June 2025

ready4H2

Ready4H2

Report on research conducted in Phase 3

Executive Summary

The energy transition in Europe is only achievable with the use of gas distribution grids

In Ready4H2 countries around half the hydrogen demand forecast for the sectors industry, transport and household & buildings will be transported via distribution grids in 2040.

The need for hydrogen to be supplied by distribution grids grows strongly over time across all sectors and is driven by the large geographical dispersion of consumers.

Gas DSOs and TSOs need to work together for integrated and parallel infrastructure planning.

The prerequisites for gas DSO transformation to hydrogen are in place

Planning the transformation of grids and new grid expansion for hydrogen is well underway.

Over 50 projects in progress are in progress in Ready4H2 countries in research and field-based pilots (20% completed).

It is feasible to deliver hydrogen at scale using gas distribution grids.

Repurposing gas distribution grids in areas offers a cost-effective way to deliver hydrogen throughout Europe

Repurposing distribution pipeline systems is 7% the cost of new-build and GPRMS 52%.

The process of transforming against distribution grid can be fast compared to new build.

DSOs offer faster regional development using remote green hydrogen

Distribution grids can connect remote green hydrogen production sites to regional consumers without the need to connect to the European Hydrogen Backbone. Connecting to local distribution grids offers faster hydrogen developments at ports, H_2 islands and H_2 valleys.

Supporting regulatory and financial frameworks are needed

Support is needed to confirm the value proposition of a hydrogen market and provide certainty to distribution system operators to make a business case to convert their grids to hydrogen.

1 The need for hydrogen to be supplied by distribution grids grows strongly over time across all sectors

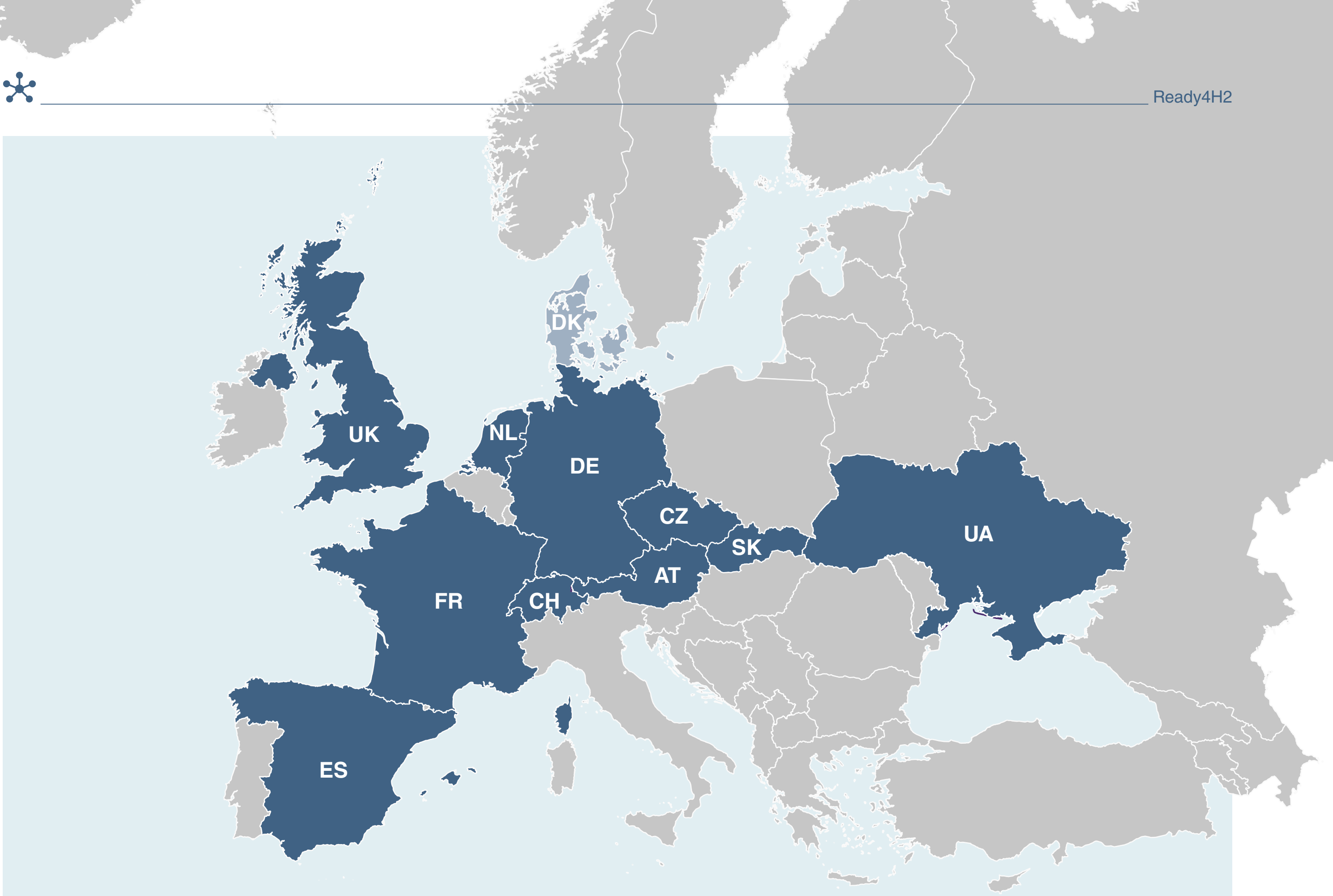
The Ready4H2 project consists of more than 70 European gas distribution operators (DSOs) and national organisations in 10 countries in Europe working together to support a hydrogen market for future energy delivery, through the transformation of gas distribution networks to deliver hydrogen.

Gas distribution is an essential part of Europe's energy supply; more than 99% of industrial and commercial customers that are connected to gas are served by distribution networks. We operate 1.6 M km distribution pipelines (including 55% of Europe's total).

We serve **90 M gas consumers** in all sectors including power generation, industry, transportation and heating, which need hydrogen to decarbonise.

We are getting ready to deliver hydrogen, with **over 50 projects** underway.

We are united in our goal. We are united in our goal to support Europe towards net-zero and believe that DSOs are crucial to accelerating the use of hydrogen to achieve a future energy-independent Europe: by transforming local gas distribution networks, the major benefits of a hydrogen economy can be facilitated.



Members

ES | Spain
- Madrilena Red de Gas
- Nedgia
- Nortegas Energia Distr
- Redexis
- Gas Extremadura

UK | England
- SGN
- Cadent

FR | France
- GRDF

UA | Ukraine
- NaftoGaz Group

NL | Netherland
- Netbeheer Nederland
- Alliander
- Enexis
- Stedin

DE | Germany
- DVGW (H2VorOrt, 47 DSOs)
- Energie Schwaben
- Gasnetz Hamburg
- MVV-Netze
- Gasag
- Netze-BW
- Thüga
- Netze Südwest
- VKU

CH | Switzerland
- SVGW
- Energie360
- VSG

AT | Austria
- ÖVGW
- AGGM
- Energienetze Steiermark
- FGW

CZ | Czech Republic
- GasNet

SK | Slovakia
- SPP Distribucia

DK | Denmark (supporting)

Ready4H2 activities have developed with the needs of the members

Reports on gas networks getting ready to convert and the value of gas distribution in a decarbonised EU.

Roadmap for local gas distribution networks to transform to hydrogen.

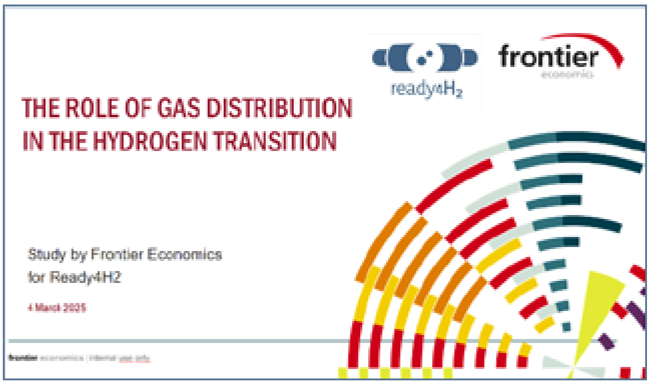
2020

PHASE 1

- Establish community
- Establish knowledge sharing platform
- Member survey

PHASE 2

- Publish brochures on role of distribution grids
- Publish Transformation Roadmap
- Policy Talk event in Brussels



Studies on the role of distribution grids in delivering hydrogen.

Study on the cost of repurposing distribution grids for hydrogen.

2026

PHASE 3

- Brussels-based organisation
- Structured knowledge sharing
- Confirm role of DSOs in geospatial study
- Repurposed grid cost study
- Transformation Roadmap survey
- Strategy workshop in Prague
- Project database

PHASE 4

- Targeted advocacy
- Knowledge sharing
- Liaison with TSOs
- Deep dives into factors affecting the business case for conversion to hydrogen
- Gas Package implementation
- Policy Talk event in Brussels

2 **Widespread hydrogen demand** is driven by the large geographical dispersion of customers and requires distribution pipelines for supply

Despite a complicated context, Europe still has great ambitions for hydrogen and the development of the new hydrogen supply chain is underway, including projects for domestic production, imports, transportation, storage and end use. However:

- **Which sectors will need to use hydrogen to decarbonise?**
- **How will hydrogen be physically delivered to the final customer?**
- **What is the role of the gas distribution grid and how does it change over time?**

