mosaHYc - cross-border hydrogen grid for the Grande Region

Creos Deutschland GmbH, Norman Blaß

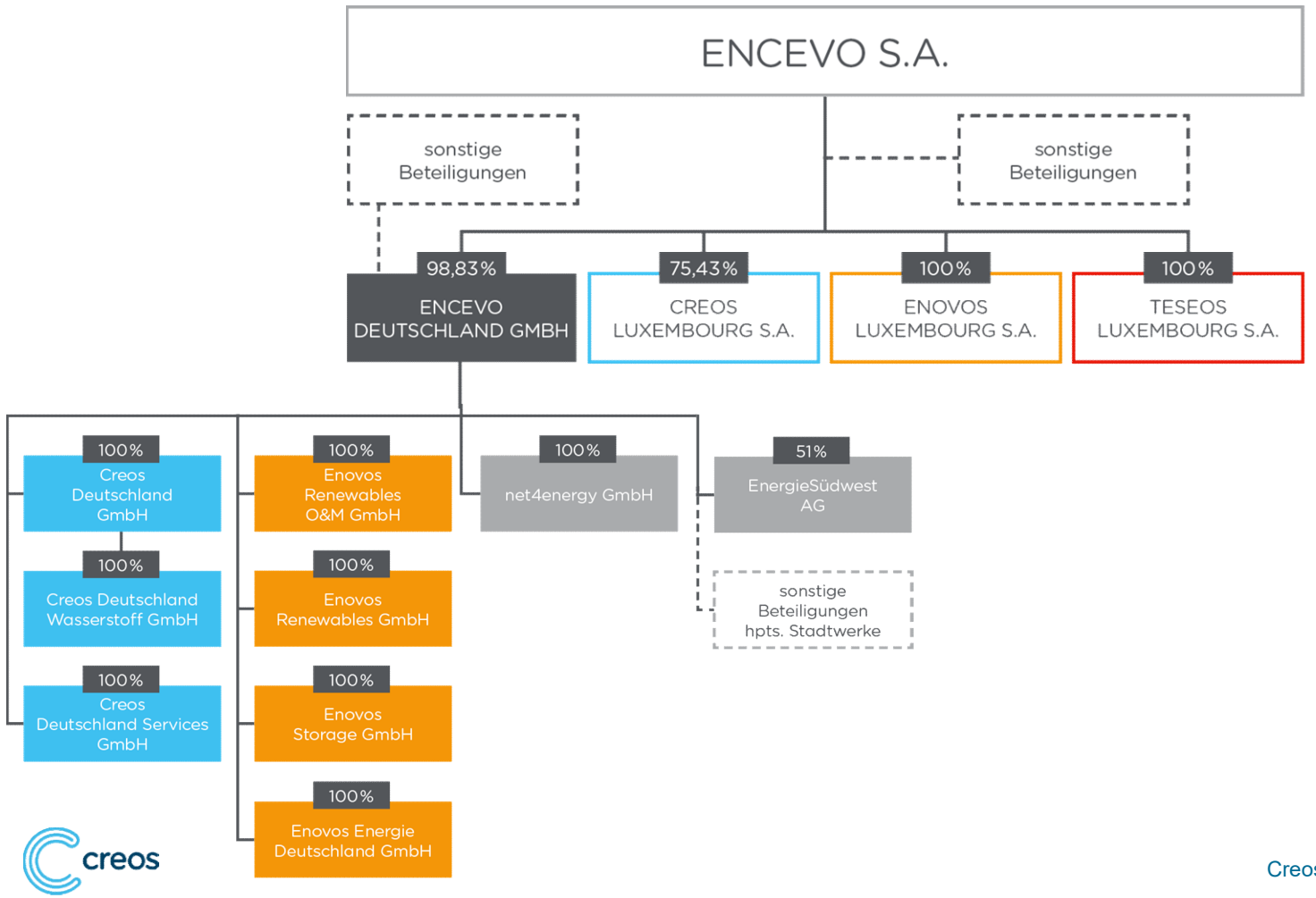
creos

Creos Deutschland GmbH

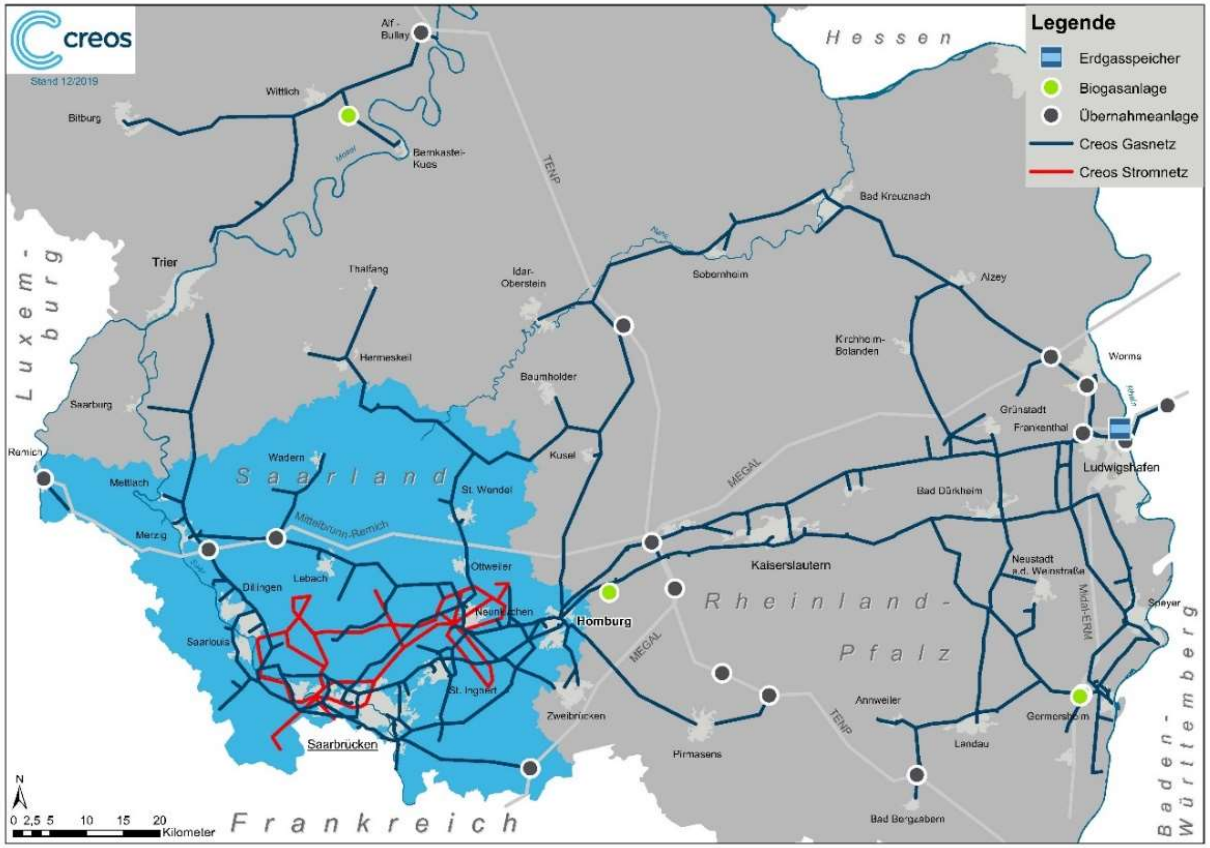
Creos Deutschland GmbH, based in Homburg-Saar, supplies more than two million people in 340 towns and communities in Saarland and Rhineland-Palatinate with its approximately 1,650-kilometer-long high-pressure gas network and approximately 450-kilometer-long high- and medium-voltage network. The Creos Group employs around 180 people. The core competence of Creos groups is the management of energy networks and associated facilities and the optimization of network infrastructure. Creos Deutschland Wasserstoff GmbH as a part of the Encevo Group based in Luxembourg, the regional energy leader and key player in the energy transition along the energy value chain.

