



Country Update: Germany

27th IPHE SC Meeting Hamburg
27th April 2017



Policy Update (1)

Recent regulative developments regarding hydrogen: European Directive and national implementatimon

- Immission Protection Ordinance (Bundes-Immissionsschutzverordnung (BImSchV):
 - 37. BImSchV implements EU Directive 2015/652 for the definition of calculating procedures and mandatory reporting according to EU Directive 98/70/EG (Fuel Quality Directive)
 - 37. BImSchV regulates the accounting (*Anrechnung*) of power based fuels as well as biogenic oils on the greenhouse gas reduction quota (GHG reduction quota) which is in force since 2015
 - The criteria set for the accounting of electric power on the GHG reduction quota are very strict (only off-grid renewable electricity production) and therefore do not set incentives for hydrogen
 - Due to progressed political process no further amendments probable
- Upstream Emission Reduction (UER):
 - Upstream Emission Reduction (UER) Directive is in the process of association hearing (*Verbändeanhörung*) but currently there is no political support for hydrogen in sight
- Renewable Energy Directive (RED II):
 - Opportunity for supportive language for green hydrogen



Policy Update (2)

Publication of the funding guideline from the Ministry of Transport and digital Infrastructure (BMVI) for market activation measures for sustainable transport



Applicable technologies for funding:

- Vehicles for road, rail and water as well as airplanes with fuel cell drive trains
- Electrolyzers as far as they are operated with renewable energies
- Special vehicles for logistic
- Fuel cell based CHP's for applications as on-board units for ships, vehicles and airplanes
- Fuel cell based off-grid power supplies for critical infrastructures

Funding scheme:

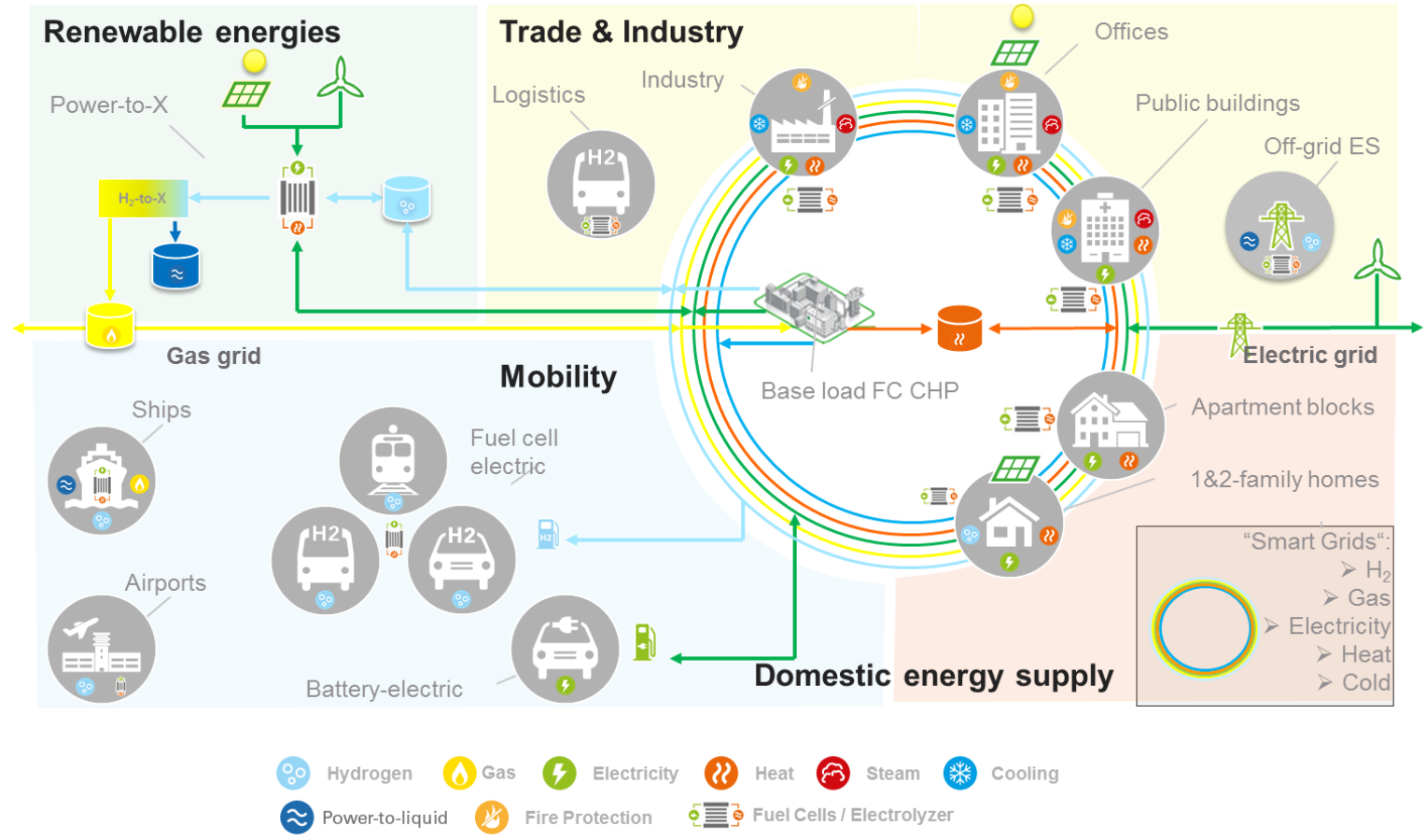
- 40-45% of the additional costs for innovative technologies
- SME's might be eligible for higher funding quotas

