

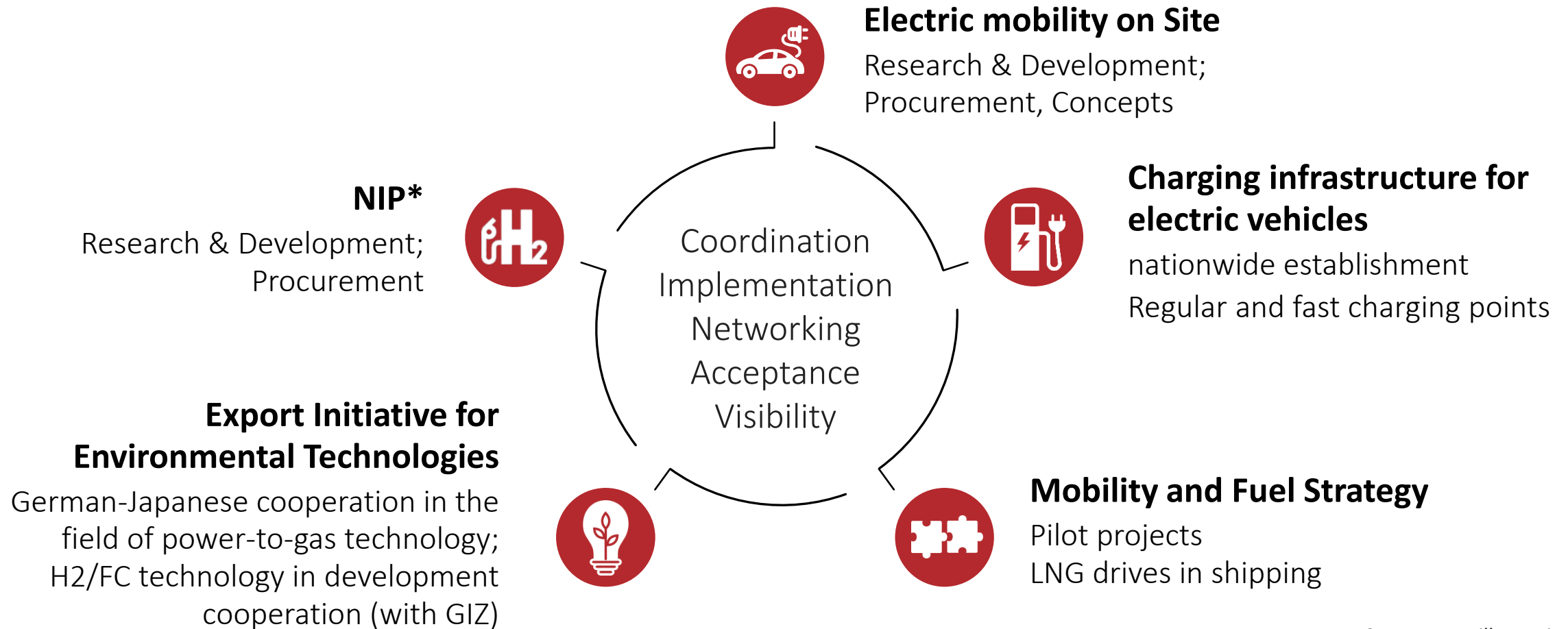
Tokyo | September 25th, 2019

The Renewable and Clean Hydrogen Challenge of Mission Innovation

Dr. Geert Tjarks | NOW GmbH, Head of Division International Cooperation

TOWARDS ZERO EMISSION MOBILITY

Integrated implementation of national funding programs by NOW GmbH



Source: own illustration

