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WORLDWIDE

SUSTAINABILITY

Protecting the Climate with Low-CO₂ Production

HEADLAMPS in Combination with Predictive Sensor Systems VIRTUAL TWIN for Calculating the Power of an Air Conditioning System **HEAT PUMPS** as Modules with R744 Refrigerant for City Busses

/// INTERVIEW Geoffrey Bouquot [Valeo]

/// GUEST COMMENTARY Dirk Wollschläger [IBM]

Signs and Miracles

Dear Reader,

The battle against climate change is similar to the fight against the Covid pandemic: Experts recommend longterm, systemic measures, but they are often amateurly implemented by policy makers. Recently, however, there are signs of hope: The EU is demanding the rapid roll-out of synthetic and biological fuels. In Germany, the think tank Agora Energiewende classifies these as important if climate goals are to be reached. Even the former State Secretary at the German Ministry for Environment, Jochen Flasbarth, is expounding this message in front of the press. And in its coalition agreement, the new German Federal Government supports "allowing the registration of vehicles that verifiably run only on e-fuels."

A reduction of global CO₂ emissions in the mobility sector can be achieved. This only has a chance of success together with electricity and the widespread use of liquid or gaseous energy carriers on a sustainable basis. In Germany, there are currently 57 million vehicles in circulation, in the EU the figure is around 250 million vehicles, and globally 1.4 billion. An environmental policy that does not consider this is meaningless. Yes, perhaps sufficient electricity can be generated from wind and solar sources, but unfortunately not stored, since no such facilities are available. And in many places, the grid infrastructure does not even have the capacity to ensure the supply of power for multiple vehicles per road.

The coalition partners also promise that "in accordance with the proposals put forward by the European Commission [...], only CO₂-neutral vehicles may be registered for use in Europe in 2035" and "support the passing of a practical pollutant norm Euro 7". This should be designed to be "technology-neutral." And this is where e-fuels and bio-fuels take the stage: Thermodynamic energy converters using synthetic fuels are just as defossilizing as pure electric drives in the overall balance equation. The greenhouse gas contribution over the entire lifetime using today's energy carriers is 31 t CO_2 for a passenger car with a combustion engine, 24 t for a BEV, and 32 t for an FCEV. If synthetic fuels are used, the three drive systems are neck and neck.

A systemic and technology-neutral view of energy carriers and converters is required over the entire cause and effect chain. This is how the potential for sustainable global CO₂ reduction can be leveraged. The task for science, policy makers, industry, and media is to shape the discussion in a "room for both" sense in the direction of next-generation engines in a sustainable energy system. The signs emanating from the political world give us new hope.

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SUSTAINABILITY

Protecting the Climate with Low-CO₂ Production

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Following the COP26 resolutions in Glasgow, climate protection is increasingly becoming the focus of public attention. The automotive industry is making great efforts to achieve these climate targets for the transport sector. The development departments must work together with the manufacturing plants to ensure that automobiles can be produced with low CO_2 emissions throughout the entire process chain.



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Bosch | Multi-million Investment in Semiconductor Production



Microchip production at the Bosch site in Reutlingen (Germany)

Bosch has announced a nine-figure investment in its microchip manufacturing facilities. Accordingly, the company plans to invest more than 400 million euros in 2022 in the expansion of its wafer fabs in Dresden and Reutlingen (both Germany) and its semiconductor operations in Penang (Malaysia). A major part of the sum is to be used to expand manufacturing capacities at the new 300-millimeter wafer fab in Dresden. To meet growing demand from the automotive industry, chip production there began as early as September 2021 – a quarter of a year earlier than scheduled. Around 50 million euros of the planned amount will go to the wafer fab in Reutlingen, where, among other things, 150 new development jobs are said to be created. Bosch is building a test center for semiconductors in Penang from scratch. From 2023, finished semiconductor chips and sensors will be tested in the highly automated and connected factory.

Schaeffler | H2GS | Agreement on Steel Supply

Industrial supplier Schaeffler has reached an agreement with the Swedish start-up H2 Green Steel (H2GS) to purchase 100,000 t of the hydrogen-produced steel annually from 2025. The agreement involves a long-term commitment and includes the supply of strip steel. The Swedish-produced steel requires no fossil fuels and reduces Schaeffler's annual CO_2 emissions by up to 200,000 t, the company said. Accordingly, the agreement will be a first step toward making the company's supply chain carbon-neutral from 2040. H2GS achieves carbon-dioxide-free steel production through the direct reduction process, which uses hydrogen produced from renewable energy sources instead of coking coal. This is said to save 95 % of the CO_2 emissions generated by previous processes. H2GS was founded in 2020 and aims to produce five million t of virtually CO_2 -neutral steel per year in Sweden by 2030.