Source: SPP Distribúcia, Slovakia

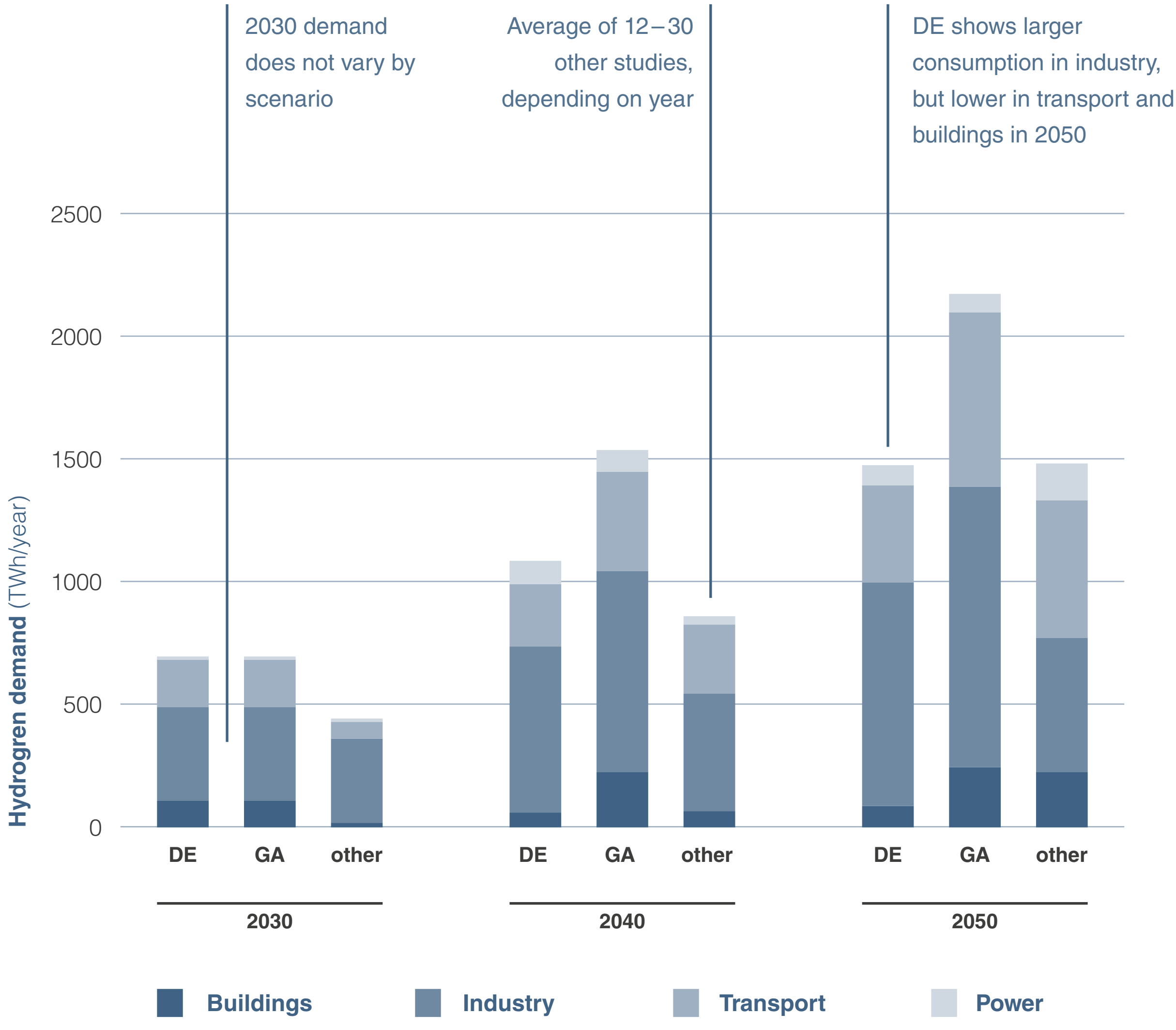
In order to answer these questions and assess the overall role of DSOs delivering hydrogen, both in terms of the physical need for connection and volumes to be delivered, a geospatial mapping study[1] was conducted:

- Consumption and supply infrastructure forecasts were mapped for 2030, 2040 and 2050 using hydrogen supplied from the announced European Hydrogen Backbone (EHB) and remote production locations.
- Demand data were taken from two contrasting scenarios in terms of electrification, technology innovation and policy and economic developments at both sector and country levels: **TYNDP 2024 "distributed energy" (DE, more electrification) and "global ambition (GA, more balanced).**[2]
- In areas where biomethane is forecast, hydrogen demand was lowered.
- Sectors mapped included **large Industry, small & medium industry, transport** (road and river), **households & buildings and energy** (power, efuels, methanation).

The study is conservative: if there was a large uncertainty in the need for a distribution pipeline to connect a customer, it was not included as "DSO relevant".

[1] Frontier Economics report for Ready4H2: The role of gas distribution in the hydrogen transition, March 2025.
[2] TYNDP2024: ENTSO-E and ENTSOG TYNDP 2024 Draft Scenarios Report – note that Spain (New Deal) and France provided own scenario data.

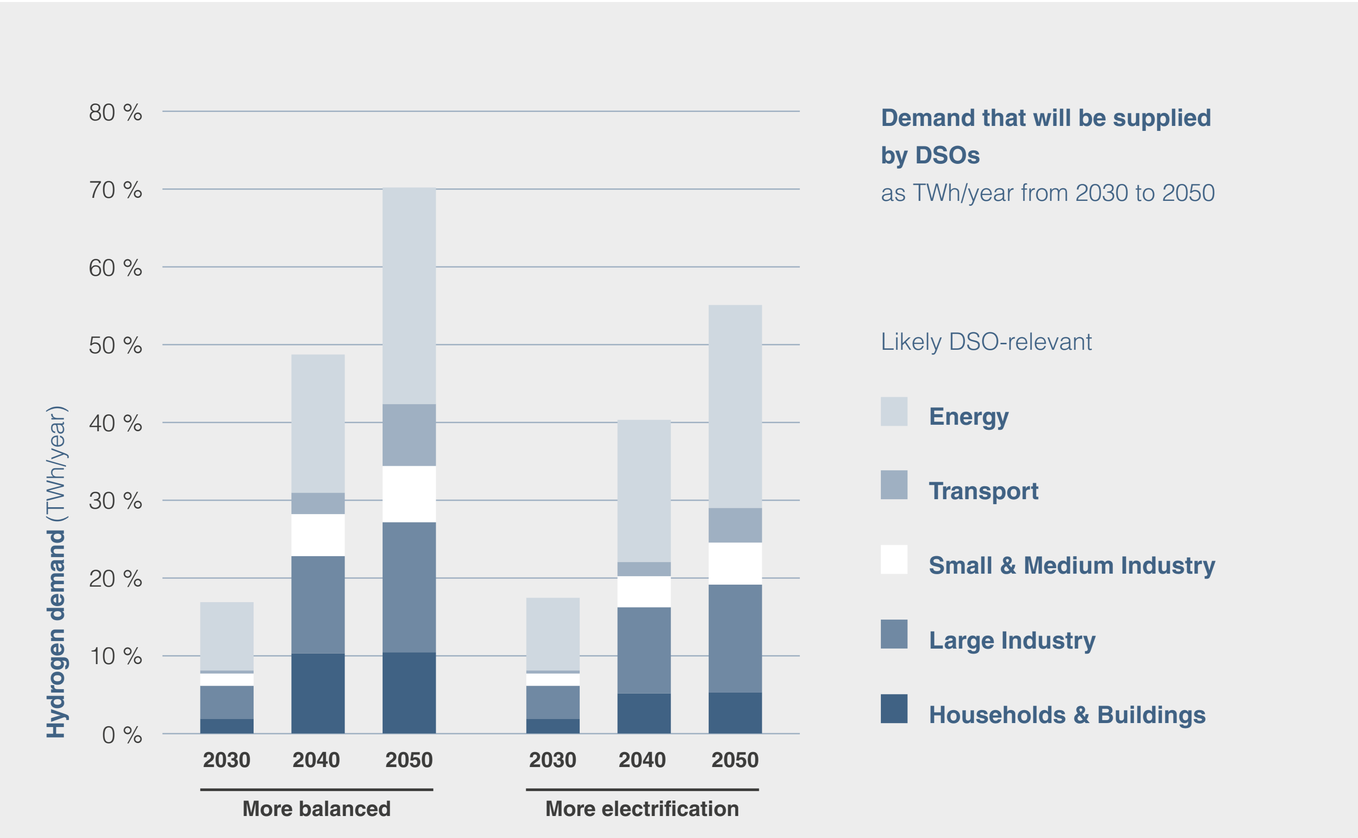
Both TYNDP scenarios are more ambitious forecasts for hydrogen demand compared to other studies, but are credible and respected data sources.



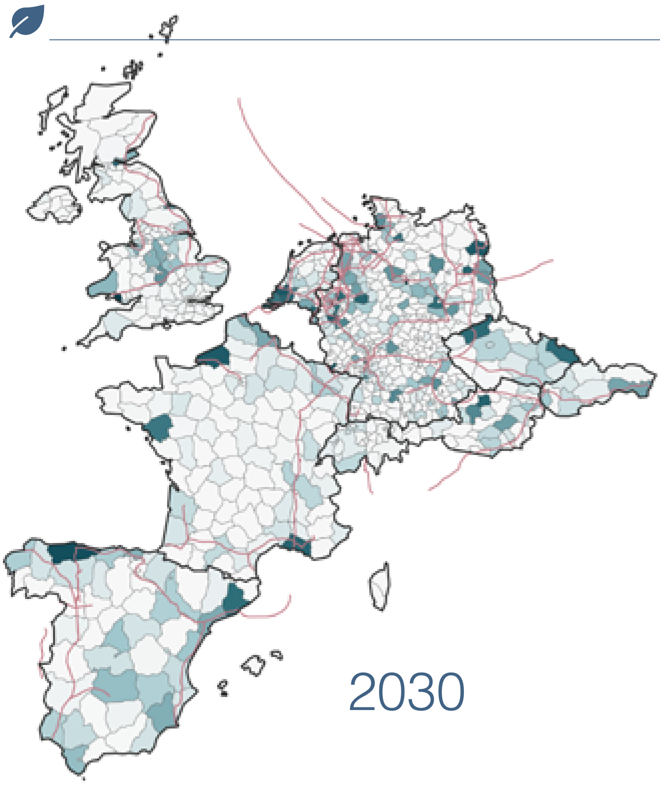
The need for hydrogen to be supplied by distribution grids grows strongly over time across all sectors, driven by the large geographical dispersion of customers

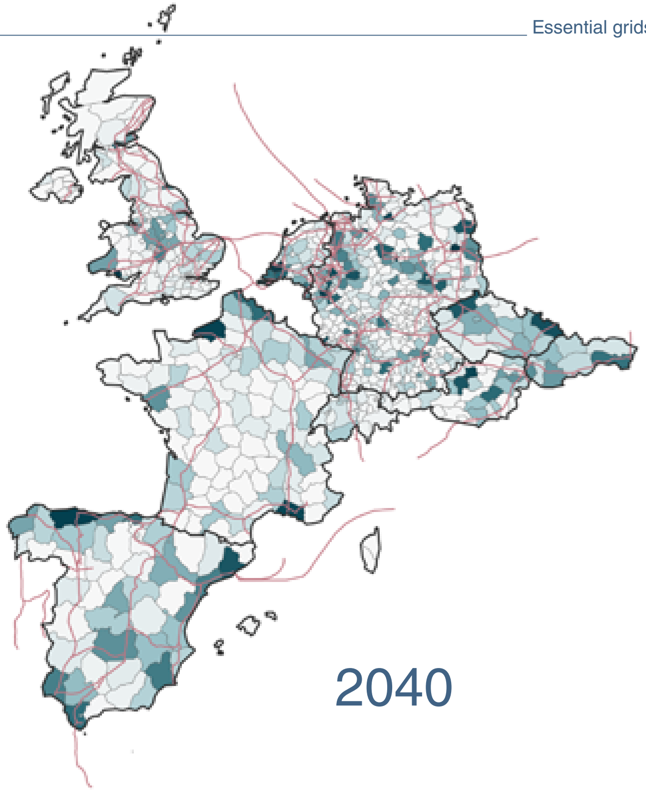
Hydrogen consumption heat maps were developed using exact coordinates (where available) or at a geospatial NUTS-3 regionalisation level[1]. The results are shown by logarithmic scale.