* National Innovation program for hydrogen and fuel cell technology

MISSION INNOVATION – INNOVATION CHALLENGE #8



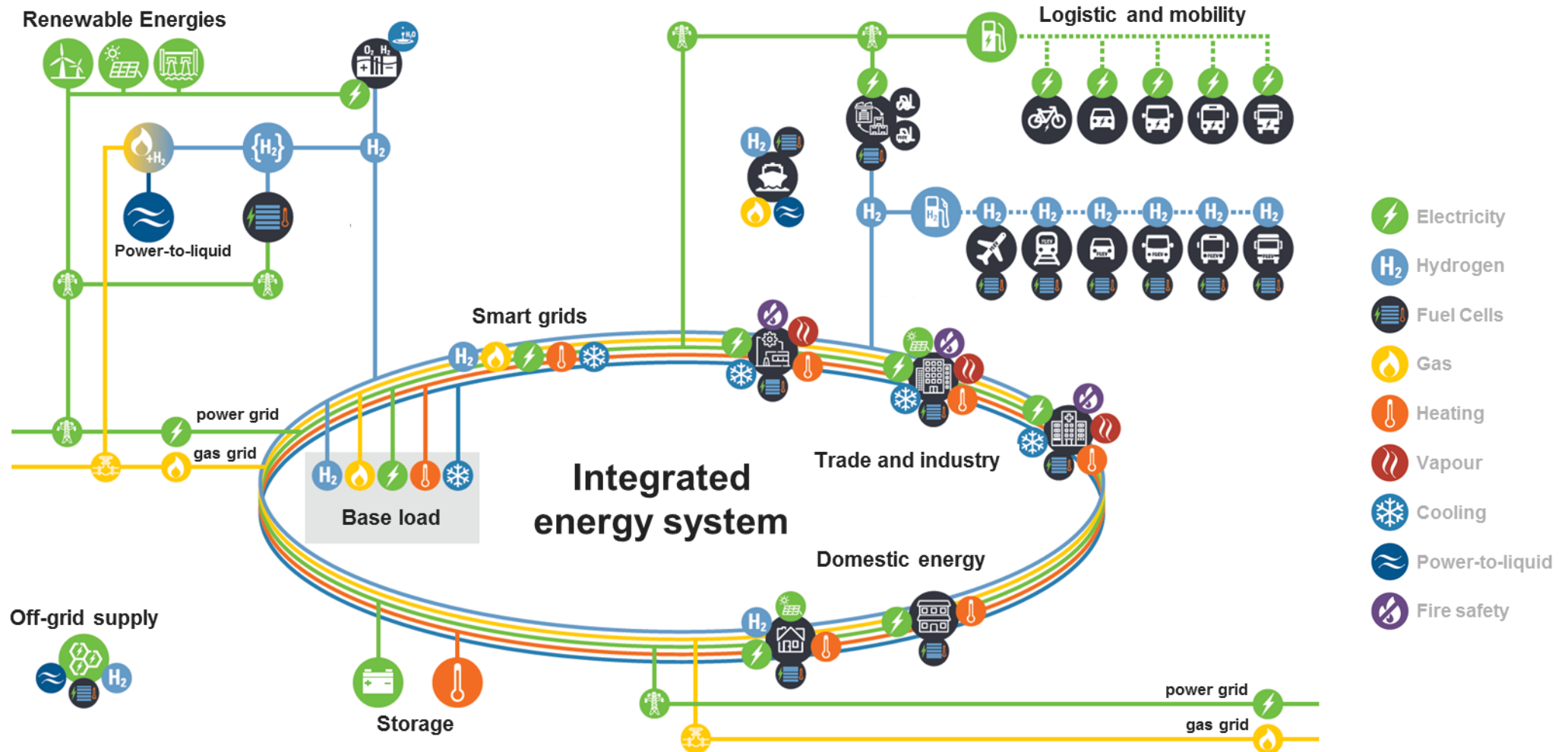
- 23 countries plus EU
- formed in 2015 to accelerate the transition to clean energy
- doubling R&D-efforts by 2020
- generating greater private sector engagement in commercializing clean energy innovation