Implementation via individual calls



Directions and Development (1)

Analyzing interdependency's of an integrated energy system and its key technologies





Directions and Development (2)

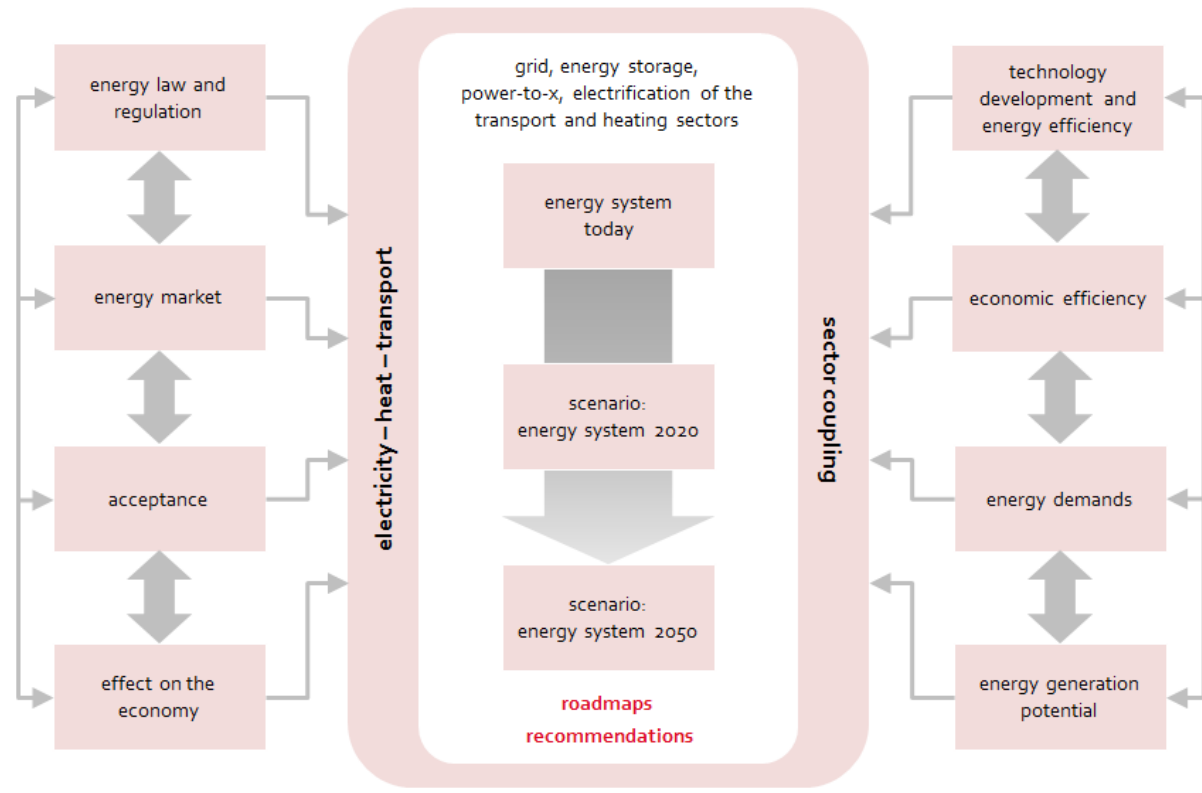
Analysis of the current and needed regulations for an integrated energy system