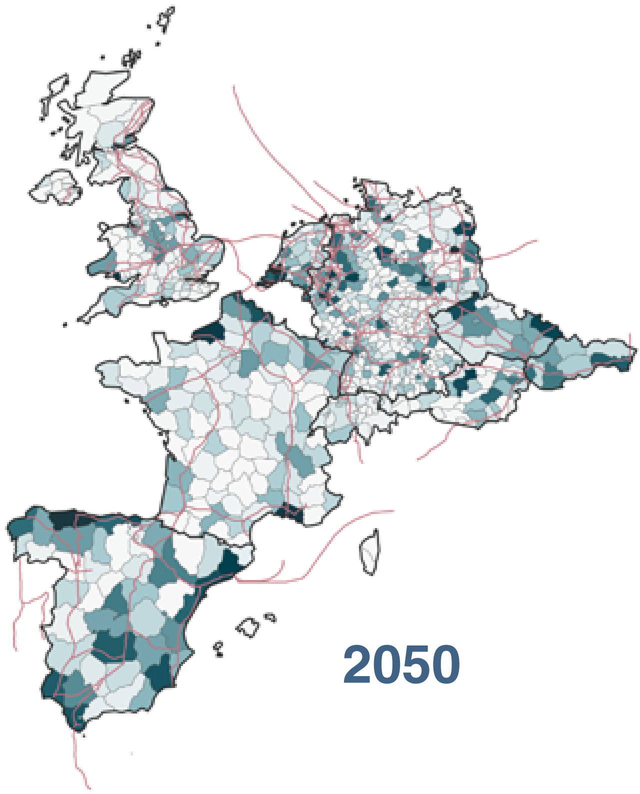
Some sectors are modelled by the TYNDP as having less demand in 2050 than 2040 due to increases in efficiency – this may show in the maps as some regions showing lower demand in 2040 and 2050.



[1] **NUTS – Nomenclature of territorial units for statistics** link
Disclaimer: This analysis is not intended to reflect and may deviate from network development plans. It is based on national hydrogen demand predicted by TYNDP and public regionalisation data, such that it may not reflect actual future regional hydrogen consumption or current natural gas consumption.







	2030	2040	2050
DE	52	318	**479**
UK	43	96	**122**
NL	23	55	**107**
ES	19	47	**72**
FR	17	45	**50**
AT	8	42	**48**
CH	3	21	**27**
CZ	1	13	**13**
SK	1	6	**6**

Scenario:
Balanced

Sector:
Total

3 km DSO-relevant H_2 Demand (TWh/y)

2030

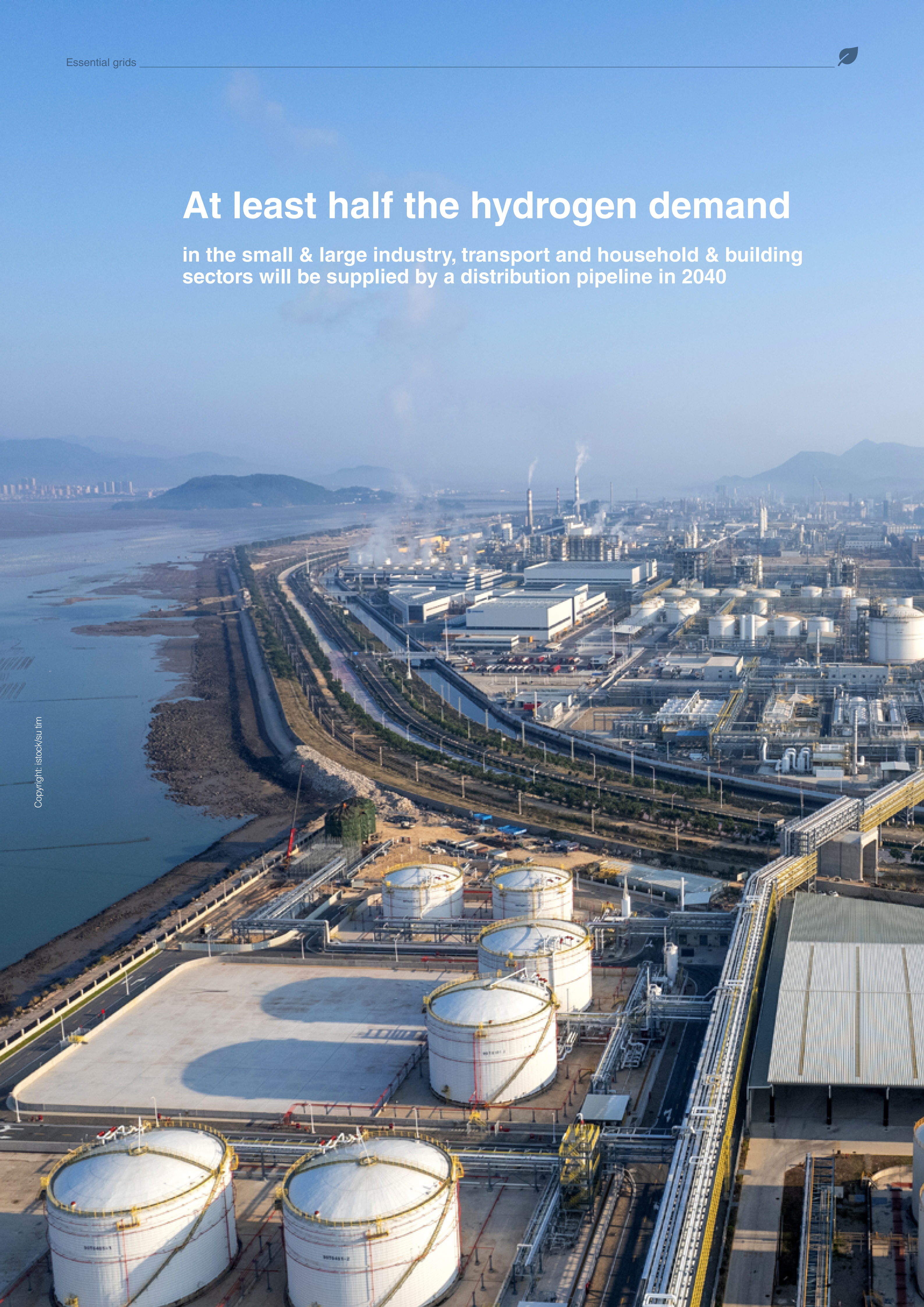
0 1 3 5 10 >20

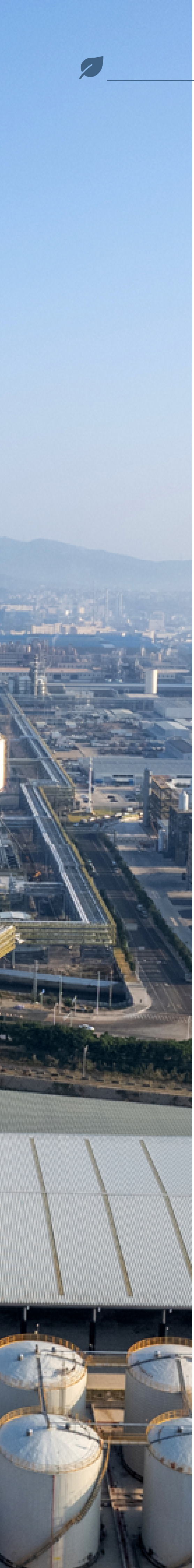
2040 – 2050

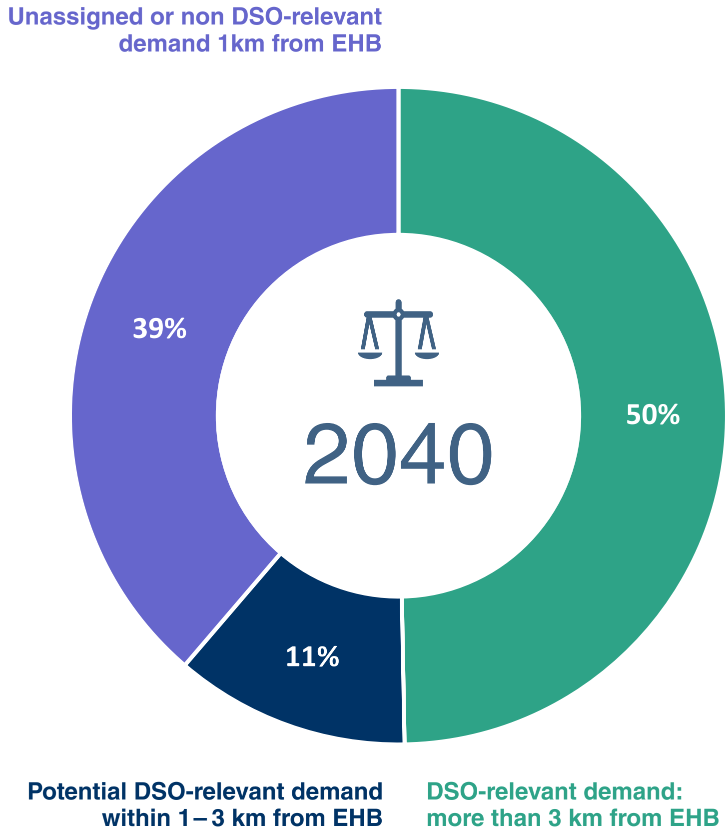
0 1 3 5 10 20 30 >50

At least half the hydrogen demand

in the small & large industry, transport and household & building sectors will be supplied by a distribution pipeline in 2040







In the mapping study a DSO is deemed “DSO relevant” depending on the distance between the customer and the EHB or a green hydrogen production facility.

At least half the hydrogen demand is located more than 3 km from the EHB and will need to be connected by a distribution pipeline.

An additional 39% of demand lies between 1 and 3 km from the EHB. In addition a significant number of customers are located within 1 km, which may require a DSO connection, however due to many factors, including connection costs, it is uncertain which of this 11% will be supplied by distribution or transmission pipelines.

