

### **Vienna Motor Symposium: From e-methanol to e-diesel and e-kerosene**

Regulatory certainty and sufficient capital are vital in order to secure necessary investment

**Transport accounts for a third of global oil consumption. The good news is that there is sufficient potential for renewable, CO<sub>2</sub>-neutral energy sources to replace fossil fuels however, according to experts who attended the 45th International Motor Symposium in Vienna last month, the uneven worldwide distribution of this potential presents a challenge.**

“The transition to E-vehicles will cause a massive increase in the consumption of electricity as an energy source in transport”, said **Rebecca Yates**, Vice President of BP.

The capacity for generating renewable energy sources in Europe will not be enough to meet the demand. At present the most cost-effective green electricity, the most important basis for green fuels, is being produced in South America, Africa and Australia. At 1 to 1.5 cents per kilowatt hour, the production costs there are significantly lower than the average in Europe.

The proportion of electricity required will be highest in the car sector. According to Yates, “on the plus side, in the commercial vehicle sector, there is a greater mix of energy sources which can be utilised.” This mix ranges from various biofuels to hydrogen, although some areas – aviation and shipping in particular – present the greatest difficulties when it comes to the transition to non-fossil fuels.

“Europe will remain a net energy importer,” said **David Bothe**, Director at management consultants Frontier Economics. “Global partnerships and an efficient, sustainable distribution system are therefore important,” said **Arnd Franz**, CEO of automotive supplier Mahle. In addition, suitable forms of storage are needed for green electricity in order to transport it over long distances, and also to store it. Hydrogen and synthetic fuels based on it, also known as e-fuels, are ideal for this.

### **With Direct-Air-Capture to e-methanol**

**Thorsten Herdan**, President of e-fuel manufacturer HIF EMEA, presented a flagship project in Vienna, in which Porsche is both an investor and customer, that produces green hydrogen from wind power and water in Chile. The hydrogen is converted into e-methanol using CO<sub>2</sub>. In the future, the carbon dioxide will be captured directly from the air at HIF. This ‘Direct Air Capture’ technology is already being implemented in the USA, and is publicly subsidised as a CO<sub>2</sub> reduction contribution, reported **Karl Dums**, sustainability expert at Porsche.

Like crude oil, e-methanol can be transported to Europe by ship and processed into fuels, from e-diesel to e-kerosene, in existing refineries. “Europe has a strategic opportunity,” urged Herdan. This knowledge can be commercialised worldwide, and it is also a safeguard for the future of refineries after the phasing-out of fossil fuels. However, regulatory security and long-term purchase guarantees are needed to ensure that such production plants are built in good time and on a scale which will achieve climate targets. Only then will investors be prepared to invest the enormous sums of money required, says Herdan. As fossil fuels become significantly more expensive, Dums felt certain that e-fuels would become more competitively priced. However, it is unclear whether the available

quantities of e-fuels and biofuels will be sufficient to make existing car fleets cars currently on the road CO<sub>2</sub>-neutral.

### **Enormous capital requirements for energy infrastructure in Europe**

So far, little attention has been paid to the enormous investment needed for the energy infrastructure in Europe. And this is not limited to the expansion of charging points. According to calculations by Frontier Economics, more than 80,000 kilometres of electricity grid expansion will be needed in Europe by 2030. “The investment requirement for the electricity grids in Germany alone amounts to more than 35 billion euros per year,” reported David Bothe.

### **Tractor with fuel-cell drive system**

There is also great pressure to reduce CO<sub>2</sub> emissions in agriculture. Friedrich Eichler, Head of Technology at CNH Industrial, explained how one of the sector’s biggest problems – methane gas produced by cattle manure – has been turned into an attractive solution by using it to produce green fuel for tractors.

Climate-neutral ‘green’ hydrogen can also be produced as a by-product from wood chips in combined heat and power plants. Researchers at the Vienna University of Technology (Institute for Vehicle Drives and Automotive Engineering, IFA) have developed a prototype of a Steyr tractor with fuel cell drive (FCTRAC), which is powered by biogenic hydrogen. Together with project partner Glock Technology, a subsidiary of weapons manufacturer Glock, this prototype will be presented to the public for the first time in 2024.

Everything will take time: “Renewable energy sources will be a bottleneck factor in the next 20 or 30 years,” said **Helmut List**, CEO of AVL List in Graz. If we are to achieve climate targets, it is vital that the full range of available renewable energy sources should be utilised in Europe, as in other parts of the world.

### **Short info on the Austrian Society of Automotive Engineers**

The Austrian Society of Automotive Engineers (ÖVK) was founded in 1985 and has 750 full members. Its objective is to promote the useful application of automotive engineering. The ÖVK organises scientific events in an effort to enhance and promote the level of knowledge among mechanical engineering experts and other relevant target groups. The International Vienna Motor Symposium was initiated by Professor Hans Peter Lenz. It took place for the first time in 1979 and has been organised by ÖVK since 1985. Professor Dr. Bernhard Geringer has been the Chairman of the ÖVK since 2017.

More information at <https://wiener-motorensymposium.at/> and <https://oevk.at/>

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