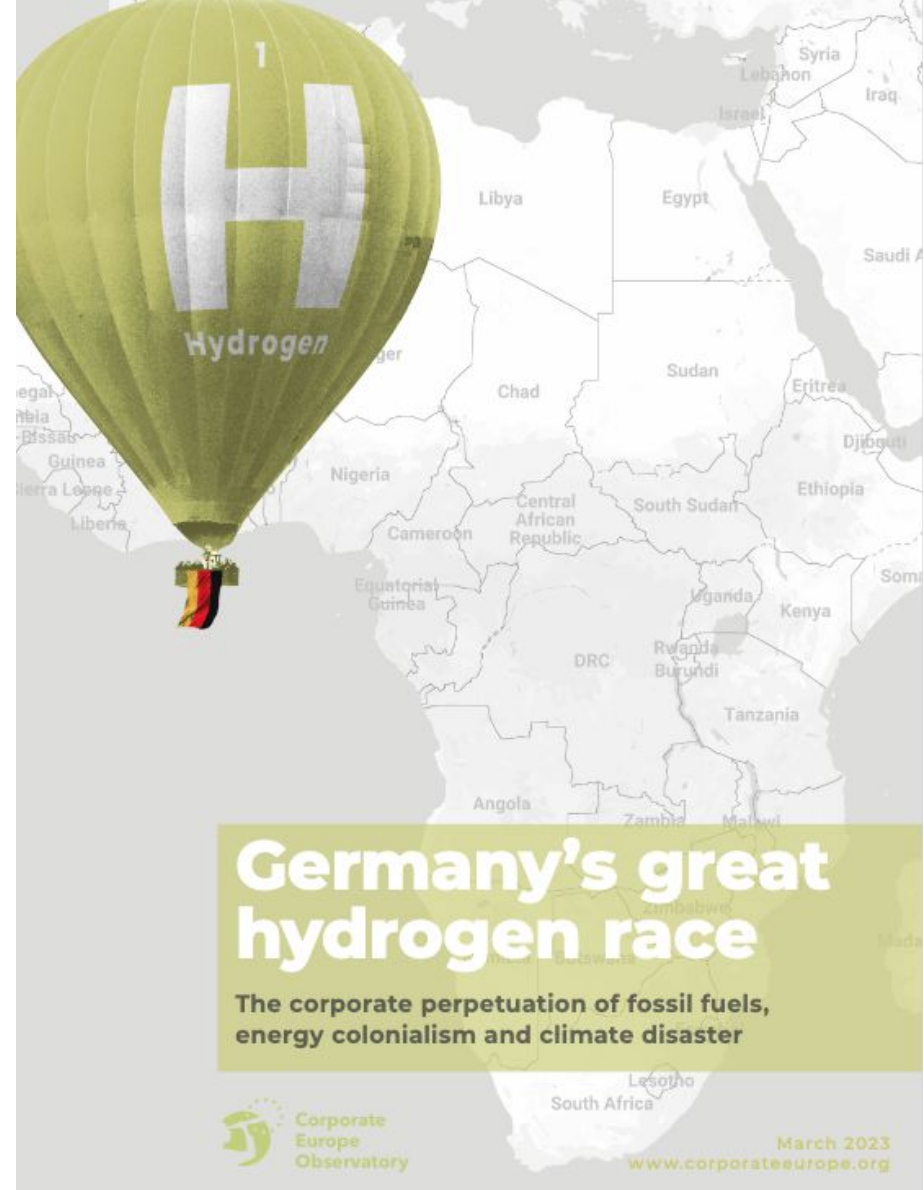


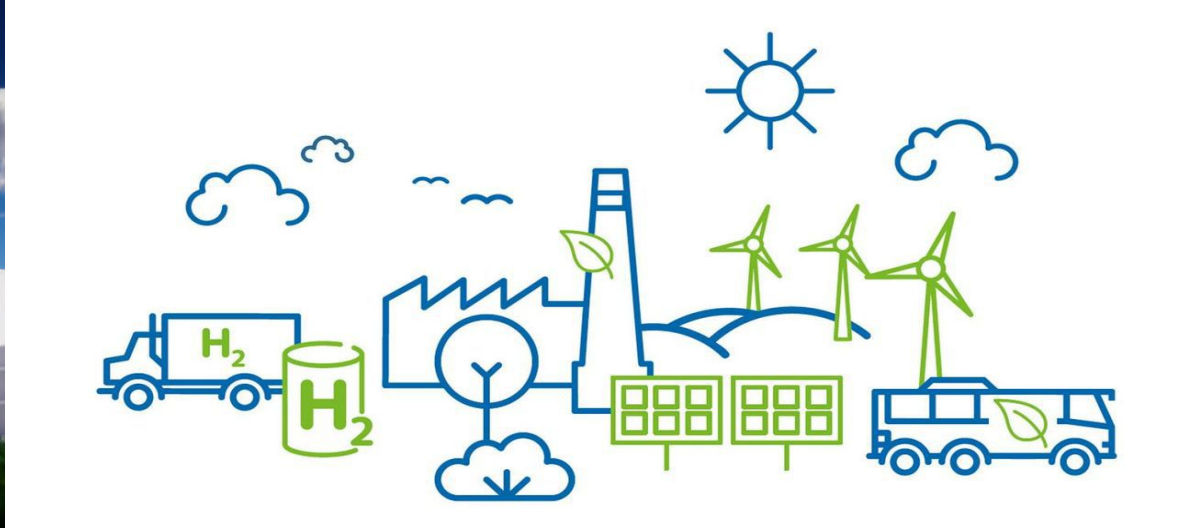
# The EU's hydrogen hype

Fossil fuels, energy  
colonialism & climate  
disaster

Pia Eberhardt  
14 October 2023

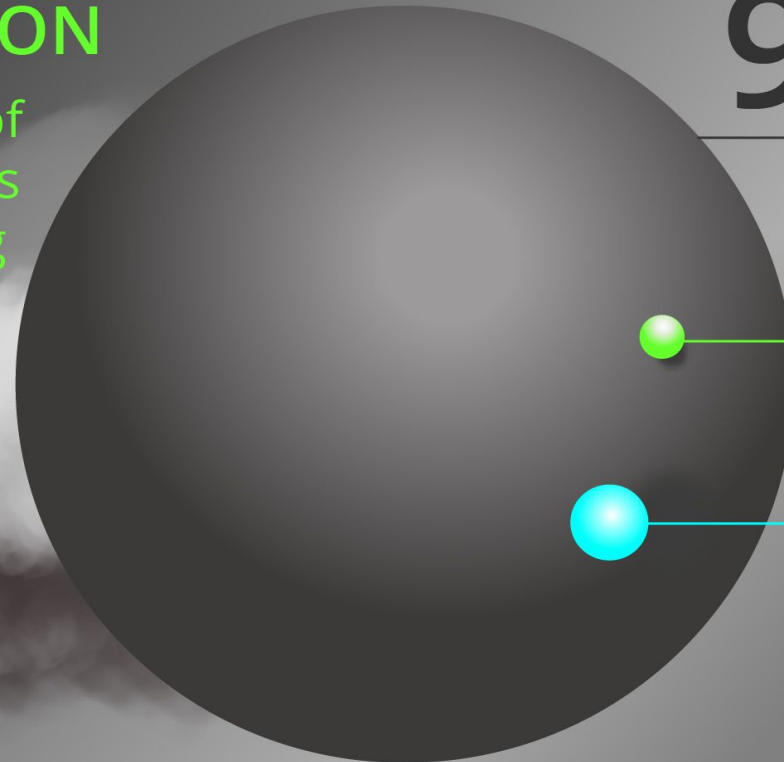
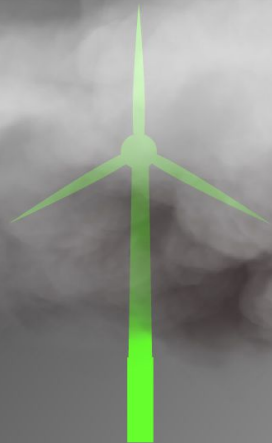


# Hydrogen has a very positive image...



# THE REALITY OF GLOBAL HYDROGEN PRODUCTION

In 2022, less than 0.1 per cent of global hydrogen production was green. The rest was made using fossil fuels.



99%

Fossil  
Hydrogen

<math><0.1\%</math>

Green  
Hydrogen

0.6%

Blue Hydrogen  
(fossil with carbon  
capture and  
storage, CCS)