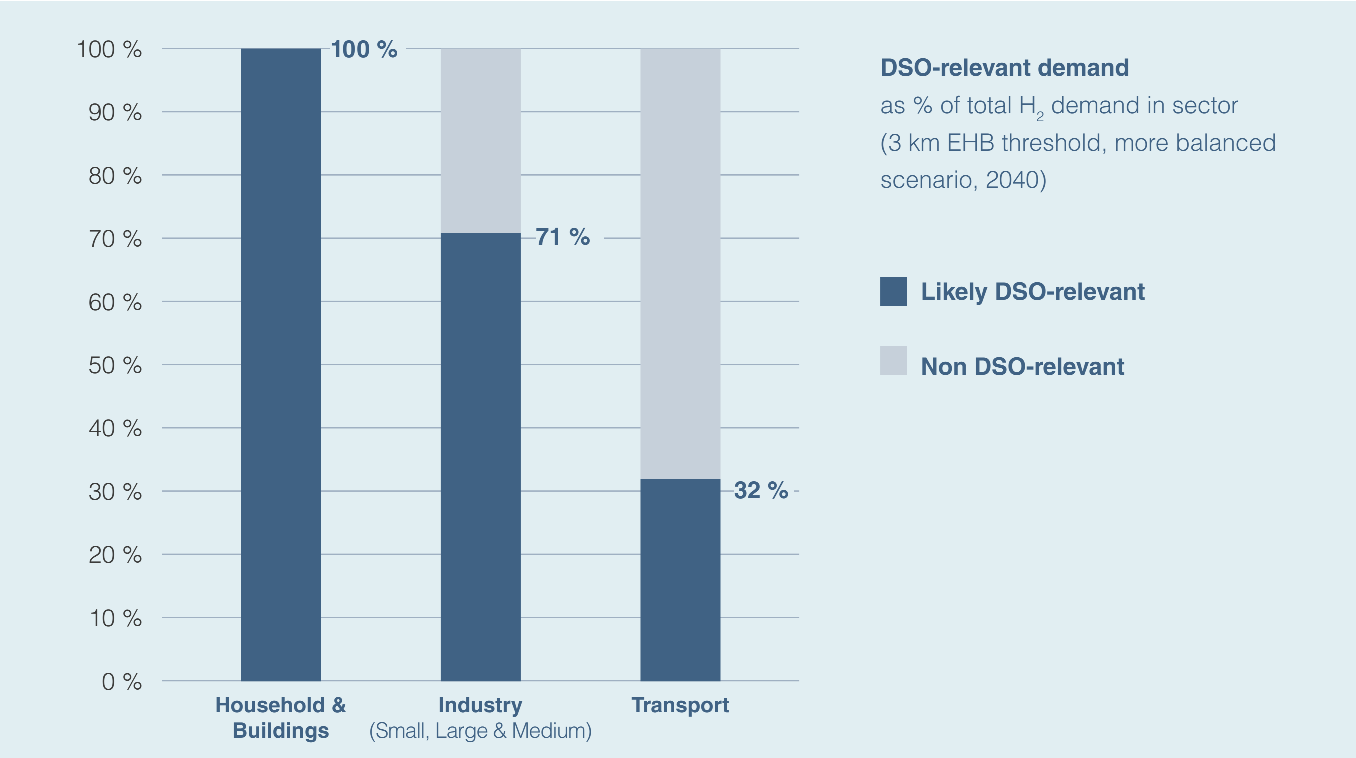
The results demonstrate the essential role that distribution grids play in delivering hydrogen from the EHB to the end users, in all sectors; without which Europe will not be able to reach its emissions reduction targets.

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France source GRDF, Spain source New Deal)

Disclaimer: This analysis is not intended to reflect and may deviate from network development plans. It is based on national hydrogen demand predicted by TYNDP and public regionalisation data, such that it may not reflect actual future regional hydrogen consumption or current natural gas consumption.

All energy sectors

need to be supplied for all or part of the hydrogen demand via a distribution pipeline to achieve decarbonisation



71% of hydrogen demand from all industry will be supplied by a distribution pipeline. Lead markets (steel, chemicals, refineries) dominate demand.

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France source GRDF, Spain source Nedgia)

Disclaimer: This analysis is not intended to reflect and may deviate from network development plans. It is based on national hydrogen demand predicted by TYNDP and public regionalisation data, such that it may not reflect actual future regional hydrogen consumption or current natural gas consumption.

Large Industry:
> 60% of large industry demand > 3 km from the EHB, and 90% from facilities > 1 km.

Small & Medium Industry:
80–104 TWh H_2 for process heat.

Transport 32–46% of sector H_2 demand will be DSO-relevant in 2040 depending on scenario and threshold for distance from EHB assumed.

Energy: Significant uncertainty around which demand will be DSO-relevant; fulfilling strong demand for methanation and e-fuels could require DSO transportation.

Households & Buildings:
In some countries hydrogen will be used directly for space heating. Demand ramps up from ~40TWh in 2030 to ~100–200 TWh in 2040 depending on scenario – needs to be supplied exclusively by DSOs due to low pressures/volumes.

75% electrolysers > 3 km from EHB: even when accounting for on-site production, DSOs will transport 27–39% of total demand across all sectors.

Source: Cadent Gas, UK

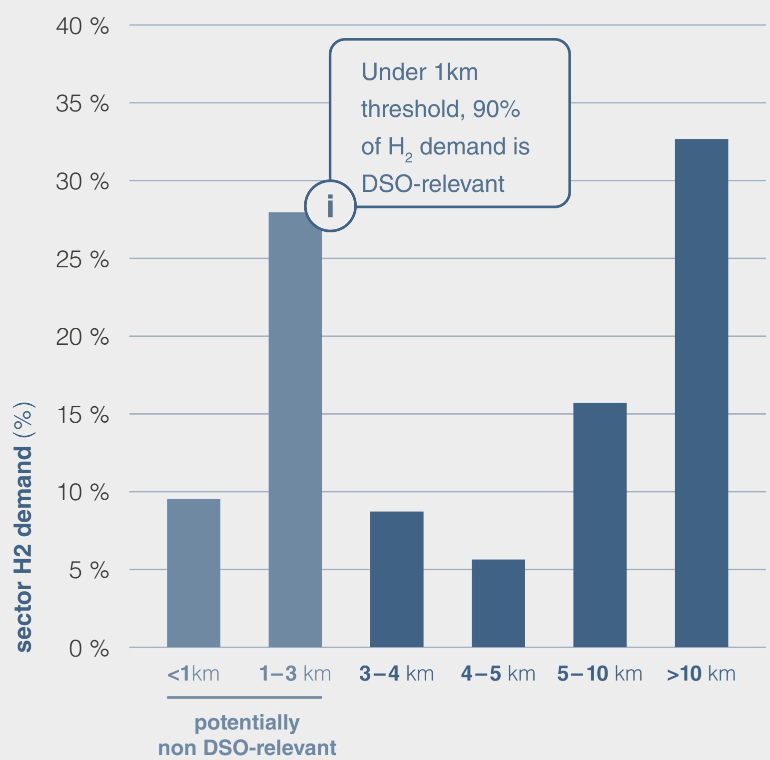
Large industry (2040)

> 60% of sector demand > 3 km from EHB likely to be supplied by gas DSOs and 90% of demand > 1 km away may be DSO-relevant

DSO-relevant demand based on facilities > threshold distance to EHB

	Total H_2 demand in Ready4H2 countries (TWh)	DSO-relevant demand in Ready4H2 countries (TWh) — 3 km	DSO-relevant demand in Ready4H2 countries (TWh) — 1 km
More Electrification	360 TWh	221 TWh	323 TWh
More Balanced	402 TWh	252 TWh	363 TWh

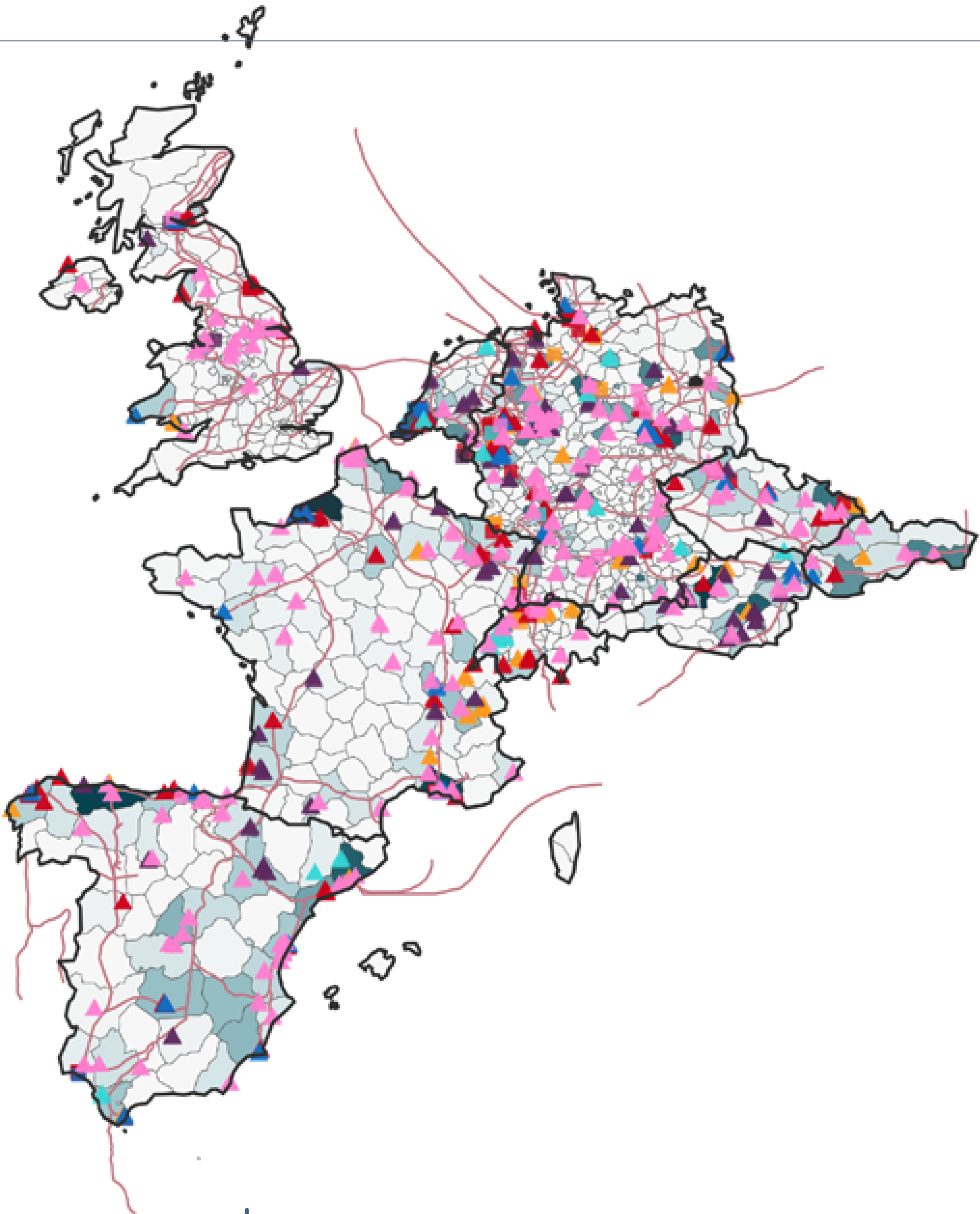
63% – 90% of H_2 demand
in sector will be supplied by DSOs in 2040



Note: Per Nedgia, 100% of large industrial customers in Spain are DSO-relevant, which is reflected in calculations and maps.

