- **Interview with Prof. Ernst Ulrich von Weizsäcker**
- **Siemens Energy and Porsche develop pilot project for synthetic fuels**
- **Fraunhofer Institute considers import of hydrogen and its synthesis products inevitable**

The climate-neutral internal combustion engine

"At the moment, journalists and the semi-informed think that the internal combustion engine must be abolished for the sake of the climate. But that is not at all compelling," says Ernst Ulrich von Weizsäcker, Chairman of the Board of Trustees of Global Energy Solutions. "After all, if you take just as much CO_2 out of the atmosphere or out of exhaust pipes, it is climate neutral." At the same time, he advocates a synthesis of battery-electric and internal combustion engine vehicles. Von Weizsäcker sees the development of electric cars in China and California not motivated by the climate issue, but by the poor air quality in big cities. He finds this convincing and that is why electric mobility should be further developed. "But to destroy the combustion engine and the supplier industries because of it is not at all conclusive." When it comes to mobility, he says, one has to proceed on two tracks. He considers the idea that all mobility must now be electric misleading.

Ernst Ulrich von Weizsäcker was the founding president of the Wuppertal Institute, a member of the German Bundestag and honorary president of the Club of Rome. At the time, the Club was also the source of ideas for Desertec, an initiative that wanted to generate green electricity in the world's sunny locations. Von Weizsäcker sees Global Energy Solutions as a clever further development of the Desertec approach, since it is now about transporting molecules - and no longer electrons. Desertec was about grid-based electricity, whereas Global Energy Solutions focuses on hydrogen and synthetic fuels. This approach, says von Weizsäcker, is now much closer to realisation.

The focus of his own scientific work over the past decades has been on ecological efficiency, both material and energetic. The fact that Global Energy Solutions' approach now incorporates the existing infrastructure to transport climate-neutral energy sources suits him just fine. He also thinks gas tankers for hydrogen make sense. Last but not least: "Chemical fuel tends to be much lighter than batteries."

The fact that the south of the planet must be included in the solution to the energy and climate problem is a matter of course for von Weizsäcker. While we in Germany are heading towards a coal phase-out, hundreds of coal-fired power plants are being built around the world. "If we don't include the countries in Africa, Asia and South

America, we have no chance of achieving the climate goals." Von Weizsäcker considers the use of the Sahara or the Atacama Desert, where human, animal and plant life is marginal, to be ecologically sound. In other, biologically and geographically more productive regions, such as Ethiopia, Brazil or Cameroon, however, the destruction of valuable soils should not be allowed to occur. Von Weizsäcker warns in particular against land grabbing, as practised by rich countries, especially in Africa. To the interview.

Power-to-X to make industrial sectors climate neutral

Siemens Energy and Porsche AG are developing a pilot project in Chile to produce synthetic and climate-neutral fuels. The German Federal Ministry for Economic Affairs and Energy (BMWi) is funding the "Haru Oni" plant with around 8 million euros. In 2022, the project is expected to deliver around 130,000 litres of eFuels. According to the companies, the project covers the entire value chain. Green electricity will be generated by wind turbines, for which the natural conditions in southern Chile are ideal. Siemens supplies the technology for electrolysis to produce hydrogen. This is then turned into eFuels with the addition of carbon from the atmosphere. The main customer for the fuel from Chile is Porsche, among others for motor sport vehicles. More Information here.

Siemens Energy is going even further in its planning. Power-to-X, i.e. the production of synthetic fuels, is for the company the decisive building block on the way to a climate-neutral world. From green hydrogen and CO_2, for example from cement production or directly extracted from the atmosphere, eFuels are created, such as e-methanol, e-methane, e-diesel, e-kerosene or carbon-containing basic materials from the chemical industry. The strategic approach for Siemens is the so-called sector coupling. The energy industry, the chemical industry, heavy industry and the transport industry could be brought together through power-to-X. "Sector coupling and Power-to-X are the way towards closed CO_2 cycles and CO_2-neutral infrastructures," says a brochure from Siemens Energy. The company presents a systemic business model for the future. And promises a smooth transition from fossil fuels to a climate-neutral world. More information here.

From the perspective of Global-Energy-Solutions, only Nature-based Solutions should be added at the end of this impressive value chain in order to close the unavoidable CO_2 emissions by means of natural cycles.

Imprint: Global Energy Solutions e.V, Lise-Meitner-Straße 9, D-89081 Ulm, Germany | +49 (0) 731-85071287 |office@global-energy-solutions.org | https://global-energy-solutions.org | | CEO: Christof von Branconi |

Importing climate-neutral energy sources

The Fraunhofer Institute for Systems and Innovation Research (ISI) has presented a study that examines the opportunities and framework conditions for importing green hydrogen and its synthesis products (especially synthetic fuels). They are seen as important building blocks of the energy and climate turnaround. It states: "The potentials for renewable energies in Germany and the EU are very unlikely to be sufficient to cover this demand in a cost-effective manner from the aspects of availability, economic viability and acceptance. Imports of green hydrogen and its synthesis products are therefore considered necessary." The ISI gives the market for these products in the long term as between 100 and 700 billion euros annually. Furthermore, the Institute discusses risks, prices and sustainable conditions for the countries of origin and it analyses which questions and challenges still need to be solved in its view. More information here.

Imprint: Global Energy Solutions e.V, Lise-Meitner-Straße 9, D-89081 Ulm, Germany | +49 (0) 731-85071287 |office@global-energy-solutions.org | https://global-energy-solutions.org | | CEO: Christof von Branconi |