DSO Power and Gas	
founded	30.06.2009
shareholder	Encevo Deutschland GmbH (100 %)
Headquarter	Am Zunderbaum 9, 66424 Homburg
Facilities	Saarbrücken, Völklingen, Homburg, Frankenthal
Invest	29,5 Mio. €
EBIT	22,3 Mio. €
Turnover	125,3 Mio. €
FTE	180

Creos Deutschland Wasserstoff Gmbh is a 100% subsidiary of Creos Deutschland GmbH and is carrying out the mosaHYc project.

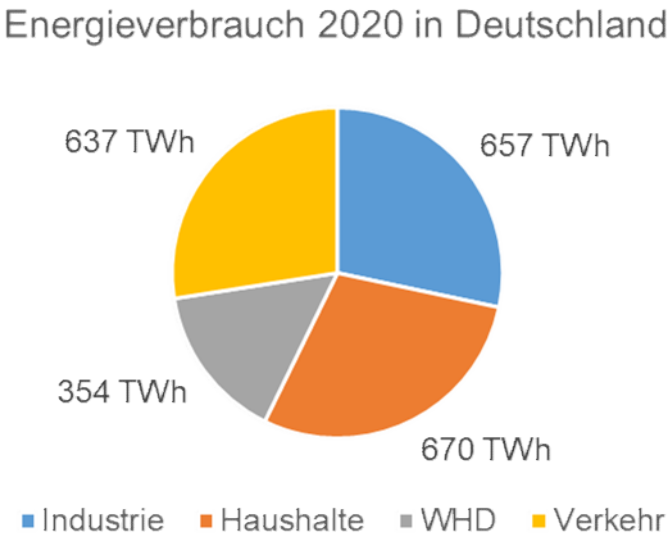

ENCEVO S.A.
sonstige Beteiligungen
sonstige Beteiligungen
98,83%
ENCEVO DEUTSCHLAND GMBH
75,43%
CREOS LUXEMBOURG S.A.
100%
ENOVOS LUXEMBOURG S.A.
100%
TESEOS LUXEMBOURG S.A.
100%
Creos Deutschland GmbH
100%
Creos Deutschland Wasserstoff GmbH
100%
Creos Deutschland Services GmbH
100%
Enovos Renewables O&M GmbH
100%
Enovos Renewables GmbH
100%
Enovos Storage GmbH
100%
Enovos Energie Deutschland GmbH
100%
net4energy GmbH
51%
EnergieSüdwest AG
sonstige Beteiligungen hpts. Stadtwerke

Area Creos Deutschland GmbH



Gas	Pipelines	1650 km
	distributed gas	31 TWh
	peak	8.800 MW
Strom	Power lines	450 km
	distributed electricities	0,6 TWh
	peak	153 MW

