ERIG
European Research Institute
for Gas and Energy Innovation

H2-
dvgw.de

Deutscher Verein des
Gas- und Wasserfaches e.V.

DVGW

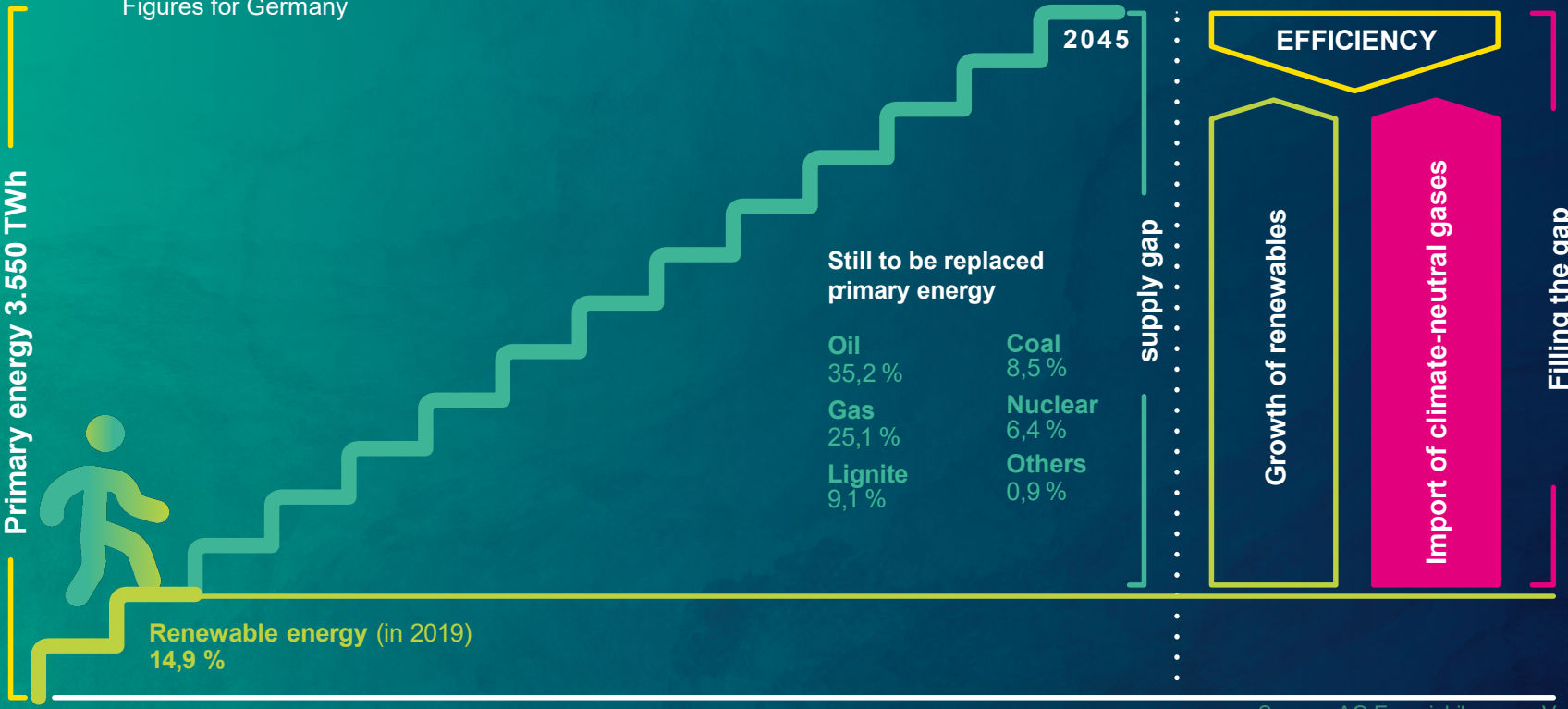
Hydrogen is looming: are we ready?

Prof Dr Gerald Linke

German Gas & Water Association
Deutscher Verein des Gas- und Wasserfaches e.V.

