



Bundesministerium  
für Wirtschaft  
und Energie



# Funding Instruments for International Hydrogen Projects by BMWi

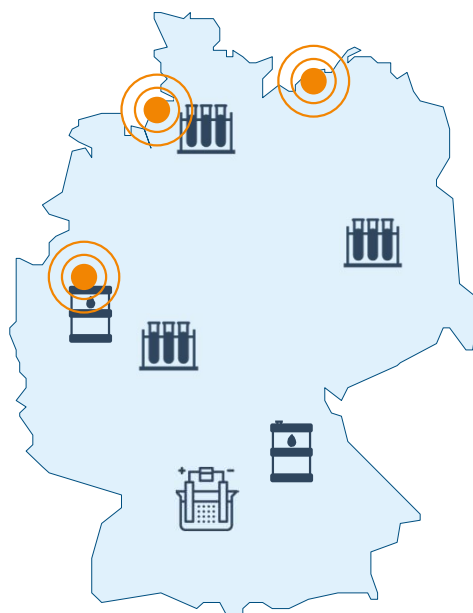
Division IIA2

Bilateral Energy Cooperation

# Several Hydrogen Clusters are being developed all over Germany

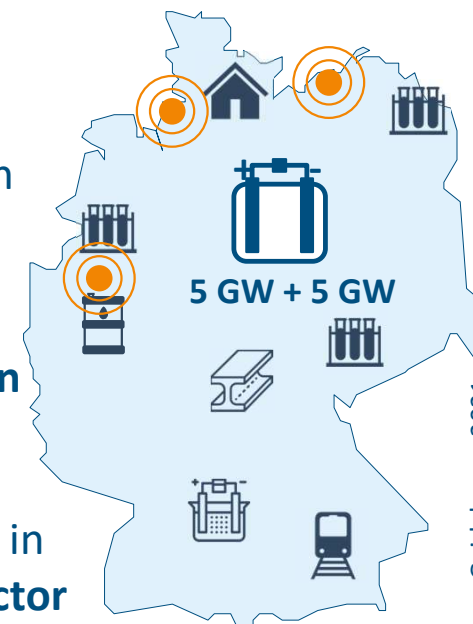
## Status quo of Hydrogen

- **Total annual production: ≈55 TWh** mainly „grey hydrogen“
- **3,85 TWh** of hydrogen is produced by **electrolysis**
- mainly used for **material production**, i.e. ammonia & methanol etc.



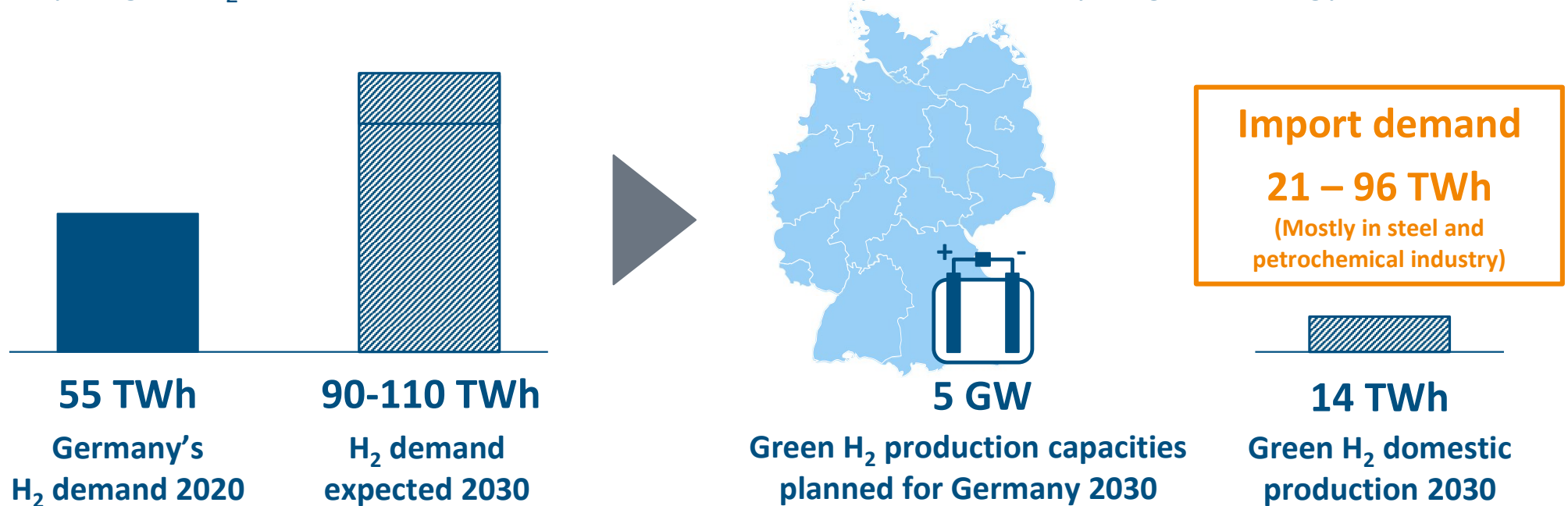
## Future of Hydrogen

- **Expected demand: 90 to 110 TWh**
- up to **+5 GW** production until **2030** and min. **+5 GW** until **2040**
- **14 TWh** local production of **green hydrogen**
- Demand growth mainly in **industry / transport sector**



