Hydrogen infrastructure: Path to the future

G. Tinkhauser[1], S. Fritz[1]
[1]Linde Gas AG, ATZ, Vienna, Austria

Linde Group

Linde has been one of the first companies to actively pursue and push the development of hydrogen refueling stations. The first station opened in 2001 in Germany as part of a testing facility for Daimler. However, soon it became clear that there was a much bigger demand for H2 stations than anticipated. Until now, Linde has built more than 150 hydrogen refueling stations worldwide and has become a market leader in this segment. The main application areas are cars, forklifts, busses and most recently trucks and trains.

Linde Technology

From the beginning on the Linde R&D department focused the development of dedicated and economically efficient H2 infrastructure technologies. One example is the invention of the ionic compressor and the cryopump and the subsequent serial production of hydrogen refueling stations. Inventions like these are building the groundwork for the development of a reliable, affordable and energy efficient H2 infractructure.

Future of H2 mobility

With Toyota, Hyundai and Honda pushing the serial production of H2 cars there will be a considerable amount of cars on the road by 2020. However, the focus market for H2 cars is California and Japan since they have made large investments in an H2 infrastructure over the past years and a suitable infrastructure is partially in place. In Europe rather than a massive spread of H2 cars over the next years we will see an increase of heavy duty vehicles such as busses, trucks and trains. Only after 2020 we expect a widespread use of H2 cars in Europe. It is up to us to lay the groundwork for a renewable, green future in Europe.

Presentation content

The presentation will cover the key critical success factors for transition of H2 mobility from 'R&D and pilot phase' to 'commercial phase' and for which applications these success factors are already fulfilled.