The **ascent towards climate neutrality**: the bigger part still lies ahead

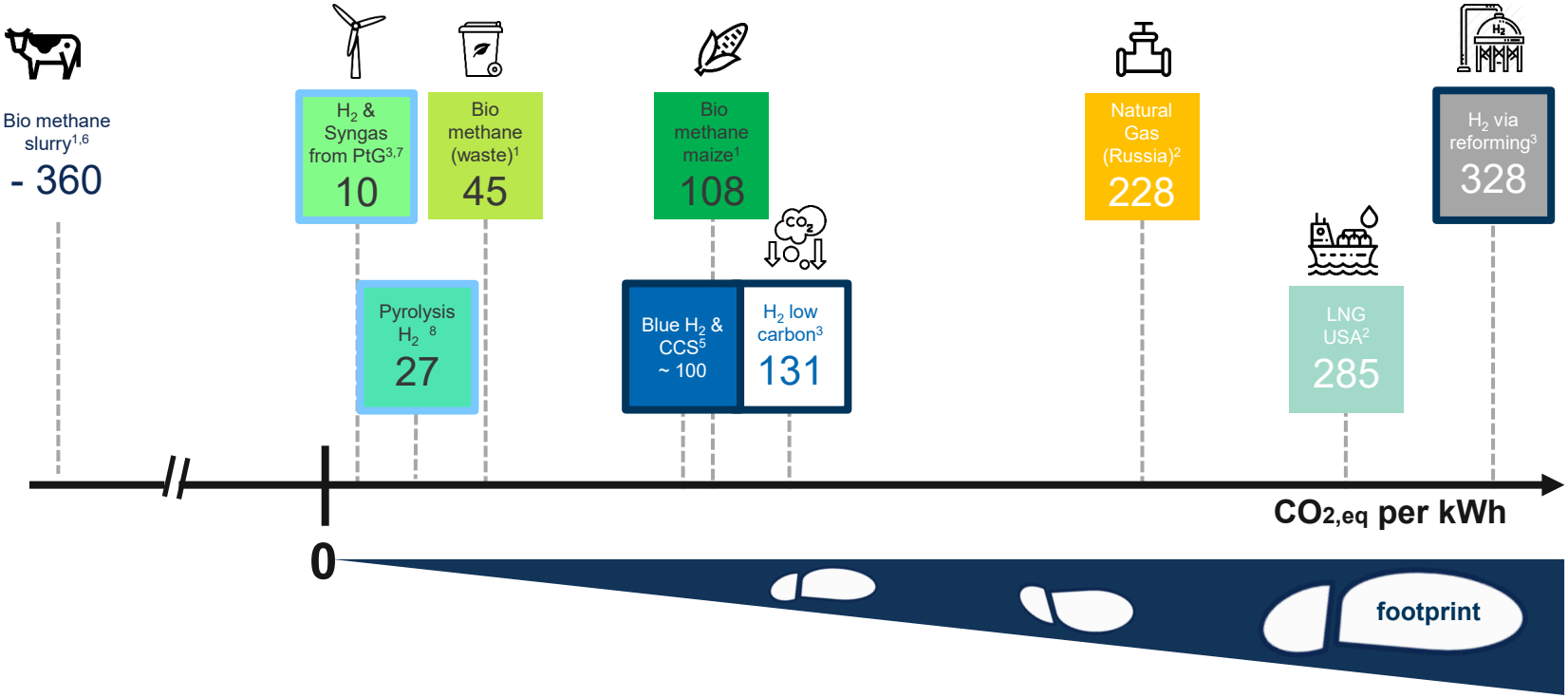
Figures for Germany



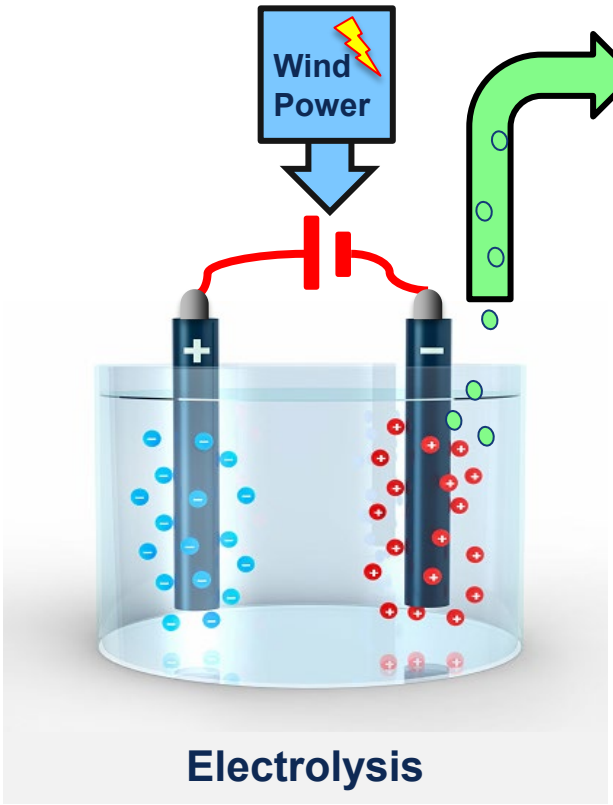
Source: AG Energiebilanzen e.V. and H2vorOrt 2021

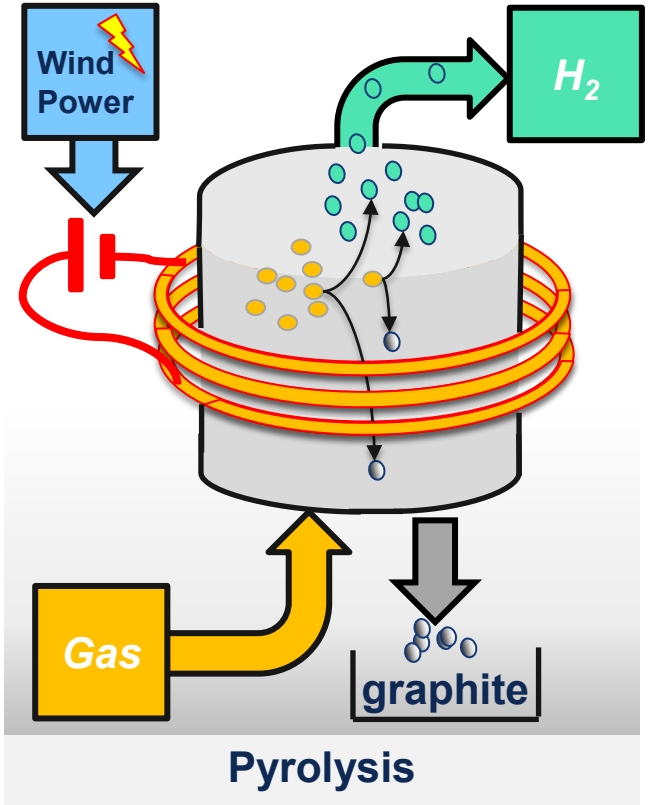
We need hydrogen because it emits less or nearly zero carbon. Wind is a good source for PtH_2

