



From Australia to Oslo – hydrogen flying high on the agenda

By Stephen B. Harrison on Jun 25, 2020 | [Translate](#)

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National hydrogen strategies around the world have been emerging rapidly since Australia's National Hydrogen Strategy was published November 2019.

Australia threw the stone in the pond, and the ripples are growing to become a tidal wave of change around the world. Hydrogen is flying to the top of the political agenda.

In Europe, Norway (*hydrogenstrategi*) and Germany (*Wasserstoffstrategie*) both confirmed their hydrogen strategies in June. And within Germany, the Bavarian Federal State took a bold lead to announce their hydrogen strategy a fortnight before the national document was passed as law through the German parliament.

On 26th of May, the EU DG ENERGY also announced the roadmap that will lead to the production of *An EU Hydrogen Strategy*. Kadri Simson, from Estonia, the new Commissioner for Energy, will be able to use that hydrogen strategy as a component of the European Green Deal Investment Plan to catalyse, harmonise and scale up hydrogen's role in the energy transition across the EU.

We might expect that Germany will use its upcoming tenure as Presidency of the Council of the EU to align the EU vision with some other aspects of the German *Wasserstoffstrategie*. For example, the *New Mobility Approach* initiative will be central to Germany's period of Presidency. One of its three pillars is *sustainability*, which will rely heavily on hydrogen as a transportation fuel.

Funding to underpin the intent

The strategies have not been hollow. Significant funding has also been promised to underpin hydrogen's place in the renewable energy transition. The *Next Generation EU* post Covid-19 stimulus programme will allocate billions of euros to hydrogen investments.

As a national example, one layer beneath that, the German Covid-19 economic recovery plan also channels billions of euros in this direction.

Through these Covid-19 recovery plans, and more broadly, it is becoming evident that investment in the hydrogen economy will not only lead to environmental benefits but will stimulate economic development and create high quality jobs in R&D, manufacturing and advanced energy technologies. Shining the spotlight at a regional level, Dr. Uwe Albrecht, Managing Director of LBST, says that, "The

Bavarian hydrogen strategy will also support regionally-based companies and organisations which are active in the hydrogen economy.”

In principle, the national and regional hydrogen strategies are aligned. The regional policies focus more on the local implications. In Bavaria, that might mean technology development aligned to fuel cells which may be of value to BMW and Audi, the two big Bavarian premium auto brands. Linde and Siemens, two major DAX concerns are also grounded in Bavaria and both also have major stakes in the emerging hydrogen economy.

For North Rhine-Westfalia (NRW), a heavily industrialised region with a history of mining, refining, steel making and chemicals production, the implications are more about how to generate green hydrogen at scale to fuel local economic activity.



Hydrogen flying high

LBST, or Ludwig-Bölkow-Systemtechnik GmbH, takes its name from one of the founders of what we now know as Airbus.

Albrecht says that “one of Bölkow’s visions was a hydrogen powered jet liner. In fact, he penned designs for the ‘CRYOPLANE’ which was a modified A310 with liquid hydrogen tanks straddled on top of the passenger area from the nose to the tail.”

[Rivers and roads – Hydrogen mobility infrastructure in Germany.](#)

It is a testament to the vision of the man that these ideas were being communicated at the turn of this millenia, 20 years ago.

“Our thinking at LBST is also visionary” says Albrecht. “For example, we have been supporting the development of hydrogen strategies in NRW and other regions of Germany. These will set the direction of economic activities and infrastructure development through 2030 to 2050 as we seek to become carbon neutral.”



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The German hydrogen strategy will pull for renewable fuels in aviation with a 2% electricity-based fuel quota being discussed to be achieved by 2030. “The policy document sets the direction. The market will determine the most economically viable options for production of these fuels,” adds Albrecht.

He continues to say that, “The idea to use liquid hydrogen in aviation is not so crazy. Compared to traditional aviation kerosene, liquid hydrogen has a relatively poor energy-to-volume ratio, but it does have an excellent energy-to-weight ratio.”

“In flight, it’s the weight of the plane that matters most. Bulky planes tend to fly quite well, as various transporters have demonstrated over time. So, putting a big fuel tank on the top of a jet liner is not a deal-breaker in terms of aerodynamics and overall fuel efficiency.”

The physical embodiment of hydrogen mobility has, up to now, largely focused on trucks, buses, cars, rail and shipping. As an alternative to e-bikes, hydrogen powered bicycles have also emerged. In the air, a few hydrogen drones and small-scale transporters have been proposed and piloted. Perhaps the inclusion of e-fuels quotas in hydrogen strategies will further catalyse major advances in hydrogen-fuelled aviation this decade.