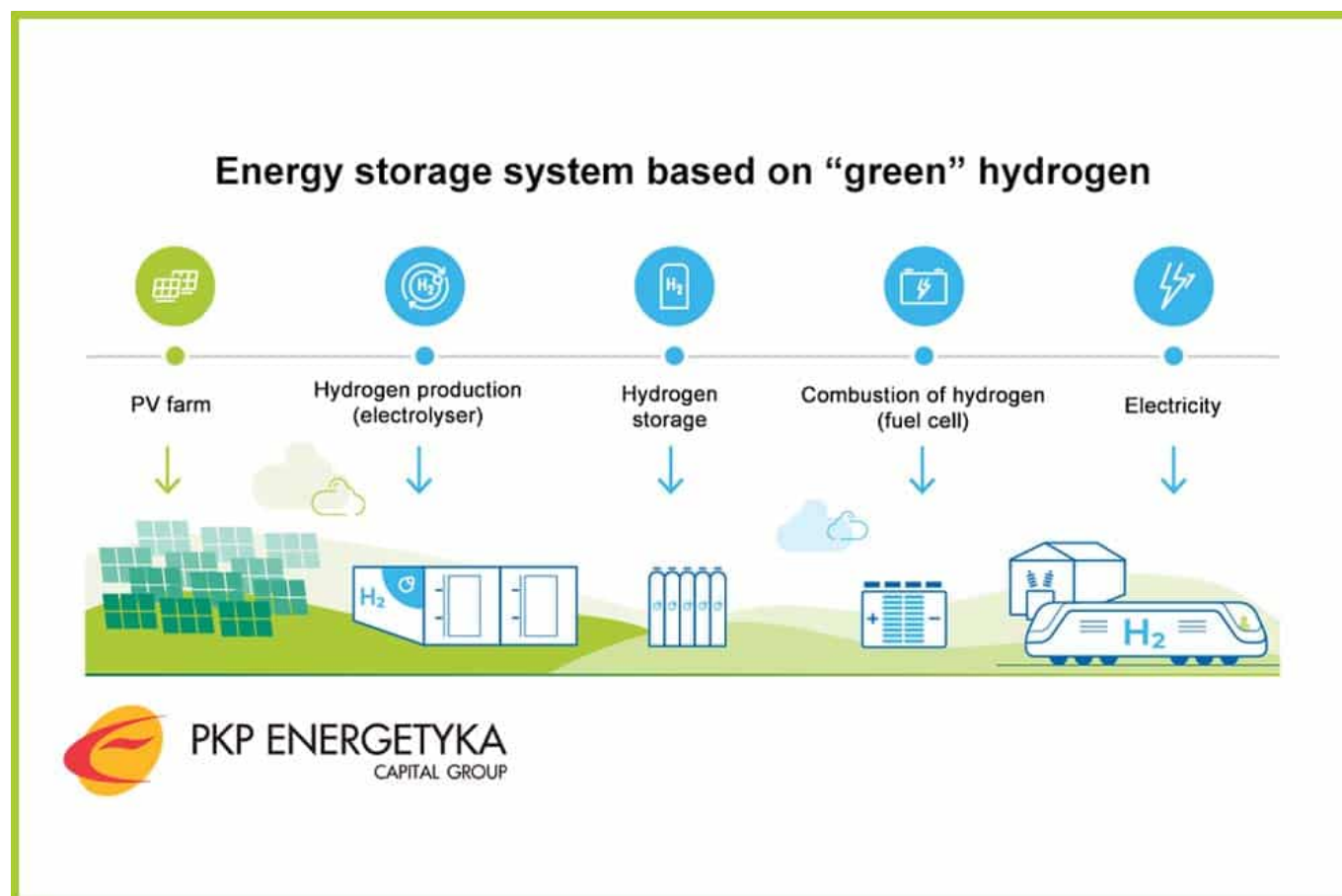


PKP Energetyka developing energy storage system based on “green” hydrogen

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PKP Energetyka is creating a system for the production and storage of “green” hydrogen for rail.

The investment worth over PLN 3 million will allow producing, storing and using “green” hydrogen for railroad purposes. In all, 100% of the element produced will be obtained by electrolysis powered by solar energy. The facility under construction as part of the R&D project is designed to corroborate the feasibility of using hydrogen storage solutions for powering railroads in the future.

The purpose of the system is to store all the energy produced by the solar farm and not used for current traction purposes. The hydrogen-based energy production and storage system will consist of an electrolyser that converts energy harvested from the sun into hydrogen, a hydrogen storage system, and a fuel cell that converts the hydrogen back into electricity.

PKP Energetyka says it will be the first company in Poland to use this system of supplying the railroad with energy based on hydrogen from RES. It will allow up to 23 kg of hydrogen to be stored at one time with the power outputs of the individual components determined at 36 kW for the electrolyser, 20 kW for the fuel cell capacity, and about 150 kWp for the solar farm.

The produced element will be used in the development and research phase for PKP Energetyka's own purposes, i.e. to supply the traction substation, but the solution implemented in the future will also have the possibility of powering the traction system. The technical design of the system also allows for disconnecting the filled hydrogen cylinders, so it can be used, for example, to power railroad vehicles of PKP Energetyka.

Piotr Obrycki, director of the research and development office, PKP Energetyka, said: "At PKP Energetyka, we consistently put into practice our mission of 'We Energize Polish Rail'.

"Our industry is currently undergoing an energy transition that we are pursuing primarily through the Green Rail programme. Its goal is to switch 85% of the railroad's power supply to RES by 2030.

"Ultimately, we want the remaining 15% to be 'green' as well, which is why we are successively investing in modern research and development solutions that bring us closer to this goal" says

Modern and multifunctional traction power substation in Garbce

The implemented hydrogen system will be an important component of the traction power substation in Garbce, PKP Energetyka said. Together with the existing battery energy storage solution and the photovoltaic farm, it will create an ecosystem of interconnected and complementary facilities to generate and deliver dedicated energy for the railroad.

As a result of this project, multifunctional traction power substation will be built, which its creators say will not only guarantee the safety and stability of the railroad power supply system but will also be environmentally friendly thanks to the production of "green" hydrogen.