KIT Starts Shuttle Operation of Hydrogen Buses

Hydrogen Fuel Station Opened on KIT Campus North – Establishment of a Technology Platform for Research and Development

Helmfried Meinel, Department Head at the Baden-Württemberg Ministry of the Environment (left), and KIT Vice President Dr. Peter Fritz (right) opened the hydrogen fuel station at KIT. (Photo: Sandra Göttisheim)

Hydrogen (H_2) is one of the future energy carriers. It may be used for storing solar and wind energy or for fuel cell-based electric mobility. Karlsruhe Institute of Technology (KIT) studies and develops safe, efficient, and sustainable hydrogen technologies. On KIT Campus North, a hydrogen fuel station was opened today. It will supply hydrogen for the two new fuel cell-based buses used in shuttle operation between the KIT premises. The Baden-Württemberg Ministry of the Environment, Climate Protection, and the Energy Sector provided major financial support for the fuel station and the buses.

“Start of operation of the hydrogen fuel station and the buses is a milestone in the setup hydrogen infrastructure facilities at KIT. We will establish a technology platform for research and development that will increasingly focus on “green” hydrogen from renewable energy sources in the future,” Dr. Peter Fritz, KIT Vice President for Research and Innovation, says.

KIT Energy Center: Having future in mind

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The Baden-Württemberg Ministry of the Environment, Climate Protection, and the Energy Sector supported the KIT project with more than 3.2 million Euros. “In the future, we will produce hydrogen from renewable energies and use it for producing and storing energy. Fuel cells are highly efficient energy converters and, hence, key technologies for future sustainable mobility and clean, decentralized electricity and heat supply of buildings,” Helmfried Meinel, Department Head at the Ministry of the Environment, emphasizes.

The new fuel station supplies 80 kg of hydrogen per day, corresponding to about three bus loads. Hence, it is one of the hydrogen fuel stations with the highest supply volume in South Germany. Refueling takes about 20 minutes. The KIT H_2 shuttle bus will transport passengers between KIT Campus North and Campus South. It will replace the diesel buses used so far. From June 12, KIT’s Campus East (Mobility and Innovation) will also be included in the service. Employees and students of KIT may continue to use this service at no costs. “Shuttle operation with about 80,000 passengers per year guarantees a permanently high usage rate of the fuel station. We will be able to extensively use the newly installed H_2 technologies and to demonstrate their suitability and applicability for a large number of users,” says Dr.-Ing. Thomas Jordan, Head of the Hydrogen Working Group at KIT.

Scientists are working on advanced processes for hydrogen production from renewable energy sources. An example is the production of hydrogen from residues of agriculture and forestry and food processing. KIT has developed methods to process variable qualities of sustainable biomass. For this purpose, pilot plants were set up. In the near future, KIT will be able to produce own “green hydrogen” for the operation of the hydrogen buses.

Presently, about 80 scientists of various disciplines are working on technologies for the production, storage, and use of hydrogen. Research focuses on storage materials as well as on process, systems, and safety technologies. KIT pursues a systemic approach, with the complete chain of energy conversion from primary energy to production processes to the direct use in the mobility sector being covered. “We are also studying interactions with the users. In the KIT shuttle, users can experience a new and fascinating technology as part of their everyday life,” Thomas Jordan says.

More information: www.kit.edu/h2shuttle

Karlsruhe Institute of Technology (KIT) is one of Europe's leading energy research establishments. Research, education, and innovation at KIT foster the energy turnaround and reorganization of the energy system in Germany. KIT links excellent competences in engineering and science with know-how in economics, the humanities, and social science as well as law. The activities of the KIT Energy Center are organized in seven topics: Energy conversion, renewable energies, energy storage and distribution, efficient energy use, fusion technology, nuclear power and safety, and energy systems analysis. Clear priorities lie in the areas of energy efficiency and renewable energies, energy storage technologies and grids, electric mobility, and enhanced international cooperation in research.

Karlsruhe Institute of Technology (KIT) is a public corporation according to the legislation of the state of Baden-Württemberg. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. Research activities focus on energy, the natural and built environment as well as on society and technology and cover the whole range extending from fundamental aspects to application. With about 9000 employees, including nearly 6000 staff members in the science and education sector, and 24000 students, KIT is one of the biggest research and education institutions in Europe. Work of KIT is based on the knowledge triangle of research, teaching, and innovation.

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