

Press Release



FEV's Zero CO₂ Mobility Conference with top-class participants – Electrification drives sustainable mobility, roadmap for e-fuels pending

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Aachen, January 2022 – A lighter CO₂ backpack of electric cars, the transformational turbo of battery technology, the electrification of heavy-duty transport and hydrogen combustion as a complement: in order to achieve the goals of the Paris Climate Agreement, the participants of FEV's international conference “Zero CO₂ Mobility” in November 2021 in Aachen painted an open technology picture with different approaches to solutions. Host FEV, a leading global service provider in vehicle and powertrain development, estimates electrification and hydrogen as the most important drivers of sustainable mobility, but at the same time misses a clear roadmap for the increased use of e-fuels.

“When we started this conference six years ago, most of the technology approaches presented were still dreams of the future,” said Dr. Norbert Alt, COO of FEV Group, in his welcome address. “Today, the scenarios specifically for the market development of purely battery-electric drives cannot be offensive enough.” The latest FEV forecasts predict that, if the scenario currently under discussion in Brussels is implemented, over 85 percent of new car registrations in Europe will be electrified already by 2035.

CO₂ neutrality along the value chain

Vehicle manufacturers are implementing this transformation process at high speed: Volkswagen, for example, used the ID.3

as an example to outline its decarbonization program, with which the group aims to achieve virtually climate-neutral individual mobility in passenger cars by 2030. The three key levers: avoiding, reducing and, if necessary, offsetting CO₂ emissions throughout the value chain. Measures include converting production facilities to 100 percent renewable energy sources, using circular economy to recover raw materials for batteries, and investing in the generation of green energy or climate-neutral fuels. Remaining gaps in the carbon footprint are to be closed, for example, by supporting rainforest projects. Calculations already suggest that e-cars in Europe produce only half as much CO₂ emissions over their entire life cycle as comparable vehicles with internal combustion engines. More climate-neutral battery manufacturing processes should help to significantly reduce the so-called CO₂ backpack of e-vehicles.

High energy density, more recycling, better infrastructure

Battery technology is one of the most important accelerators of electrification: according to the experts, more cost-effective, higher-performance solutions will be available much faster than expected. E.g., solid-state batteries: At the FEV conference, a new solid-state battery from Prologium was presented with an energy density of nearly 700 Wh/L, which is double the capacity of batteries currently used in BEVs. Complementing this, experts at the conference shared that a 95 percent battery recycling reuse rate will be possible by 2030.

Zero CO₂ Mobility participants also outlined a number of new approaches in the area of charging infrastructure for e-cars, such as the on-street charging solution from Shell subsidiary Ubitricity. It converts lampposts – some 90 million exist in Europe alone – into charging points by attaching charging stations, using the existing power grid.

In heavy-duty transport, alternative drive concepts have also long been in the fast lane. According to commercial vehicle manufacturer Traton, battery-electric trucks will prevail over fuel cell drive systems in the medium and long term in European long-haul transport. This expectation is justified by the higher system and cost efficiency of e-commercial vehicles over the entire life cycle, coupled with higher performance, longer service life and lower energy requirements. Only in the case of a very high variability of the daily range and at the same time large local gaps in the fast-charging infrastructure would the fuel cell truck remain at an advantage. Representatives of the EU project “CoacHyfied” also see great benefits in converting coaches to fuel cell drive systems in order to be able to continue using existing vehicle fleets in a climate-neutral manner while conserving resources.

Hydrogen on- and non-road

Hydrogen is nevertheless seen as the second driver of the mobility transformation. Among other things, the question of supply was answered in Aachen with reference to the existing European natural gas pipeline network: 23 European gas suppliers have joined forces in the “European Hydrogen Backbone” association, which will be able to convert around 40,000 kilometers of natural gas pipelines for hydrogen transport by 2040. The experts also agreed that the hydrogen combustion engine represents a cost-attractive solution, especially for heavy-duty commercial vehicles, but also offers an option for improved CO₂ balances for non-road applications such as shipping and aviation.

E-fuels: Clear rules for fossil fuel reduction

The operation of vehicles with combustion engines with the help of e-fuels forms the third building block in the transformation process to climate-neutral mobility, which is indispensable with regard to existing fleets. “In parallel with the coal phase-out roadmap by 2035, we need clear regulations for the reduction of fossil fuels while at the same time increasing the use of e-fuels,”

Dr. Alt emphasized in his closing remarks. These would have to include, among other things, the introduction of e-fuel quotas, but also a roadmap for mineral oil suppliers and service station operators up to a complete ban on fossil fuels.



At the FEV conference Zero CO₂ Mobility, decision makers of the automotive and energy sectors presented the latest trends and solutions for carbon neutral mobility.

Source: FEV Group



A key driver of mobility transformation discussed at the conference is hydrogen.
Source: FEV Group

About FEV

FEV is a leading independent international service provider of vehicle and powertrain development for hardware and software. The range of competencies includes the development and testing of innovative solutions up to series production and all related consulting services. The range of services for vehicle development includes the design of body and chassis, including the fine tuning of overall vehicle attributes such as driving behavior and NVH. FEV also develops innovative lighting systems and solutions for automated driving and connectivity. The electrification activities of powertrains cover powerful battery systems, e-machines and inverters. Additionally, FEV develops highly efficient gasoline and diesel engines, transmissions, EDUs as well as fuel cell systems and facilitates their integration into vehicles suitable for homologation. Alternative fuels are a further area of development.

The service portfolio is completed by tailor-made test benches and measurement technology, as well as software solutions that allow efficient transfer of the essential development steps of the above-mentioned developments, from the road to the test bench or simulation.

The FEV Group currently employs 6,300 highly qualified specialists in customer-oriented development centers at more than 40 locations on five continents.