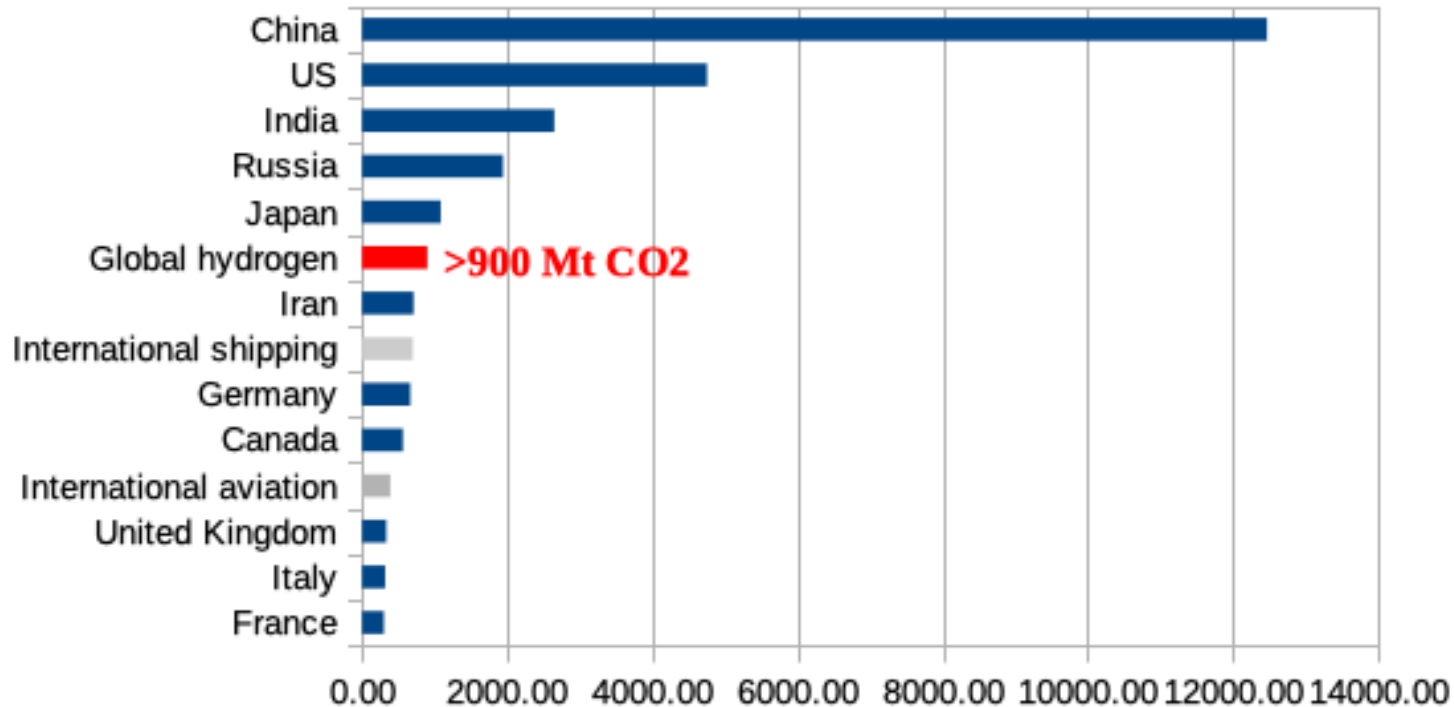
Source: International Energy Agency, Global Hydrogen Review 2023.



Corporate  
Europe  
Observatory

# Hydrogen's climate impact

CO2 emissions per country and sector, 2021 (Mt)



# Germany and Norway reach blue hydrogen agreement

01/15/2023

Germany's RWE and Norway's Equinor have agreed to supply Germany with low-emissions hydrogen fuel. The long-term plan is to provide 100% cleanly sourced green hydrogen.