Integriertes Energiekonzept 2050
Strom Wärme Verkehr Industrie

Project objectives:

- Develop an Integrated Energy Concept 2050 (IEC 2050) based on renewable electricity
- Develop essential features of an appropriate regulatory framework, supporting the IEC 2050.



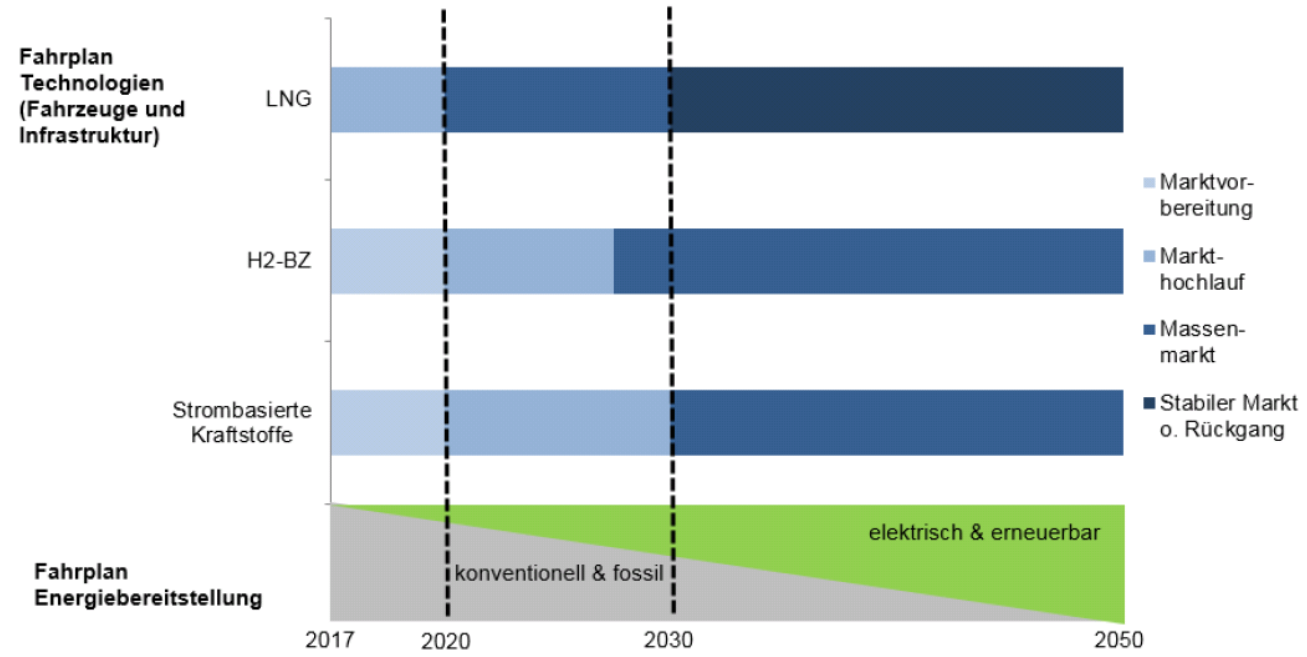


Directions and Development (5)

Heavy-duty transport initiative of German Federal Ministry of Transport and Digital Infrastructure (BMVI): Outcomes and next steps



