

Siemens and Deutsche Bahn test hydrogen train and mobile fuelling station for first time

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Dr. Roland Busch, chief executive officer (CEO) of Siemens AG, Dr. Richard Lutz, CEO of Deutsche Bahn, and Hartmut Höppner, State Secretary in the Federal Ministry for Digital and Transport (BMDV), have taken their first ride in the Mireo Plus H hydrogen train and demonstrated the train's refuelling procedure using the mobile hydrogen fuelling station.

The event was held at the Siemens Test and Validation Center in Wegberg-Wildenrath, North Rhine-Westphalia. It is planned to have hydrogen technology replace diesel-powered trainsets in regional transport in the future and make a significant contribution to phasing out diesel fuel. Hydrogen trains are a particularly climate-friendly drive technology since they operate emission-free with green hydrogen and emit only water vapor.

Siemens Mobility and Deutsche Bahn presented the H2goesRail project to the public in November 2020. In addition to the refueling and commissioning tests conducted over recent months, DB employees have been trained to operate the system when it enters service.

Roland Busch, CEO of Siemens AG, said: "We are taking a decisive step with our partners today toward the

future of climate-neutral transport. The new Mireo Plus H train emits nothing but water.

“It has a range of around 1,000km, can reach speeds of up to 160km per hour, and can be refuelled quickly. Over its service life of 30 years, a single train will save up to 45,000 tons of CO₂ emissions compared to travel by car.”

“Hydrogen belongs to the future of mobility. That’s why I am especially pleased that we have reached the next important milestone in the H2goesRail project today,” said Dr. Richard Lutz, CEO of Deutsche Bahn. “Our goal is clear: We plan for Deutsche Bahn to be climate-neutral by 2040. And one key lever here is bidding farewell to diesel fuel. With our development of a mobile hydrogen fueling station and its associated maintenance infrastructure, we at Deutsche Bahn are once again showcasing outstanding and innovative drive technologies and demonstrating how climate-neutral mobility of tomorrow will work.”

Hartmut Höppner, State Secretary in the Federal Ministry for Digital and Transport, said: “Hydrogen technology has the potential to make sectors of mobility CO₂-neutral. This is a milestone for climate protection. The H2goesRail project demonstrates the innovative power that is being driven by the funding programs of the Federal Ministry for Digital and Transport in the field of alternative drives.

“We support the transfer from research and development to marketable products that is helping accelerate technological progress and creating the prerequisites for tomorrow’s climate-friendly mobility. Our goal is to develop and promote modern, quiet and climate-friendly mobility.”

The project is being funded with €13.74 million by the Federal Ministry for Digital and Transport as part of the National Innovation Program for Hydrogen and Fuel Cell Technology.

The Mireo Plus H developed for the H2goesRail project has a range of up to 800km, is as powerful as its electric multiple-unit counterpart, has 1.7 MW of traction power providing up to 1.1 m/s² acceleration, and a top speed of 160km per hour.

One key factor needed to make hydrogen technology competitive with diesel fuel in daily operation is a fast refuelling process. To provide this, DB has developed a new method that, for the first time, enables a hydrogen train to be refuelled as fast as a diesel-powered train. This is especially important considering the closely timed scheduling of DB’s regional passenger service. Hydrogen for the trains will be produced in Tübingen by DB Energy with green electricity taken directly from the overhead power line.

On the route between Tübingen and Pforzheim, for example, switching from diesel to the H2goesRail project train will save around 330 tons of CO₂ emissions a year. In general, and depending on the route, the Mireo Plus H can save 520 tons of emissions per year (calculated on a total mileage of 200,000km). The Mireo Plus H will begin test runs in Baden-Württemberg in 2023.

As of 2024, it will be underway in regular passenger service for the H2goesRail project, operating between Tübingen, Horb and Pforzheim and replacing a diesel railcar currently in use on that route.

Siemens Mobility and Deutsche Bahn will also be showcasing the H2goesRail project and the Mireo Plus H at InnoTrans 2022, the world’s largest trade fair for railway technology, held in Berlin. The Mireo Plus H can

be visited at stand T06/40, and the mobile hydrogen fueling station at stand O/630 in the outdoor exhibition area of InnoTrans.

Photo credit: Siemens