcentric fuel cell systems can fully perform in the demanding environment of heavy-duty applications.

Weight	Total weight of less than 250 kg
Performance & Power	Up to ~143 kW (around 195 hp)
Size (HxLxW)	990 mm x 660 mm x 650 mm
Fuel Consumption	7,5 kg / 100 km for a fully loaded 40-ton truck in real-world driving

Benefits

- Compact packaging
- High expected lifetime and durability
- High level of efficiency
- Robustness for demanding conditions

**Designed and tested to meet
the needs of heavy-duty applications**



The game-changer of heavy-duty fuel cell systems: cellcentric BZA375

The next generation has all the signs of a champion in the making. The Total Cost of Ownership (TCO) benchmark performance makes it a potential game changer for further use in heavy-duty trucks and a showcase for the potential of fuel cell systems in transportation.

Weight	Total weight of less than 500 kg
Performance & Power	Up to 375 kW (more than 500 hp continuous net power)
Size (HxLxW)	960 mm x 1,290 mm x 680 mm STasHH-compatible to HHBBB
Expected fuel consumption	6kg H2 per 100 km, >10,2 miles per kg H2

Improvements compared to BZA150:

- 20% less fuel consumption
- 40% reduction of waste heat at 300 kW net power
- 40% higher power density
- 40% reduced complexity

Best in class TCO due to optimized fuel efficiency, long range, low weight, compact packaging, and outstanding durability.



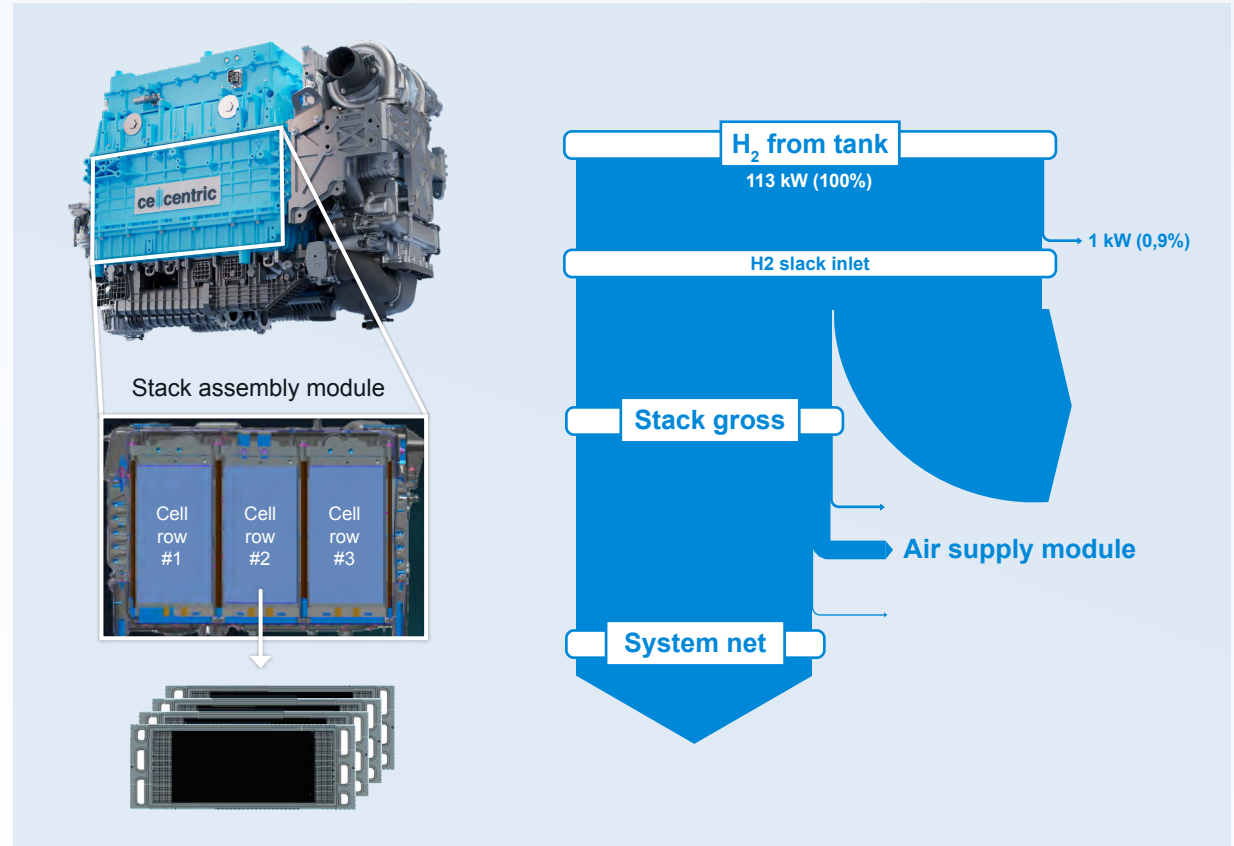
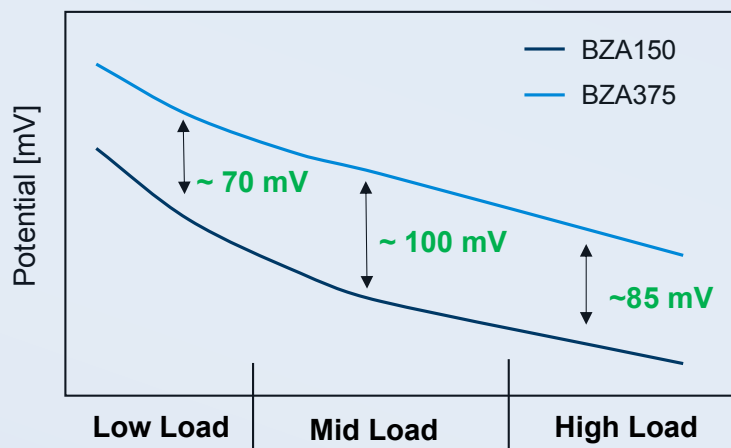
BZA375 – Key levers for technological progress

