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We Need to be Honest

At the end of April, the German Federal Constitutional Court forced the German Government to go back and amend the country's Climate Change Act. The aim now is for Germany to be climate-neutral by 2045. In addition, the country's emissions targets for 2030 have been tightened up, including those for the transport sector, which produced around 160 million t of CO₂ equivalents every year from 1990 to 2019. The fall in CO₂ emissions in 2020 was caused primarily by the pandemic lockdowns. The goal is now to cut these emissions by almost half by 2030. This represents a huge challenge and one technology alone will not be enough to achieve the target, so it is important for us to be honest.

It goes without saying that the amount of CO₂ emitted by the transport sector needs to fall significantly. But the tank-to-wheel assessment is an obstacle when it comes to identifying the overall carbon footprint. It ignores important sources of CO₂, such as the extraction of raw materials and the production and recycling processes, and this means that it cannot give an honest evaluation of the technology.

Even if we take an optimistic view of the expansion plans for renewable energies, in the medium term they will not be able to meet the growing demand for energy caused by the complete conversion of our vehicle fleet to BEVs. As a result, the reduction in CO₂ emissions brought about by this conversion would not have a noticeable effect until long after 2030. Before that it would increase our carbon footprint. IAV has already highlighted this effect at the Vienna Motor Symposium in 2020

and it has recently been addressed by a group of professors from a number of countries in a submission to the European Commission. As well as supporting the expansion of electric mobility, they also spoke out in favor of e-fuels, which make combustion engines carbon-neutral and, apart from cold starting, almost emission-free.

In the midst of these discussions, the actual target remains clear. The remaining CO₂ budget that will limit global warming to a maximum of 1.5 °C must not be exceeded. For this reason, we urgently need an honest, neutral evaluation of the various technologies of the kind currently being planned in China. This approach calls for a cross-sectoral, cross-agency assessment.

In the study that we presented at this year's Vienna Motor Symposium, we used a life cycle analysis to evaluate and compare the potential savings of electric powertrains, fuel cell systems and hydrogen combustion engines. The results show that with regard to the overall carbon footprint we need to focus on an intelligent mix of powertrains that meets individual requirements and includes BEVs, e-fuels and, in particular for light and heavy commercial vehicles, hydrogen fuel cells and hydrogen combustion engines.

For us as developers this means that we must continue with digitalizing and automating our development processes and using simulation methods so that we can manage the complexity that accompanies the variety and the combination of different technologies.