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### Hydrogen infrastructure in the DACH region races ahead



At 84 hydrogen filling stations in operation, the German hydrogen mobility network is racing ahead. No other European country can boast a similar infrastructure and approximately two thirds of Europe's hydrogen filling stations are in Germany. H2 Mobility, the organization which operates all public hydro

refueling stations in Germany is a successful collaboration of industrial gases suppliers, oil and gas ma and automotive OEMs. The multi-disciplinary model is currently being used as a blueprint for the development of other leading and emerging hydrogen mobility markets such as Japan and Korea.

Beyond mobility the hydrogen infrastructure is also extending to a broad range of power to X applicati At the beginning of 2019 there were concrete plans to build 50MW of electrolyser capacity for Hydrog production in Germany. By the end of 2019, this had increased by an order of magnitude with confirm plans to build 600MW of Hydrogen electrolyser capacity in the country, including several projects with large electrolyser systems each consuming 30MW of electrical power.

### **Closing the energy balance loop improves overall energy efficiency**

The electrolysis process that produces hydrogen and the fuel cell that converts stored hydrogen back electrical power both yield low-grade heat. To make the overall hydrogen production, storage and po regeneration energy balance more favourable, it is beneficial to use this warmth. For example, on a pu fuelling station the heat can be used in the car wash and site facilities. This is the type of integrated sy that has been installed at a multi-energy concept project at Berlin's new Brandenburg International airport. The main reason for using hydrogen as a fuel in transportation to replace diesel and petrol is environmental sustainability. So, the idea of waste heat recovery is fully aligned to the overall concept

### **Carbon-neutral hydrogen is the holy grail**

Most hydrogen is currently produced on SMRs from natural gas and other hydrocarbon sources. To fi decarbonize hydrogen production, electrolysis fed by renewable electricity is seen as the holy grail. Th becoming a reality at small scale with the 2 MW electrolyser at the Gösgen hydro-electric power station the river Aare in Switzerland. The electrolysis plant can produce up to 300 tons of hydrogen a year wh enough to keep approximately 50 trucks or 1700 cars on the road.

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