



A CYCLE FOR RENEWABLE HYDROGEN FOR HEAVY GOODS TRANSPORT

A NETWORK OF COMMITTED COMPANIES INTENDS TO MAKE HEAVY GOODS TRANSPORT IN SWITZERLAND CLIMATE-NEUTRAL



Rolf Huber, chairman of H2 Energy Holding AG

ENERGY-EFFICIENT MOBILITY CATEGORY. Hydrogen will play an important role in worldwide efforts toward a climate-neutral energy supply, an undisputed fact today. It is not without reason that many countries and even the EU are in the course of defining a comprehensive strategy for hydrogen. This is not only a question of security of supply but also about a market for hydrogen and for other climate-friendly technologies worth billions. Switzerland, of all countries, has made a major contribution. The country is doing pioneering work in the development of a renewable hydrogen cycle for heavy goods transport that is not just economically viable, but also solves the chicken and egg dilemma. In this globally unique pioneering project, supply and demand for renewable hydrogen are being driven forward in parallel by a strongly

committed network of companies and without any government funding. The network consists of Hydrospider AG, Hyundai Hydrogen Mobility AG, H2 Energy AG, and the Association H2 Mobilität Schweiz. Together they are rapidly building up the infrastructure needed and the fleet of trucks for hydrogen powered heavy goods transport in Switzerland. Work is progressing quickly.

“Actually, in the chicken and egg dilemma, it’s not just about a chicken and an egg. It’s more like an entire hen house and an egg factory. If we want to establish a renewable hydrogen cycle for heavy goods transport on a stable, economically viable foundation we have to think in larger dimensions,” Rolf Huber says describing the initial situation. He is the chairman

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of H2 Energy AG and chairman of the board of directors of Hyundai Hydrogen Mobility AG and Hydros spider AG. And he is also the father of the idea which is today being implemented by about 25 partners from the economy, including heavy goods vehicle (HGV) manufacturers, filling station operators, transport companies, and energy supply companies.

About 10 years ago Rolf Huber “started to add things up a little”, as he puts it. It was quickly clear to him that decarbonisation of the entire worldwide energy system would not be possible if synthetically manufactured energy sources, such as hydrogen, could not be produced. Starting with this thought, he developed a vision together with others of how heavy goods transport in Switzerland could be converted to run on renewable hydrogen. The first problem was that of the “chicken”. There were no hydrogen powered trucks to be bought at the time. “In two projects supported by the Swiss Federal Office of Energy we constructed with various partners, including Coop and Eniwa, just such an HGV and opened the first hydrogen filling station in Hunzenschwil”, says Rolf Huber looking back. “We learned a lot from that”. The HGV could be driven, but technically it was far away from any possible mass production. Nevertheless we had inquiries from interested parties all over Europe, who wanted to buy such a truck.

“That was exciting and encouraged us to pursue our vision.” Again we searched for a manufacturer for the HGV and found one in Hyundai, which along with Toyota is a leader in hydrogen fuel cell technology. However, to cooperate with us they insisted on a certain number of vehicles. “We had to consent and order at least 1000 trucks”. Now the chicken had become a hen house.

The HGV's were now available so we had a supply. Now we had to solve the egg problem, the demand side. This resulted in the idea of founding the Association H2 Mobilität Schweiz. More than 20 transport companies and filling station opera-

tors are now organized in this association. They drive the hydrogen powered trucks – at the end of 2020 there were about 50 in Switzerland – and expand the H2 filling station network. At the end of 2020 there were 4 stations in operation: Hunzenschwil, Rümlang, St. Gallen and Zofingen. By 2023 the network will cover the country. To make it easier to get started, the trucks from Hyundai Hydrogen Mobility AG, a joint venture between H2 Energy and the Hyundai Motor Company, are offered in a pay-per-use model. This means operating costs are similar to those for conventional HGVs with a high payload and range. Another contributing factor is that hydrogen powered trucks are exempt from the petroleum tax and the performance-related heavy vehicle charge (LSVA).

The production and the logistics of the renewable hydrogen cycle complete the cycle. Sites of run-of-river hydropower plants are very suitable locations for the stations. There the electrolyser can obtain the electricity required directly and cheaply from hydropower production. This is where Hydros spider AG comes in, a company in which Alpiq, H2 Energy (45% each) and Linde (10%) participate. At Alpiq's Gös gen hydropower plant the first facility in Switzerland for the production of green hydropower has been in commercial operation since spring 2020. The hydrogen produced there is put into containers with pressurised storage tanks and then transported to the filling stations.

Rolf Huber is proud of what has been achieved in Switzerland up to now. This has not gone unnoticed abroad. “We have had inquiries from authorities and ministries from all over Europe. They are interested in how we have built up the commercial cycle”, something which makes him very happy. One thing is sure: development is proceeding apace. In Switzerland there will soon be over one thousand hydrogen powered trucks on the road and renewable hydrogen production will be expanded rapidly.

Since more than ten years, the Swiss Federal Office of Energy rewards best performances in the energy sector with the Watt d'Or. The aim of the Watt d'Or is to increase awareness of these achievements and thus motivate companies, politics and the general public to discover the advantages of innovative energy technologies for themselves. www.wattdor.ch



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