More Electrification scenario, volumes based on TYNDP Distributed Energy (exception: Spain, source New Deal)

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France, source GRDF, Spain, source New Deal)



Scenario:
More Balanced

Sector:
Large Industry

DSO-relevant demand by country (TWh/y)

DE	**125**
AT	**27**
FR	**26**
ES	**24**
NL	**20**
UK	**18**
SK	**6**
CZ	**6**
CH	**2**

2040

Demand characterised by high volumes concentrated in several key hubs.

3 km DSO-relevant H_2 Demand (TWh/y)

0 1 3 5 10 >20

Distance to EHB

■ **≥ 1 km & < 3 m** ▲ **≥ 3 km**

Industrial facilities

Steel **Paper** **Food**
Chemicals **Refineries** **Other**

Small & medium industry (2040)

requires 80 – 100 TWh hydrogen demand for (high temperature) process heat – all demand likely to be supplied via distribution pipelines

Small & medium industry requiring high-temperature process heat likely to need DSO supply.

Small and medium industry includes facilities across small and medium manufacturing sectors (e.g. chemicals, paper, food, textiles, etc.). Due to volume/pressure requirements to fulfil energy demands for process heat, likely all will need DSO supply.

Despite relatively low volumes of demand, this sector is a main driver for DSOs as many businesses require gas for (high temperature) process heat and facilities are quite disperse. For example, a 2024 study by DVGW[1] finds >1.1 million facilities in this sector in Germany with such high temperature processes.

DSO-relevant H_2 demand in Ready4H2 countries (TWh)

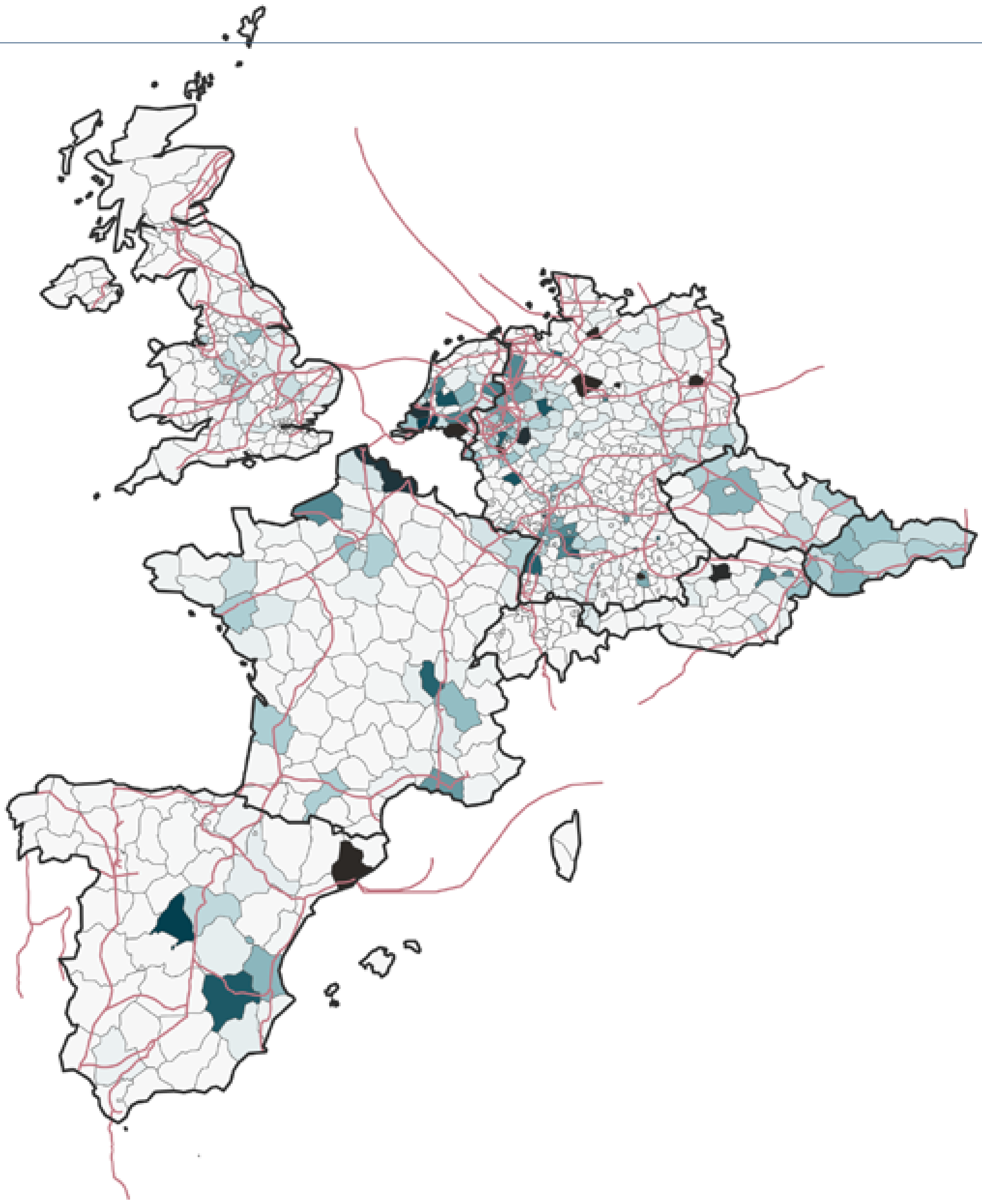
80 TWh

104 TWh

More Electrification scenario, volumes based on TYNDP Distributed Energy (exception: Spain, source New Deal)

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France, source GRDF, Spain, source New Deal)

[1] DVGW (2024) Bedeutung der Gasverteilnetze für Industrie und Gewerbe.



2040

Modelling assumes demand in this sector concentrated in large industrial hubs, where hydrogen will be essential.

DSO-relevant demand by country (TWh/y)

DE	**99**
NL	**11**
ES	**7**
FR	**7**
AT	**4**
UK	**3**
SK	**2**
CZ	**1**
CH	**0**

3 km DSO-relevant H_2 demand (TWh/y)

0 1 2

EHB

Scenario:
More Balanced

Sector:
Large Industry

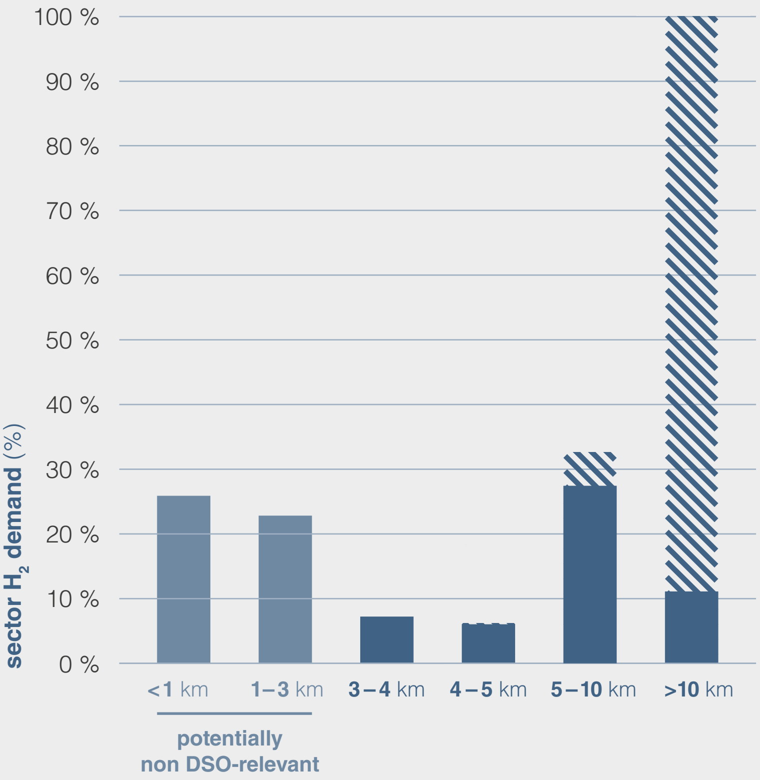
Transport (2040)

32% of the hydrogen demand located > 3 km from EHB will be supplied by distribution pipelines, with potential to supply part of the additional 46% of sector demand located 1 – 3 km

% of transport sector demand by distance to EHB

32% – 46% of H_2 demand could be supplied by DSOs in 2040

Transport supplied by TSO or DSO and by truck



Total H_2 demand in Ready4H2 countries (TWh)

108 TWh 181 TWh

3km

DSO-relevant demand in Ready4H2 countries (TWh)

38 TWh 58 TWh

1 km

DSO-relevant demand in Ready4H2 countries (TWh)