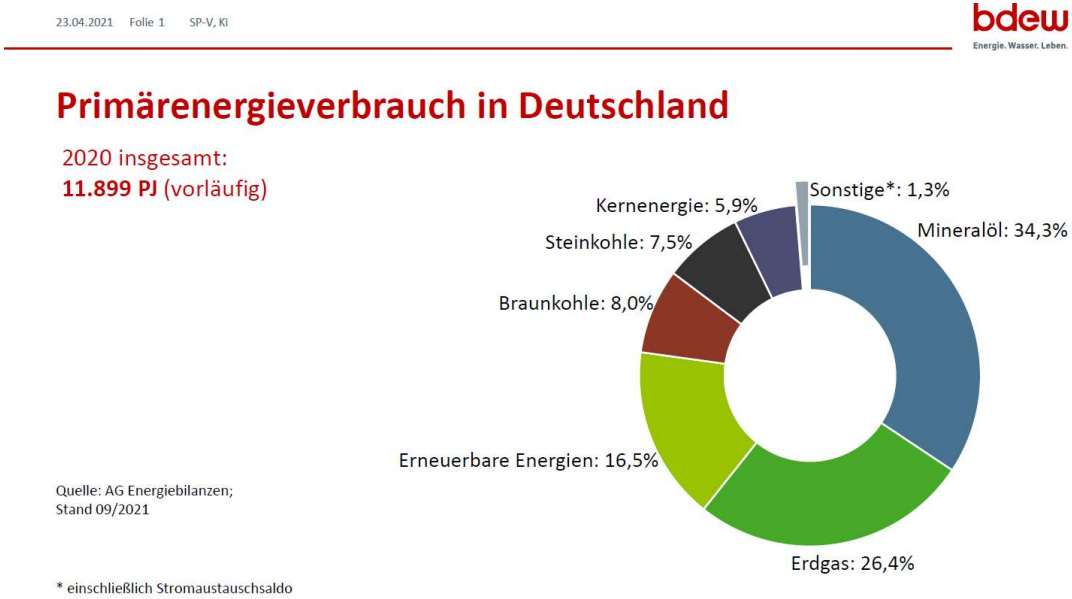
Energy consumption in Germany



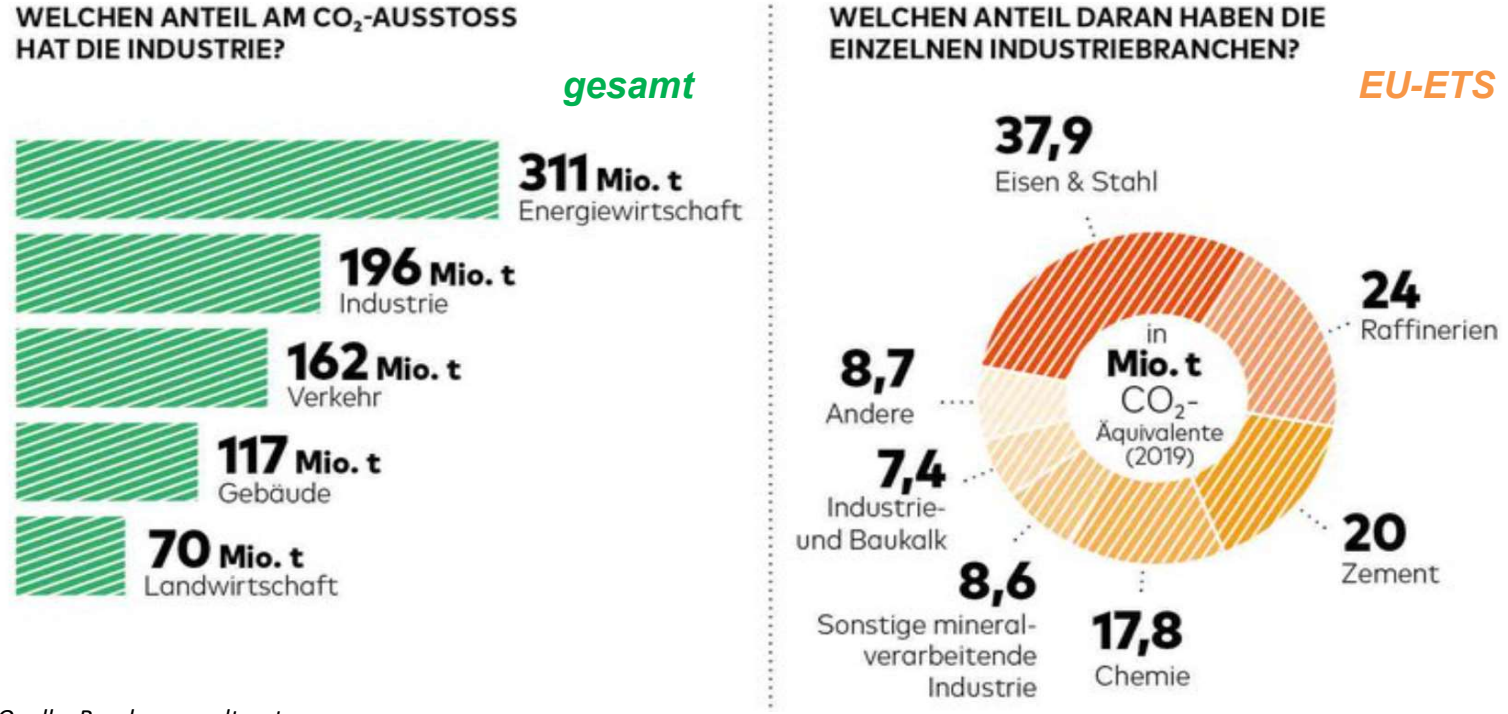
2.318 TWh

with 559 TWh power (24 %)
with 230 TWh renewable (10 %)

source Umweltbundesamt



GHG-emissions in Germany



Quelle: Bundesumweltamt

Climate targets

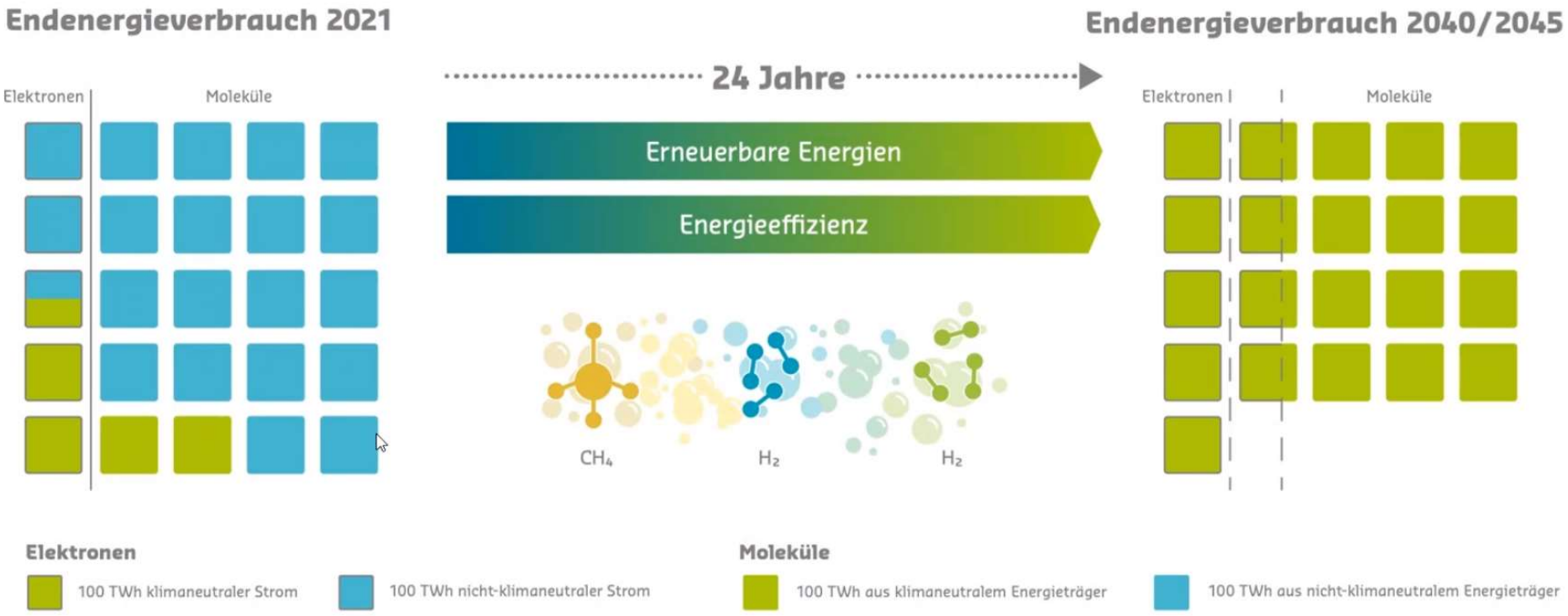
EU Green Deal: https://ec.europa.eu/....

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

„Striving to be the first climate-neutral continent “

„Germany: GHG-neutral in 2045“ https://www.bundesregierung.de/....

