



Take five with...Dr. Werner Ponikwar, Managing Director of Linde Hydrogen FuelTech GmbH

By Stephen B. Harrison on Mar 13, 2020 | [Translate](#) ▼

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Just south of Munich is a suburb where Carl von Linde began his work to develop refrigeration cycles that would to keep the Bavarian beer cool in summer – work that would one day go on to create the company we know as The Linde Group today.

More specifically, Linde plc as it is known today is the result of the mega-merger of equals of The Linde Group and its fellow industrial gas heavyweight Praxair, Inc. In terms of hydrogen, each company brought significant expertise to the table and in that very same location today, just south of Munich in Pullach, is Linde's business, engineering and technical complex. It's the workplace for more than 2,000 people in the mainstream Gases and Engineering divisions, and home to several leading members of the Linde Hydrogen FuelTech team.

Here in an interview for H2 View, we take five with Dr. Werner Ponikwar, Managing Director of Linde Hydrogen FuelTech GmbH, to find out more about this highly focused hydrogen mobility business.

We may be here in Pullach, but we know that Linde has considerable expertise in high pressure technology via one of its teams in Vienna too. Can you tell us about these two important locations for Linde?

Yes, indeed; let me explain. We have two important locations connected to our two key technologies, that both enjoy a high market reputation: the Cryo Pump and the Ionic Compressor. Cryo Pump stations convert low pressure liquid to compressed gaseous hydrogen, and they were invented in Pullach.

Vienna is the home of the Ionic Compressor stations, which efficiently compress gaseous hydrogen to high pressures. In fact, they started their journey in automotive fuels with compressed natural gas (CNG) and then migrated into hydrogen. Talking about Vienna, this is also where our serial production and the headquarters of Linde Hydrogen FuelTech are located.



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What are the skills that individuals need to work in the hydrogen mobility sector?

We are a young team and I am certain that our purpose and passion drive us daily. We believe in what we are doing: hydrogen mobility has a genuine role in decarbonisation. But we can't simply take off down the road, like a hydrogen-powered car, without carefully looking where we are going! In addition to great ideas, hydrogen energy needs a very pragmatic approach.

The infrastructure must be developed, and the hydrogen gas needs to be affordable and readily available. Those are challenges that also require good old-fashioned engineering skills. We have a lot of bright and visionary people, but their foundation is a solid technical competence and a relentless focus on safety.

Yes, safety is a key topic for hydrogen – what measures does Linde take there?

First and foremost, safety is the most important topic in everything we do at Linde and is paramount for our filling stations as well. We actively share our knowledge through safety and standards committees such as the EIGA Working Group 11, which coordinates safety practices for hydrogen energy. It includes automotive OEMs and leading industrial gases companies.

We want hydrogen to be a safe and convenient fuel that is accepted by the masses and embraced by the politicians. A small incident involving any player in this space can dent the perception of hydrogen's safety. So, we are very keen to raise the bar here for everybody.

Beyond ELGA, what other organisations do you participate in?

Linde was a founding member of H2 Mobility in 2015. The goal of that joint venture is unconditionally to build 100 hydrogen fuelling stations in Germany, which would represent a basic infrastructure and coverage. This should give OEMs, the public and commercial transport operators the confidence to invest in developing and purchasing hydrogen-powered vehicles.

We had the vision to break out of the chicken and egg problem and decided to 'just do it'. We did not enter into this venture with a short-term business case: we set out to prove a concept in one country and that is what we will do.

What about BeeZero, was that also about proving a concept?

Exactly. Yes, that was our car-sharing demonstration project from a few years ago. We purchased 50 Hyundai fuel cell electric vehicles (FCEVs) for a scheme here in Munich. That was a very small number of cars and we knew it was not going to operate at a viable scale, but when you think that we were Hyundai's largest FCEV customer that year, you can understand how advanced our thinking was. Our idea was to give the population of Munich the opportunity to touch and feel hydrogen mobility.

So, what became of BeeZero?

Our goal was never to diversify away from our core business in gases into car-sharing, so we closed the demo project after a couple of years. However, we are quite proud that after the stop of BeeZero most of the 50 cars are still driving around.

We sold most of the cars to specialised players in the mobility market like CleverShuttle (a ride sharing provider in Germany) or ioki (on-demand-mobility by Deutsche Bahn), who have understood the business benefits of fuel cell vehicles and hydrogen.

As a manager, are you also given the chance to drive an FCEV as a company car?

Yes, for sure! We 'walk the talk' here at Linde, or I should say, we 'drive the talk'.

There are indeed FCEVs in the company car fleet. But, just like every other person in Germany, we need to wait a very long time for them. Our local German automakers have remained focused on battery electric vehicles (BEVs) and the Asian OEMs are allocating their limited production around the world very carefully, so very few new cars arrive here every year.



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Interesting. So, where do you see the advantages of FCEVs and BEVs?

We are passionate advocates of hydrogen mobility. And at the same time, we recognise that BEVs also have their strengths. I can imagine that both technologies will develop side-by-side. For example, I foresee fleets of app-controlled, battery powered autonomous taxis hooked up to power points in cities in the future. On the other hand, in rural areas or for heavy vehicles where range and power are important, hydrogen is in its element.

And beyond the DACH (Austria, Germany, Switzerland) region? What plans do you have there?

We are active members of the Hydrogen Council which is an international forum to promote hydrogen as a fuel. The big energy companies, industrial gases majors and some well-known auto brands all get together to share their enthusiasm with politicians and present a realistic vision of how hydrogen can shape a greener future for our planet.

There is also a lot of interest in the H2 Mobility infrastructure development from some Asian countries and we want to support those developments in a commercially viable manner. Let's see how quickly they can catch-up with, or perhaps overtake, the scale of the hydrogen filling network here in Germany.