

H2 in Germany – current discussions with relevance to import strategies

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**H2 in Germany – current discussions with relevance to import strategies**

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# Fraunhofer ISI

shaping | future | together

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## Brief overview

- Systems and innovation research since 1972
- Independent advisor for politics, business and society
- 7 Competence Centers with 28 Business Units
- Interdisciplinarity is key: synergy of technical, economic and social science knowledge and methods
- Approx. 325 employees, budget in 2021 approx. 32 million euros
- Internationality: approx. 15 % employees from 26 nations
- Around 400 research projects per year
- Contracts from national and international public sector (54%), from industry (19%), the EU (17%) and other clients such as foundations and science organizations (10%) (2021)

## What we offer

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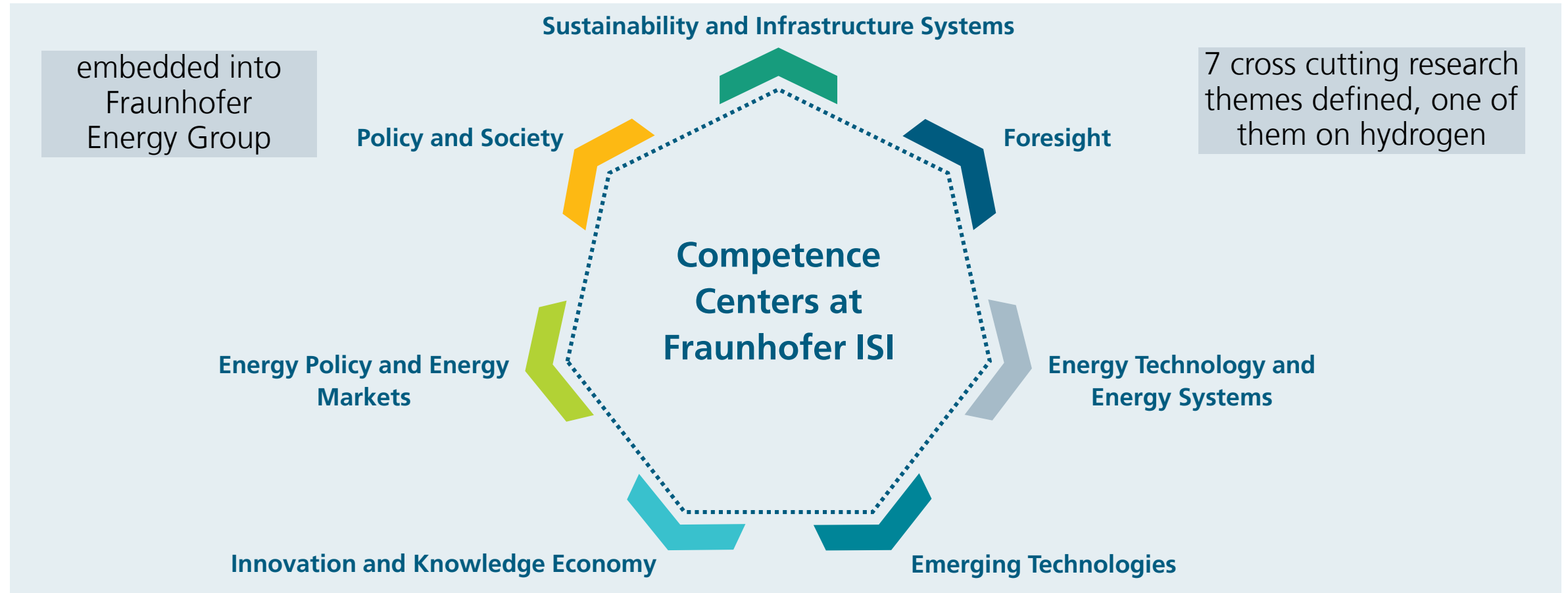
Broad range of methods:

- Comparative analyses of innovation systems and transformations
- Technology foresight (roadmaps and scenarios)
- Analysis of policy measures
- Analysis of institutional and regulatory contexts and of the diffusion processes of innovations
- Assessment of innovations and their potentials
- Assessment of innovation-related policy options as well as their chances of success and acceptance



# Competence Centers

(CCs)



# Energy development and policy targets in Germany

## past development

- primary energy consumption of 12,000 PJ (-21 % compared to 1990)
- reduction of greenhouse gases by 40.4 % compared to 1990
- electricity sector: nuclear energy phase out completed in 2023, share of renewables increases to 46 %

## future targets

- 65 % GHG reduction compared to 1990 by 2030
- net zero by 2045
- electricity sector: 65 % renewables in 2030, 100 % renewables in 2050

