



Sylvia Rall and Dieter-Bernd Schnaidt are committed to hydrogen propulsion and are leading out with a good example.

Picture: Oliver von Schaewen

Into the future with the fuel cell

Germany: Sylvia Rall and her husband, Dieter-Bernd Schnaidt, choose to drive a hydrogen car.

Living sustainably with a car? For Sylvia Rall, Managing Director at Hainbuch in Marbach, this is not an issue. Together with her husband Dieter-Bernd Schnaidt, she drives a Hyundai Nexo. The particularity of the car: It is powered by hydrogen – and thus it drives without harmful carbon dioxide emissions. »For me, this is the absolute technology of the future«, says Sylvia Rall, who from the entrepreneurial perspective alone, has an interest in keeping in step with technology.

The key experience for Rall was a visit to China that had been organized by the Baden-Württemberg Ministry of Economics and Labor. »For all major vehicle manufacturers, such as Geely, the fuel cell is seen as the objective«, relates Sylvia Rall. Currently China imports 80 percent of its oil, but it wants to be independent. »You can make electricity out of everything: Hydro-power, sun, and coal – China has enough of these natural resources.« Since in Germany there is also no alternative but to move away from fossil fuels, it is imperative to promote hydrogen [H₂] as the most promising energy source with its virtually flawless CO₂ balance, says the Hainbuch boss. She cannot understand the situation that compared to Japan and China the German automobile industry lags far behind. »I'm upset«, she says, after all, plans for the fuel cell have been tucked away in the drawers of the auto manufacturers since the 1990s. Only recently, at an auto summit, three major corporations announced that they would not be investing in fuel cells in the next ten years. For Sylvia Rall this is clearly a wrong assessment: »The Chinese want to build 4000 hydrogen filling stations over the next four years.« The fact that Geely holds a stake

in Daimler, and yet development at the Stuttgart Group is not being driven forward, seems like a contradiction to her.

Sylvia Rall's husband, Dieter-Bernd Schnaidt, Head of Manufacturing at Hainbuch, thinks that to rigidly stick to e-vehicles with batteries would be the wrong approach. »With the battery, cars have to carry hundreds of kilos along for the drive – hydrogen is many times more efficient as a storage medium.« This is a crucial advantage for heavyweights like buses and trucks, but also for airplanes. The hydrogen is obtained from power surpluses produced through regenerative energies and stored as hydrogen. »In this case everyone will then have his own little power plant in the car or in the house«, predicts Schnaidt. The power grid would not be overloaded when owners of e-vehicles want to charge their cars in the evening, and you would not have to build »sinfully expensive« power lines from the north to the south of the Republic. The Japanese have recognized this advantage: They are considered the market leaders in fuel cell development; they want to put approximately 800,000 fuel cell vehicles on the roads of their country by the year 2030. Similarly the number of buildings with fuel cells for electricity and hot water is expected to increase from 230,000 to 5.3 million.

But what is the situation Germany? Even though there is already a small network of H₂ providers, there is still a lack of H₂ providers. So far Sylvia Rall and Dieter-Bernd Schnaidt have always had to drive into Fellbach, a distance of 12 kilometers to refuel. »I have a yoga course in Fellbach and can refuel while I'm there«, explains Sylvia Rall. When Schnaidt is on the road for business he refuels with the assistance of an app that displays the locations of filling stations with hydrogen. Or if he vis-

its his mother in Tübingen on the weekend. »We can go 600 kilometers with one charge«, he says. Refueling is much faster than it is for e-vehicles and only takes 3 to 6 minutes. »The energy density of a tank with hydrogen is 100x greater than the energy density of a lithium-ion battery.« Although the production of H₂ is energy-intensive, the increased consumption of solar energy harms neither the environment nor the climate.

In spite of the immense advantages of the fuel cell, Schnaidt still acknowledges the importance of battery-powered vehicles with cable charging: »It makes sense for driving in the cities – but for long-distance driving, trucks, ships, and airplanes, the future belongs to the fuel cell.« However the problem of battery disposal still remains. Battery production requires a highly complex manufacturing process chain – but this is precisely why the automotive suppliers should be aligned to these processes. »These are jobs that otherwise would be lost.« In macroeconomic terms, an intelligent mix of the types of propulsion is essential.

Sylvia Rall thinks driving with the Hyundai is »simply cool« only steam exits the tailpipe. Actually the car even filters the air of its surroundings and destroys fine dust. The braking energy of the 163 HP vehicle is stored and reused, like it is in hybrid vehicles. There is no engine noise – noise can be simulated so that the outside world hears the automobile. The console of the 70,000 EUR vehicle offers many extras, however this also gives rise to the question as to whether average earners can afford such a car. »A Golf class is in development«, points out Sylvia Rall.