

20th IPHE Steering Committee Meeting (SC)

November 20th, 2013

Fukuoka, Japan

Country Update Germany

Dr. Klaus Bonhoff | Managing Director

NOW GmbH National Organization Hydrogen and Fuel Cell Technology

Dr. Thomas Kattenstein | Director

Fuel Cell and Hydrogen Network North Rhine Westphalia

Wind-Wasserstoff Projekt RH_2 -WKA



Regenerativer Wasserstoff - Werder/Kessin/Altentreptow

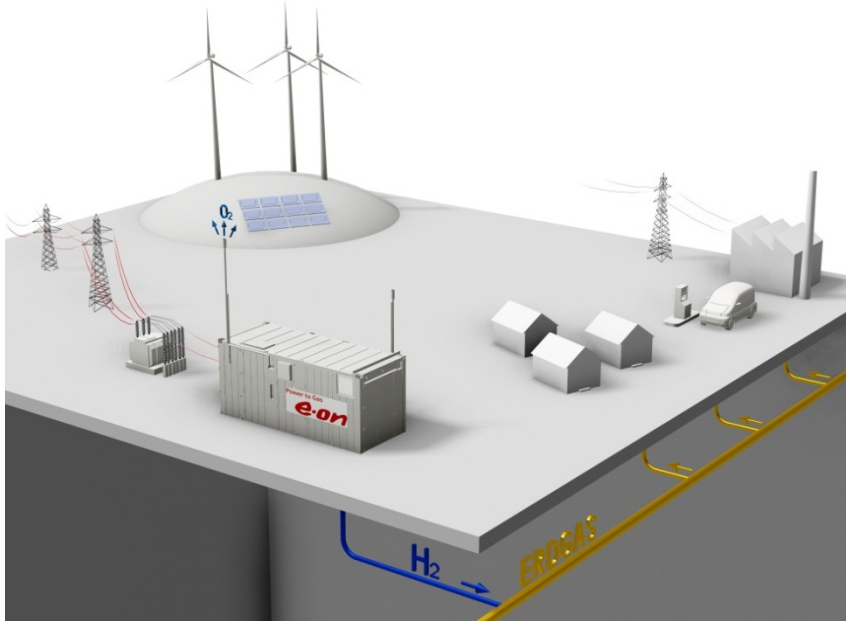
Demonstrating a Wind- H_2 -System

- concept, build-up and operation
- cover power demand wind farm



Take into operation, September 2013

Project „Power-to-Gas for Hamburg“



- 1MW PEM-Electrolyzer
- Feed-in of H₂ into the NG-Grid

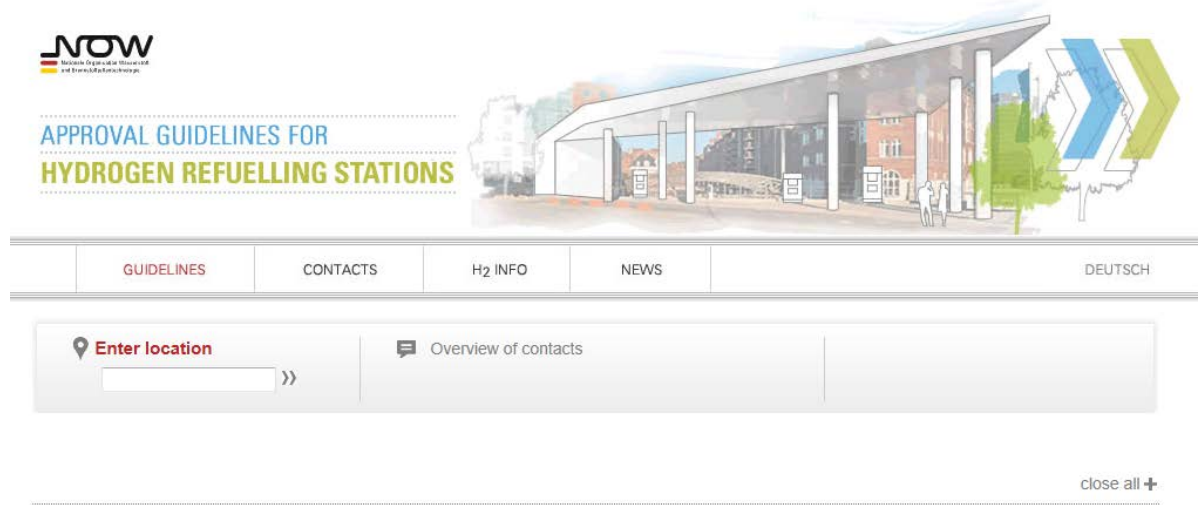


Ground-breaking ceremony,
June 2013



Harmonized HRS Approval Guideline

www.h2-genehmigung.de



Application – Intention to construct and operate a public H₂ fuelling station

1 Identification of the relevant licensing authority

Before creating the licensing application, the superordinate competent licensing authority must be identified. You can identify the relevant contact there by entering the city name in the search field below. The responsible licensing authority may vary according to state or municipality, i.e. different types of authorities could be the eligible contacts. In addition different licensing authorities may be responsible within one region, according to whether a H₂-delivered fuelling station (where the H₂ is delivered to the station) or a H₂ fuelling station (where H₂ is produced on site) is to be licensed. Following the identification of the licensing authority, a close contact should be built up with the relevant person there.

