

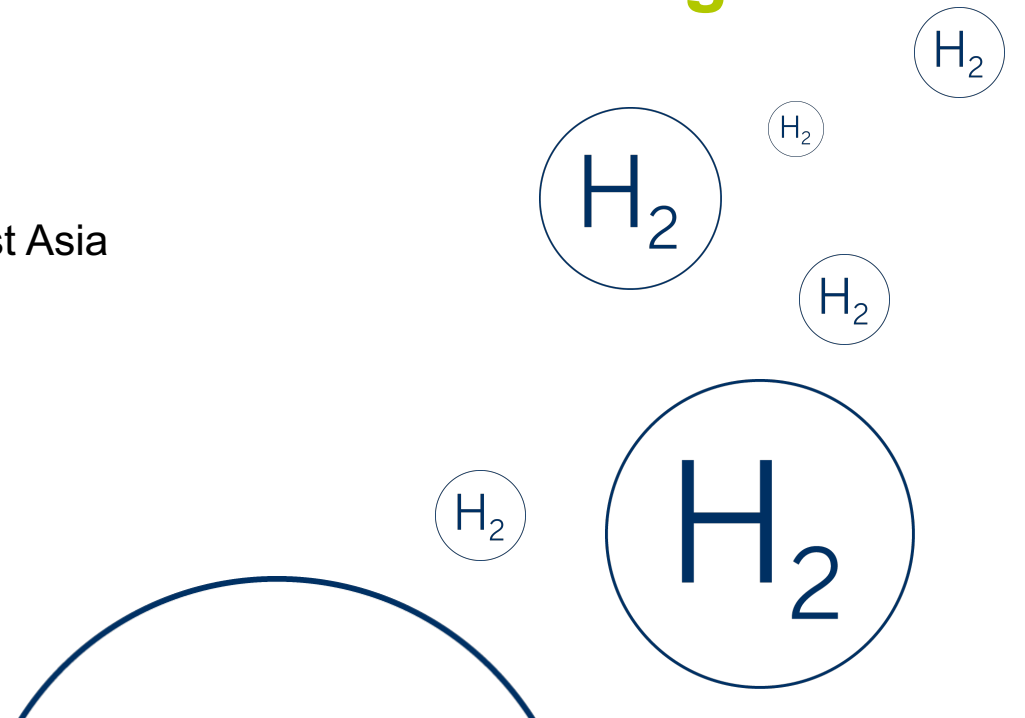


H2 frontrunner North Rhine-Westphalia (NRW) – the Hydrogen roadmap of Germany’s industrial powerhouse – opportunities from challenges

