



Fuel Cell and Hydrogen, Electric Mobility Network NRW

Organisation

The Fuel Cell and Hydrogen, Electric Mobility Network NRW (North Rhine-Westphalia) is one out of twelve networks of the EnergyAgency.NRW and works on behalf of the State Government of North Rhine-Westphalia. As from March 2017 the network continues the tasks and activities of the former Fuel Cell and Hydrogen Network (established in 2000), and of the Project Management Office Electric Mobility (initiated in 2009).

Combining the two networks brings together new and experienced actors from the hydrogen and fuel cell technology as well as from electric mobility and will collectively move the development and market launch of these technologies forward. The main office is located in Dusseldorf, a second office is located at the Science Park Gelsenkirchen.

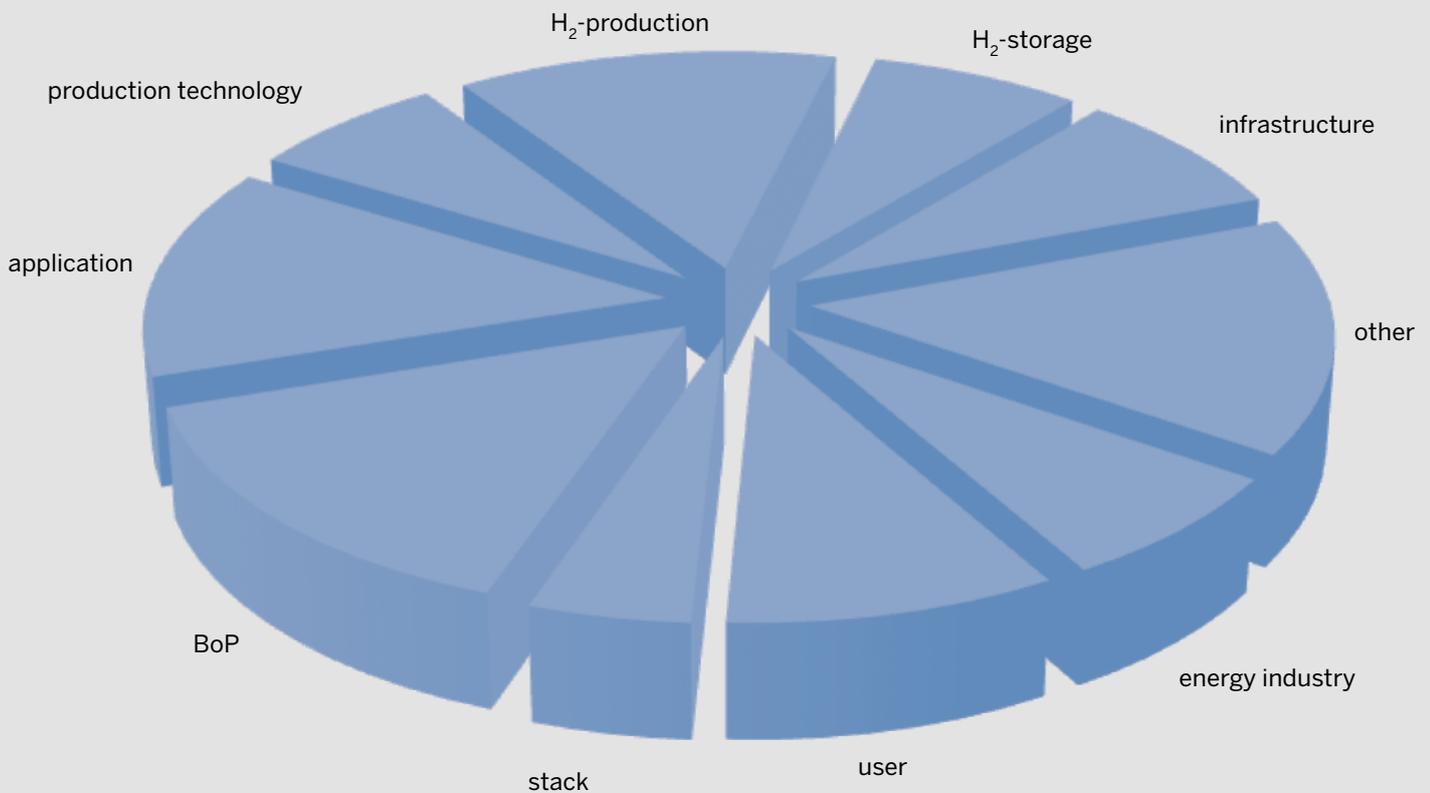
Goals

The goals of the Fuel Cell and Hydrogen, Electric Mobility Network NRW are:

- further development of technologies in the sectors fuel cells, hydrogen and electric mobility as well as their market launch in Germany
- underlining the importance of North Rhine-Westphalia as a business site for electric mobility, fuel cell and hydrogen technologies as well as the creation of future-oriented jobs
- implementation of power and hydrogen as elements for the coupling of the sectors energy, transport and heat – and thereby as important components for the energy turnaround



Network Structure



Membership Structure

Over 450 members and more than 100 project partners from the ModelRegion Electric Mobility North Rhine-Westphalia are using the services of the network.

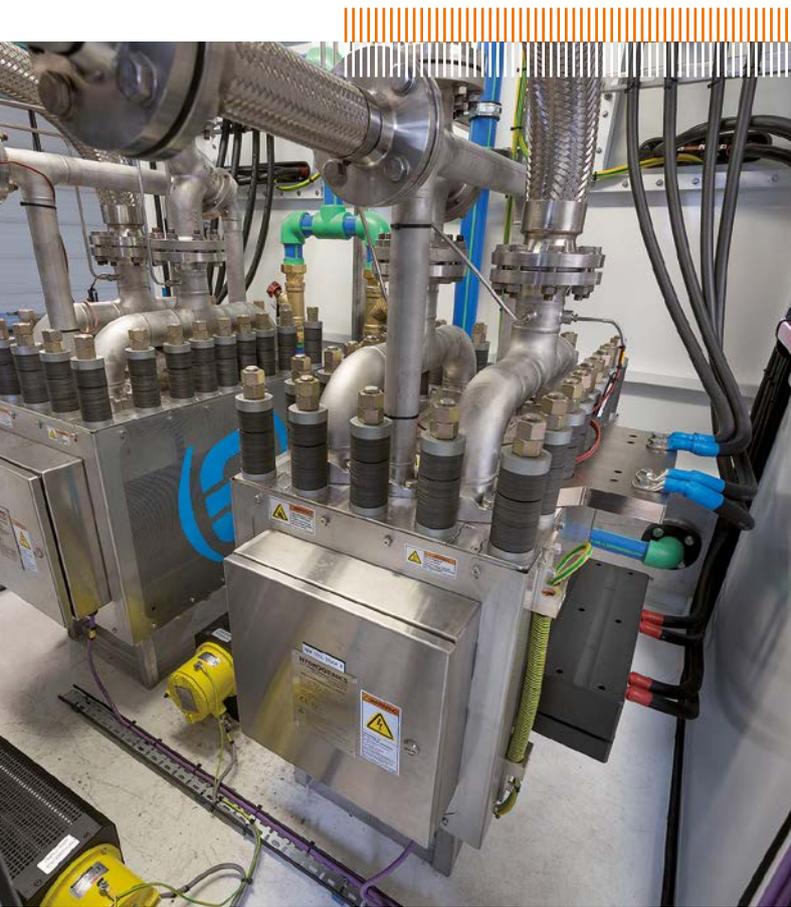
The network is the largest platform for fuel cell and hydrogen technologies in Europe. Round about 70 % of the members are companies (mainly small and medium sized enterprises), 20 % research institutes and 10 % come from other areas. The actors are based primarily in NRW, but also in other federal states and abroad. The majority of the member companies come from the fields of mechanical and electrical engineering. These are for example companies which produce subsystems such as energy converters, power electronics, drive systems and storages as well as their components. Furthermore, complete systems for mobile, stationary and portable applications are developed and produced in North Rhine-Westphalia. Other members cover the entire value chain of the hydrogen from production – mainly by electrolysis and reforming – to storage and distribution. Considering these activities North Rhine-Westphalia obtains a special

role as a business site due to its high quality products which experience an impressive demand from domestic and foreign system manufacturers.