Carbon-footprint of different gases



Wind is a good source … not only for electrolysis but to convert natural gas via pyrolysis to climate-neutral H_2

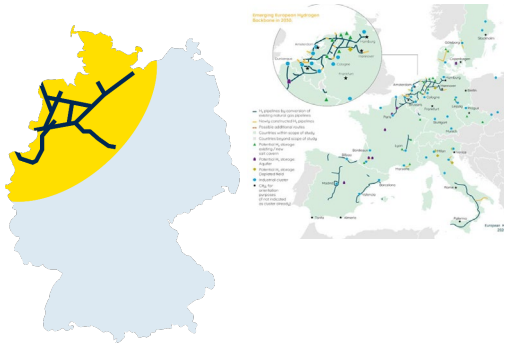




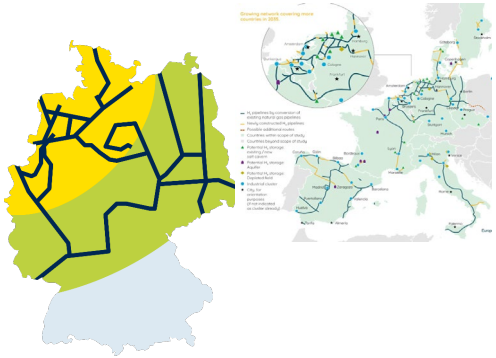
Utilisation and upgrading of existing infrastructure keeps the costs low.