Scenarios: reaching targets requires bundle of measures

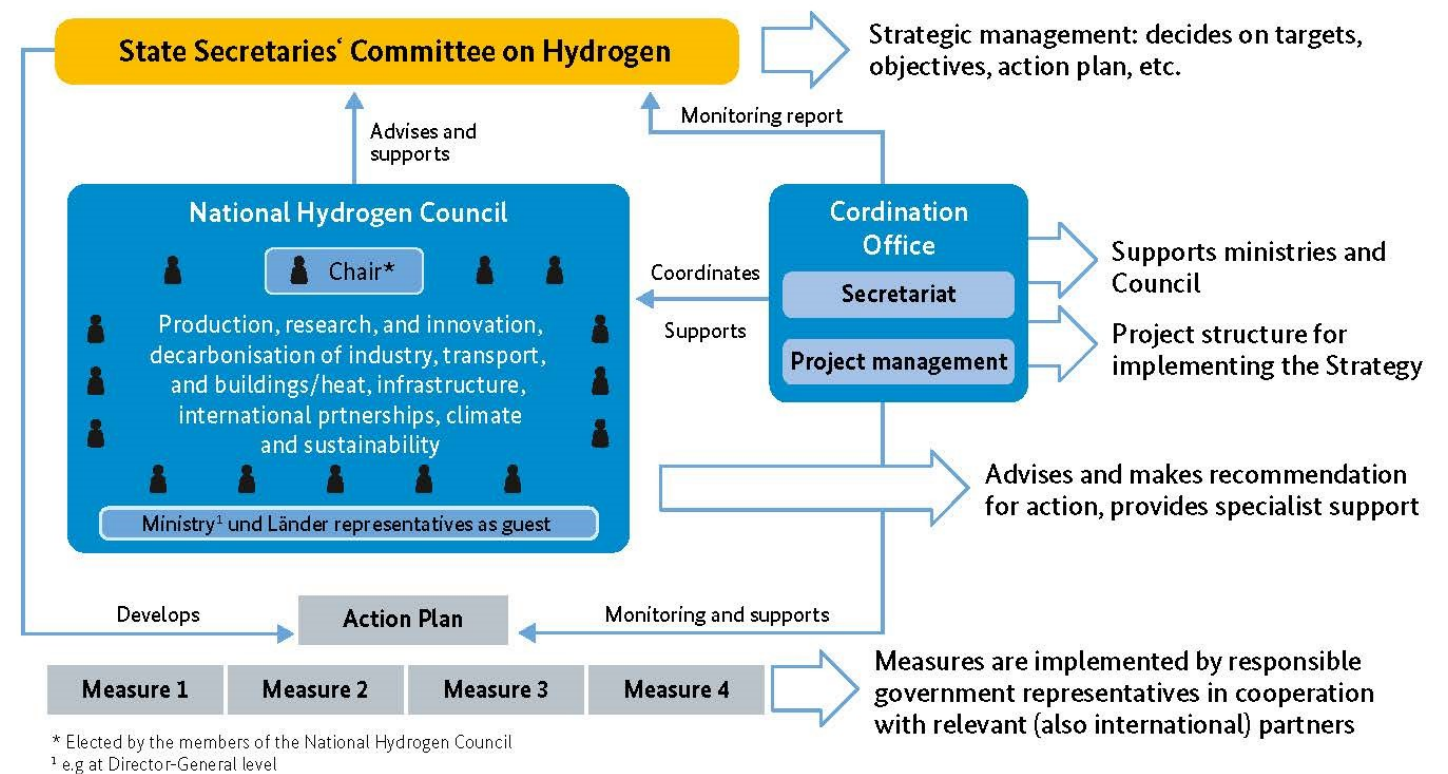


# The national hydrogen Strategy of Germany 2020

## Hydrogen strategy published in 2020

- general role H2 for decarbonisation and need for imports
- governance mechanism
- large research projects (e.g. Hypat)
- national funding schemes
- national target: in 2030, 5 GW installed capacity of electrolysers
- review of strategy after 3 years

