



## H2BE Project

Waterstofnet webinar – 3 March 2022

Matthieu Jacques (ENGIE) & David Grainger (Equinor)

# Contents

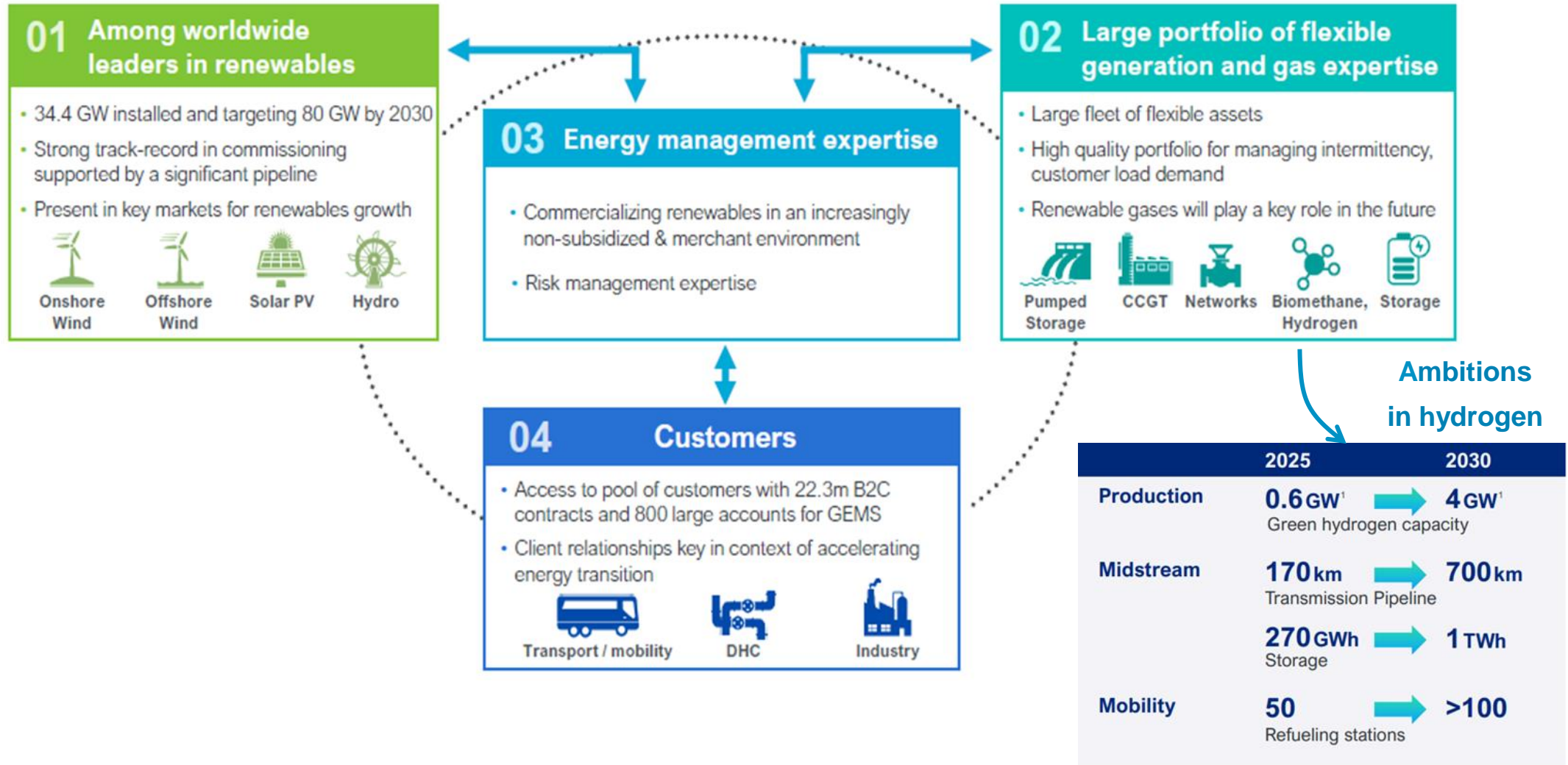
## **ENGIE & Equinor in a nutshell**

Why low-carbon H<sub>2</sub>

Our project

Concluding remarks

# ENGIE integrated model



1. At 100%

# Shaping the European future of CCS and clean hydrogen

Project name	Project type	Country	Decarbonisation segments			
			Industry	Power	Heat	Transport
Northern Lights (NL)	CO <sub>2</sub> Infrastructure	NO	●			
East Coast Cluster (NEP)	CO <sub>2</sub> Infrastructure	UK	●	●	●	●
<u>H2H Saltend</u>	Blue hydrogen	UK	●	●	●	●
<u>Aldbrough hydrogen storage</u>	Hydrogen storage	UK	●	●	●	●
Net Zero Teesside (NZT)	Power + CCS	UK		●		
Keadby 3	Power + CCS	UK		●		
Peterhead	Power + CCS	UK		●		