# Germany develops a domestic market for hydrogen and paves the way for imports

Hydrogen (H<sub>2</sub>) volumes foreseen for 2030 in Germany's National Hydrogen Strategy



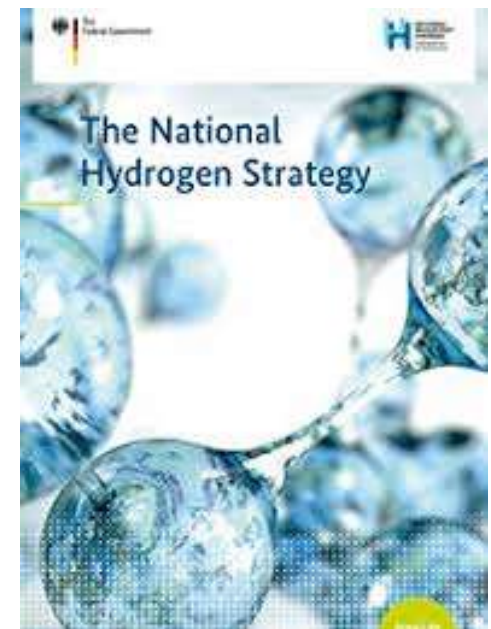
# Germany's hydrogen strategy creates new value chains and fosters international energy cooperation

## Main objectives:

- Establish hydrogen technologies as core elements of energy system
  - Create the regulatory conditions for the market take-off
  - Strengthen German companies and their competitiveness by promoting R&D
  - Securing and shaping the future national supply of CO<sub>2</sub>-free hydrogen
- Funds dedicated to hydrogen:**
- EUR 7 billion will be invested in Germany and EUR 2 billion in international cooperation

*Only H<sub>2</sub> produced with renewable energy (green H<sub>2</sub>) considered to be sustainable in the long term.*

*Carbon-free H<sub>2</sub> will be traded temporarily.*



# A concrete action plan lays out the next steps to make a success of Germany's hydrogen strategy

## Hydrogen production

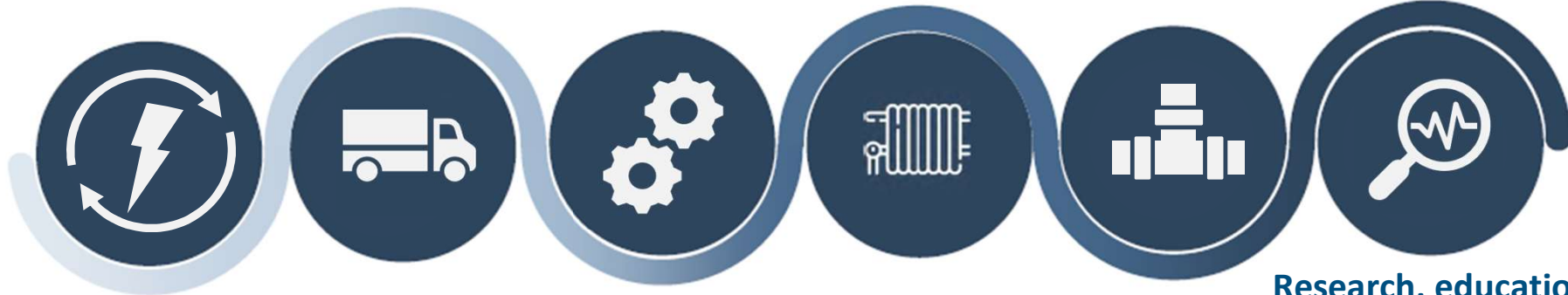
- 5 GW electrolyzer capacity by 2030 including renewable generation
- Additional 5 GW by 2040 considered

## Industry

- Pilot program for Carbon Contracts for Difference (CfD)
- Sector-specific dialogue formats

## Infrastructure and supply

- Stakeholder process to identify actions needed to establish hydrogen infrastructure
- Improve link between electricity, heat and gas sectors



## Traffic

- Implementation of the EU Renewable Energy Directive (RED II)
- 2% e-kerosene quota by 2030

## Heat

- Incentivize 'hydrogen-readiness' for CHP plants
- Funding of funding fuel-cell heating systems

## Research, education and innovation

- National and international demonstration projects on green hydrogen
- Research campaign entitled 'Hydrogen Technologies 2030'