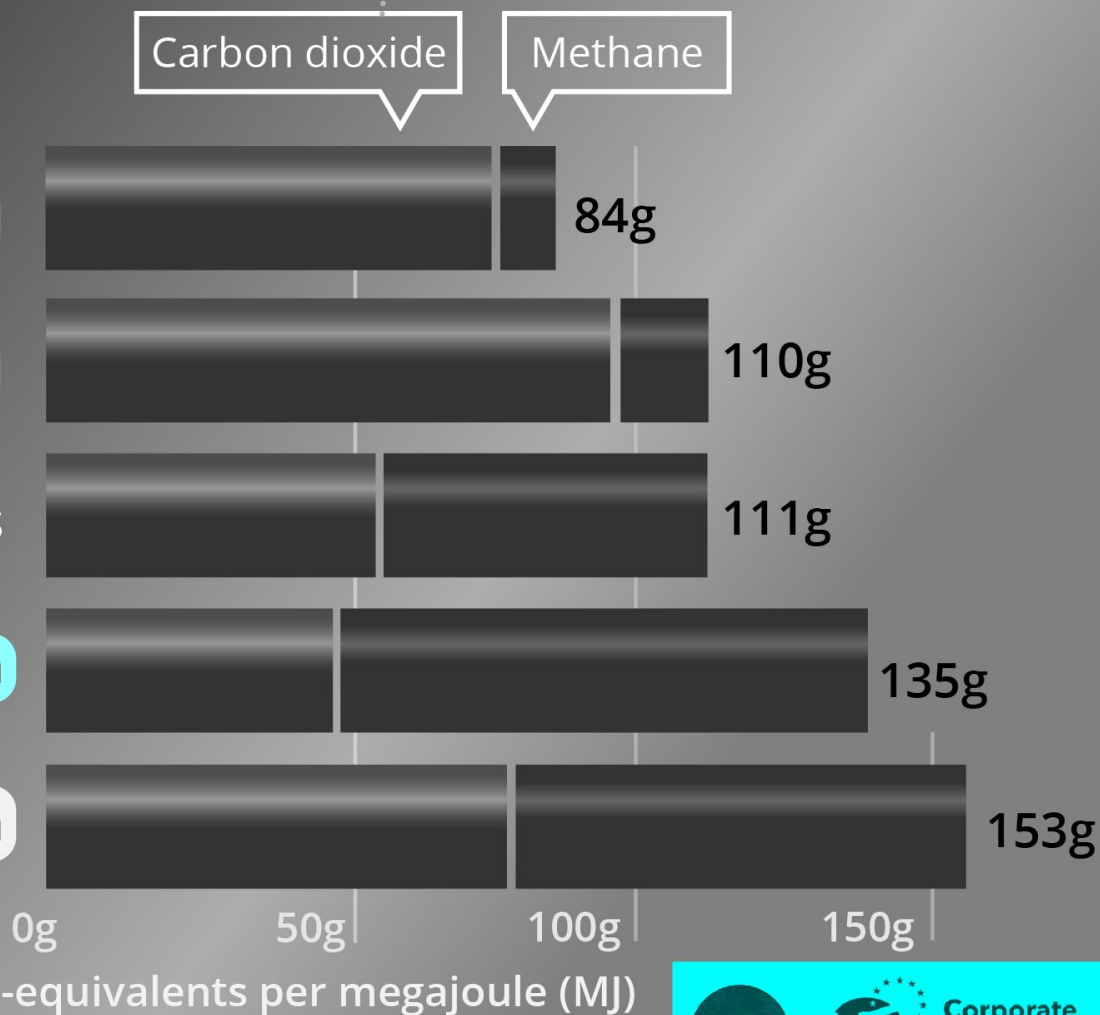
German Vice Chancellor Robert Habeck (left) is in Norway for two days of meetings, including with Prime Minister Jonas Gahr Store (right)

# BIG CLIMATE IMPACT OF BLUE AND GREY HYDROGEN

Lifecycle emissions of blue and grey hydrogen are bigger than direct burning of fossil fuels.

Blue Hydrogen

Grey Hydrogen



Source: Howarth/Jacobson (2021) How Green is Blue Hydrogen?

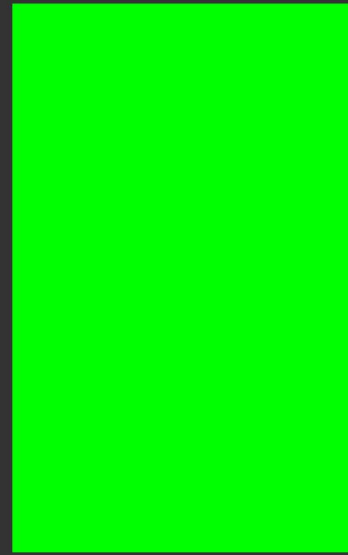
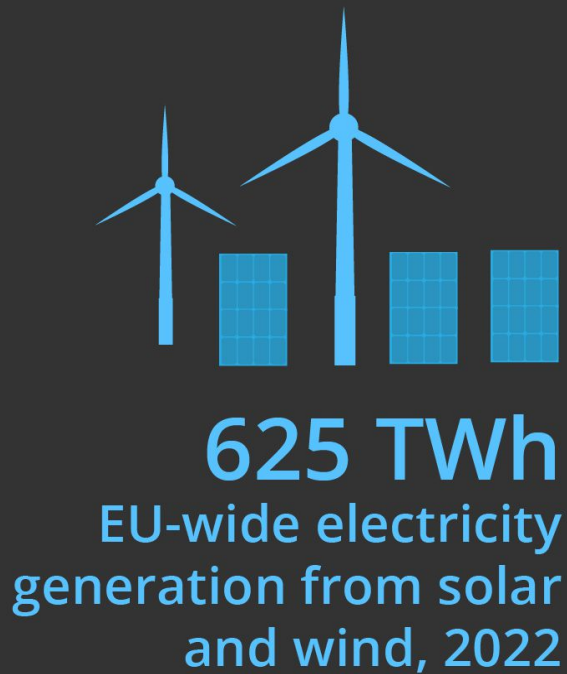