A possible way…



Quelle: terranets bw GmbH

Production portfolio in the German TYNDP

source: Szenariorahmen der ÜNB 2037/2045

Energieträger / Erzeugung in GW			
	Bestand 31.12.2020	NEP Szenario A 2045	Δ
Kernenergie	8,1	0	-8,1
Braunkohle	17,7	0	-17,7
Steinkohle	16,1	0	-16,1
Öl	2,3	0	-2,3
Erdgas / Wasserstoff	26,3	35,1	8,8
Pumpspeicher	9,6	12,2	2,6
sonstiges	4,1	0,8	-3,3
"konventinell"	***84,2***	***48,1***	***-36,1***
Onshore-Wind	54,4	125	70,6
Offshore-Wind	7,8	63,3	55,5
PV	53,7	325	271,3
Biomasse	8,8	2	-6,8
Wasserkraft	5,3	5,3	0
sonstiges	1,4	0,8	-0,6
"regenerativ"	***131,4***	***521,4***	***390***
Kraftwerkspark	***215,6***	***569,5***	

-44,2 = 53 % des heutigen Kraftwerkparks

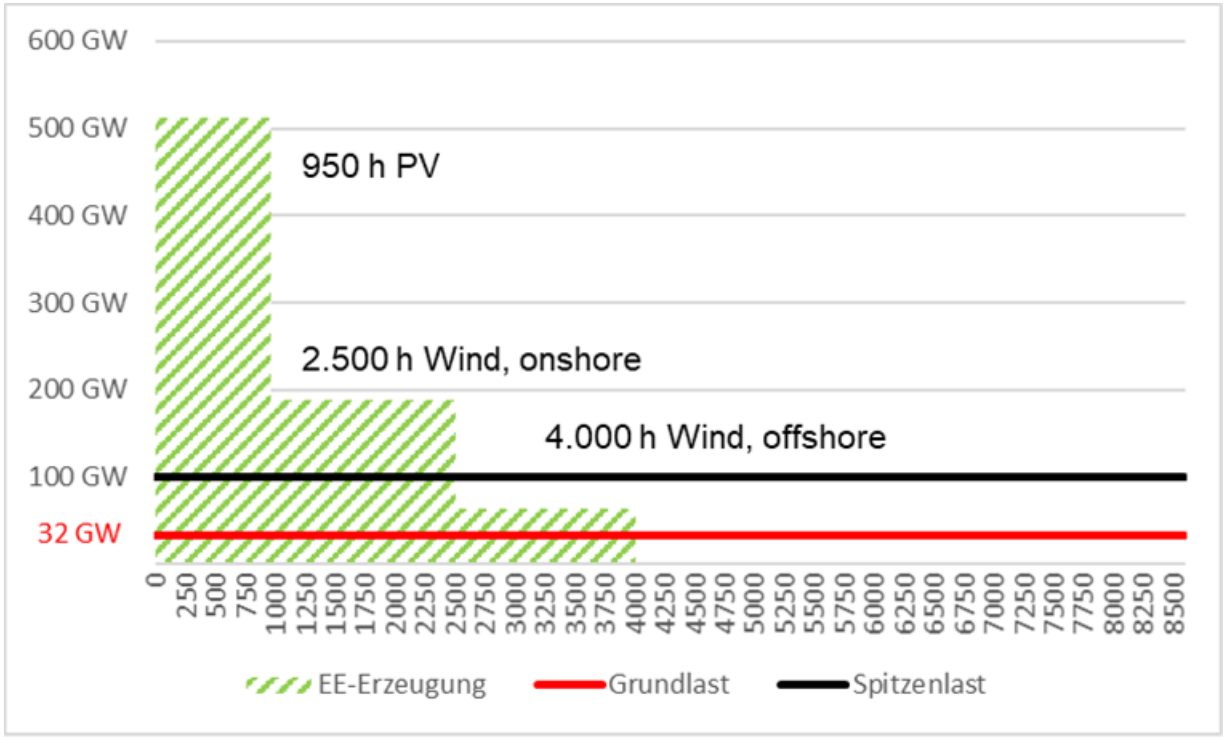
sind die heutigen Anlagen H2-ready?

57%

20.833 x 6 MW Anlagen
5.755 x11 MW Anlagen
225.694 Fussballfelder bei 0,2 kWp/m²

397%

The challenge 2045



Base load?

Peak shaving?

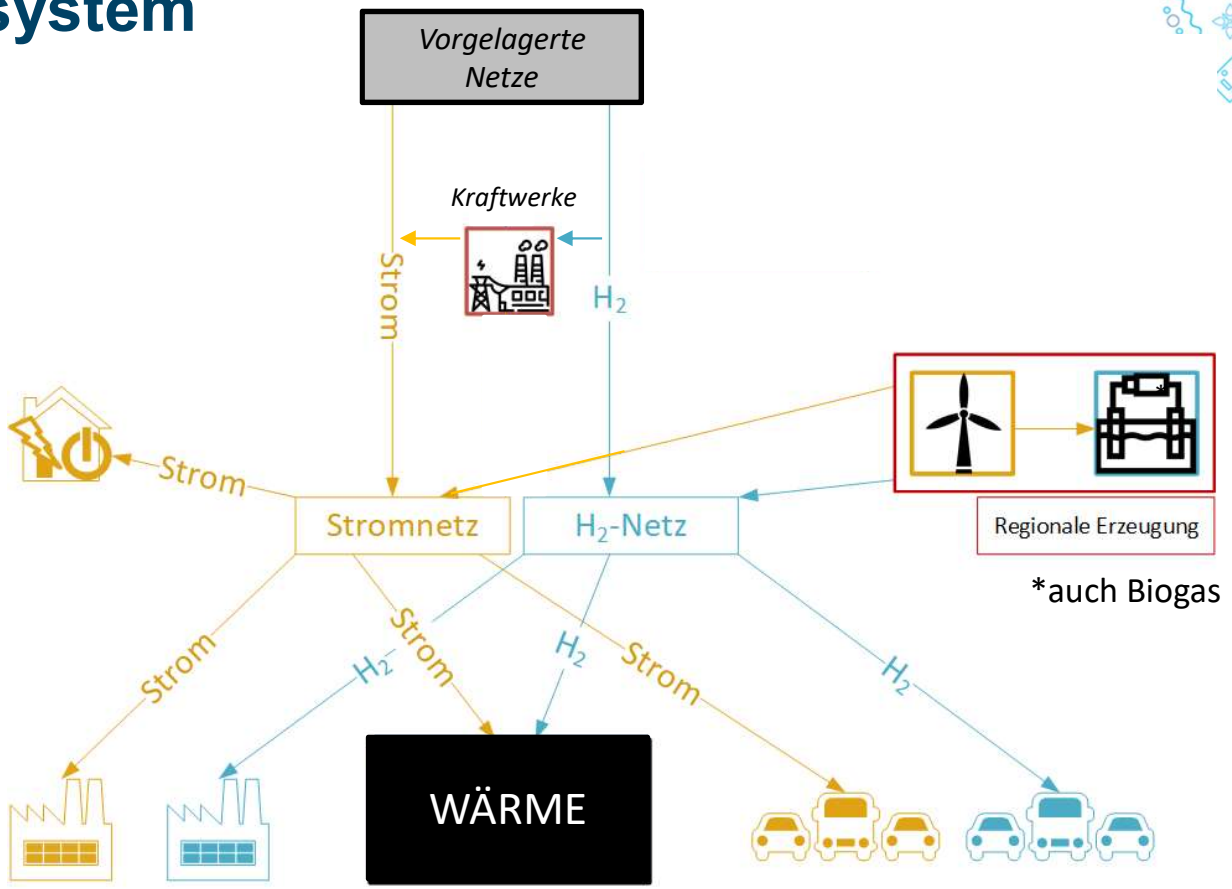
Storage?

Transport?