Dr. Diana Schüler

Policy Advisor “Innovation Markets” – East Asia

Tokyo, 16 March 2023

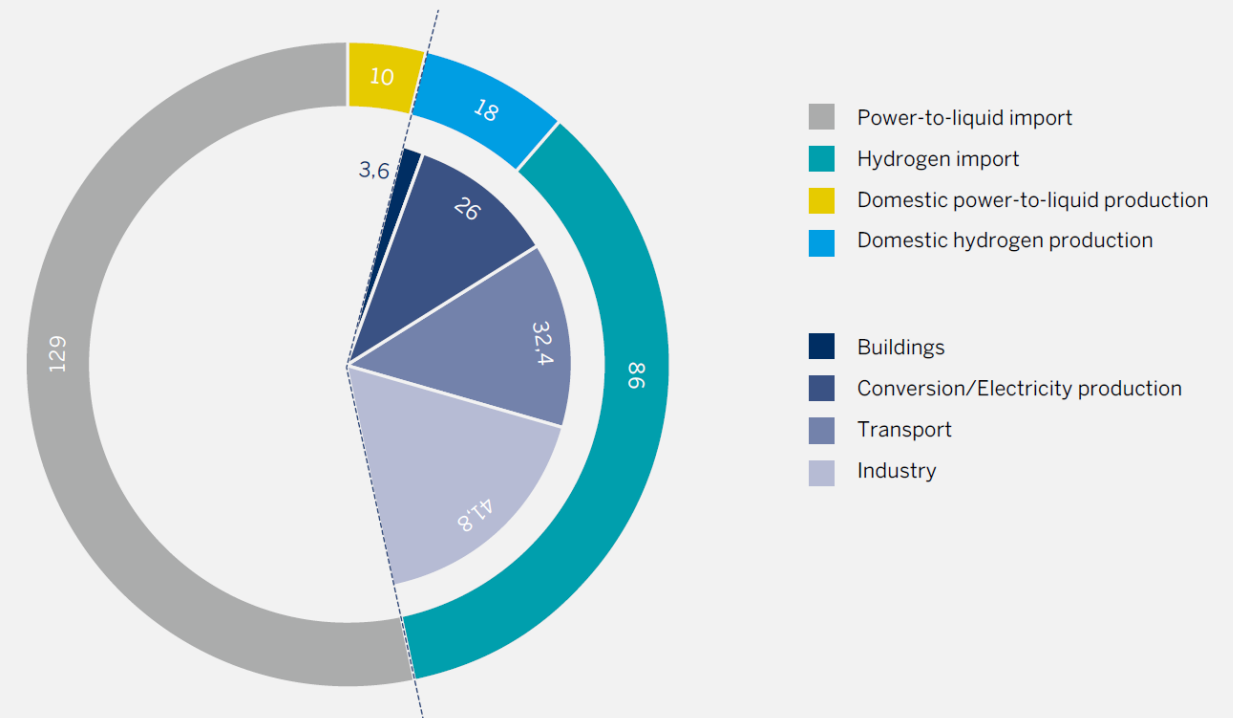




The future hydrogen market in NRW

- Future scenarios expect a hydrogen demand in NRW in 2050 of more than 100 TWh/a
- Additionally, we expect a Power-to-Liquid demand of almost **150** TWh/a, in particular for chemical industry
- Main drivers for NRW's hydrogen market:
 - Steel and chemical industry
 - Public transport and heavy duty transport
 - Mid/Long term: electricity production (H₂-ready power plants)

Hydrogen and Power-to-Liquid Supply in North Rhine-Westphalia in 2050 in TWh/a



See also: https://www.wirtschaft.nrw/sites/default/files/documents/eu_535_h2_roadmap_nrw.pdf



Key objectives for 2025 & 2030

- Pilot projects in different **industry** sectors: proof how a climate-neutral transformation can succeed with hydrogen
- **Mobility**: expansion of hydrogen-based power trains in heavy duty and public transport
- **Energy & Infrastructure**: simultaneous build-up of electrolyser capacity near to consumption and a trans-regional hydrogen pipeline network
- Strengthen competences in mechanical and plant engineering
- Establish **international cooperation** and partnerships





First milestones on our way to a hydrogen economy (1)

- Seven hydrogen IPCEI projects will start operation after approval from the EU commission (some have already started): GET H2, tkH2Steel, GreenMotionSteel, ChemCh2ange, MAPEVA, Sunfire 1500, Seneca
- Key areas comprise steel and chemical industry, hydrogen pipeline infrastructure and storage, electrolysis capacity, production capacity and hydrogen refueling stations for heavy duty transport
- Next step: transition phase from single projects with public funding to functioning green markets/suitable market designs

„State government decides to support climate-neutral steel production in the Ruhr region”



First milestones on our way to a hydrogen economy (2)

- Stimulate and coordinate demand in the mobility sector
- Initiative called „**HyTruck.NRW**“
 - Joint Undertaking of logistic companies, transport associations and the main harbours (Duisburg, Rotterdam and Antwerp)
 - Matchmaking process for sale, rent or pay-per-use models
 - 63 LOIs that comprise 630 Fuel-Cell Trucks and 70 HRS have been signed already



First milestones on our way to a hydrogen economy (3)