Corporate Europe Observatory

# EU hydrogen policy

- 2030 goal: produce 10Mt of green hydrogen and import another 10Mt
- Public funding for green (& “low carbon”) hydrogen: infrastructure development, research & development, industrial applications...
- Legislative targets for green (& “low carbon”) hydrogen for industry & transport
- International hydrogen partnerships

# EU'S 2030 HYDROGEN TARGET: EATING UP SCARCE RENEWABLE ENERGY

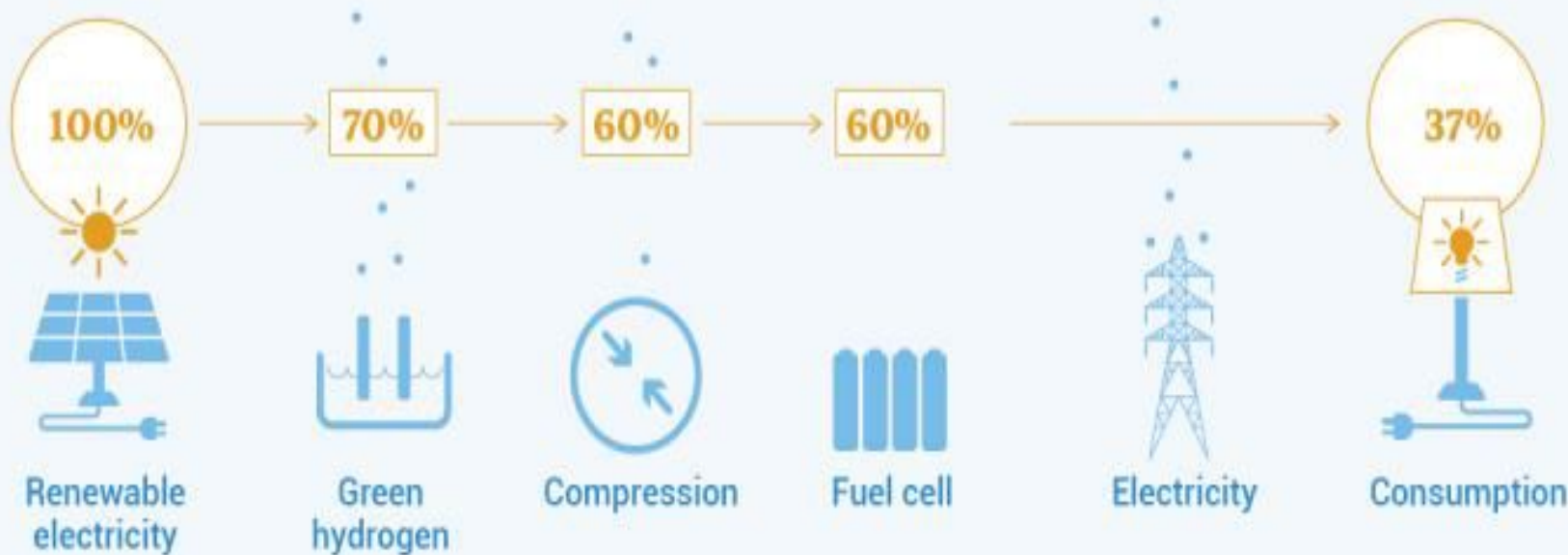


**500 TWh**  
renewable electricity  
needed to produce  
10m tonnes of green  
hydrogen



## Energy losses from using green hydrogen for electricity

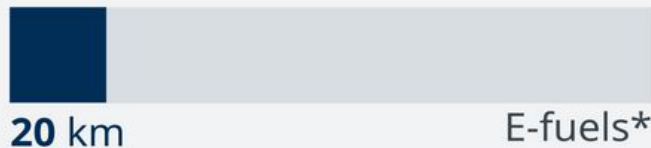
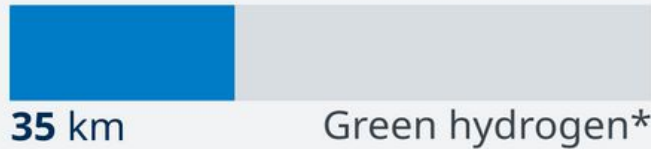
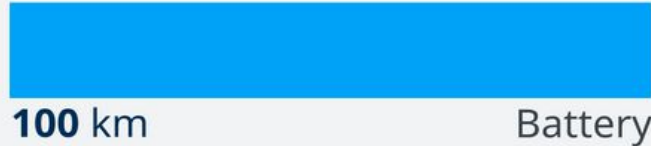
How much original energy is left?



