Newsletter April 2022

Our topics:

- **Natural gas, hydrogen, heat pumps – Climate-neutral space heating by 2045?**
- **Position paper of the Board of Trustees of Global Energy Solutions**
- **Strategy Statement: Dii Desert Energy – Global Energy Solutions**
- **GES Background Paper: Reducing CO2 Emissions. Technology, costs and challenges**
- **News in brief April 2022**

Interview Federal Association of German Housing and Real Estate Companies (GdW)

Ingrid Vogler, GdW

Michel Böhm, GdW

The GdW is responsible for around six million rental flats in Germany. By law, these flats must also be heated in a climate-neutral way by 2045. Up to now, the housing industry has mainly relied on heat from interconnected networks and on gas. If more buildings are heated by heat pumps in the future, partly due to lack of gas, many new questions will arise. Mainly because this area does not have any standard solutions yet. Even the possible transition from gas to hydrogen will be anything but simple. Here, too, many individual technical and regulatory questions are currently still unanswered. As a partner of Global Energy Solutions, the GdW would like to see assessments of the international hydrogen market of the future: Where could the hydrogen come from? Via which transport routes? At what price? And, last but not least: Which quantities will be needed in which sectors in Germany?

read Interview | Watch video

Position paper of the Board of Trustees of Global Energy Solutions

An excerpt: “We welcome the flexible cycle model pursued by the association, which does not name fossil fuels per se as the core problem, but the burning of these fossil fuels in such way that CO_2 is released into the atmosphere. As far as possible this must be prevented. Hence, the focus is on technical cycles that always have to start with capturing the CO_2 at the site of combustion processes. The captured CO_2 is then either returned to the caverns from which it was previously extracted, for example, or the CO_2 is combined with low carbon hydrogen to produce various synthetic energy sources or fuels. These are then used again elsewhere, potentially capturing the CO_2 again, etc., whereby multiple cycles can be run, and corresponding CO_2 sinks created.”

To the position paper

Strategy Statement: Dii Desert Energy – Global Energy Solutions

Dii Desert Energy is the successor organisation to Desertec. Dii and GES share a similar view of the global energy transition. A quote from the joint paper: “Global Energy Solutions and Dii Desert Energy are not only focusing on green electricity, but also on the conversion to hydrogen and its derivatives. In addition, liquid organic hydrogen carriers (LOHC) can play a role. The hydrogen derivatives methanol, ammonia and methane should also serve as the basis of e-fuels for the worldwide stock of vehicles with combustion engines. Hydrogen should be produced as climate-neutrally as possible, without harmful emissions along local, regional and international energy chains.”

To the Strategy Statement

GES Background Paper: Reducing CO2 Emissions. Technology, costs and challenges

Into the ground instead of into the atmosphere, that is the principle of Carbon Capture and Storage (CCS). The CO_2 produced by industrial processes is captured, concentrated and injected into caverns, for instance. Internationally, this is regarded as a safe method of storing CO_2 in an environmentally friendly way. Another method is the injection of CO_2 dissolved in water. The CO_2 solidifies in a short time to form carbonates, i.e., rock. Most CCS projects are currently in the USA. There, CO_2 is mainly injected into existing oil and gas deposits in order to increase production. The number of CCS projects is increasing rapidly worldwide, from 60 megatonnes of CO_2 in 2017 to 150 megatonnes in 2021. Carbon capture reduces the efficiency of power plants by 7 to 10 percent in some cases. In the case of lignite-fired power plants, the profitability is in question.

Background paper, abridged version

News in brief April 2022

At this point, some news of the last few weeks will be addressed which, from GES' point of view, are reason for hope because they contain building blocks of a possible global solution and / or could help to develop a realistic view of the challenges ahead of us.

What are the consequences of the war in Ukraine for managing climate change? Prof. Franz Josef Radermacher, Vice Chairman of GES, addresses this in an interview for the Austrian magazine Die Wirtschaft.

After the Russian attack on Ukraine, Germany and Europe are striving to reduce their dependence on Russian energy imports, especially natural gas. In this context, various activities can be observed that would have been unthinkable just a few weeks ago.

Already today, Norway is Germany's second largest gas supplier after Russia. And gas imports are to be expanded. Against this background, there is to be a feasibility study for a gas and hydrogen pipeline between the two countries.

Germany does not currently have a single LNG terminal for the import of liquefied gas. Now the planning is being ramped up. The federal government partly contributes to the financing. Three locations are under discussion: Brunsbüttel, Wilhelmshaven and Stade. In Brunsbüttel, the construction time for the terminal is to be three to three and a half years. The capacity of the facility is designed for about 8 billion cubic metres of gas per year. By comparison, the Nord Stream 1 pipeline transports almost 50 billion cubic metres of Russian gas. In future, the terminal in Brunsbüttel will also be designed for the import of green hydrogen. RWE is also planning an import terminal for climate-neutral ammonia in Brunsbüttel.

Voices from abroad. The American Rocky Mountain Institute has compared the ecological impact of German gas imports in terms of total climate gas emissions from production, processing and transport and consumption. The supply sources are Russia, the USA and Qatar, the latter via LNG transport. According to this study Russia has the worst record. Methane is the main problem, because of the long transport routes by pipeline, which have considerable leakages. In second position we find the USA. Gas imports from Qatar come out best in the study.

To reduce imports of Russian natural gas, E.on plans to import large quantities of green hydrogen in the future. To this end, an agreement has been signed with the Australian partner FFI. The aim is to produce five million tons of hydrogen per year around 2030.

India wants to produce the world's cheapest hydrogen. By 2030, 5 million tonnes of green hydrogen are to be produced annually. Behind the plans are two of Asia's richest men, Mukesh Ambani and Gautam Adani. Both have made their fortune in the Indian energy and oil business. The goal is to produce green hydrogen for less than one dollar per kilo in the future. Currently, hydrogen costs between 3 and 8 dollars per kilo.

Handelsblatt, March 4th / 5th / 6th

China is also planning gigantic solar and wind parks in the desert. There is talk of capacities of up to 450 gigawatts by 2030, about twice as much as the capacity of all German green power plants combined. In addition, there are further green power projects in China. In total, new plants with a capacity of 1200 gigawatts are to be built. At the same time, China is the largest producer of electricity from coal-fired power plants, with figures rising. China has also announced plans to produce 100.000 to 200.000 tons of hydrogen annually from renewable sources by 2025.

Der Spiegel. March 15th

A large-scale project for the production of green methanol is being built in Denmark. Siemens Energy is supplying a 50-megawatt electrolysis plant for the project. The electricity comes from a 300 MW solar park on site.

Spread the word

Global Energy Solutions develops global solutions and business models on energy, climate and development issues. Our goal is a climate-neutral energy system - with the following elements: green electricity, green hydrogen, biological as well as technical CO2 recycling, climate-neutral energy sources and fuels - including methanol.
You find our monthly newsletter interesting? Then please recommend it to others or send it to colleagues, friends or acquaintances. Thank you for your support.

Global Energy Solutions e.V.
Lise-Meitner-Straße 9, 89081, Ulm