

# Press Release



## Hybrid-BEV: FEV adds Hybrid Solution to its Platform Family for Electric Vehicles

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Aachen, Germany, January 2022 – While the European market is increasingly focusing on pure electromobility, China is experiencing a revival of hybrid technology with its range advantages: China's currently best-selling so-called NEV- (New Energy Vehicle) SUV has a 40 kWh battery and an internal combustion engine as an energy conversion system in a serial hybrid configuration. The NEV category includes purely battery-electric cars as well as those with fuel cells, plug-in and serial hybrid vehicles. Automobile manufacturers thus face a particular challenge, because the parallel development of both a native BEV (Battery Electric Vehicle) and a classic internal combustion engine platform for different market needs significantly increases development costs.

FEV, a leading global development service provider, now introduces as the latest member within its BEV platform family a solution that can do both: as a native state-of-the-art BEV platform, it is suitable for use in both pure battery electric vehicles and cars with a serial hybrid concept. For the latter, a highly efficient energy conversion system from FEV is used.

### **Hybrid-BEV adds hybrid solution to BEV platform family**

Hybrid-BEV - the name of FEV's latest development - is based on the company's native BEV platform, but at the same time serves the demand for hybrid solutions for the Chinese market, for

example. At the same time, this solution helps to significantly reduce vehicle platform development costs.

"Our hybrid BEV is an all-in-one solution that eliminates the need for additional platforms and associated development and manufacturing facilities for automakers. In this way, we create enormous cost advantages that are not only important for smaller OEMs or start-ups," said Professor Stefan Pischinger, President and CEO of FEV Group.

### **Highly efficient energy conversion system for lowest CO<sub>2</sub> emissions and high range**

In addition to the great cost saving potential as well as weight and installation space advantages, Hybrid-BEV offers a high range with minimal CO<sub>2</sub> emissions. Especially when FEV's highly efficient energy conversion system - which in serial hybrid configuration is not connected to the drive wheels but directly supplies the power for electric propulsion and battery recharging - is powered by carbon neutral e-fuels.

"In addition to the roadmap to phase out coal, we also need clear regulations that lead to the reduction of fossil fuels while increasing the use of e-fuels," said Pischinger. "The introduction of e-fuel quotas and planning guidelines for mineral oil suppliers and service station operators, including a complete ban on fossil fuels, creates legal and business certainty. Additionally, this provides the possibility of being able to operate hybrid vehicles in a CO<sub>2</sub>-neutral manner."

Hybrid-BEV also provides purchase incentives in terms of range, for example in the D/E (mid-range and upper mid-range) company car segment, which is important for automakers: here, an electric range of 130 to 170 kilometers (80 to 105 miles) is possible thanks to a battery capacity of approx. 30 to 40 kWh. Combined with a tank volume of around 40 liters (8.8 English gallons / 10.6 US

gallons) for the energy conversion system, this results in a total range according to WLTP of around 1,000 kilometers (620 miles) without a stop. The overall efficiency of the concept also benefits from the reduced battery capacity. This results in a weight advantage of around 200 kg (440 pounds) compared with a pure BEV platform.

### **Compact packaging - generous sense of space**

FEV's Hybrid-BEV platform also impresses with a particularly compact integration of the energy conversion system including generator and e-drive in the front of the vehicle. As a result, the long wheelbase of a typical BEV platform remains unchanged. The same applies to the seat height. The reduced battery capacity compared with a pure BEV and the positioning of the battery in the underbody mean that space is gained in the interior. In addition to the fully available trunk volume, rear passengers benefit from more generous footwells without compromising battery capacity: a so-called foot garage integrated into the floor assembly creates the corresponding space.

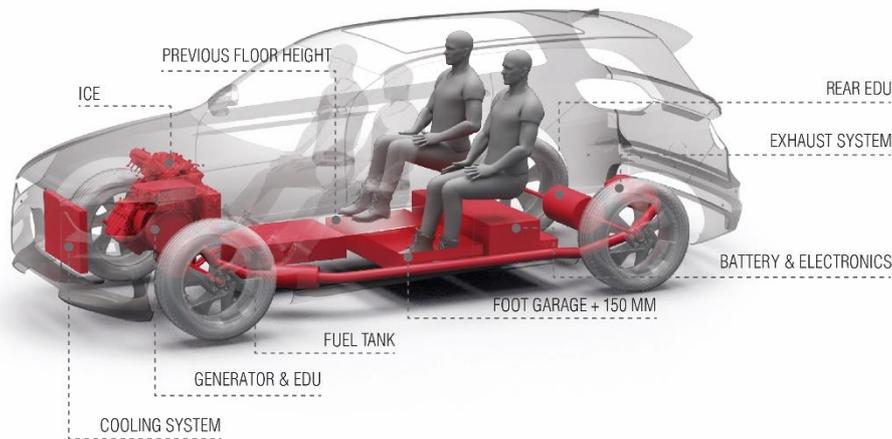
All the customization options for hybrid BEVs have only a minor impact on the BEV base platform.



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Source: FEV Group

## FEV'S HYBRID-BEV



FEV's Hybrid-BEV is an all-in-one solution that eliminates the need for additional platforms.

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.