Using green hydrogen to make electricity makes no sense.  
Don't convert the renewable electricity, use it directly.

# Climate-neutral transport: Which is more efficient?

Range with 15 kWh electricity

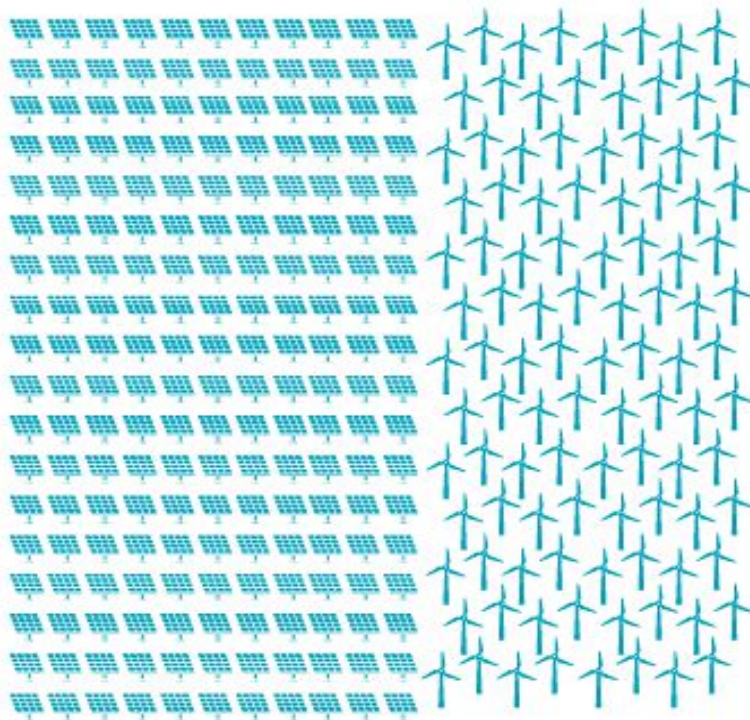


Source: Research Center for Energy Networks and Energy Storage  
\*created from renewable energy and climate neutral

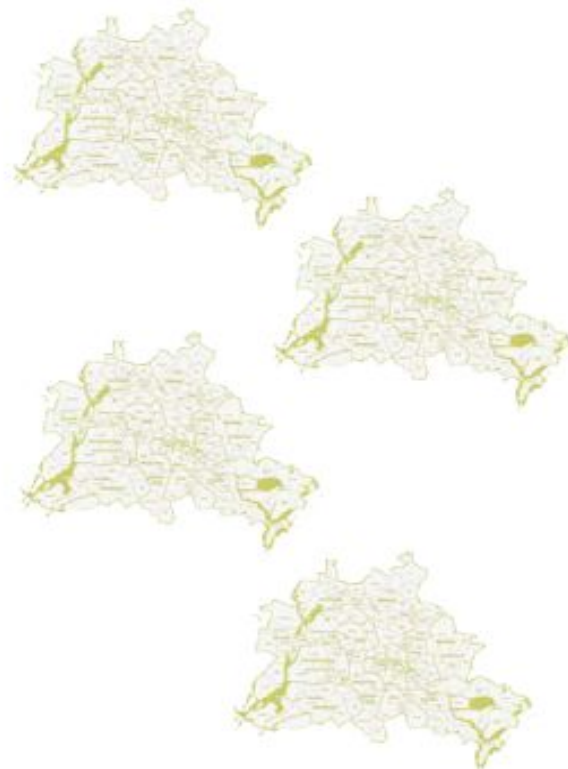
# THE MASSIVE LAND NEEDS OF GREEN HYDROGEN PROJECTS

## EXAMPLE: HYPHEN PROJECT IN NAMIBIA

The hydrogen project covers  
4.000 KM<sup>2</sup> OF LAND



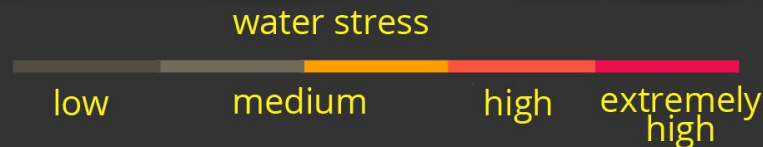
THIS IS MORE THAN FOUR TIMES  
the city of Berlin (891 km<sup>2</sup>)