Fahrplan klimafreundlicher Straßengüterverkehr (Antriebe und Kraftstoffe)



Outcomes:

Roadmap including fuel cell drivetrains and direct hydrogen refueling for heavy duty trucks outlining R&D&I measures (including pilot projects)



Directions and Development (6)

5th International Workshop on Hydrogen Infrastructure & Transportation

Date **Workshop: 17 - 19 May 2017**
Location **Federal Ministry of Transport and Digital Infrastructure (BMVI)**
Invalidenstraße 44, 10115 Berlin, Germany, Meeting Room K1
Organizers European Commission, DOE (U.S.), NOW (Germany), NEDO (Japan)



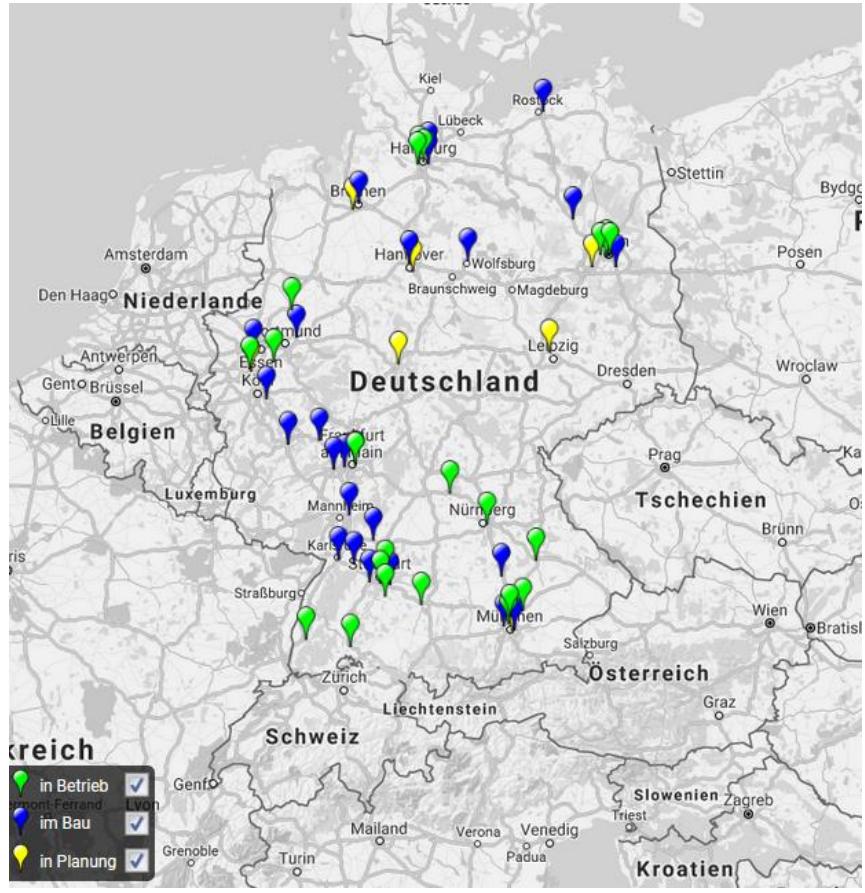
Host National Organisation Hydrogen and Fuel Cell Technology (NOW)
(Contact: Hanno Butsch – Hanno.Butsch@now-gmbh.de)

Objective:

The 5th International Workshop on Hydrogen Infrastructure & Transportation aims at sharing experiences, best practices and progress on key issues facing hydrogen infrastructure deployment for fuel cell electric vehicles especially in the U.S., Europe, Germany and Japan. Discussion topics include RCS, H₂ Fueling and Metering, H₂ Quality, H₂ Logistics and H₂ Utilization Experience (70 MPa & 35 MPa HRS).



