

»In the middle  
of a **twin**  
transformation«



For **FVV Managing Director Dietmar Goericke**, the vision of climate neutrality is at the core of collective research. This vision can only be achieved through the use of CO<sub>2</sub>-neutral energy sources and efficient energy converters. FVV is expanding its network and deploying modern digital methods such as artificial intelligence to make this happen.

**Mr. Goericke, many people are talking about the end of the combustion engine. Does this mean that all research on combustion engines is obsolete?**

You have to take a closer look before you can make this kind of sweeping statement. The smaller the vehicle, the more likely it is that it can be fully electrified. But for many forms of mobility, such as the engines widely used in nonroad machinery and in our energy systems, chemical energy carriers will still be essential in the long term. To utilise these technologies, we need the efficient energy converters – engines, turbomachinery and fuel cells – that are the topic of the practical research we organise.

**So the debate isn't affecting FVV's work?**

Looking solely at the figures, no. In 2020, we recorded the highest research expenditure we've ever seen in our over 60-year history. And in recent years we've gained many new members, including numerous small and medium-sized companies, who want to benefit from the results of collective research in this era of transition.

**And what about the actual content of the work that you do?**

Of course, our work is currently dominated by research into climate-neutral energy converters. We are committed to the targets set out in the Paris Agreement. But we will only be able to achieve these targets if we can make technological decisions based on science. With this in mind, we have complemented our conventional research projects into specific technologies with what are known as orientation studies. In these studies, we pool knowledge on individual technology paths – such as hydrogen technologies or synthetic fuels – from many of our member companies and identify the need for action and research based on fact.

**The main argument against the use of synthetic fuels is their low efficiency. Why should public funds be used to pay for research into energy converters that rely on these fuels?**

There are two reasons: firstly, any energy system that is based solely on renewable energy needs large energy storage systems to function. Chemical energy carriers offer precisely this storage potential without requiring



huge volumes of raw materials. Secondly, it's important to always consider the efficiency of the entire chain, from energy generation right down to the wheel or propeller. This is where chemical energy carriers do quite well. The energy can be generated in areas of the world where the productivity of solar or wind energy systems is much higher than it is here. However, it is definitely true to say that we need efficient energy converters along the entire chain. Efficiency has always been a central topic of our research.

**And the interplay between the energy source and the energy converter is the decisive factor.** This is why we are constantly expanding the pool of companies who collaborate with us on research, and we welcome new members from the mineral oil sector who are also looking for ways to move away from fossil fuels. Synthetic energy sources also have the potential to significantly boost the efficiency of combustion engines and fuel cells – as demonstrated by the current ›ICE 2030‹ project, which focuses on vehicle powertrains with an engine efficiency of 50 per cent.

**But this is a hybrid configuration.** That's right. And why not? Hybrid powertrains harbour huge potential

**DIPL.-ING. DIETMAR GOERICKE**

was appointed as the Managing Director of FVV in 2000. As Managing Director RTD Industrial Collective Research at VDMA, he is responsible for the association's pre-competitive collective research jointly conducted by industry and science and for its European research policy. Goericke has many years of experience in the energy and transport transition and in innovative mobility concepts at both a national and European level. He is a member of a number of advisory bodies, including the Kopernikus projects for the energy transition (Federal Ministry of Education and Research) and the committee on research supporting the energy transition in transport (BEniVer, Federal Ministry for Economic Affairs and Energy). He completed his studies in aerospace engineering at the Technical University of Berlin in 1987.

not only for cars, but also for countless other applications, including ferries and construction machinery, because they allow mechanical energy to be recuperated. Last year, we even launched our own dedicated hybrid research programme. It is time we stopped pitting electric powertrains and combustion engines against one another. Different types of energy source and converter can complement one another perfectly within an energy system.

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**FVV has a diverse base of members comprised of companies of all sizes, from car manufacturers and suppliers of fuel cells to providers of large turbomachines for the aviation or shipping industry. Do your members benefit from this variety?**

I've observed that, in this era of rapid technological change, there is a growing interest in scientific exchange beyond the boundaries of specific applications. Of course, the service life requirements for a fuel cell will differ depending on whether it is going to be used in a car or on a cruise ship. But many of the basic technologies – whether they're for the materials or the development of simulation tools – are transferable or, at the very least, it is worth considering whether they could be transferable. After all, collective research is also about finding out what definitely doesn't work.