Starting in 2025, Schaeffler will annually purchase 100,000 t of the steel produced in Sweden using hydrogen

ATP | Certification as Technical Service in the Field of NVH



© ATP

ATP's automotive test site in Papenburg (Germany)

ATP Automotive Testing Papenburg has been operating the automotive test site in Papenburg (Germany) for more than 20 years. Since October 2017, the company has a testing laboratory accredited by the German Accreditation Body DAkkS according to DIN EN ISO/IEC 17025. On this basis and taking into account the procedure according to Regulation (EU) 2018/858, the company has now been designated as technical service in the field of noise emissions (registration no. KBA-P 00117-21). In practice, this means that ATP is now authorized to perform test procedures in the acoustic and NVH fields. The company is thus entitled to prepare test reports for the type-approval procedure in accordance with Regulation (EU) 2018/858 for the vehicles listed. In addition, it can carry out Conformity-of-Production (CoP) product checks of noise emissions.

Volvo | Spectralics | Investment in Imaging Technology

Volvo Cars is investing in the start-up Spectralics, an Israeli company specializing in imaging technology. Thus the automaker will have access to promising technologies at an early stage of development that are said to make vehicles safer and improve the user experience. Spectralics develops imaging and optical infrastructure-spanning systems that include hardware and software and enabled a wide range of optical functions. One of the company's core product is the so-called Multi-Layered Thin Combiner, a thin optics film suitable for transparent surfaces of all sizes and shapes. Windshields and other automotive windows can thus be transformed into large displays on which images and information can be shown. A particularly large head-up display is also conceivable.



The film from Spectralics can be used to project indications onto the windshield

Webasto | Bartling to Head Engineering Department as CTO



Marcel Bartling

Webasto is expanding its management team and has appointed Marcel Bartling as a new board member. Bartling, previously a member of the Lighting Executive Board at Hella, is expected to start as Chief Technology Officer (CTO) in the third quarter of 2022 at the latest. In his new role, he will be responsible for Webasto's Energy & Components and Customized Solutions business units, as well as for Research & Development. Before joining Hella, he held various specialist and management positions at Bosch over a period of ten

years. A graduate engineer in mechanical and automotive engineering with an MBA in technology management, he has extensive knowledge of the automotive industry, particularly in the fields of electronics and electric mobility.

Stellantis | Factorial Energy | Collaboration on Solid-state Batteries



No more liquid electrolyte: solid-state batteries for electric vehicles

investment by Stellantis to enable faster time to market and a more cost-effective transition from liquid to solid electrolytes, the company said. The company aims to bring a solid-state battery to market by 2026.

Siemens | LG Energy Solution | Cooperation in Battery Manufacturing



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Myung Hwan Kim, Young Soo Kwon from LG Energy Solution with Cedrik Neike and Rainer Brehm from Siemens (from left) Siemens and LG Energy Solution (LGES) will intensify their cooperation in the field of battery manufacturing in the future, especially in the area of digitization of production processes. Through this strategic collaboration, LGES will be able to implement smart processes in factories worldwide. A first production line will be implemented at Ultium

Stellantis and Factorial Energy have

announced the sign-

ing of a joint devel-

opment agreement

to advance Facto-

rial Energy's high-

voltage solid-state

battery technology.

The agreement also

includes a strategic

Cells, a joint venture between LGES and General Motors based in Tennessee (USA), and is expected to go into operation in 2023.

IMPULSES



Prof. Dr.-Ing. Peter Gutzmer Editor in Charge ATZ | MTZ | ATZelectronics | ATZheavyduty

Ambidextrous

The capability to improve continuously and to achieve an increase in the efficiency of existing processes while simultaneously creating new things even if they contradict existing things is what makes a company excel. Why shouldn't this agile approach to management of "ambidextrous leadership" also apply to the social and political goals of the mobility transition – particularly when considering the complexity and time pressure of the tasks involved?

The extremely ambitious political goals for passenger cars in Europe and Germany, and the industrial solution paths derived from them, deal almost exclusively with the overall e-mobility system and thus the "left" hand of innovation. In Germany, the goal is to achieve an unrealistic 15 million batteryelectric passengers by 2030 in the grand total of approximately 50 million cars. Compared to today. this would lead to a reduction in the defined traffic sector of around 30 million t CO₂ (relating to tank-towheel). The goals defined in the EU Commission's "Fit For 55" guidelines package and the climate protection law envisage total savings of at least 85 million t CO₂, of which two thirds must be contributed by the passenger car fleets (approximately 57 million t CO₂).

The further reductions in CO_2 required to the tune of at least 27 million t CO_2 must therefore be achieved from the "right" hand of increased efficiency and continuous improvement in the existing fleets of combustion engine powered passenger cars through increasing use of biomass and electricity-based synthetic fuels. Only a strongly ambidextrous solution path can prevent catastrophic failure in achieving the required goals in the mobility sector.



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