Stack and Unit Cells

The efficiency of the BZA375's 3-row stack increases through two complementary approaches: design optimization that creates a larger active surface and thus higher voltage, and improved cell chemistry that delivers higher voltage at the same load. Compared to two BZA150 systems (the regular set-up in a heavy-duty truck), the total active area increases by approximately 40 %, while the active area per cell grows by a factor of 2.4 – with unit cell efficiency improving significantly as a result. Higher stack efficiency combined with higher tolerances for operating temperature also leads to a strong reduction in vehicle cooling system requirements.

Optimized catalyst materials

Target MEA Polarization Curves

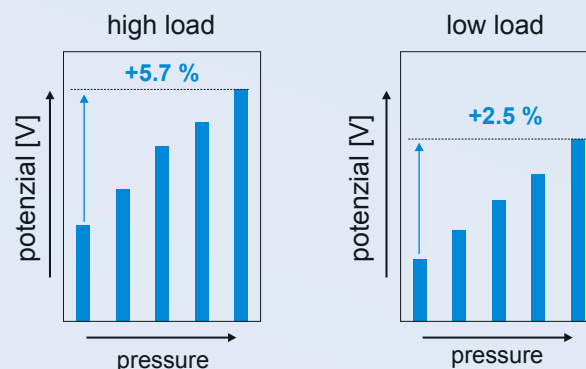
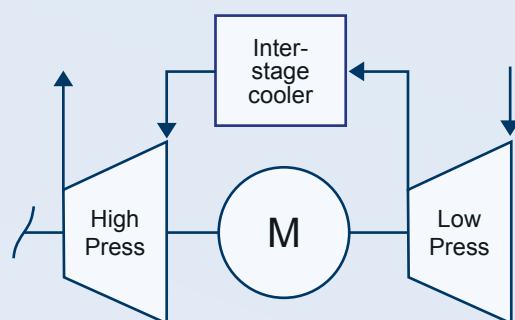


Media Distribution Manifold (MDM)

The Media Distribution Manifold plays a central role in elevating the integration level of the fuel cell system, acting as the key enabler for compact 3-row stack packaging. It distributes three media flows – air, hydrogen, and coolant – across three cell rows via 3 inlets and 9 outlets. At approximately 65 cm in length, the MDP accommodates a total of 3.5 m of media lines, making it a remarkably compact yet highly capable component.