But it needs both: H_2 backbone and a bottom-up approach with DSOs

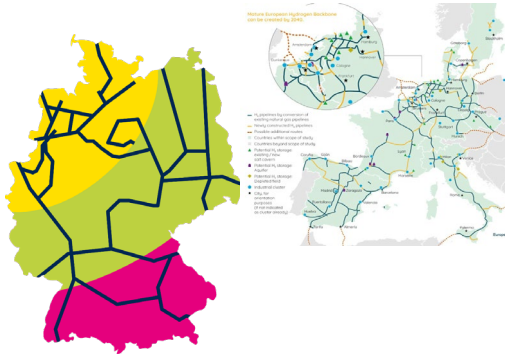
transmission



grid extension step 1



grid extension step 2



grid completion step 3

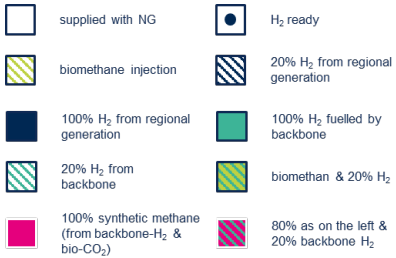
ca. 2030 — ca. 2035 — ca. 2040

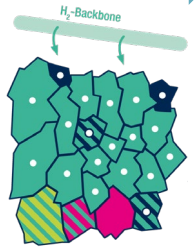
distribution

I. Starting point
today

II. Initial phase

III. extension phase
from 2030 onwards





IV. target state
latest by 2045

Hydrogen in buildings: current and planned heating systems

Innovation for affordable heat: H_2-ready gas burners, heat pumps, hybrid devices and high-performance fuel cells