## Governance structure



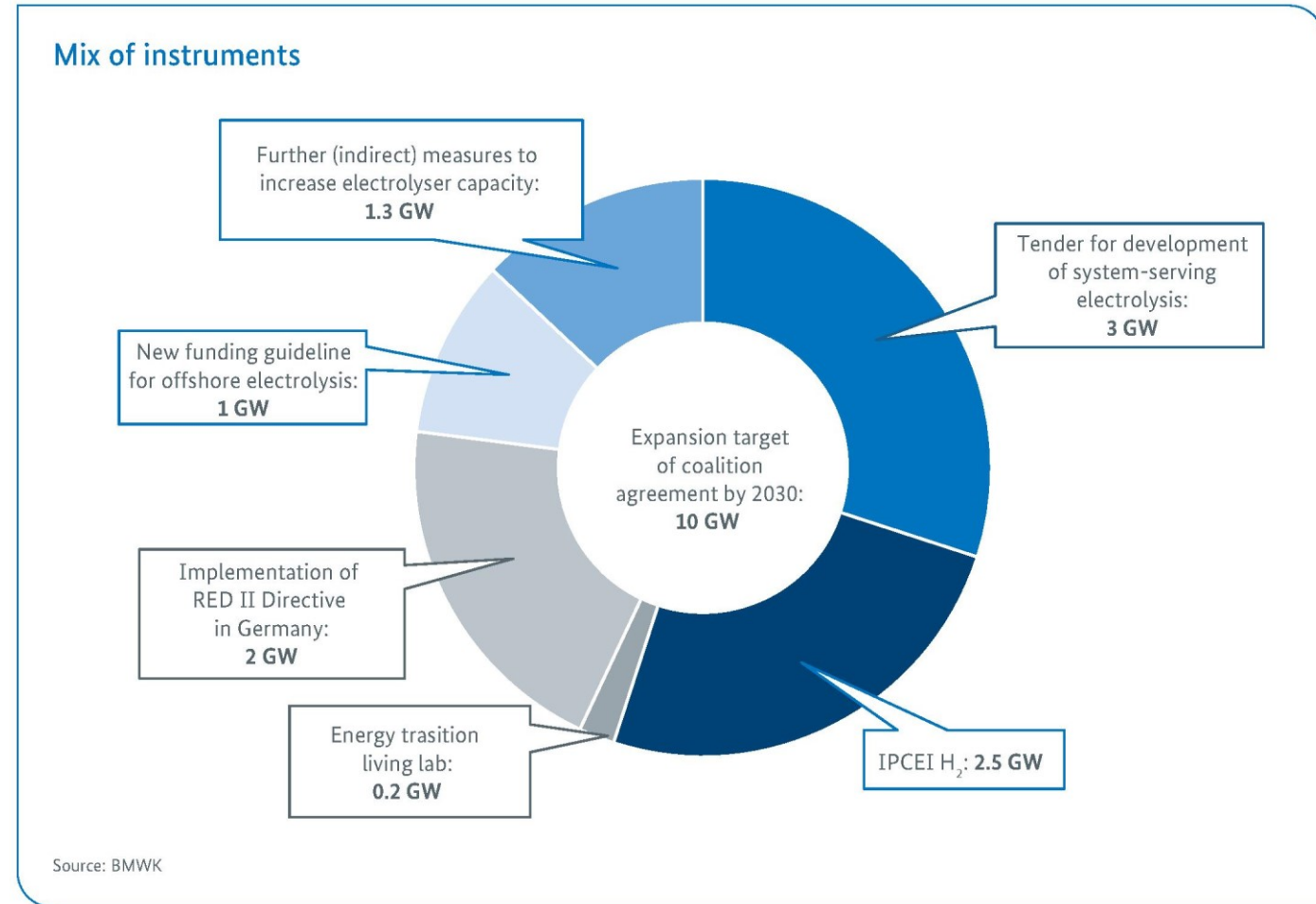
# Update of national H2 Strategy in 2023: Target vision and measures

## Domestic vision

- total hydrogen demand of 95-130 TWh in Germany by 2030
- increase to 10 GW electrolyser capacity
- mix of instruments to foster national development

## Imports

- import of 45-90 TWh by 2030
- mostly ship based
- probably ammonia
- development of import strategy



# national priorities

## building infrastructure

- 1800 km H2 pipelines in Germany, 4500 km European H2 backbone network
- import terminals and storage concepts

## implementing hydrogen applications

- industrial sector (e.g. chemical, steel, cement)
- transport (electric fuels and fuel cells)
- power sector (short-term and seasonal balancing)
- heating of buildings (large heat grids)

## framework conditions

- planning and approval procedures
- certification schemes (delegated acts of EU)
- sustainability criteria for biodiversity, water, land use, human rights (applying also to supply chain)
- R&I activities



# Guidelines for upcoming German import strategy

## goals

- secure import demand for sustainable H2 and H2 derivatives in the long term
- broadly diversified import channels to avoid new dependencies

## international imports from diversified portfolio, which meet

- minimum certification requirements (EU regulation)
- not hindering energy transition of supplying country
- environmental standards (e.g. water resources, using green fuels in shipping)
- further sustainability standards

## stability of supply and importance of H2 within supplying country

- geopolitical setting of country
- no infringement on local rights
- embedding into national value chain



# scheme for market ramp-up of imports

## Governance: establishment of H2 global Stiftung

- federal money
- 57 companies support
- operation by HINTCO (Hydrogen Intermediary Network Company)

## mechanism: dual auctioning process

- auctioning of international supply
- auctioning of national demand

## current state

- first call of auctions to be decided in near future
- discussion if system will work



# Requirements to qualify for contracts

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## pricing:

- lowest price of supply
- highest price of demand

## certification

- EU has cleared delegated acts which specify requirement for green hydrogen

## green product(s) to be promoted

- hydrogen, ammonia, methanol, jet fuel

## additional sustainability criteria

- Product requirements and sustainability criteria for production, transport, and off-take
- case by case evaluation? NGO will look into projects?



# Contact

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