

The German Regions

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A regions success in introducing future technologies lies in its past

Agenda

selection of hydrogen initiatives and networks*

- **Bavaria**
- **Berlin**
- **Hamburg**
- **Hessen**
- **North Rhine Westphalia**

* in alphabetical order

Bavaria

- Foundation of the hydrogen initiative Bavaria (Wasserstoff-Initiative Bayern – WIBA) in 1996
- financed by the ministry of economics of the Bavarian state
 - supporting through studies
 - co-ordination of projects
 - handle subsidies
- 50 projects funded with almost 45 mill €



Bavaria

- early introduction of hydrogen technology
- leading hydrogen projects
 - Neunburg vorm Wald (Solar-Hydrogen Project)
 - ARGEMUC (HRS at Munich airport),
- more than 50 companies and institutes have started engagement in hydrogen and fuel cells
- support for research and demonstration projects has been reduced – low visibility



Berlin

- support by the federal government
- CEP (Clean Energy Partnership) to create solution for a mobile society without any emission of greenhouse gases
- partners: Aral, BMW Group, BVG, DaimlerChrysler, Ford, GM/Opel, Hydro, Linde, TOTAL and Vattenfall
- high public visibility
- no strong regional background



Hamburg

- 1989 Wasserstoff-Gesellschaft Hamburg e.V (hydrogen association)
- early projects for hydrogen and fuel cell applications (EQHHPP, W.E.I.T. CUTE, etc.)
- 2005 Initiative for fuel cell and hydrogen technology managed by the city office for environment and urban development
 - networking
 - funding
 - communication
- 2006 HySOLUTIONS – public private partnership in cooperation with Hochbahn, Vattenfall, GL and Chamber of Commerce,
 - project initiative
 - fund raising
 - project management