Electric Turbo Charger (ETC)

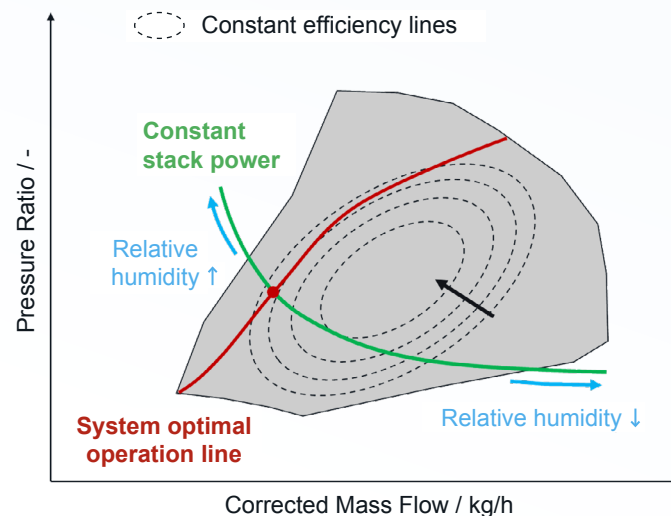
The 2-stage compressor with Variable Nozzle Turbine (VNT) raises the operating pressure from 2.5 to 3.0 bar, improving fuel cell efficiency and humidification at high coolant temperatures. At demanding gradients such as the Brenner or San Bernardino Pass, this translates into up to 50 kW higher net power at hill climb. In addition, the turbine recovers energy from exhaust gases, saving 16 kW of e-drive power.



Variable-nozzle turbine



Watch video



Hydrogen Recirculation Blower (HRB)

Despite being geometrically smaller than its BZA150 counterpart, the Hydrogen Recirculation Blower delivers 2.5 times the hydrogen mass flow of BZA150 – at the same HRB power consumption.

Fuel Cell Inverter (FCI)

The Fuel Cell Inverter converts voltage from 350 – 500 V to 540 – 850 V, while current increases from 600 to 1,100 Amps – levels so high that active cooling of the copper rails is required. To handle these currents, the main power output is routed via 4 connectors instead of 2. The FCI also provides 4 additional connectors for auxiliary consumers such as coolant pumps or fan motors on the truck side, significantly reducing the effort for power distribution on the customer end.

Fuel Cell Control Unit (FCU)

The next-generation Fuel Cell Control Unit doubles both input reading capacity and output control capability compared to the BZA150.

One product dedicated to long-haul heavy-duty applications

The main focus of our fuel cell system is to meet all the criteria for use in heavy-duty trucks, especially in long-haul applications. Long distances, tight schedules and heavy loads mean that our system must be reliable and efficient over a long period of time. Internal combustion engines have set a high bar in efficiency and reliability for these applications

that cellcentric's heavy-duty fuel cell technology can meet. Our BZA150 system has passed its first road tests and customer trials under hardest conditions with flying colors, which makes us very optimistic about the future with our advanced BZA375 fuel cell system.

#HydrogenRecordRun with cellcentric fuel cell system BZA150.



We are convinced of the efficiency and reliability of our fuel cell system. That is why, together with Daimler Truck, we organised the #HydrogenRecordRun. A fully loaded 40 ton Mercedes-Benz GenH2 truck drove from Wörth am Rhein to Berlin under real-world driving conditions on public roads, reaching 1,047 kilometres with a single filling of 80 kg liquid hydrogen.



