

PRESS RELEASE

“Hydrogen master plan for eastern Germany” outlines the steps towards establishing a hydrogen economy in eastern Germany

- ***Significant potential for new hydrogen-based value stream in eastern Germany***
- ***Demand for hydrogen from the industrial and transport sectors to reach 17.3 TWh by 2030 and around 49 TWh by 2050***
- ***More than 50 detailed proposals for a successful hydrogen market ramp-up***
- ***An “Eastern German Hydrogen Agency” could coordinate cross-border cooperation***

Cottbus/Leipzig, 20 May 2021. Green and sustainable hydrogen will be the climate-neutral successor to the fossil fuels we use today. This transition has the potential to invigorate the economy and launch new value chains across different regions—especially by looking beyond state borders and generating synergies with a big-picture perspective, as three Fraunhofer Institutes have proposed in their joint study “Hydrogen Master Plan for Eastern Germany”.

The Fraunhofer Research Institution for Energy Infrastructures and Geothermal Systems (IEG), Fraunhofer Institute for Systems and Innovation Research (ISI) and Fraunhofer Institute for Ceramic Technologies and Systems (IKTS) have compiled a report for eastern Germany which outlines the challenges and opportunities involved in establishing a hydrogen economy with an unprecedented level of detail. The master plan is the first report to include forecasts of the demand for hydrogen from individual sectors in all states of eastern Germany for the years 2030 and 2050.

“Switching to hydrogen presents a huge opportunity for players in the economic, scientific and political spheres to work together and combine forces in eastern Germany. This is exactly what the “Master Plan for Eastern Germany” is for, highlighted Prof. Mario Ragwitz, head of the Fraunhofer Research Institution for Energy Infrastructures and Geothermal Systems (IEG) and spokesman of the Fraunhofer Society’s Hydrogen Network. “The energy, raw materials, automotive and plant engineering industries play a vital role in establishing a sustainable hydrogen economy in eastern Germany. The master plan includes the first detailed case studies which forecast demand and value chain figures through to 2030 and beyond.”

The experts from the three Fraunhofer Institutes have submitted more than 50 detailed proposals to establish a sustainable hydrogen economy in eastern Germany, which include founding an “Eastern Germany Hydrogen Agency” to represent all of eastern Germany’s hydrogen-related interests, support companies with their investment plans and give the region a strong voice on hydrogen-related matters.

Specific results of the Hydrogen Master Plan for Eastern Germany

Wide variety of stakeholders identified along the hydrogen value chain

Studies on the hydrogen value chain in eastern Germany previously focused on narrow geographic areas or individual states. As a result, they failed to provide a comprehensive overview of the companies involved in the hydrogen value chain in eastern Germany. The master plan is the first report to provide a comprehensive rundown of the eastern German entrepreneurs and companies involved. Over 660 stakeholders have been identified, assessed and placed at different stages of the value chain. This extensive overview will facilitate networking between individual stakeholders, create synergies and prevent duplicate structures or even cannibalization effects from forming amongst individual regions.

Different states have strengths that complement each other

The master plan also contains detailed profiles of the strengths and weaknesses of each state. The results make it clear that these profiles complement each other perfectly and provide an excellent foundation for cooperation between states. Mecklenburg-Western Pomerania and Brandenburg can generate significant amounts of sustainable energy. Both of these states also have considerable expertise in the field of power plant technology. Saxony-Anhalt has wide-ranging experience in the chemical industry and a sophisticated gas storage infrastructure. Saxony's core competence lies in plant and mechanical engineering, while Thuringia has a significant focus on safety, measurement, instrumentation and control technology.

The first detailed hydrogen demand forecast for eastern Germany.

Three cross-state case studies were developed based on the eastern German network of stakeholders, the strengths and weaknesses profiles, and a simulation model by Fraunhofer ISI. This succeeded for the first time ever in determining a quantitative and qualitative forecast of hydrogen demand in the industrial and transport sectors for all states in eastern Germany.

Demand is expected to reach around 15 terawatt hours (TWh) over the short to medium term, largely stemming from refineries, the chemical sector and steel production. Transport could account for a further 2.3 TWh. In 2050, the potential demand from the transport sector could reach 12 TWh, and 37 TWh from the industrial sector. For comparison: Based on the national hydrogen strategy, the Federal government expects Germany's hydrogen demand to be approx. 90 to 110 TWh in 2030.

More than 50 proposed measures should ensure a successful market ramp-up.

More than 50 detailed proposals have been submitted to state governments in eastern Germany to incentivise and take advantage of these value generation and demand potentials. These range from developing specific approval procedures to making changes to procurement guidelines and establishing detailed training programs.

The master plan also suggests establishing a Hydrogen Agency for Eastern Germany in order to sustainably promote the hydrogen economy across state borders. This agency would ensure a coordinated political effort between states and a unified approach amongst companies, politicians and scientists. The Hydrogen Agency also aims to bring companies from the various sectors and stages of the value chain together and support them in close cooperation. This should make it possible to bring major entrepreneurial projects to fruition.

"We need to transition to climate-neutral hydrogen in different sectors in order to decarbonise our society. Our efforts to ramp up the market must be broad in scope, both geographically and in terms of the sectors involved. As an eastern German company, we welcome the proposals of the experts from the Fraunhofer Institutes, who have identified specific measures which can maximise value creation in eastern Germany while decarbonising our society by building a sustainable hydrogen economy", says Ulf Heitmüller, CEO of Leipzig-based VNG AG, which commissioned the Fraunhofer Society with the development of the master plan.

Download the "Hydrogen Master Plan for Eastern Germany" study here:

www.h2-masterplan-ost.de

<https://www.ieg.fraunhofer.de/de/veroeffentlichungen.html>

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About Fraunhofer IEG: We are designing the climate-neutral energy systems of the future

We, the Fraunhofer Research Institution for Energy Infrastructures and Geothermal Energy (IEG), are a think-tank for the energy transition and develop our ideas from the outline to the implementation along the entire value chain of energy system transformation. With our partners from industry and the public sector, we identify projects with great relevance for climate protection, make real applications possible and shape the energy transition. We are located in the structurally transforming regions of Lusatia, the Rhineland, and the Ruhr region, as well as in the industrial region of the Upper Rhine. With our team's know-how, we support sustainable transformation on a local, national and international level. Our employees combine the necessary expertise in the fields of analysis, operation, and planning of sector-coupled electricity, gas and heating grids, drilling and geotechnologies, energy and process engineering, energy economics, georesources, and geosciences, storage systems, and hydrogen infrastructures. www.ieg.fraunhofer.de

About VNG AG:

VNG is a group of over 20 companies active in the European energy industry with a broad, future-oriented portfolio of products and services in gas and infrastructure, and more than 60 years of experience in the energy market. Headquartered in Leipzig, the Group has a workforce of some 1,300 and generated billed revenue of approximately EUR 9.8 billion in the 2020 financial year. VNG concentrates on four links in the gas value chain: Trading & Sales, Transport, Storage and Biogas. Building on its core expertise in the gas business, the Group's "VNG 2030+" strategy places a growing focus on new business fields. These include green gases and digital infrastructure. More at www.vng.de