# HYDROGEN PRODUCTION GUZZLES FRESH WATER

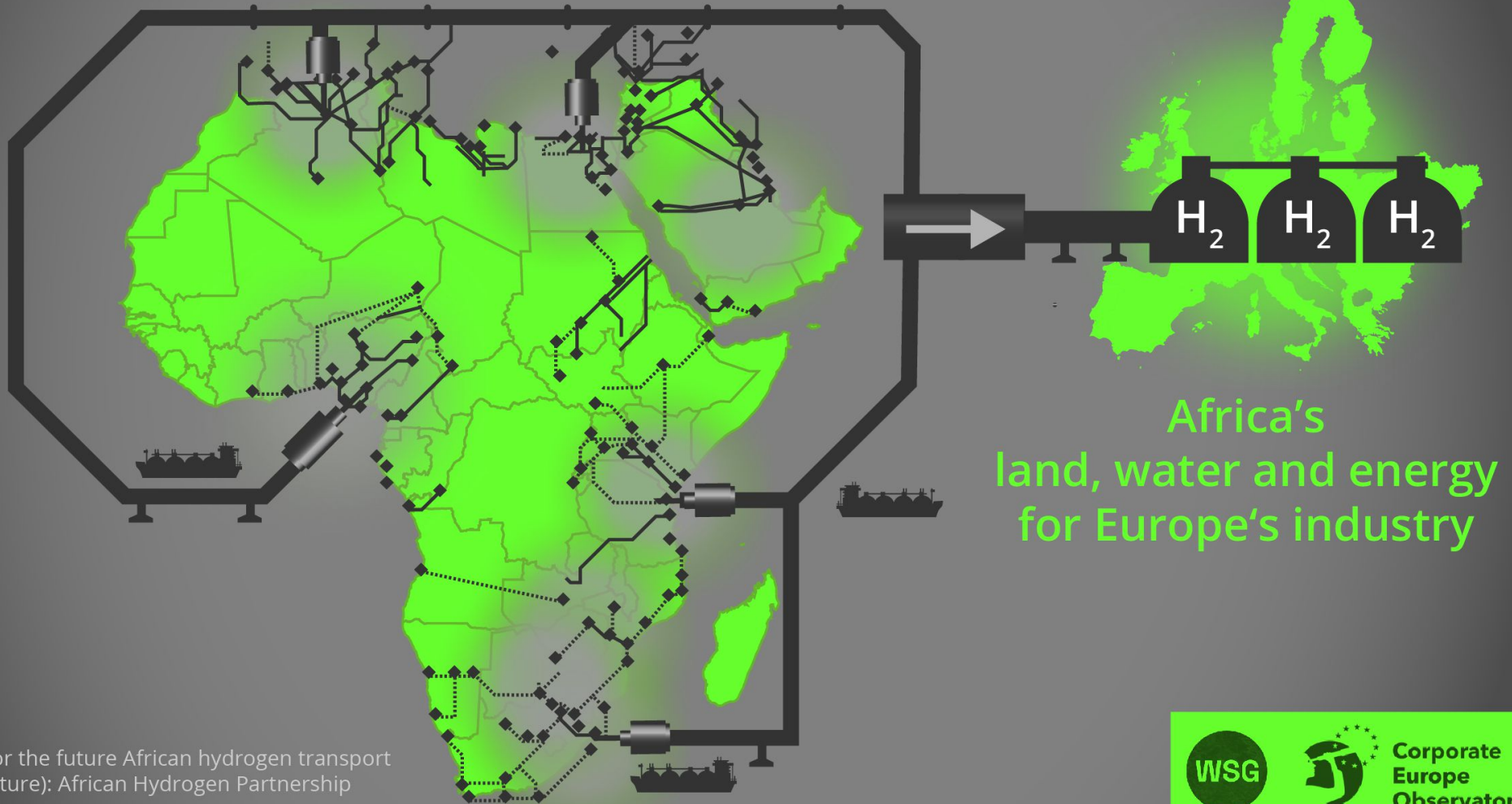
Over 1/3 of the biggest green hydrogen projects are planned in countries facing high or extremely high water stress.

Source: Hydrogen Council, World Resources Institute, additional research



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Observatory

# HYDROGEN: COLONIAL EXTRACTIVISM



Source (for the future African hydrogen transport infrastructure): African Hydrogen Partnership



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Observatory

“The focus on hydrogen is being driven by foreign interests who want to launch a new and **neo-colonial** effort to **capture and export** Africa’s renewable energy potential and water resources(...) for their own use.”