Keadby Hydrogen Power Station	Hydrogen to power	UK		●		
H21	Hydrogen fuel switch	UK	●		●	
H2M Magnum	Blue hydrogen	NL		●		
H2morrow Steel	Blue hydrogen	GE	●			
H2BE	Blue hydrogen	BE	●			
NorthH2	Green hydrogen	NL, BE, DE	●			●
Clean Hydrogen to Europe	Blue hydrogen	NO	●	●	●	●
Barents Blue	Blue ammonia	NO	●			●
US Tristate	CCS+Power+H <sub>2</sub>	US	●	●		●



**3-5** MAJOR INDUSTRIAL CLUSTERS  
Clean hydrogen projects by 2035

**>10%**  
Clean hydrogen market share in Europe by 2035

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ENGIE & Equinor in a nutshell

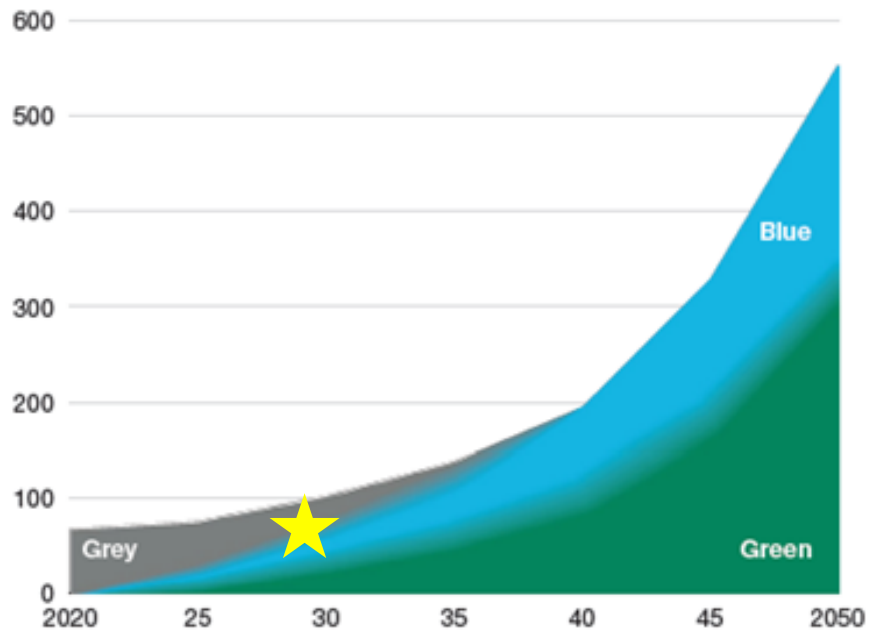
**Why low-carbon H<sub>2</sub>**

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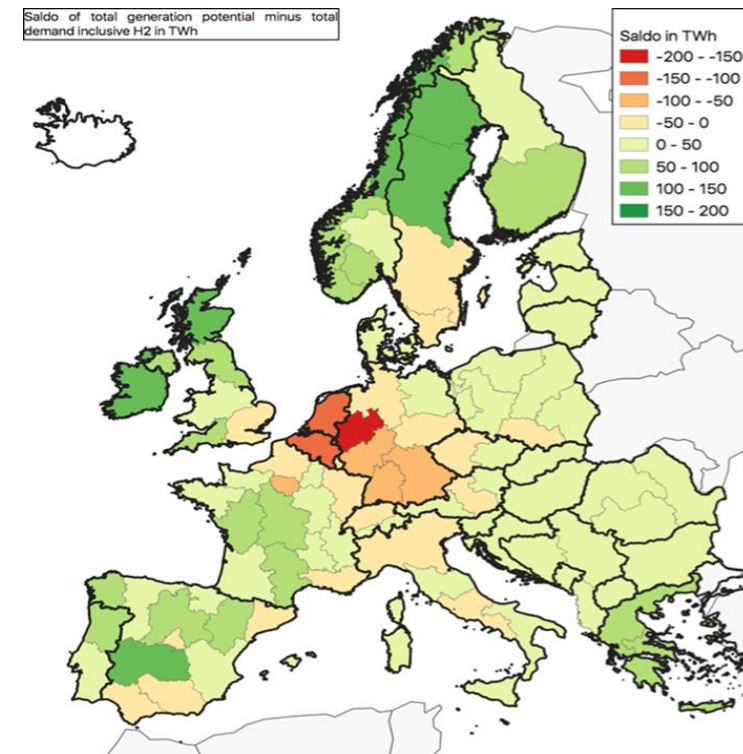
# Renewable & low-carbon H<sub>2</sub> needed in Belgium to decarbonize the industry