Please enter the planned location of the hydrogen filling station here:

H2-Mobility action plan until 2023

September 30 2013, Stuttgart

H₂ Mobility



Air Liquide, Daimler, Linde, OMV, Shell and Total agree on an action plan for the construction of a hydrogen refueling network in Germany.

Targets:

- **400 HRS** until **2023** (100 HRS until 2017)
- **350 mio. €** investment.
- **Max. 90 km** distance between two HRS at the motorway
- **10 HRS** in each metropolitan area.

~400

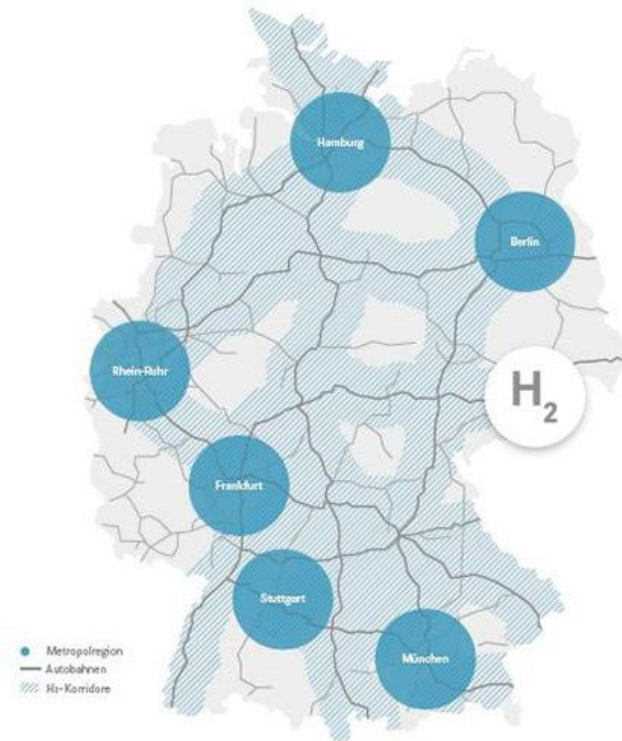
Stationen
soll das öffentliche Wasserstoff-Tankstellennetz in Deutschland bis 2023 umfassen

~90

Kilometer
liegen dann zwischen den einzelnen H₂-Tankstellen auf den Autobahnen rund um die Ballungsgebiete

>10

Wasserstoff-Tankstellen
werden 2023 in jeder Metropolregion zur Verfügung stehen



www.now-gmbh.de

North Rhine-Westphalia (NRW) / The German States

NRW R&D funding program: NRW Hydrogen HyWay

- Hydrogen from renewables
- Hydrogen infrastructure / filling stations
- Vehicle development and deployment
- Stationary applications
- R&D and special market applications

Total funding available (2013-2016): 30 million Euro

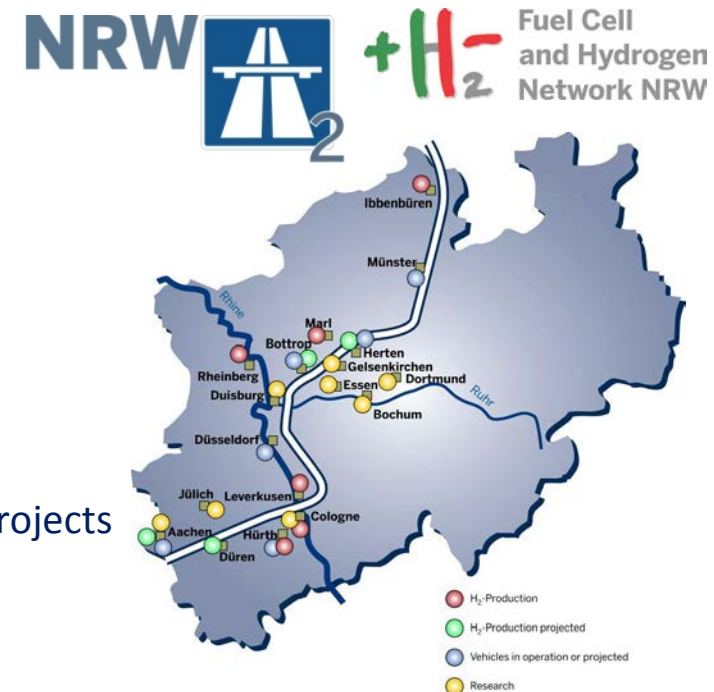
Total funding by now (2000-2012): 115 million Euro for 110 projects

NRW market introduction program: micro CHP incl. fuel cells

- Funding up to 65 % of the surplus costs of fuel cell system (= 13,000 Euro)

Other German States committed to hydrogen and fuel cells, e.g.

- Baden-Württemberg (CHP market program in preparation)
- Hamburg
- Hessen (CHP market program in preparation)
- Lower Saxony
- Saxony (CHP market program in place)



Micro CHP with fuel cells