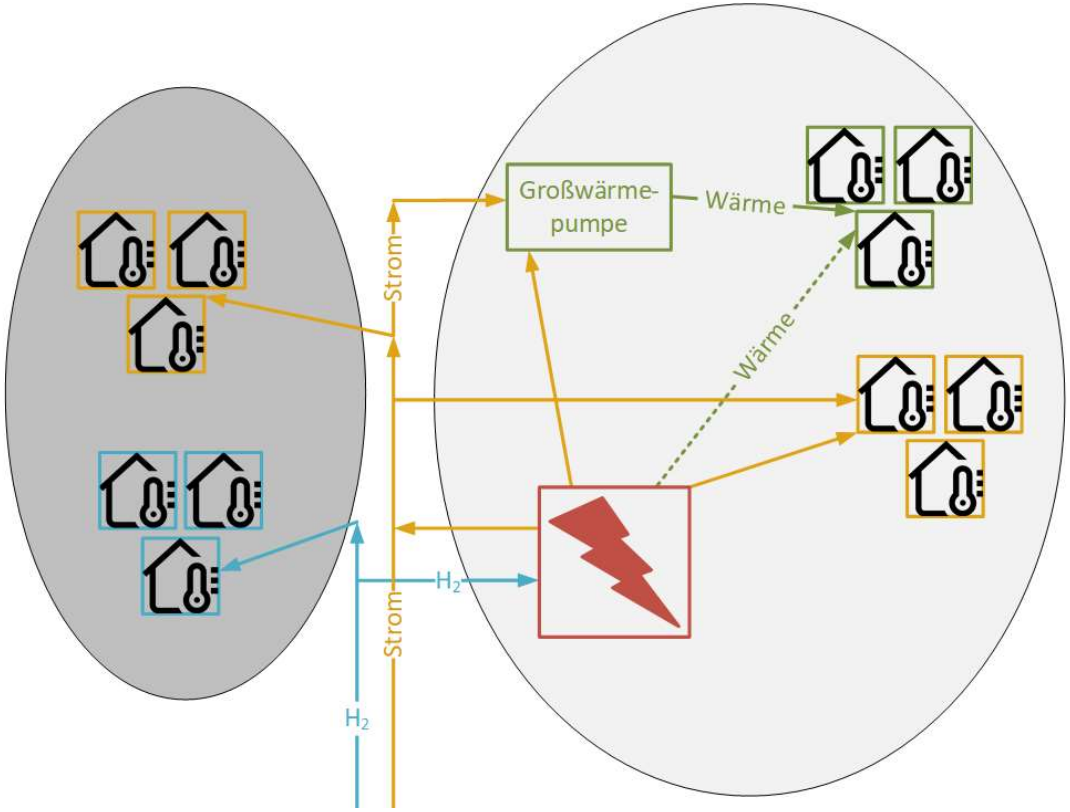
Interconnection?

Eigene Darstellung, ohne Gleichzeitigkeitsbetrachtung

Future energy system



„Black Box“ Heat

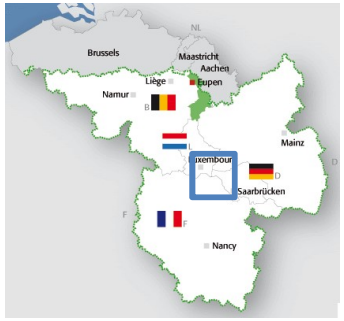


MosaHYc : a first industrial demonstrator for pipeline conversion

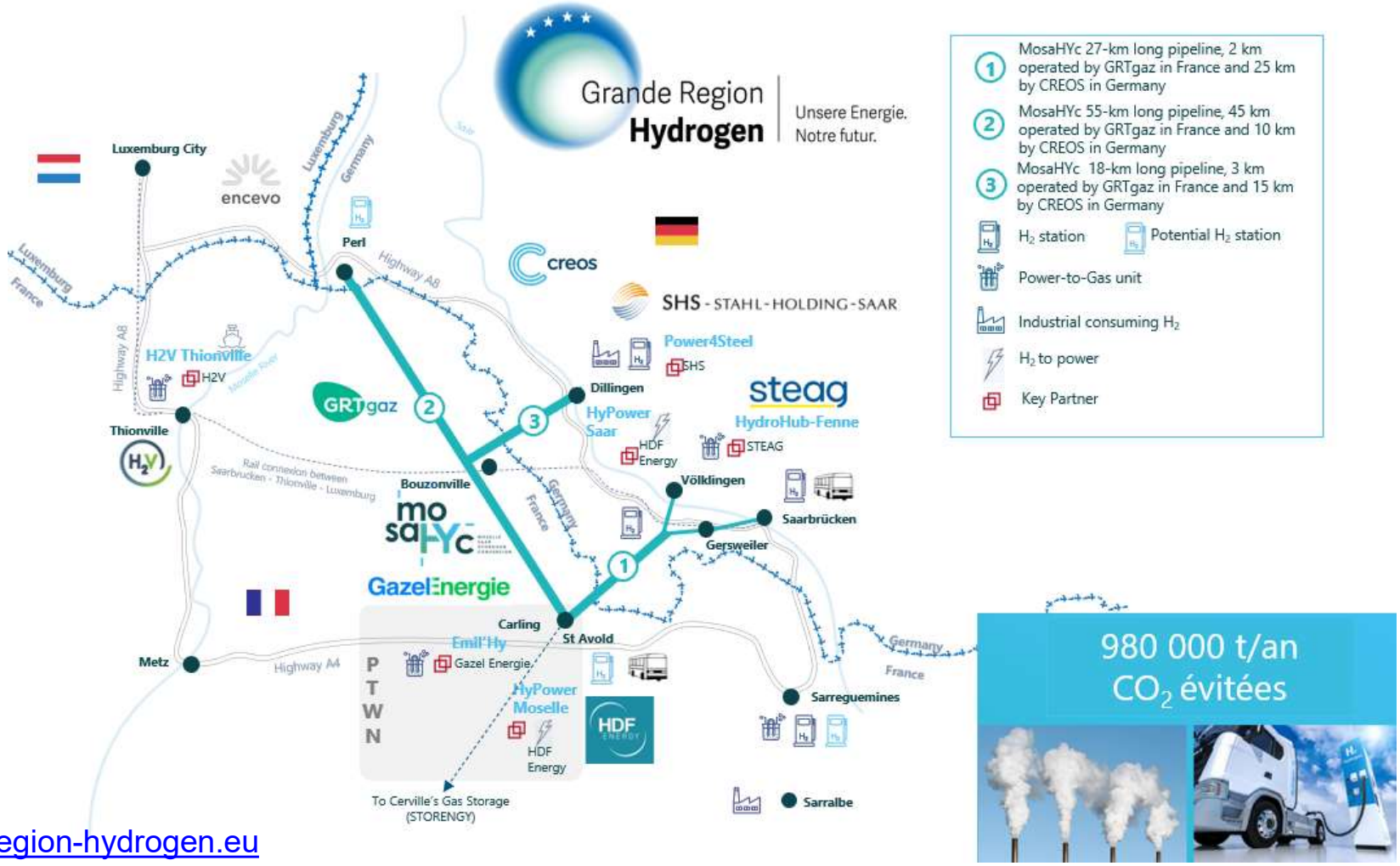
A **cross-border ecosystem** (France, Germany, Luxembourg) gathered in the EEIG « Grande Région Hydrogen » to realize their decarbonization project (steel industry, mobility, electricity production) thanks to a hydrogen transport network.