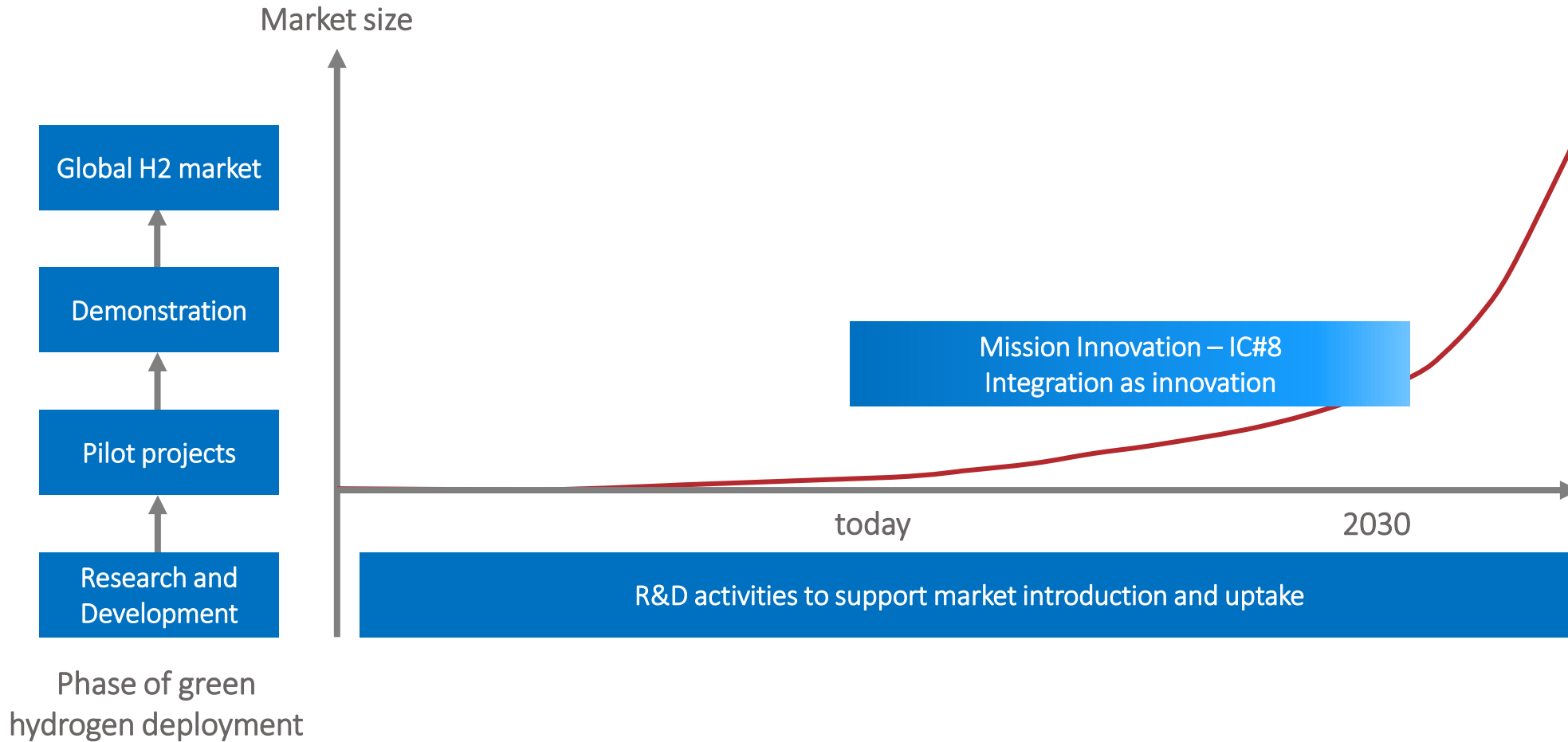
MI-3
(Malmö, 23-24 May 2018)
launched the
Renewable and Clean
Hydrogen Challenge
(IC#8)

<http://mission-innovation.net/wp-content/uploads/2018/08/Post-card-MI3.pdf>

HYDROGEN IN THE INTEGRATED ENERGY SYSTEM



THE RENEWABLE AND CLEAN HYDROGEN CHALLENGE



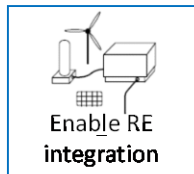
THE RENEWABLE AND CLEAN HYDROGEN CHALLENGE



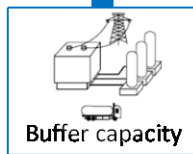
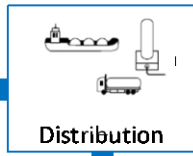
The approach

Recognizes hydrogen as a key technology for the energy transition

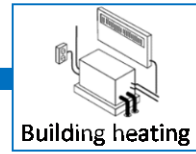
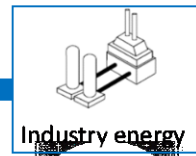
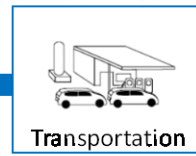
Sources of energy



Backbone of energy system



Decarbonize end use



The objective

to accelerate the development of a global hydrogen market by identifying and overcoming key technology barriers to the production, distribution, storage and use of hydrogen at gigawatt scale:

initiate R&D

enable large scale projects

information sharing platform

Source: Hydrogen Council – Hydrogen Scaling up



INNOVATION CHALLENGE #8 – WORKING PLAN



STRATEGIC PLANNING AND COMMUNICATION

Outcome of thorough surveys and workshops
Initiating formation of task / working groups

INFORMATION AND BEST PRACTICE SHARING

Hydrogen Valley Information Sharing Platform (EC):