Key Data: Transport (1)



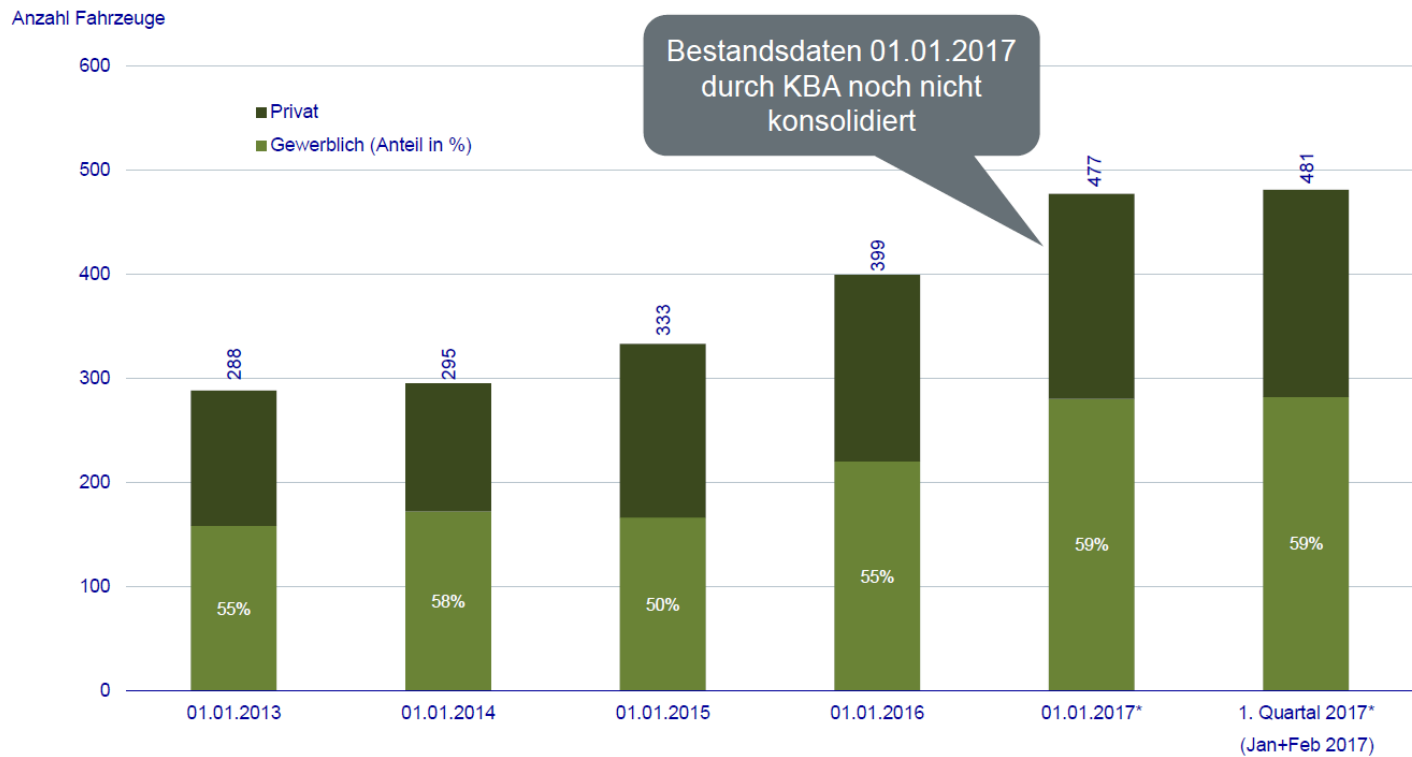
H2 Refueling Infrastructure:

Constructed		33
➤ In operation	23	
➤ In approval	10	
Under construction		12
Application process		10
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Total		55



Key Data: Transport (2)