MosaHYc will make it possible to develop a first technical basis for **the conversion of natural gas transport infrastructures to hydrogen**.

Grande Region Hydrogen



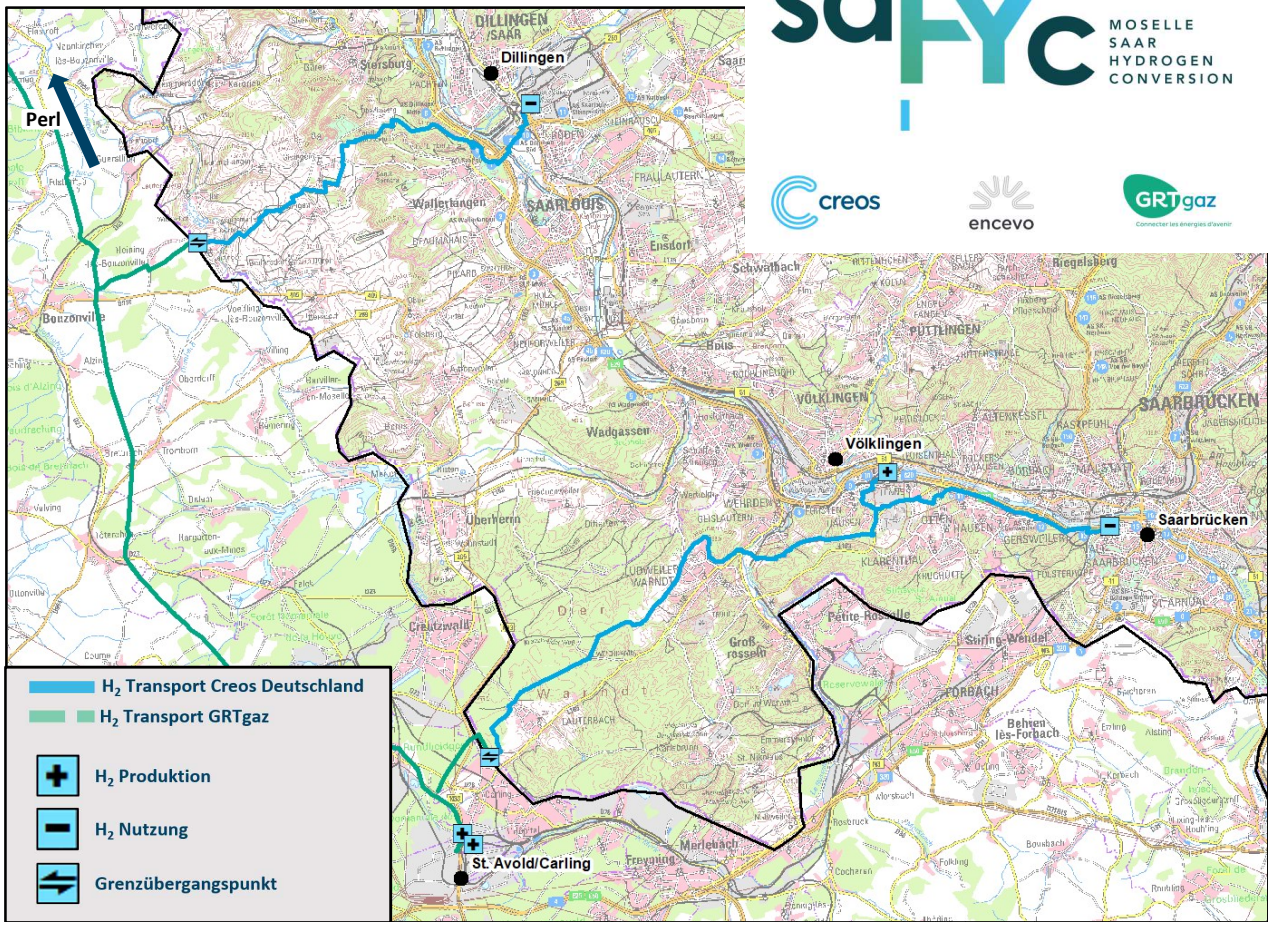
MOSELLE SAAR HYDROGEN CONVERSION



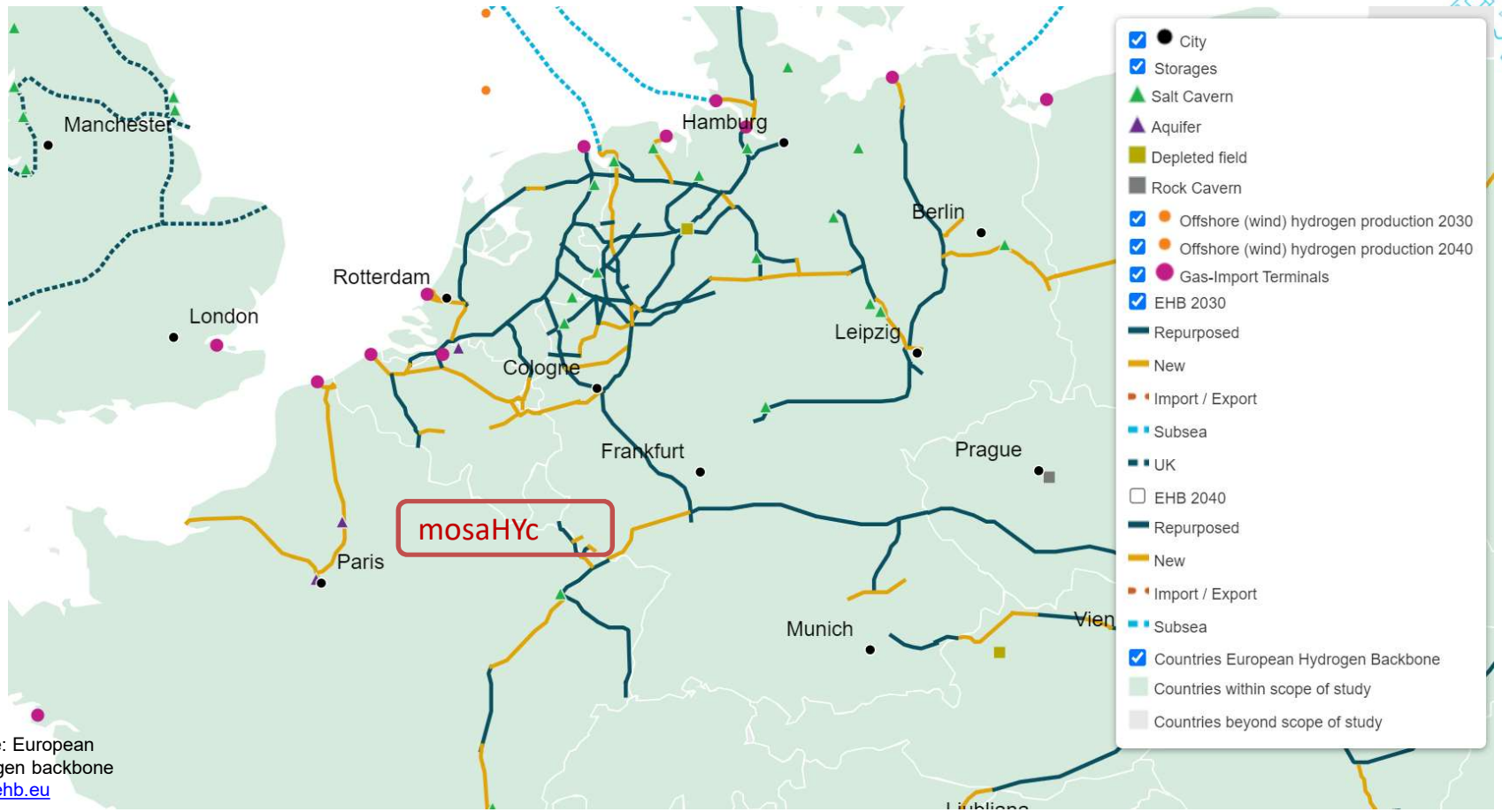
www.grande-region-hydrogen.eu

mosaHYc – key facts

- 100 km hydrogen grid
  (70 km repurposed)
- Open access
- Cross border market area
- Commission 2027
- Ramp up to 2030
  15.500 – 75.000 m³/h
- Technical capacity
  80.000-125.000 Nm³/h