Hamburg

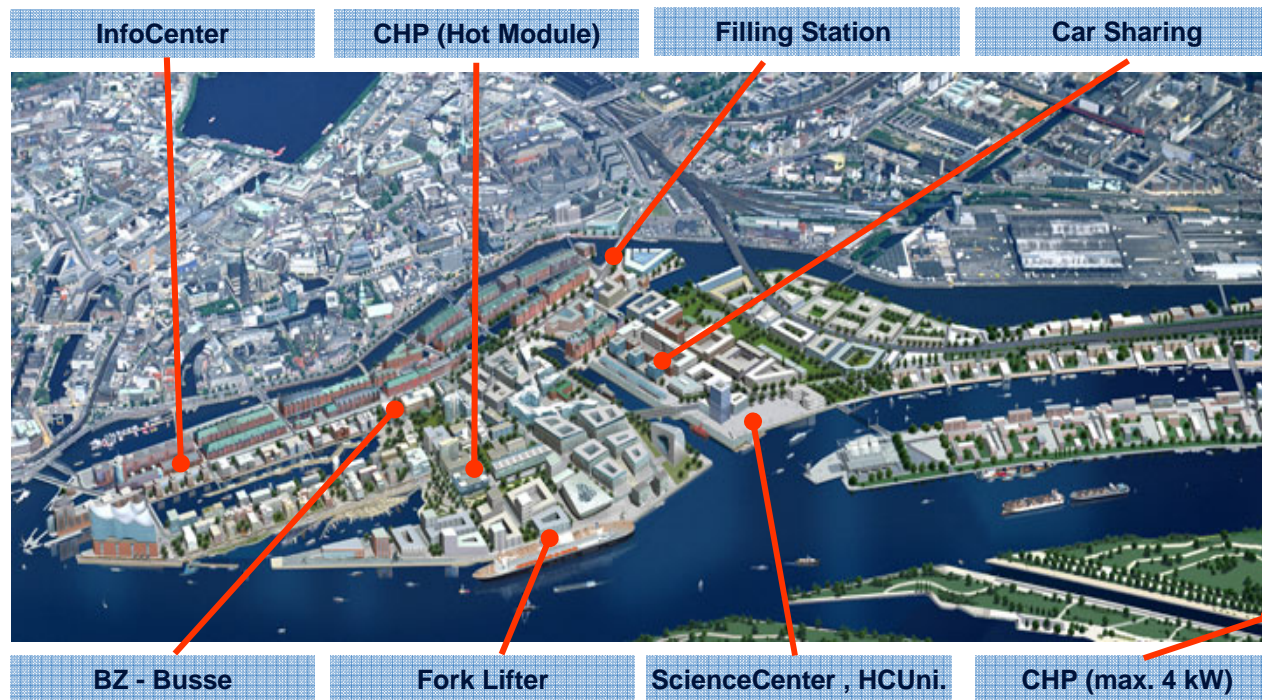
More than 20 projects in various states

- refueling station in the HafenCity for fuel cell buses and vehicles
- hydrogen car for local authorities in economy and politics
- fuel cell heating system from BAXI Innotech
- stationary energy supply through MCFC in the HafenCity
- ZEM Ship - Alster boat with filling station
- low energy residential areas
- filling stations (airport, cruiser terminal, HHLA)



Hamburg

HafenCity Hamburg



hy SOLUTIONS
Hamburgs Antrieb Wasserstoff

Hamburg

- focus on application projects with high visibility
- focus on system integration
- development of energy supply pathways
- combination of projects to increase synergies between operators
- purchase network alliance
 - exchange of knowledge based on experiences
 - economy of scale
 - Amsterdam, Berlin, Barcelona, British-Columbia, London, Perth und Hamburg
- successful in providing presentation platform



Hessen

- 2002 start of the H₂+BZ Initiative Hessen by the Infraseriv and Technology Foundation
 - networking
 - initiate projects
 - support of companies
- supported through the states ministry for economics



H₂BZ
Initiative
hessen »

Hessen

- 25 members are planning further projects (Stack Value: manufacture of a PEM-fuel cell)
- Zero Regio project, HRS and cars
- hydrogen as a by-product at the industrial area Höchst
- successful through industrial focus



North Rhine Westfalia

Hydrogen and Fuel Cell Network NRW founded 1999

- financial support
 - interaction between universities and industry
 - representation of state activities
 - promotion of settlement of companies
- part of the state run Energy Agency (Energie Agentur NRW)
 - 65 Projects with 75 mill. € funding



North Rhine Westfalia

BoP Components

BECKER GSR
Ventiltechnik

Bronkhorst MÄTTIG

Rexroth Bosch Group

APtronic Aktiengesellschaft Adaptive Power Solutions

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Buschjost

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VOSS

Stack Components

SKF

Quintech

CORUS

PEMEAS Fuel Cell Technologies

Coatema® Coating Machinery GmbH

BAYER Bayer

3M

Forschungszentrum Jülich in der Helmholtz-Gemeinschaft

umicore

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ZBT Zentrum für Brennstoffzellentechnik

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PM PROTON MOTOR

NATIONAL INSTRUMENTS™

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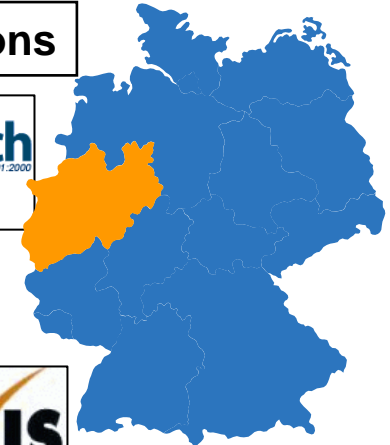
european fuel cell gmbh A member of BAXI GROUP LTD

HYDROGENICS CORPORATION

CERAMIC FUEL CELLS LIMITED Clean power for your home

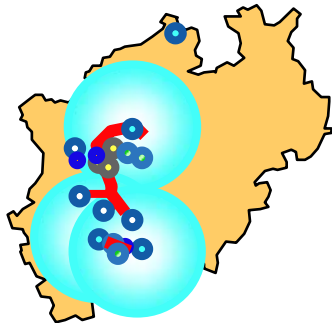
HOPPECKE POWER FROM INNOVATION

EDAG



North Rhine Westfalia

- development projects: shuttle-bus, light duty vehicles, grid independent electrical power supply, mobile refueler, a hydrogen carriage, Hychain
- hydrogen pipeline through the Ruhr area
- strong energy background
- focus on component development
- successful in promoting settlement of technology development companies



Conclusions

- state run agencies may provide a platform for all local stakeholders
- PPP ensure a close co-operation between players and regions administration
- continuous effort required
- networking and communication support is required
- harmonisation with existing resources
- focus on strengths to become visible

Thank you for your attention!