- Complete Workshop and pending tender for platform

International Measurement Alliance – Hydrogen Pilot (UK)

RESEARCH AND DEVELOPMENT FOCUS AREAS

Heavy transport applications freight / off-road (TBC):

- Open funding calls

Hydrogen into the natural gas networks (Germany):

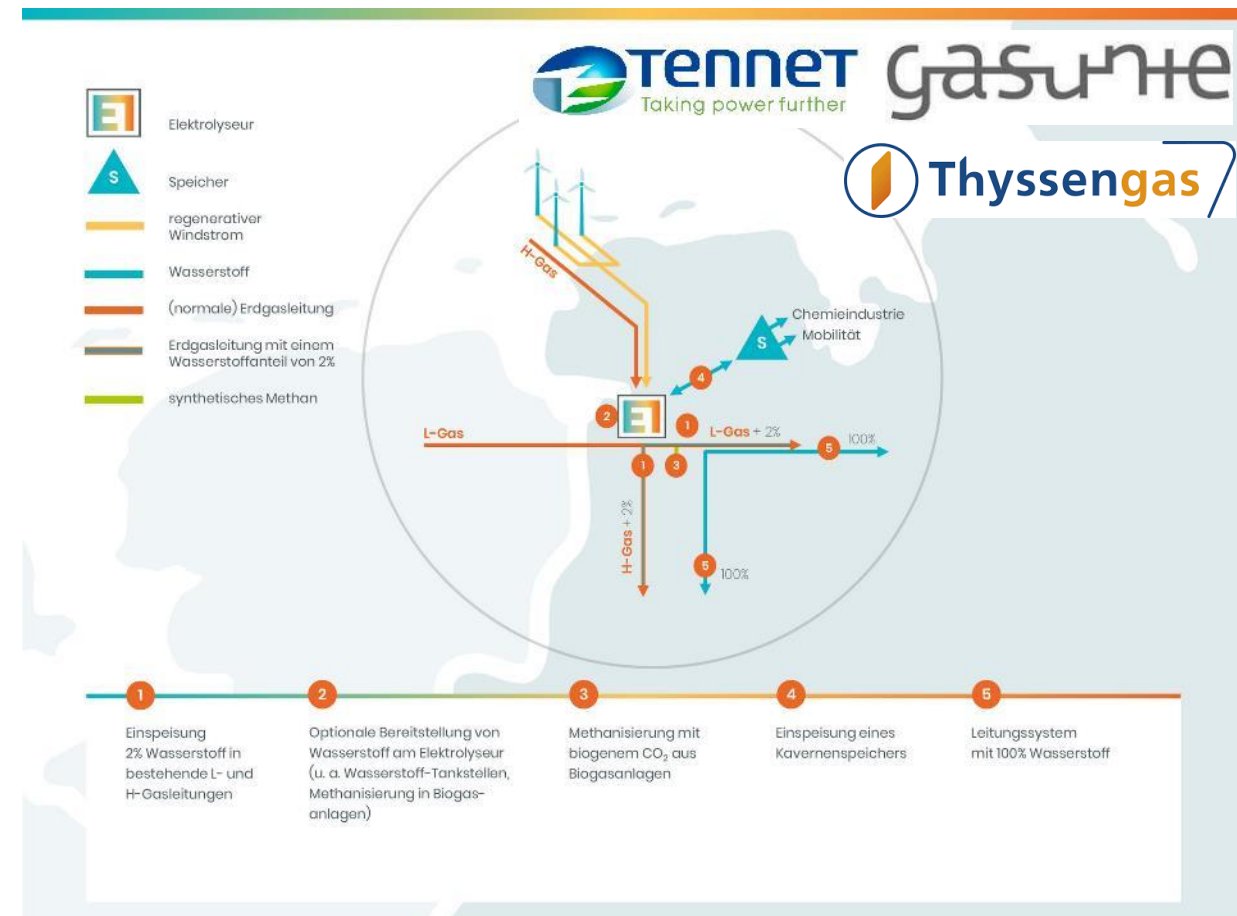
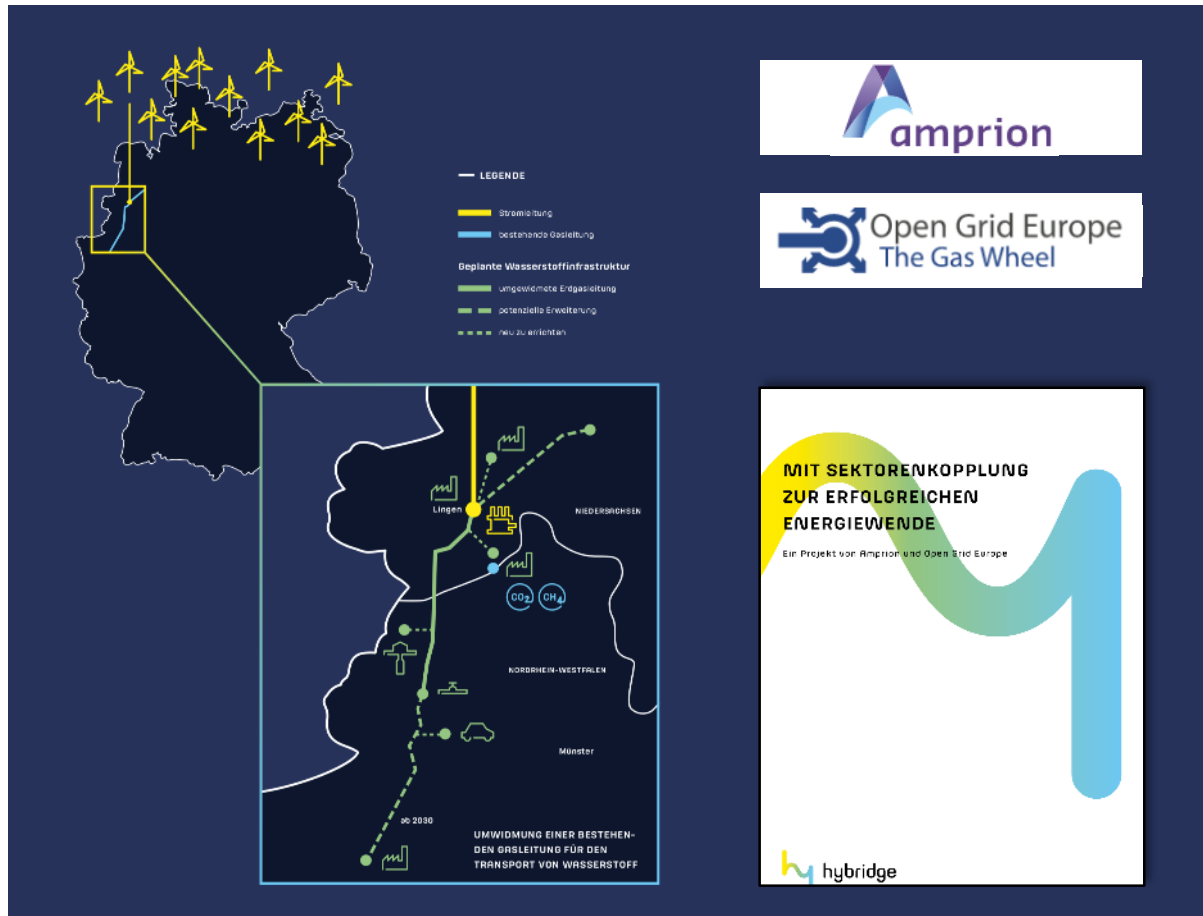
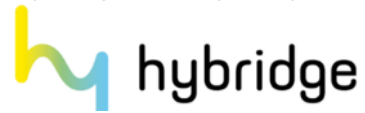
- Joint workshop planned, open funding calls

Other activities, e.g. :

- Open funding calls, review of national research priorities

POWER AND GAS COMPANIES NEED HYDROGEN TECHNOLOGIES

e.g. 100 MW projects proposed to manage increase of renewable energies



INTERNATIONAL COOPERATION AS ENABLER FOR HYDROGEN



- Fuel Cell Technology Office (FCTO) of the DoE
- California Fuel Cell Partnership (CaFCP), California Air Resources Board (CARB)

■ Partners both within networks and strong bilateral relations

■ Partners within networks



- Government Support Group GSG, Sustainable Transport Forum STF
- Fuel Cell and H2 Joint Undertaking FCH JU
- French-German Workgroup E-Mobility



- New Technology Development Organisation NEDO & Ministry of Energy, Trade and Industry
- Bilateral Power-to-Gas-Project



- China Automotive Technology and Research Center CATARC & Ministry of Science and Technology MoST
- Sino-German Electro Mobility Innovation and Support Center SGEN (bilateral projects)



Thank you for
your attention!



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