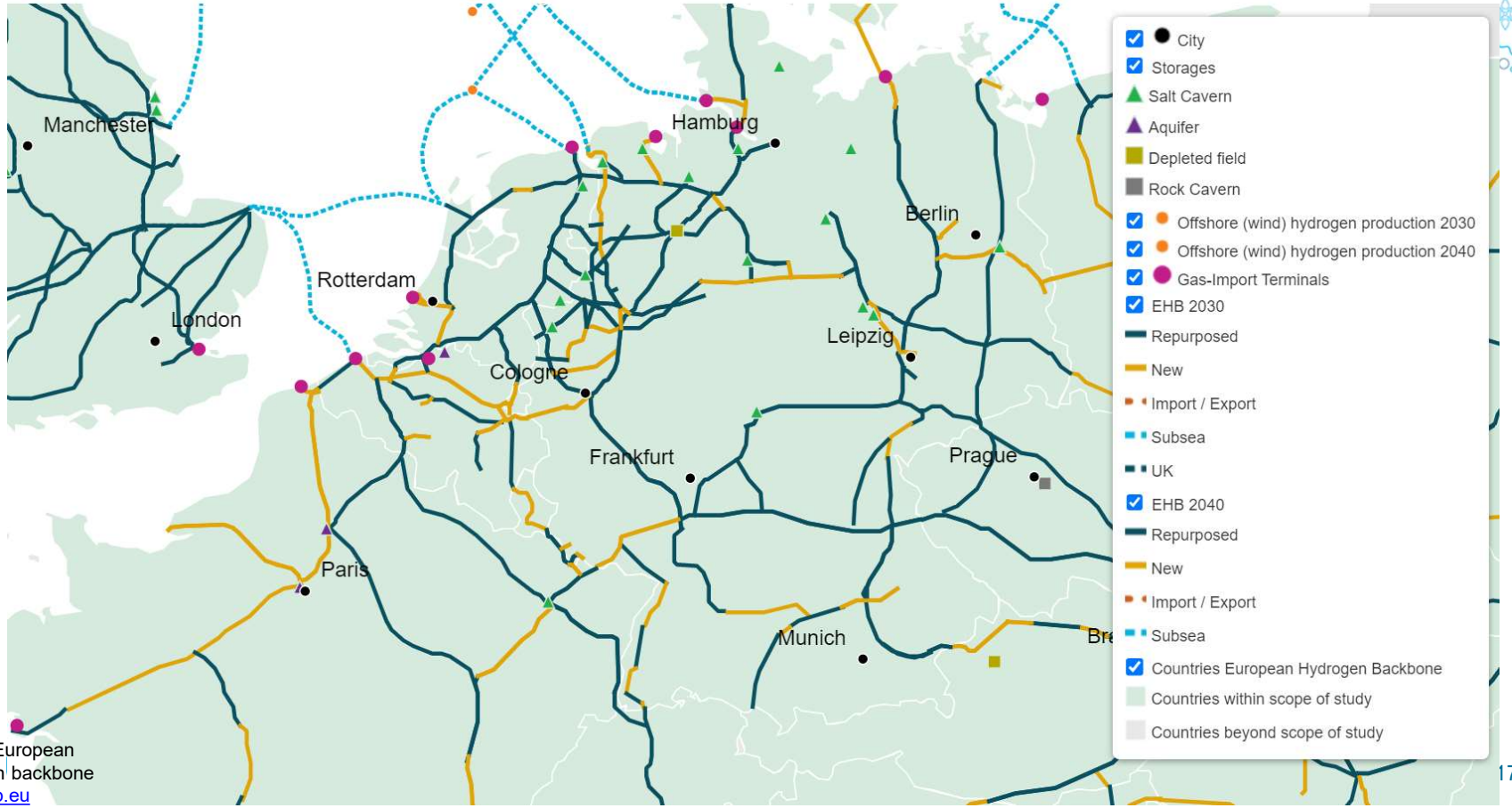


Emerging H2 grid in 2030



Quelle: European hydrogen backbone
www.ehb.eu

Vision for 2040



Quelle: European hydrogen backbone
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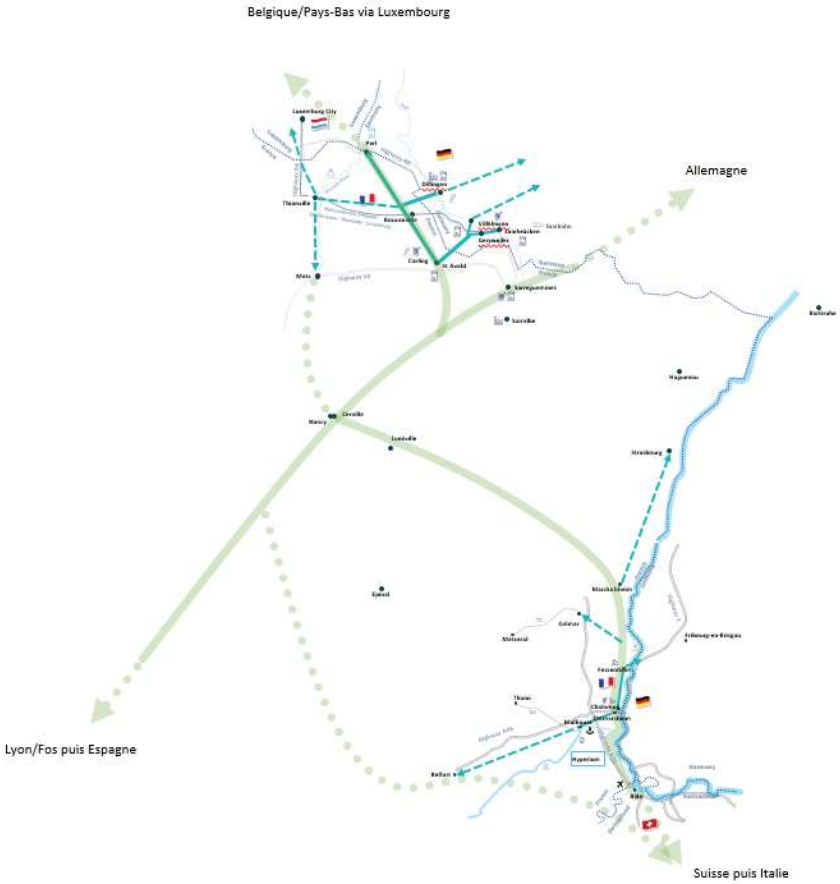