“(A) socially, ecologically and economically appropriate use of hydrogen (.... would be) **small to medium** scale, for **domestic use** (not for export), **not in water-stressed regions**, and to produce fertilizers for food sovereignty rather than for cash crops for export.”



*Mohammed Adow  
Power Shift Africa*

“Hydrogen is just an excuse  
to continue using fossil  
fuels.”



*Claudia Kemfert,  
climate economist & deputy  
chair of the German Advisory  
Council on the Environment*



## Large-scale blue hydrogen may still be needed, even if green H2 is cheaper, says Shell VP

Oil giant's hydrogen boss tells Recharge podcast that there might not be enough renewable energy available to both decarbonise the power sector and produce large amounts of green H2

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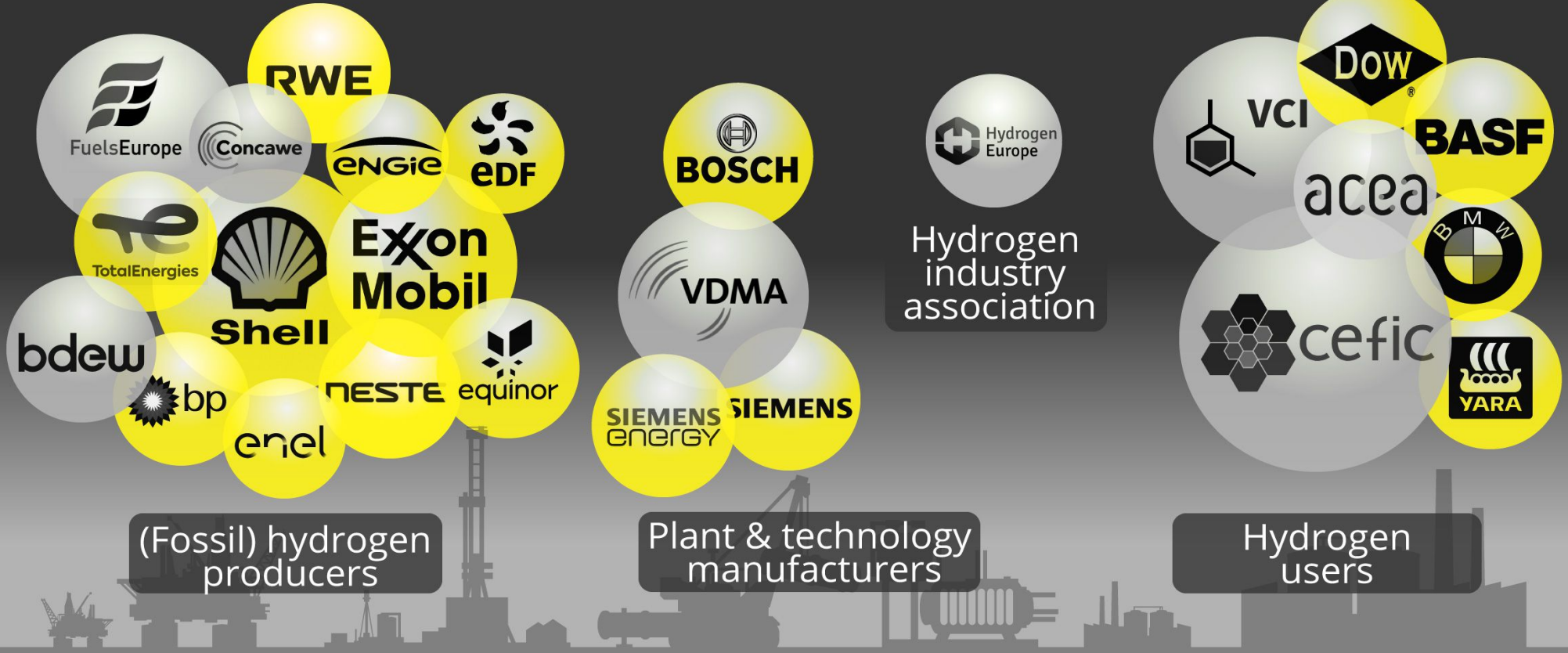
19 April 2021 13:43 GMT *UPDATED 30 June 2021 15:36 GMT*

By **Leigh Collins**

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# BIGGEST EU HYDROGEN LOBBIES



● 17 companies    ○ 7 trade associations and 1 think tank

Source: Data from LobbyFacts.eu, based on self-declared sums in the EU lobby register. Checked 8 September 2023.

# Concluding remarks

- Big business is – successfully – hyping hydrogen to maintain & expand existing production & consumption models
- Risks to extend the life of fossil fuels and deepen neo-colonial extractivism