You can increasingly find end users such as transport companies, fleet managers, energy suppliers, public utilities, municipalities and mobile telecommunication operators among the network members.

More than 50 research institutes and universities in NRW are dealing with fuel cells and electric mobility, for example in the development of materials, components, systems and vehicles. Further topics are production technology and technologies for the hydrogen production on the basis of electrolysis or directly from sun energy and biomass. You can find the full range of products and services online by searching in the electronic data base:

www.energieagentur.nrw/netzwerk-brennstoffzelle



Services offered

The range of services of the Fuel Cell and Hydrogen, Electric Mobility Network NRW breaks down into the following areas:

- **Initiation of cooperative and single projects**
 Project identification, partner-finding, initial consultation on subsidies and implementation support
- **ModelRegion Electric Mobility North Rhine-Westphalia**
 Project office
- **Networking**
 Bringing together relevant actors from economics, science and politics
- **Internationalisation**
 Acquisition and delegation trips, collaboration in international committees and initiatives for fuel cells, hydrogen and electric mobility
- **Information and communication**
 Annual meeting, specialist events and workshops, project manager meeting, expert groups, competence atlas, list of products, information about the technologies

- **Public relations**

Joint stands on trade fairs, presentations at home and abroad, publications in specialist media, internet presence, journalist trips

- **Settlement**

Acquisition and guidance in company settlement, support of regional business developments, site information

- **Qualification**

Scholar competition, research award, seminars, training courses

Focus of the networking activities is the initiation and support of cooperative projects. So far, EUR 145M have been allocated by the European Union (European Regional Development Fund-ERDF) and the State Government of North Rhine-Westphalia for more than 125 projects in fuel cell and hydrogen technology. The project topics range from the development of individual system components such as compressors and sensors to the development and testing of complex fuel cell applications, e.g. hydrogen buses. In the field of electric mobility more than 60 projects with subsidies of EUR 60M (based on the federal funding directives "ModelRegion Electric Mobility" and "Funding Guideline Electromobility") and EUR 100M in total investment have been initiated and supported since 2009. More projects will be added continuously.

Network Membership

Companies or research institutes, which already operate in the field of fuel cell and hydrogen technology or electric mobility or wish to do so, are invited to join the network. It is not required to be based in North Rhine-Westphalia. Similarly institutions such as chambers and associations, can take an active part in the networking.

Application for free membership can be submitted online on the website. An active participation in the expert groups or new projects is expressly desired. At the moment the following committees are active:

- Expert groups
 - H₂-System
 - Power-to-Gas
 - H₂ for public transport
 - Market launch
- Project manager electric mobility meetings



Main focus electric mobility

The ModelRegion Electric Mobility North Rhine-Westphalia implemented one of the first large-scale model regions for future-oriented mobility in Europe, including more than 60 projects in over 40 cities. The expansion of the model region will be expedited. Core pieces of the activities are the funding programmes “ModelRegion Electric Mobility” and “Electric Mobility on site” of the German Federal Ministry of Transport. In these programmes an overarching cooperation between industry, science and public sector is promoted to strengthen the anchoring of electric mobility in everyday life and the expansion in infrastructure. The individual projects in the ModelRegion Electric Mobility North Rhine-Westphalia cover the following topics:

- Integration of renewable energies in the transport sector
- Use of electric vehicles in industry and municipal fleets
- Integration of electric mobility in municipalities, in public transport in intermodal applications
- Development of business models in the field of electric mobility
- International cooperations

Main focus fuel cell and hydrogen

The strategic frame of different activities in the field of fuel cell and hydrogen technology is divided in five application areas (master plan “NRW Hydrogen HyWay”):

- Transformation and storage of renewable power in the form of hydrogen including the following use in energy systems or in the industrial sector (Power-to-X approach)
- Infrastructures for the implementation of green produced hydrogen as an innovative fuel in traffic
- Testing vehicles with fuel cell technology with a main focus on public transport, commercial vehicles and special applications (in addition to passenger cars funded by the Federal Government / EU)
- Research, development and demonstration of fuel cell-based decentralized combined heat and power, virtual and hybrid power plants
- Research and development for the technical optimisation and cost reduction, pre commercial demonstration of new inventions in field tests



Funding opportunities

The lead project “NRW Hydrogen HyWay”, initiated in 2008, forms the strategic frame in the field of fuel cells and hydrogen technology in North Rhine-Westphalia. This is reflected by state`s funding competition Hydrogen-HyWay.NRW of the LeitmarktAgentur.NRW. Besides this funding programme, fuel cells, hydrogen and electric mobility projects are funded by other leading market and climate protection competitions.