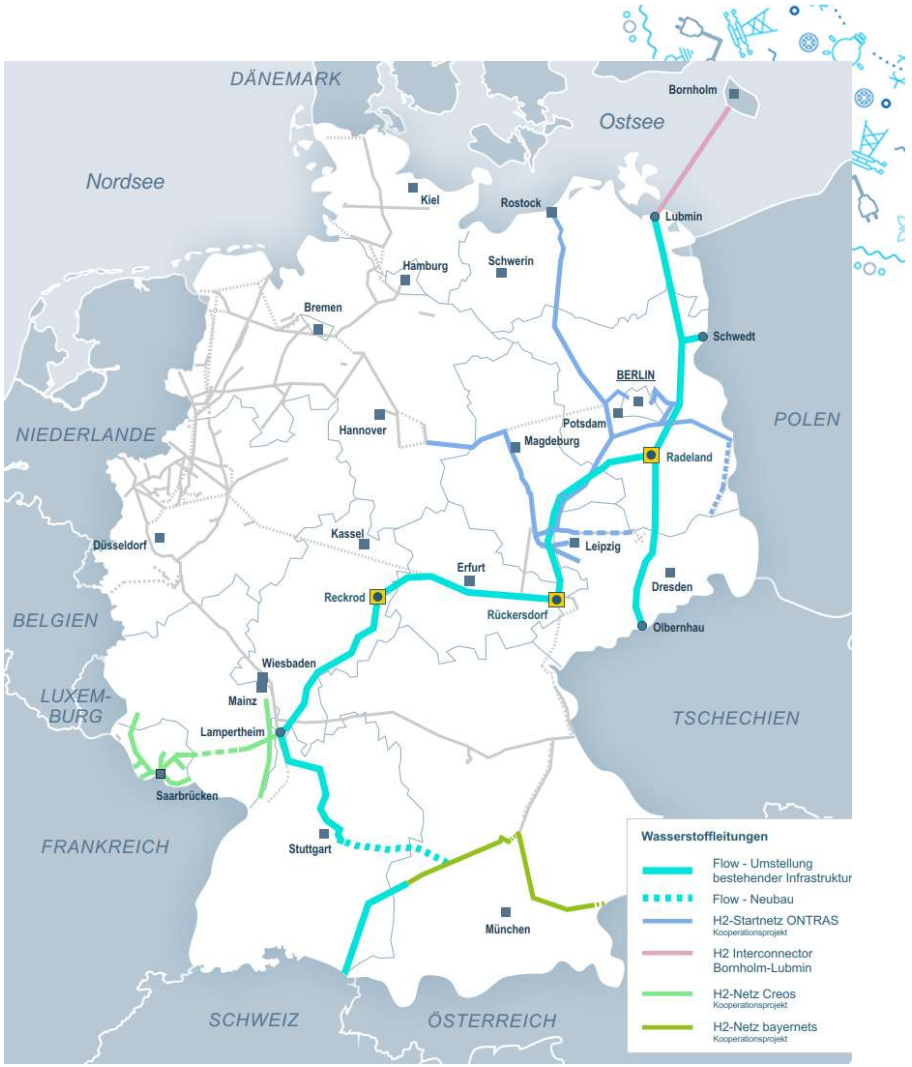
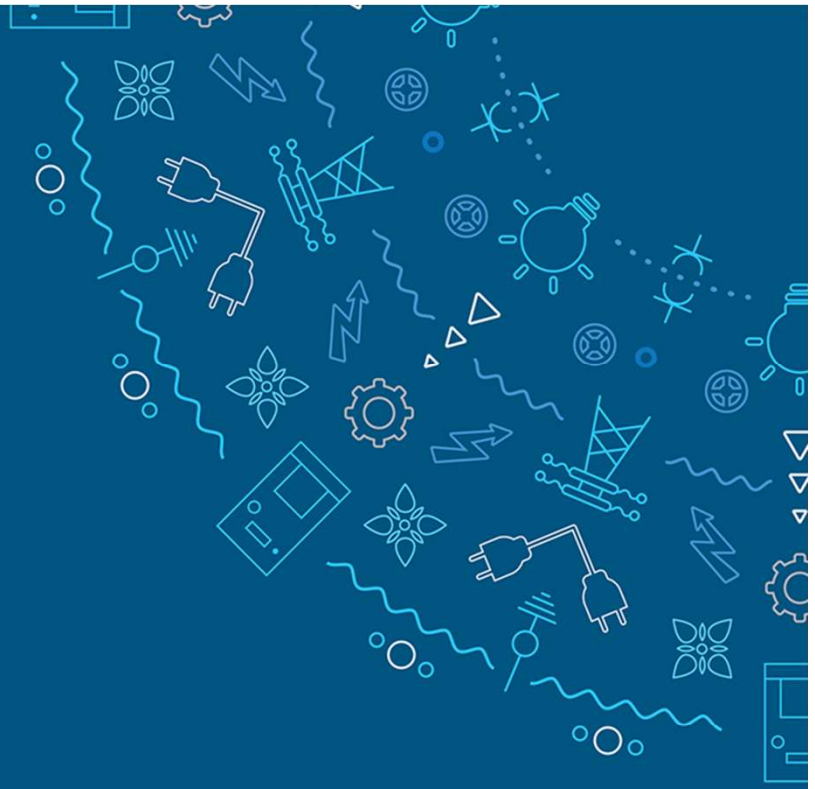
mosaHYc integrated in the GER-FRA vision







Thank you very much!

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