**FVV has also recently launched a project focussing on artificial intelligence. Is this just a fad?**

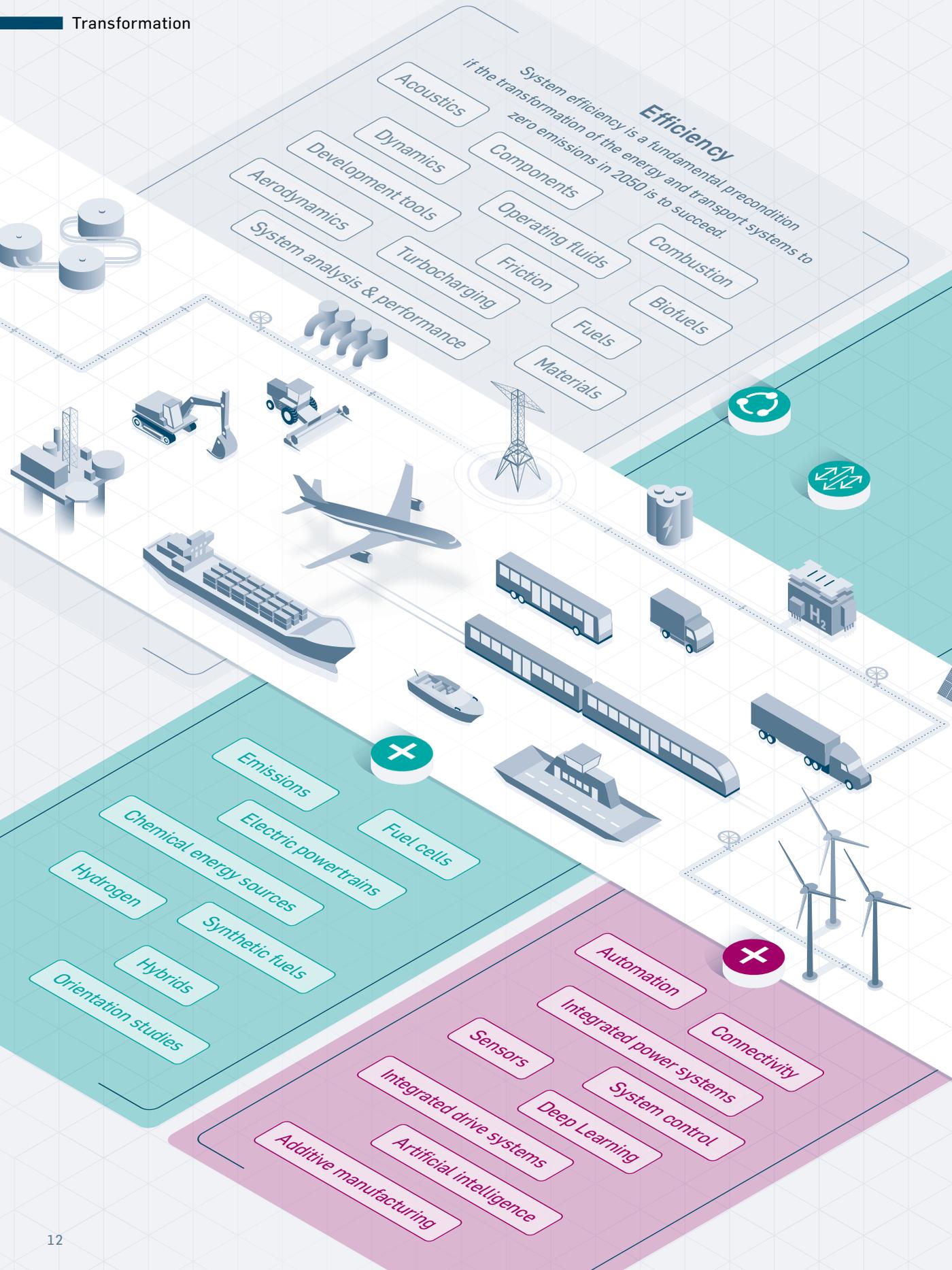
Not at all! We're in the middle of a twin transformation: for our members, digitalisation and climate neutrality are both major challenges. In the pre-competitive collective research we carry out at FVV, the development of powerful simulation tools has consistently been a focal point of our work. This work has helped to build a strong SME sector in Germany, which

would not always be able to afford access to this methodical expertise otherwise. Developing new computing tools based on artificial intelligence processes is simply a logical continuation of our work to date. This is particularly true because we have the right framework conditions in place: our projects have always generated large volumes of data – on material properties, for example – and this data is pre-competitive and therefore available to all members.

**How has the coronavirus pandemic affected the work of FVV?**

I've been impressed by how well the planning groups have progressed in spite of the pandemic. The digital working group meetings for some projects attracted more participants than ever before – partly because there was no need to travel. In spite of this, I'm very much looking forward to the first in-person conference in November. A network like FVV cannot thrive solely on organised online meetings; it relies on the spontaneous and trusting exchange of knowledge and information between people.

**Thank you for the interview,  
 Mr. Goericke. //**



# The ›Twin Transformation‹ as part of pre-competitive collective research

Collectively we create knowledge-based insights that are available to each of our network partners on the ›road to change‹. In addition to the fundamental classic topics, the FVV is installing research priorities that boost the achievement of the transformation goals.

## Decarbonisation

*Reducing the amount of greenhouse gases emitted by industry, transport and power generation is essential to meet the global temperature targets of the Paris Agreement.*



## Digitalisation

*Adopting a twin strategy of building sustainable structures and systems through efficient climate protection and the use of digital technologies ensures the future fitness of the economy and society.*



›On the road  
to zero emissions‹