Total FCEV stock

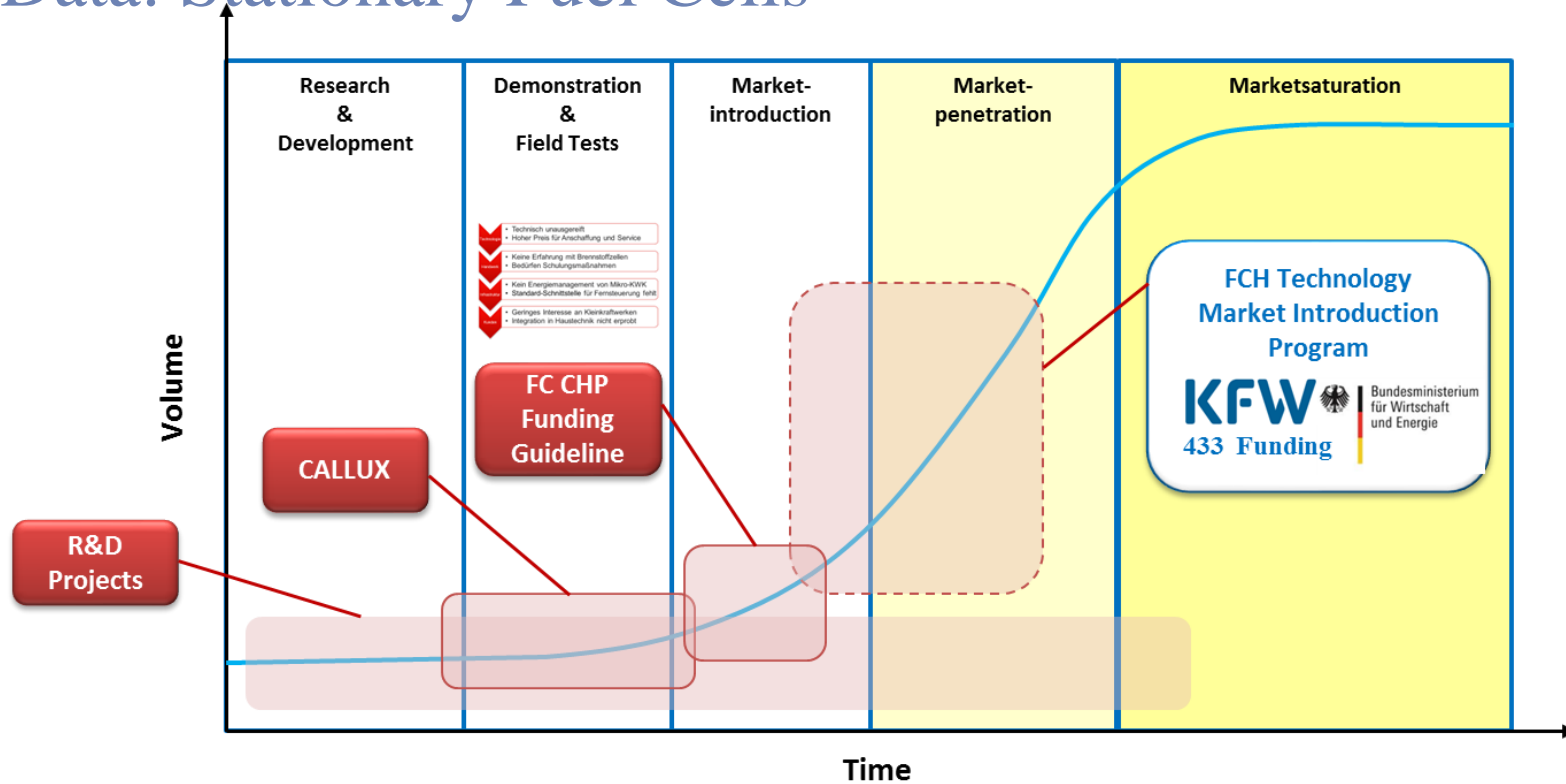


Bestandsdaten 01.01.2017 durch KBA noch nicht konsolidiert

Datenquelle: Kraftfahrt-Bundesamt, Flensburg, 2017
 * Bestand 2016 + Neuzulassungen



Key Data: Stationary Fuel Cells



FC CHP Program:

- ~ 1200 applications for μ CHP (residential)
- two projects for industrial application with 100 to 400 kW

Market Activation / KfW 433:

- ~ 343 units within first two months (start 08/2016)



Key Data: Special Markets



300 units installed within the NIP – Secure power supply for critical digital infrastructure



www.cleanpowernet.de