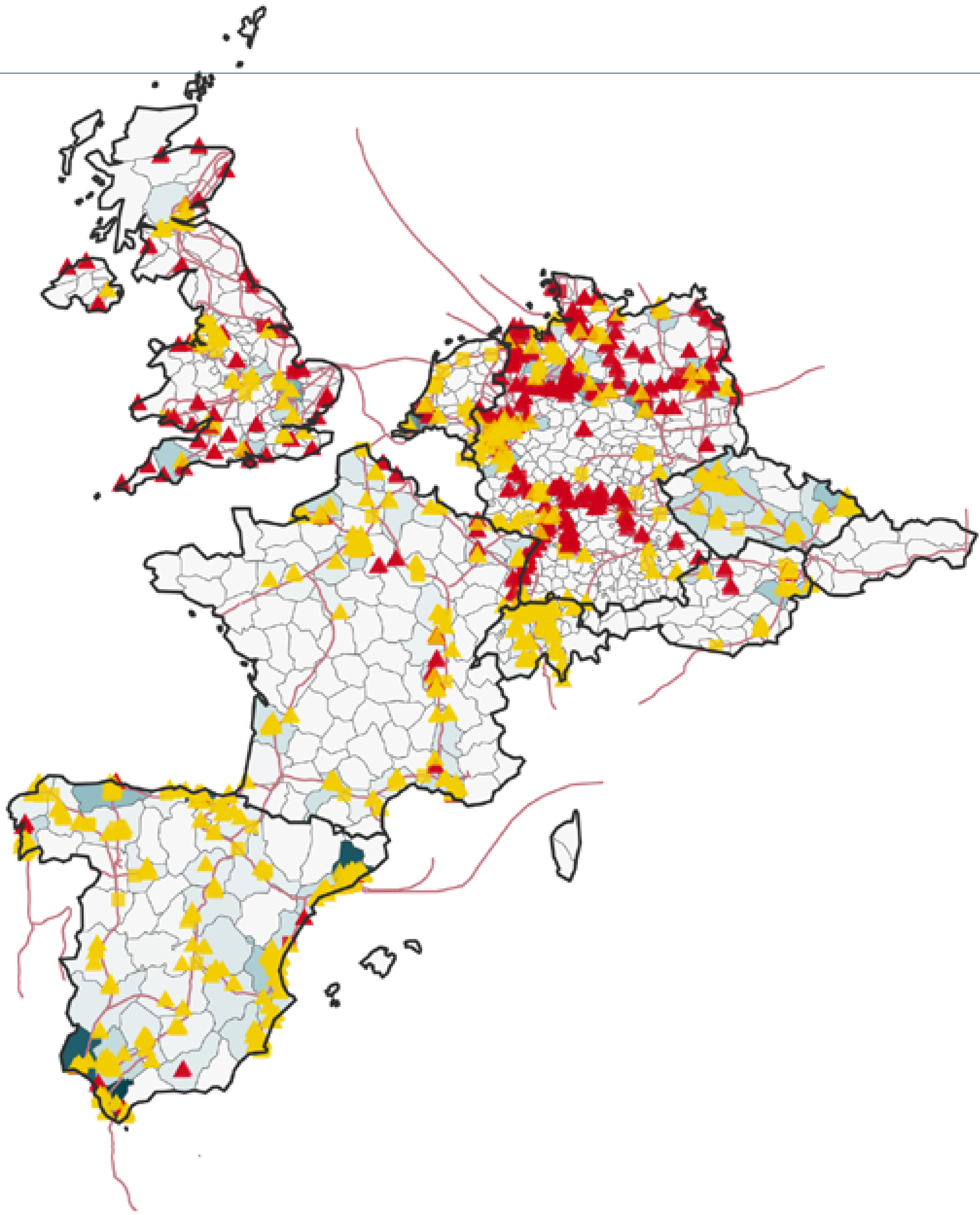
53 TWh 83 TWh

Note: Transport data for Slovakia was not available and therefore not included in the study: 0% of road transport is DSO-relevant.

Transport data for Slovakia was not available and therefore not included in the study.

More Electrification scenario, volumes based on TYNDP Distributed Energy (exception: Spain, source New Deal)

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France, source GRDF, Spain, source New Deal)



Scenario:
More Balanced

2040

Sector:
Total Transport

Demand characterised by large geographical dispersion with relatively small volumes in each region.

DSO-relevant demand by country (TWh/y)

DE	**21**
ES	**13**
UK	**7**
NL	**/**
FR	**3**
CZ	**3**
AT	**2**
CH	**1**
SK	**0**

3 km DSO-relevant H_2 demand (TWh/y)

0 1 3 >5

Distance to EHB

■ **≥ 1km & < 3 km** ▲ **≥ 3 km**

Industrial facilities

Refuelling Stations **River and marine harbours**

Energy sector (2040)

Hydrogen is needed for methanation, production of e-fuels and power production (355 – 363 TWh demand in 2040) and distribution pipelines will connect electrolysers

Total H_2 demand in Ready4H2 countries (TWh)

363 TWh **355** TWh

Higher demand in More Electrification scenario due to large need for hydrogen in power plants.

PLEASE NOTE:
This sector is characterised by a large degree of uncertainty surrounding where demand will be and what demand is DSO-relevant.

Hydrogen needed for methanation, production of e-fuels and power plants.

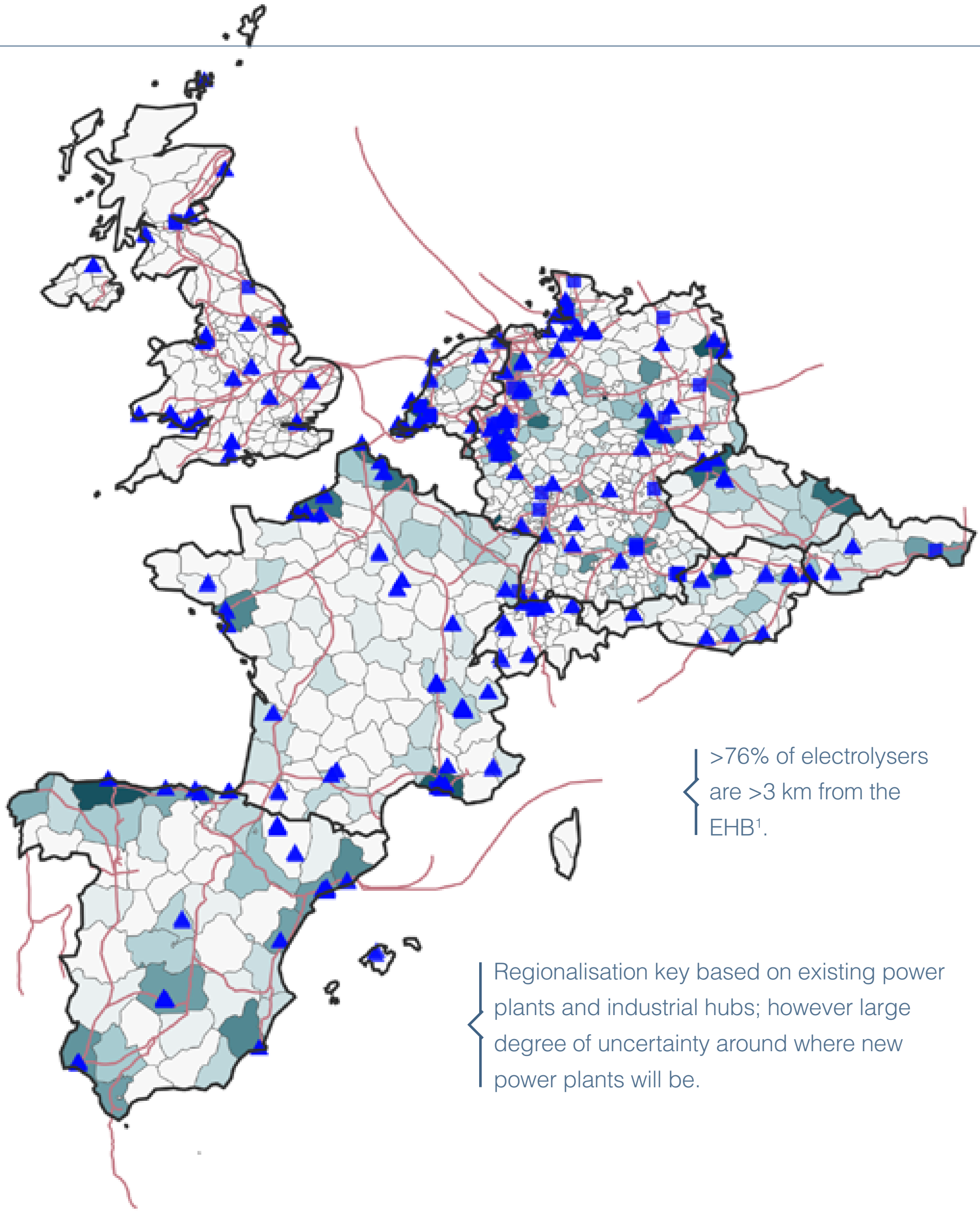
The need for DSOs is driven by hydrogen feedstock demand for methanation and production of e-fuels and fuel for power plants to generate electricity. In addition, hydrogen production by electrolyser could require DSO connection to transport hydrogen away from production site:

- Power sector strategy includes hydrogen-fired power plants in a few countries, particularly Germany. These will need large amounts of hydrogen at the gate.
- Other demand will come from facilities that make methanation and e-fuels located near carbon capture hubs – generally centred around large industry hubs (this is reflected in the regionalisation keys in the study).
- Some electrolysers will require DSOs to transport hydrogen they produce, while others will be operated on-site for consumption.

This sector is characterised by a large degree of uncertainty surrounding where future demand will be located and what demand will require a distribution pipeline connection.

More Electrification scenario, volumes based on TYNDP Distributed Energy (exception: Spain, source New Deal)

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France, source GRDF, Spain, source New Deal)



2040

H_2 needs to be transported from electrolysers and potentially also to e-fuels facilities and power plants.

3 km DSO-relevant H_2 demand
(TWh/y)

0 1 3 5 10 20 >30

EHB

Facilities

Electrolysers

Scenario:
More Balanced

Sector:
Total Energy

[1] European Hydrogen Observatory (2023) https://observatory.clean-hydrogen.europa.eu/tools-reports/datasets

Households & Buildings (2040)

Space heating requires 100 – 200 TWh of hydrogen in Ready4H2 countries, supplied exclusively by distribution pipelines

Source: H100 Fife, UK

Source: H2Direkt, Germany

Hydrogen needed for space heating will be supplied by DSOs.

In some countries hydrogen will be used directly for space heating.

Demand ramps up from **~40 TWh in 2030 to ~100 – 200 TWh in 2040** depending on scenario.

Demand will need to be supplied exclusively by DSOs due to low pressures and volumes, with blending as an optional choice, depending on the country's strategy.