Watch video

The road towards large scale production



Our BZA150 fuel cell system is also being used for test runs around the world. A total of five different companies are testing hydrogen fuel cell trucks from Daimler Truck, and the initial feedback and test results are exceptional.

We are very interested in the opinions and experiences of truck drivers and operators, because the performance in the real world is the most important factor. The Wiedmann & Winz haulage company in Baden-Württemberg has one of these trucks and their driver, Salvatore Billeci, is really fascinated and excited. His “feeling of gliding over the road” makes us very happy.



Watch video

Daimler Buses SETRA S 517 HD Prototype

Launched in September 2025, the Setra S517 HD H₂ Coach is a hydrogen fuel cell electric touring coach powered by two cellcentric BZA150 systems – delivering zero-emission long-distance travel with a minimum range of 800 km.



Applications beyond the on-road sector

Thanks to the advanced specifications of cellcentric's heavy-duty fuel cell systems, the technology is well suited for a broad range of applications beyond the on-road sector. A variety of customers have successfully integrated BZA150 in several heavy-duty applications. Stay tuned!



One efficient system, applicable to multiple use-cases

Our focus is on further improving our fuel cell systems to deliver the best efficiency and performance in heavy-duty trucks. The promising results, high efficiency and reliable power also make them compelling for a wide range of additional heavy-duty applications.



For long-haul trucks and other heavy-duty applications, the BZA375 provides strong TCO arguments that make decarbonization not only technically viable, but also commercially viable for operators of trucks, coaches, stationary power generation equipment, rail vehicles, and heavy mining equipment. Its optimized fuel efficiency reduces operating costs while increasing driving range and operating time on the same amount of fuel – giving operators greater flexibility in the use of their assets.

As an independent Tier 1 supplier of fuel cell systems, cellcentric is uniquely positioned to offer this technology to a wide range of OEM customers across different markets. **We are ready to support your company in the powertrain transformation and decarbonization of your fleets with our heavy-duty fuel cell technology.**

Note: All images of possible applications for fuel cells on this page were generated using artificial intelligence systems. These are not real photographic images. Any similarities to real people, trademarks other than those of cellcentric, protected works or real events are unintentional.

On the road towards large scale production

The best product is irrelevant if it can't be manufactured in high volume and high quality. That is why we focus on the transition to full-scale production. A major step in this direction was the inauguration of our pilot production facility in Esslingen, Germany, for the BZA150 and the advanced BZA375 fuel cell systems. This site houses the entire chain of production processes under one roof and incorporates the high-volume automotive-grade production expertise of our two parent

companies, Daimler Truck and Volvo Group, to achieve the necessary production standards. With state-of-the-art automation and a high degree of vertical integration, this facility helps us take the first steps towards mass-market production volumes according to automotive standards at a future site for the BZA375 fuel cell system. This demonstrates our commitment to a sustainable future and the decarbonization of long-haul heavy-duty transport by hydrogen fuel cell systems.



Highest integration level
with complete in-house
development.

Peek into the future

KLIMA|WERK – the most innovative and sustainable fuel cell factory in Europe

The planned series production in the so called KLIMA|WERK in the greater Stuttgart region (Germany) will be one of the largest in Europe. The aim of cellcentric is to implement the start of operations for large-scale production at the KLIMA|WERK site in line with the introduction

of EU CO₂ legislation - according to current estimates, this will happen around 2030. For cellcentric, maximum flexibility in terms of scope of work and start-up speed of the KLIMA|WERK is of crucial importance.



Want to be a part of the future of heavy-duty mobility? Get in touch!

Contact



cellcentric GmbH & Co. KG
Neue Straße 95
73230 Kirchheim/Teck-Nabern
Germany

→ cellcentric.net/contact

Sales



JOACHIM LADRA
Head of Sales, Marketing
& Communication

in → joachim.ladra@cellcentric.net



JURN TERPSTRA
Business Development
Lead

in → jurn.terpstra@cellcentric.net

Supplier



→ cellcentric.net/en-us/supplier

Recruiting



→ jobs.cellcentric.net