In the special funding sector “Emission-Free Inner Cities” of the NRW climate protection competition Regional-ClimateProtection.NRW, municipalities are invited to implement specific mobility solutions. The challenge is to reduce the dependency of the traffic and transport system on fossil fuels, without restricting mobility itself. It requires new action approaches to implement the existing knowledge.

You can find more information on funding opportunities on the website of LeitmarktAgentur.NRW:

www.leitmarktagentur.nrw

Additionally, North Rhine-Westphalia was the first federal state which supported the market launch of fuel cell-CHP systems with attractive funding programmes. Meanwhile the federal programme “Energy-Efficient Constructing and Restructuring – Subsidy Fuel Cell” funds fuel cell systems in the power range from 0.25 to 5.0 kW.

www.kfw.de/433

All activities in North Rhine-Westphalia are harmonized with programmes of the European Union and the Federal Government. On national level the programme „National Innovation Programme Hydrogen and Fuel Cell Technology (NIP)” shall improve research and development as well as market stimulation for products with these future-oriented technologies. The second funding phase from 2016 to 2026 was established as a government programme.

Ramp up processes and application-oriented research as well as development measures are supported by the “Funding Guideline Electric Mobility”. Vehicles and charging infrastructure in municipal and industrial fleets, electric mobility concepts in municipalities, as well as research and development projects in technology and provision of services can be funded. Key areas for applications are motorised private, public and freight transport and special traffic, maritime applications as well as the integration of renewable energies.

www.now-gmbh.de

On European level, Fuel Cells and Hydrogen Joint Undertaking (FCH JU), a public-private partnership, is the relevant institution to support the technology in Europe.

Under the umbrella of “Horizon 2020” multiple international projects have been initiated with partners from North Rhine-Westphalia.

www.fch-ju.eu





Other activities

Scholar competition FUELCELLBOX

The EnergyAgency.NRW organizes the annual scholar competition FUELCELLBOX for secondary schools. The students of today are the urgently searched skilled worker, technicians and engineers of tomorrow. Therefore, the competition shall inspire adolescents to choose an education or university degree in natural science or engineering to support progress in the future technology fuel cells and hydrogen. The students experience that physics, chemistry & co. are not boring subject matters, but rather exciting future topics which are required for fuel cell technology.

www.energieagentur.nrw/fuelcellbox

Research award Hydrogen.NRW

By establishing the research award Hydrogen.NRW, the importance of hydrogen as an energy source in the energy turnaround is underlined. The offering of a reward shall motivate young academics to implement core topics of the research strategy North Rhine-Westphalia in their final papers and strengthen the research site North Rhine-Westphalia. The provided prize money esteems the excellent scientific work and the commitment of young academics. The Research award is promoted by the Ministry for Innovation, Science and Research of North Rhine-Westphalia and is executed by EnergyAgency.NRW and the cluster EnergieForschung.NRW.

www.energieagentur.nrw/forschungspreis

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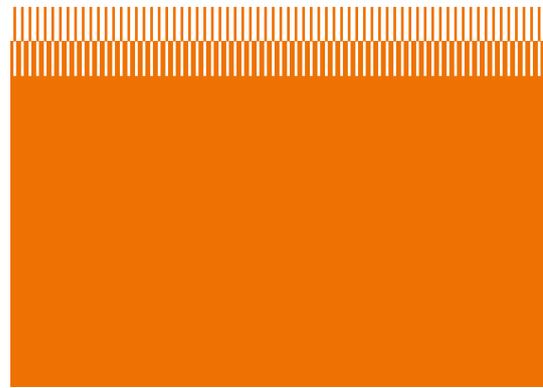
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