Total hydrogen demand in Ready4H2 countries (TWh)

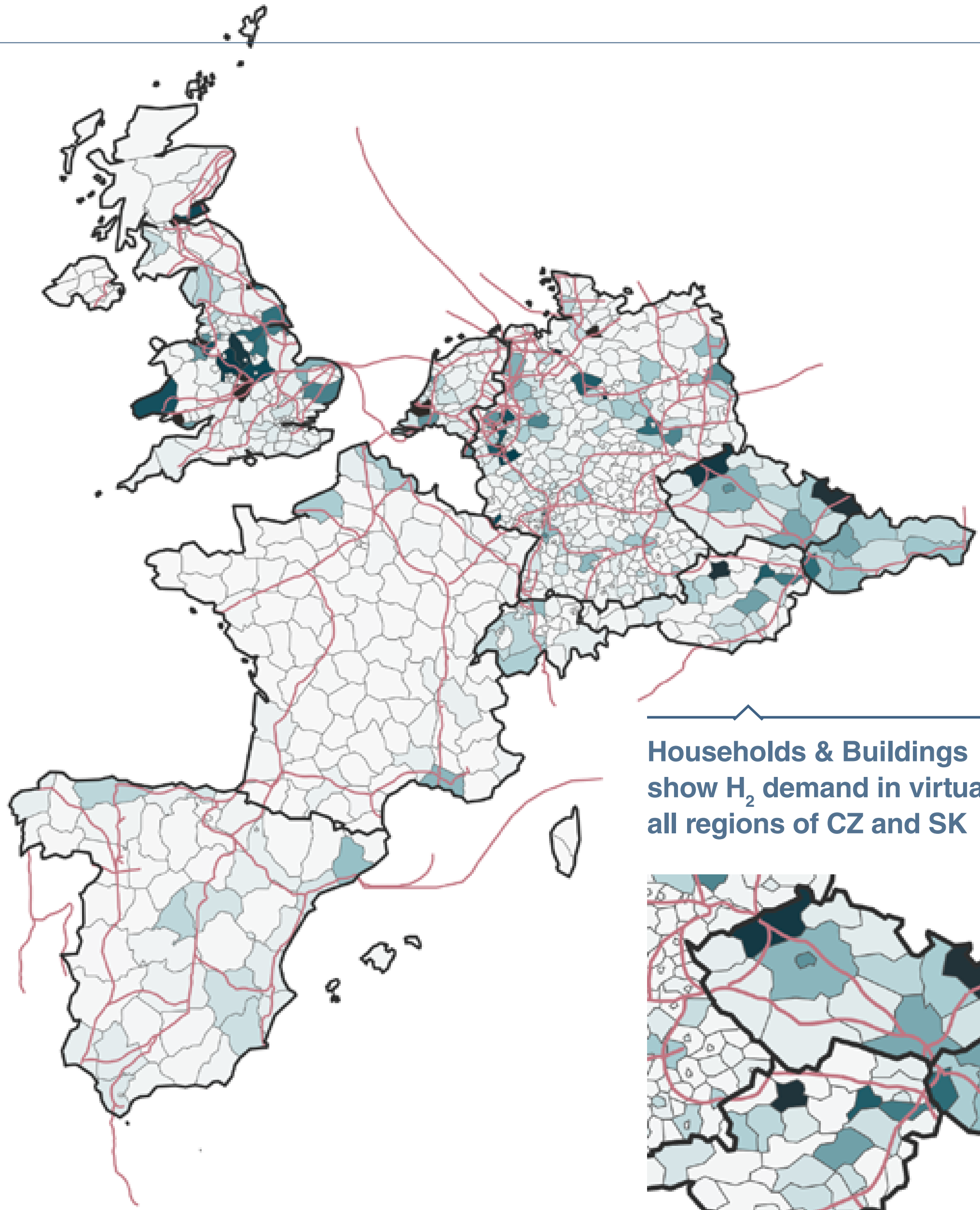
106 TWh

207 TWh

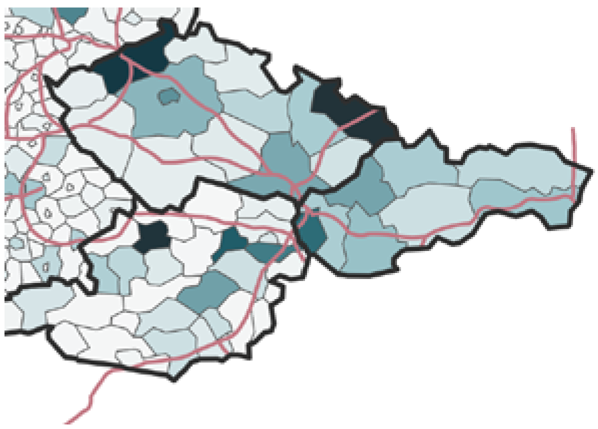
Note: Regionalisation for Slovakia provided by DSO SPP Distribúcia

More Electrification scenario, volumes based on TYNDP Distributed Energy (exception: Spain, source New Deal)

More Balanced scenario, volumes based on TYNDP Global Ambition (exceptions: France, source GRDF, Spain, source New Deal)



Households & Buildings show H_2 demand in virtually all regions of CZ and SK



2040

DSO-relevant demand by country (TWh/y)

DE	**91**
UK	**69**
NL	**12**
AT	**11**
CZ	**11**
SK	**5**
ES	**4**
CH	**2**
FR	**2**

3 km DSO-relevant H_2 demand (TWh/y)

0 1 3 >5

EHB

Scenario:
More Balanced

Sector:
Total Household & Buildings

3 **Repurposing distribution grids** offers a cost-effective way to deliver hydrogen throughout Europe

Source: H2 Village Hranice, Czech Republic

Source: Paradubice, Czech Republic

It is not expected that all gas grids will need to be repurposed due to geographical constraints, customer demand and the need to maintain supply of all energy gases in the start-up and interim of the energy transition. However, when the business case supports hydrogen distribution, repurposing is a viable option.

A revision to the 2023 Marcogaz study[1] was made on the cost of repurposing distribution grids[2] for hydrogen, using current data on assets, materials and costs. Results showed that **it is a financially attractive option in macroecomic terms to repurpose gas distribution grids to hydrogen.**


DBI

Cost estimation to transform gas distribution grids to hydrogen

Final Report

Internal for Ready4H2 member use only

ready4H2

- **It is relatively fast and straightforward to repurpose** distribution grids to hydrogen; both repurposing and new-build are extremely cost-effective options.
- **Repurposing a pipeline system costs 7% compared to the cost of building new** (attributable to the fact that most distribution pipelines are made from plastic materials that are compatible with both natural gas and hydrogen).
- **The estimated cost of converting a gas pressure reduction/metering station from gas to hydrogen is 52% compared to building new** (the majority of cost being the replacement of meters and filters).
- The total estimated cost of repurposing is split 60% – 40% pipelines and GPRMS respectively.

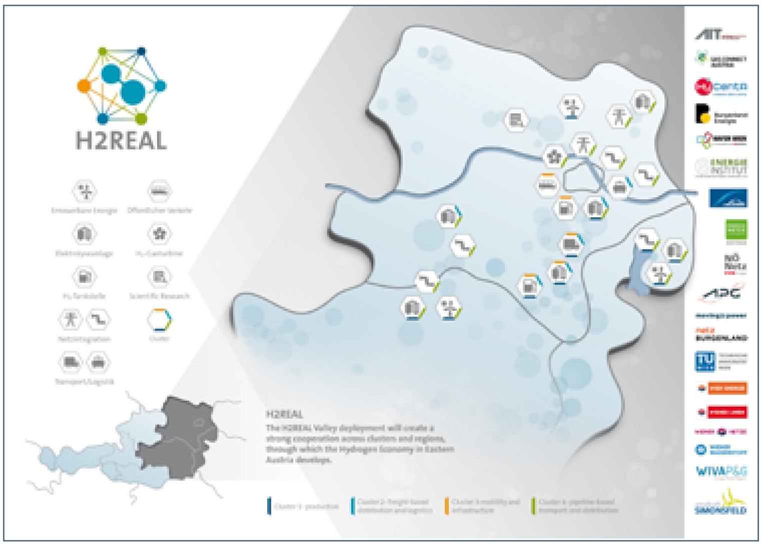
[1] Study was based on 2023 Marcogaz report Cost estimation of hydrogen admission into existing gas infrastructure and end use link

[2] A typical distribution system consists of pipelines, valves, meters, control and measuring equipment, and Gas Pressure Reduction and Metering Stations (GPRMS).

4 **Faster regional development** can be facilitated by producing remote biomethane and green hydrogen, and connecting end users with distribution grids

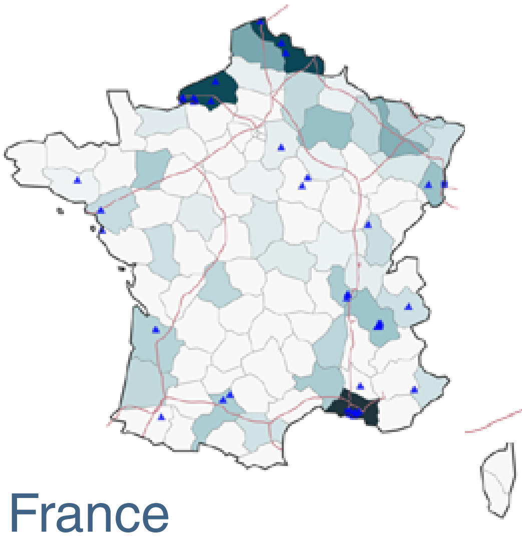
Gas distribution networks will ensure the success of the energy transition in remote areas. Hydrogen can be distributed from remote production sites (such as electrolysis of water) to nearby customers at smaller quantities and lower pressures **without the need for high pressure transmission pipelines.** This includes hydrogen for local heating.

A large portion of the energy demand currently provided by natural gas is used in heating for industry, manufacturing and buildings. Where these cannot be converted to electricity or where the electricity grid is not developed, the gas distribution network will supply energy in the form of biomethane and hydrogen. **As such, DSOs will be a lifeline to customers in remote municipalities.**



Source: H2Real, Austria

Source: HH-WIN, Germany



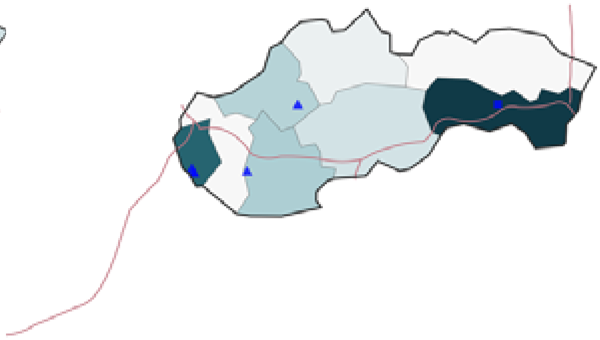
France

Distance to EHB

■ ≥ 1km & < 3 km ▲ ≥ 3 km

H_2 Demand (TWh/y)

0 1 3 5 10



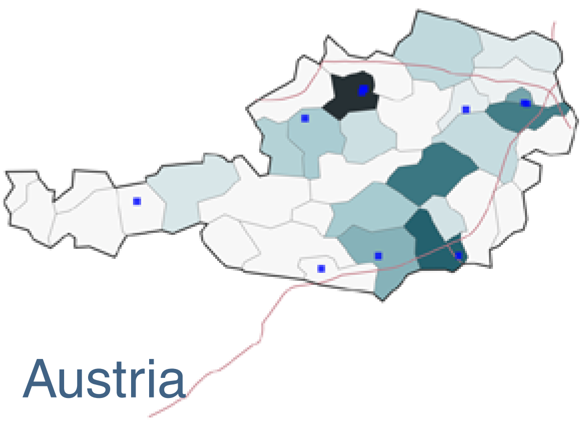
Slovakia

Distance to EHB

■ ≥ 1km & < 3 km ▲ ≥ 3 km

H_2 Demand (TWh/y)

