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# POSTAUTOS GO EMISSION-FREE



**Robert Amstutz**

**P**ostAuto Switzerland annually requires 39m litres of diesel fuel in order to transport its 121m passengers. The organisation has done everything possible to reduce emissions through the use of exhaust particle filters, optimal timetabling and careful driving. Despite all these measures, and with fossil fuels anticipated to become scarcer and more expensive in the future, PostAuto is exploring new methods of propulsion, particularly the hydrogen fuel cell. PostAuto has committed itself to the principle of sustainable mobility and has signed the UITP (International Association of Public Transport) charter for the sustainable development of public transport. Also in the future, PostAuto wishes to be able to transport its passengers in an intact environment. The continued use of the internal combustion engine, which needs fossil fuel and emits CO<sub>2</sub>, damages the environment and contradicts these aims. PostAuto considers that the best and cleanest technology for the mobility of the future may be fuel cell technology. As such, they are the first Swiss transport company to try this out on a day-to-day basis. Since December 2011 five fuel cell buses (costing CHF11m) have been in operation in the region of Brugg, Canton Aargau. Passenger acceptance has been good, the ride is smooth, but reliability in the first few months of operation was not optimal, particularly on several of the hilly routes outside of Brugg. These teething problems now seem to be resolved.

At first appearance the buses are slightly higher (0.5m) than a normal PostAuto vehicle owing to the battery, the fuel cells and the hydrogen tank being accommodated on the roof of the buses. The tank holds 35kg of hydrogen and fuel consumption is around 12kg per 100 km. In normal traffic the operating radius with a full tank is a

little over 250km. The principle of hydrogen fuel cell technology dates back to 1838 and the discovery by Christian Friedrich Schönbein that hydrogen plus oxygen gives water. The process generates electricity, which can be used to power a motor. It also produces heat, which turns the water into steam that, in the case of these buses, appears as a fine column of steam at the top of the rear of the bus. Each bus is fitted with a Lithium-ion battery to store electricity and the buses are also fitted with dynamic brakes, which supply energy back to the battery and hence increase the efficiency of the vehicles as they frequently brake whilst en-route. PostAuto, as a part of the Swiss participation in the EU CHIC project (Clean Hydrogen in European Cities), are committed to a five year trial of the small fleet and only in 2016 will a decision be taken as to the potential to increase the numbers of these vehicles in service. +

A new bus in service at Brugg Station in June 2013. Now that's what you call a connecting service !! *Photos: Robert Amstutz*

