CAP_2 Position

Ministerial bashing of e-fuels - we're not going along with it.

With today's electricity mix, e-fuel cars are more climate-friendly than electric vehicles.

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E-fuel and battery drive in comparison

Federal Transport Minister Volker Wissing had announced his abstention from the vote in the EU Council of Ministers on the ban of all internal combustion engines from 2035 unless an exception was made for climate-neutral e-fuels. Because without the German "yes" the
The vote was postponed because Italy and some Eastern European states could not outvote the "no" vote. Wis- sing is now facing criticism from the Greens and environmental associations. We don't quite understand why.

E-fuels should not be confused with biodiesel or fuels with the ethanol admixture commonly used today, such as in E-10. E-fuels are produced fully synthetically in a process known as power-to-x. The basis is an electrolysis process in which water is split into hydrogen and oxygen. The hydrogen is then combined with carbon dioxide, usually separated from the air, and aggregated into longer hydrocarbons via several processes. The resulting "drop-in fuels" resemble the chemical composition of conventional fuels. They can be transported in single tankers and can be dispensed completely unproblematically via the existing filling station network and replace diesel, petrol or paraffin in a climate-neutral way, provided that they are produced using green electricity.

Another advantage: unlike lithium-ion batteries, they also have the same energy density as the fuels they replace: While diesel can produce around 12,000 watt-hours of energy from one kilogramme of fuel, the battery currently only achieves around 150 to 250 watt-hours per kilogramme of battery weight. This weight advantage is the main reason why the technology will be used in trucks and ships in the future.

But as always, the same applies here: Where there is light, there is shadow. For one thing, the combustion of e-fuels produces almost as much nitrogen oxide and carbon monoxide as conventional fuels. So we won't be able to do without exhaust gas aftertreatment with urea any time soon. On the other hand, the entire process is currently still very energy-intensive. If the electricity for electrolysis and CO_2 capture were instead fed into the battery of an electric vehicle, the electric car could drive much further with the energy. However, a general judgement on the inefficiency of the use of e-fuels in passenger cars cannot be made on this basis anyway. For some means of transport, the battery is simply not an alternative: an aeroplane would probably have to charge so many batteries for the long haul that there would be no room for passengers. Anyone who has tried to tow their caravan to Italy on holiday with an electric car knows what I'm talking about.

So what is the argument for banning by law the use of a technology that will be urgently needed in cars in the future? Perhaps some of the critics should take another look at how high the CO_2 rucksack of electric vehicles is due to the emissions from battery production. Jonaneum Research assumes that for a Golf-class car with the German electricity mix, an electric Golf would begin to reduce emissions at a distance of more than 200,000 kilometres compared to a diesel Golf. Even if one prefers to follow other studies that determine a lower rucksack, the fact remains that a combustion car powered by e-fuels would be significantly lower in emissions and more climate-friendly than an electric car simply because of the non-existent rucksack. And even the lower energy efficiency may no longer be a problem in the future. If as few fossil fuels as possible are to be used during a cold, dark period, capacities must be built that can be used to generate electricity from the sun and wind.

lead to an oversupply of electricity. However, there is still no satisfactory storage solution for this oversupply. The capacity of the batteries installed in electric cars, which happen to be connected to the charging station at that time, will in any case not be sufficient to absorb the surpluses.

Apart from party politics, the question arises as to which reasons could ever speak in favour of prohibiting the use of e-fuels in passenger cars. If e-fuel cars turn out to be uneconomical, the market will make them disappear on its own.

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