0 1 3 >5



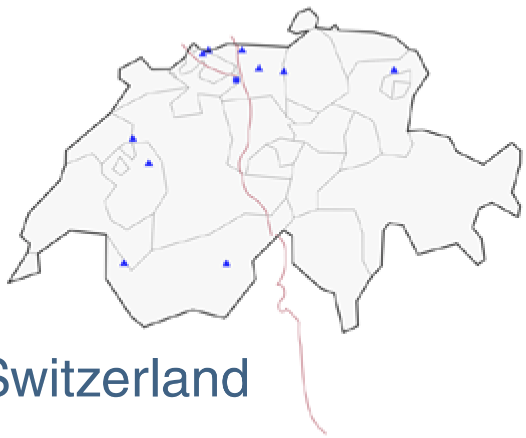
Austria

Distance to EHB

■ ≥ 3 km

H_2 Demand (TWh/y)

0 1 3 >5



Switzerland

Distance to EHB

■ ≥ 1km & < 3 km ▲ ≥ 3 km

H_2 Demand (TWh/y)

0 >1

Scenario:
More Electrification

Sector:
Energy

Facilities
● **Electrolysers**

5 **Ready4H2 projects** have demonstrated that it is feasible to deliver hydrogen at scale using gas distribution grids

58 projects
being conducted by Ready4H2 members

79% field projects
(½ will scale up, rest is studies)

74% repurposed networks

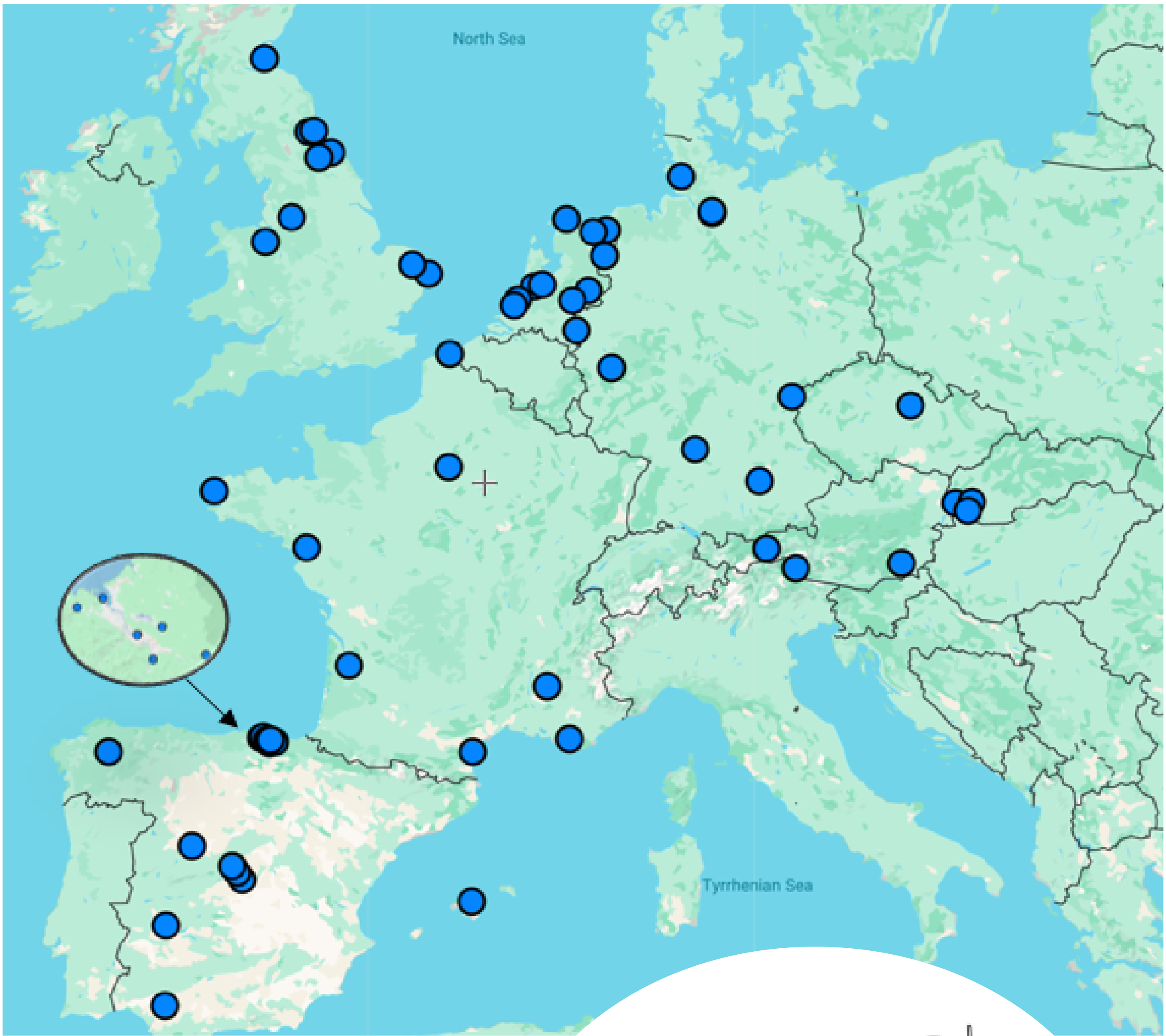
68% pure hydrogen

32% completed projects

Through our regular workshops and studies, Ready4H2 has developed a significant body of knowledge in key areas that assists our members to transform to hydrogen:

- Project database
- Technical feasibility of network repurposing (materials and components)
- Lessons learned from pilot projects
- Safety case for hydrogen in distribution grids
- Implementation of 2024 Gas Package on decarbonised gases
- Externatilities affecting the business case for repurposing a distribution grid
- Technical and commercial aspects of blending and deblending hydrogen in gas

Source: Green Village, Netherlands



Source: HyDelta, Netherlands

6 Prerequisites for transforming gas distribution grids to hydrogen are in place

The **Ready4H2 Transformation Roadmap** was developed in 2022 to assist gas DSOs understand better the steps to becoming “hydrogen ready”, i.e. to be ready to accept hydrogen into the distribution system without operational or commercial constraints.

In 2023 a survey of members’ progress along the Roadmap was conducted in nine member countries – Austria, the Czech Republic, France, Germany, the Netherlands, Slovakia, Spain, Switzerland and the UK. The roadmap comprises activities under three action areas:

- Facilitate the development of a hydrogen market
- Transition the gas distribution networks
- Deliver at scale

Activities assessed included a multi-layer mix of compliance with legislation, technical topics such as safety, materials and operations, and commercial topics such as building confidence with customers, roles and responsibilities, training and skills.

Source: H2-100 Öhringen, Germany

Source: HyNet, UK

Facilitate hydrogen market development		
Offer access to hydrogen for consumers	Offer hydrogen producers a route to market	Build confidence in hydrogen
Transform our networks		
Complete network repurposing and undertake targeted new build to ensure capacity	Continue to make our networks digital and smart	Convert our networks to net-zero based on detailed roll-out plans
Deliver at scale		
Deliver pilots in communities and targeted industry clusters	Attract and retain qualified workforce, upskill for hydrogen	Prepare for additional roles and responsibilities

Ready4H2 members actively support the transition to hydrogen

We have a common goal that can be reached by different approaches:

- Blending or pure hydrogen pathways.
- Developing hydrogen pathways whilst complementing biomethane distribution.

Full-scale hydrogen distribution is shown to be technically feasible

- There are over 50 projects in progress (32% completed) including research and field projects in local communities.
- Our projects are showing success.
- Few technical barriers have been identified, and these can be overcome through research and product development.

Gas DSOs understand their role through the 2025 Ready4H2 Mapping Study

- The role of gas distribution grids to deliver hydrogen demand in all sectors has been analysed.
- Our studies clarify the non-negotiable role that gas distribution networks play in delivering at least half hydrogen to customers in all sectors in Ready4H2 countries. Our members are ready to do so in close cooperation with the operators of the EU Hydrogen Backbone.

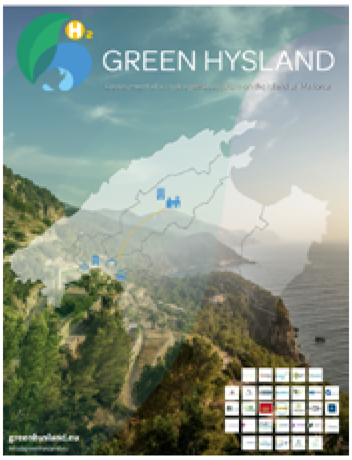
Planning the transformation of grids for hydrogen is well underway

- Training platforms and pilot projects are either completed or in progress.
- Evaluation of materials and equipment has been conducted.
- New technology and end appliances for hydrogen are in development.

Ready4H2 members are transforming faster through collaboration

- Sharing information and experience is enhancing the process of transformation for Ready4H2 members.
- We are demonstrating our grid-readiness with stakeholders; industry, national governments and the EU Commission.

Source: H2Zone, France



Source: Green Hysland, Spain

The transformation to hydrogen by Ready4H2 members is underway

Despite the Ready4H2 community **having common values and united vision for hydrogen**, members in different countries have different hydrogen supply and demand profiles with varying seasonal demand, government support, financial environments, industry development and public support. Members also operate a variety of low, medium and high-pressure pipeline networks, and deliver to all end-use sectors.

This is evident in the range of responses to the survey.

7 **Regulatory and economic certainty is needed** to enable distribution system operators to make a business case for the transformation to hydrogen

Externalities need to be understood

- A fit-for-purpose regulatory framework is needed to enable the large-scale gas distribution transformation that is needed to facilitate an EU-wide hydrogen economy.
- National government policies and regulations need to support hydrogen options and recognise the exclusive role of distribution grids.
- Clarity is needed in areas such as distribution tariffs, first-mover financial incentives, grid access, connection rules, vertical unbundling rules, and network planning interface with gas TSOs.

Key support is needed to avoid the development of fragmented energy markets throughout the EU

- Policy and regulations should be technology-agnostic and support all feasible decarbonisation pathways.
- Transposing the 2024 Gas Directive needs to be coordinated amongst EU Member States.

Gas customers are unaware of the full suite of decarbonisation options

- Need for better public understanding and therefore confidence in hydrogen as a new fuel.
- Need for visible security of supply for customers' business case.

Lack of hydrogen supply forecasting is weakening the hydrogen value proposition

- Hydrogen is missing in regional planning and energy economics.
- Weakens the business case for gas DSOs to transform to hydrogen.
- Reduces the incentive for customers to switch to hydrogen.
- Reduces investor confidence, who need certainty from regulations and positive signals from the market.

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Gas DSOs need to be more visible in planning the future EU energy system

- Integrated infrastructure planning needs to include gas DSOs in the TYNDPs as well as gas TSOs.
- Network development plans need to be integrated between the gas and electricity sectors (ENTSOG, ENTSO-E, ENNOH, DSO Entity).
- Development of the hydrogen grid needs to consider distribution and transmission as integrated and parallel processes.

Imprint

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