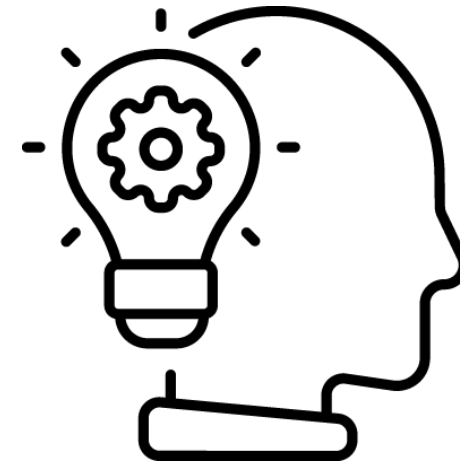
■ RH2INE

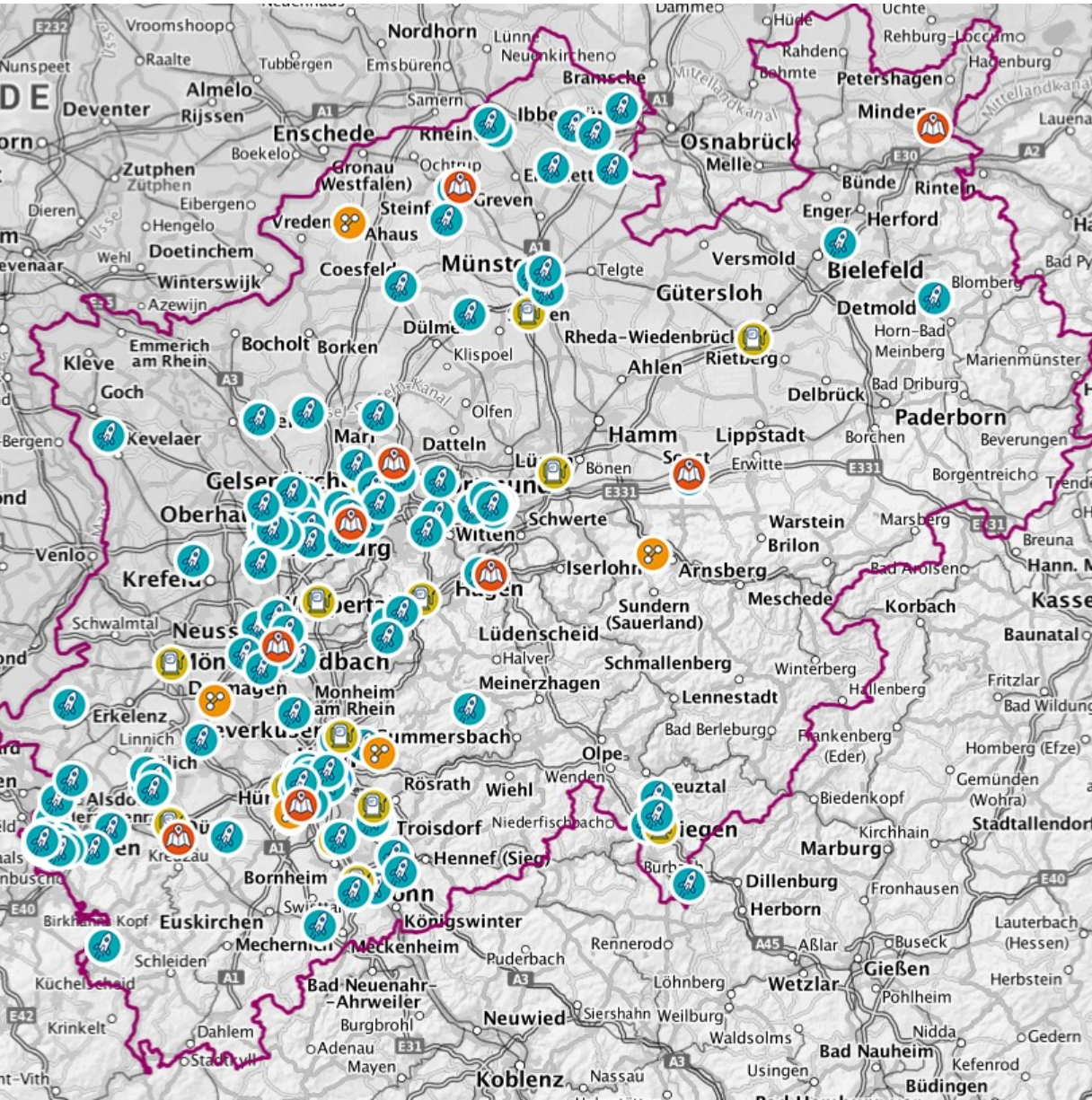
- Joint initiative between the province of South-Holland and NRW and several companies → Next step will be to expand to other regions and states along the Rhine-Alpine Corridor
- Key target: Establish a hydrogen infrastructure for inland shipping and other heavy duty transport along the river Rhine



First milestones on our way to a hydrogen economy (4)

- Setting up new **research institutions**
 - **HC-H2: Helmholtz-Cluster** for a sustainable and infrastructure-compatible hydrogen economy
 - Almost one billion EUR of public funding for staff, research infrastructure and large-scale pilot projects until 2038
 - Together with HC-H2, Research Centre Jülich and RWTH Aachen there will be around 700 scientists working on hydrogen technologies
 - **TrHy: Technology and Innovation Centre** focusing on fuel cell power trains for heavy duty transport
 - Up to 50 Mio. EUR public funding from the state government of NRW; additional financial support from federal government





First milestones on our way to a hydrogen economy (5)

- Very strong bottom-up movement based upon committed companies, excellent research institutions and progressive municipalities
- More than 300 projects, initiatives etc. in NRW
- → see also www.h2land-nrw.de



Why is NRW the most attractive hydrogen location in Europe?

- Unique starting position
- IPCEI projects
- Reserach landscape
- Strong bottom-up movement, networks and regional clusters

- More to come in the future (additional funding for SMEs, build-up of international partnerships,...)



Thanks for your attention!

Dr. Diana Schüler

Ministry of Economic Affairs, Industry, Climate Action and Energy of the State of North Rhine-Westphalia

Department of European, Legal and International Economic Affairs

diana.schueler@mwiki.nrw.de

Sources: panthermedia.net – Dmitry Shironosov, Jens Ickler, Sommai Larkit, Razihusin and Land NRW