# Implemented and Planned Funding Instruments



## H2Global

Market incentive through compensation of differential costs between purchase and sales prices



## FRL

Funding guideline for international cooperation projects



## Fund

Global as well as bilateral innovation funds



## H2-Uppp

Project scouting and support in strategic partner countries



# Funding Instruments

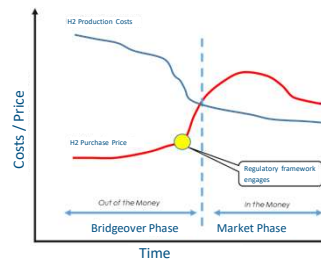


H2Global

## Bridgeover



Immediate creation of a toolkit for market ramp-up until regulatory framework takes effect



## Defined System

Creation of a system limited to at least 1 GW  
e.g. 10 years - clear time limit



## Contracts for Difference

Compensation payments in the form of CfDs

Setting up an H2 intermediary: the HYDROGEN INTERMEDIARY NETWORK COMPANY [HINT.CO]



## Competition

Auctions (or a comparable mechanism) on both the H2 purchase and sale sides.

Setting competition-based prices on both sides



# Funding Instruments



## Funding guideline for international cooperation projects (I)

### Objective:



- Strengthening of **international cooperation** and the build-up of a global green hydrogen market.
- Establishment of facilities for production of green H2 and derivatives, for storage, transport and integrated application of H2 in **otherwise not decarbonizable** fields outside the EU/EFTA.



### Type and amount of funding:

- Non-repayable grants as partial funding, between 25-45% of fundable costs, but higher for SMEs.
- Maximum amount of funding **15 million euros per applicant & project**.



### Procedure:

- Funding applications/projects should be able to be submitted to a project management agency, which is still to be named.
- The first step is the hand-in of project drafts (latest round until 15 Feb 2022)



# Funding Instruments



## Funding guideline for international cooperation projects (I)

### Central eligibility requirements (this list is not exhaustive)



- **Headquarters in the EU and establishment or branch in Germany** at the time of payment of the grant. In **consortia**, **more than 51% of value** has to be created by such companies.
- Usage obligation: Plants must be used according to funding purpose for at least 3 years.
- Project implementation must be **economically infeasible** without funding.
- The application must be handed in and approved **before the start of the project**, only planning steps can be taken in advance, but cannot be funded through the guideline.
- Proof of **pre-development status** indicating feasibility and declaration of intent with local partners.
- Electricity used must generate **incentives for additional renewable energy investment** and must not hinder the local energy transition or electricity supply.
- Sustainability of water supply, local labor standards must at least meet relevant ILO standards
- Carbon used has to originate from air capture or from biogenic CO<sub>2</sub> / capture of process-related industrial emissions that cannot be avoided.

# Funding object

Funding object	Examples	Funding purpose
<b>Electrolysis</b>	Installation of electrolyzers (for example for PEM electrolysis, alkaline electrolysis, high-temperature electrolysis, TRG 7-9)	Production of hydrogen from renewable energy, testing of innovative generation technologies
<b>Hydrogen storage</b>	Exploration and preparation of storage infrastructure, installation of hydrogen tanks, processing plants, ancillary components (for example for compressed hydrogen storage, liquid hydrogen storage, absorption, metal hydrides, LOHC; chemical storage)	Temporary storage of renewable hydrogen, testing of new types of storage technology
<b>Hydrogen processing</b>	Converting hydrogen into chemical base substances or synthetic fuels (e.g. ammonia, air capture plants, e-fuel for aviation, e-diesel, methanol)	Provision of hydrogen derivatives for certain consumer technologies, testing of innovative processes
<b>Transport/ infrastructure</b>	Installation of facilities and infrastructure for loading and unloading H <sub>2</sub> and H <sub>2</sub> carriers for all types of transport (e.g. liquid hydrogen, ammonia, LOHC)	Transport of hydrogen and its derivatives to final costumers, testing of innovative transport options
<b>Use</b>	Processes in the steel and chemical industry, applications in maritime transport, aviation and fuel cells	Greenhouse gas reduction thanks to the use of climate-neutral hydrogen
<b>Integrated projects</b>	Renewable energy + electrolyzers + processing into derivatives + transport + use	All aforementioned purposes depending on the funding object and synergies between individual process steps



Fund



H2-Uppp

# Planned Funding Instruments



Fund



**Objective:** Financing of international and bilateral hydrogen projects (including infrastructure), also beyond 2023.



**Type and amount of funding:** low-interest loans, risk capital guarantees, establishment of bilateral innovation funds.



H2-Uppp



**Objective:** To support the identification, preparation and implementation of pilot projects for the production and use of green H2 in foreign markets.



**Type and amount of funding:** Max. 200,000 EUR/project via performance contract + additional accompanying support services.



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# Thank you for your Participation!

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