2021

First movers offer 20% H2-ready certified devices

2023

First movers offer 100% H2-ready devices

Devices of all manufacturers are 20% H2-ready

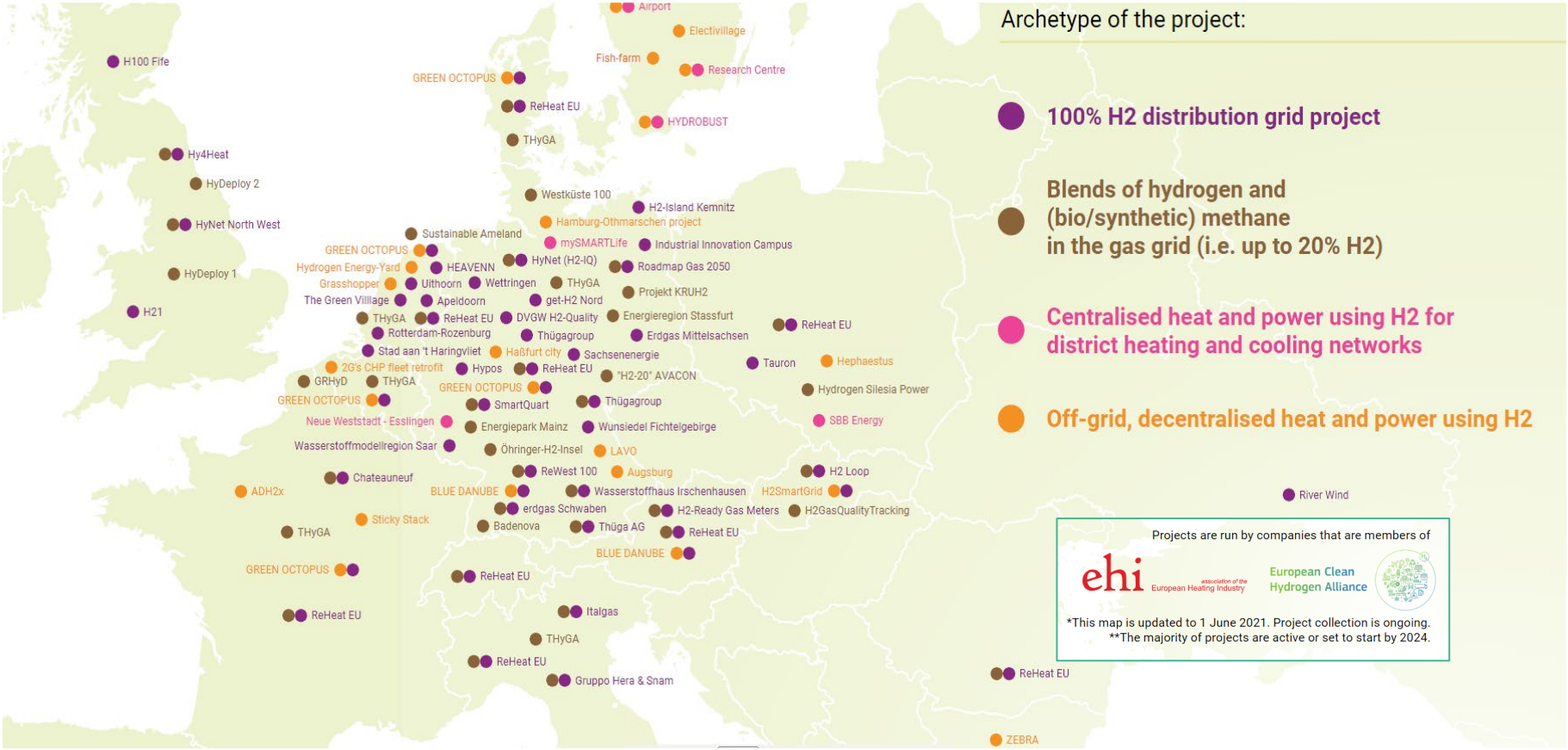
2025

2029

All devices are 100% H2-ready (self-adapting or by adjustment)

Quelle: https://www.worcester-bosch.co.uk/hydrogen

Hydrogen in buildings: current and planned projects



Archetype of the project:

- 100% H2 distribution grid project
- Blends of hydrogen and (bio/synthetic) methane in the gas grid (i.e. up to 20% H2)
- Centralised heat and power using H2 for district heating and cooling networks
- Off-grid, decentralised heat and power using H2

Projects are run by companies that are members of

ehi association of the European Heating Industry

European Clean Hydrogen Alliance

*This map is updated to 1 June 2021. Project collection is ongoing.
**The majority of projects are active or set to start by 2024.

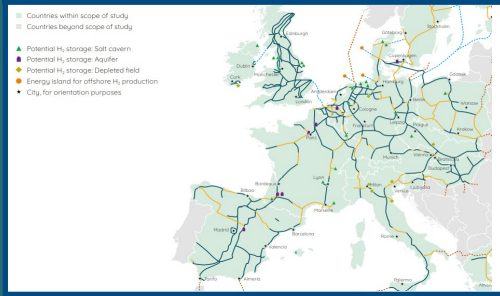
Are we H_2-ready? Technology is ahead of policy. What we need is …

Binding green gas goals per country

10% ▶ 20% ▶ 100%

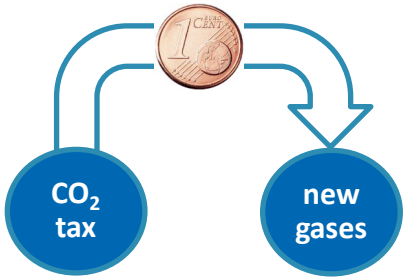
to be achieved by an increasing admixture and a raise of biogas and climate-friendly H_2

Regulatory framework to use natural gas pipelines to transport H_2

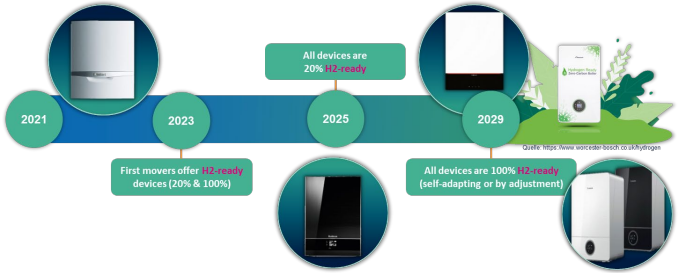


- Joint regulation (H_2 & NG)
- Incentives for H_2-readiness investments of DSOs

Use of carbon pricing for the growth of new gases



Climate bonus for modern heaters (labelling) and H_2 incentives for early clients



Thank you for your attention

Deutscher Verein des Gas- und Wasserfaches e.V.

DVGW