Hydrogen production scenario, global  
Mtpa



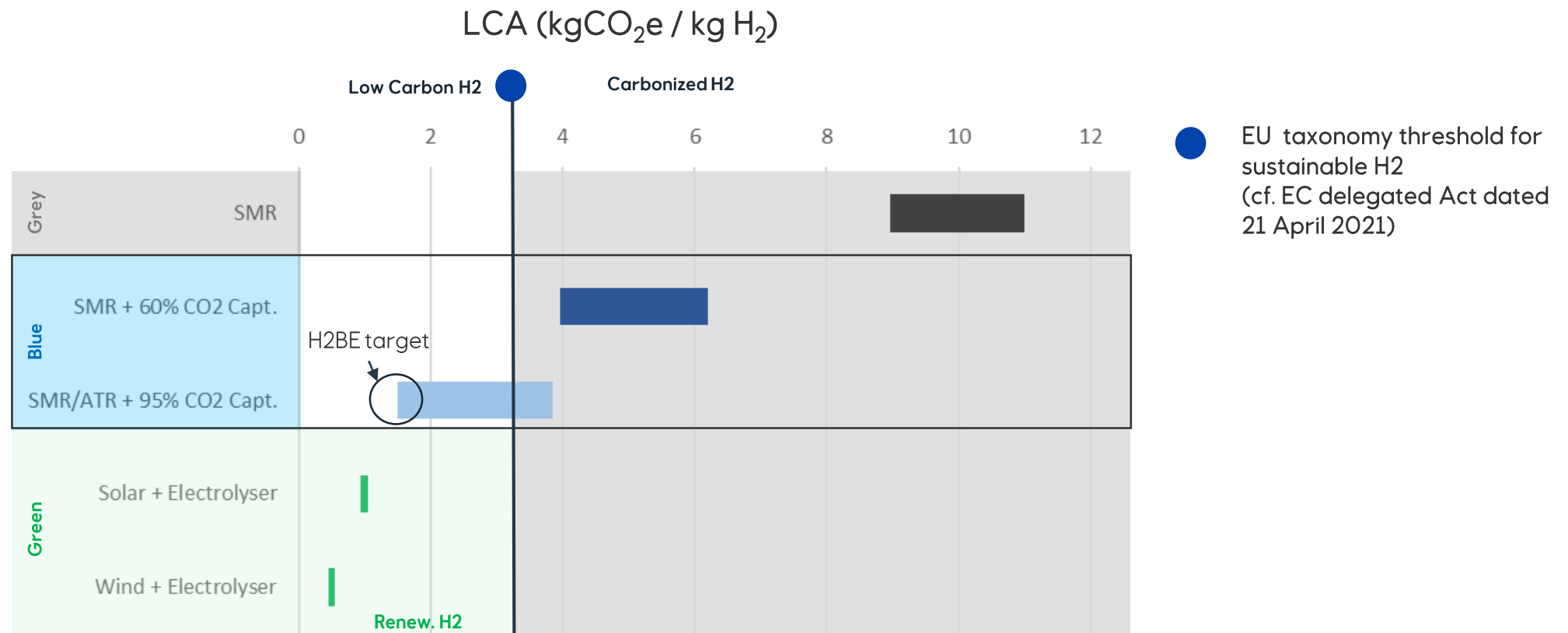
Source : Hydrogen Council - Hydrogen decarbonization pathways - Potential supply scenarios - January 2021

RES potential insufficient for renewable H<sub>2</sub> ambitions, leading to a need for alternative clean H<sub>2</sub> solutions



Source: Fraunhofer Institute

# Blue H<sub>2</sub>: same name, different emissions



Source :

Data from « Hydrogen decarbonisation pathways », Hydrogen council Jan21, For all technologies, low value with NG from Norway (1700km pipe), high value with NG from Russia (5000km pipe). Note NG from LNG route would be higher than the Russian route

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# Long-term partners joining forces to accelerate the Belgian energy transition



Low carbon natural gas & CO<sub>2</sub> storage



Global energy mid-streamer

## H2BE project



ENGIE & Equinor launch the H2BE project to kick-start low-carbon hydrogen market in Belgium

December 16, 2021 08:00 CET | Last modified December 16, 2021 09:43 CET

**ENGIE & Equinor launch the H2BE project to kick-start low-carbon hydrogen market in Belgium**

In February, energy groups ENGIE and Equinor announced an MoU to develop low carbon hydrogen projects together. Now the two companies move forward and announce the H2BE project which aims to develop production of low-carbon hydrogen from natural gas in Belgium.



# Reliable, Affordable, Available H<sub>2</sub> supply at scale before 2030

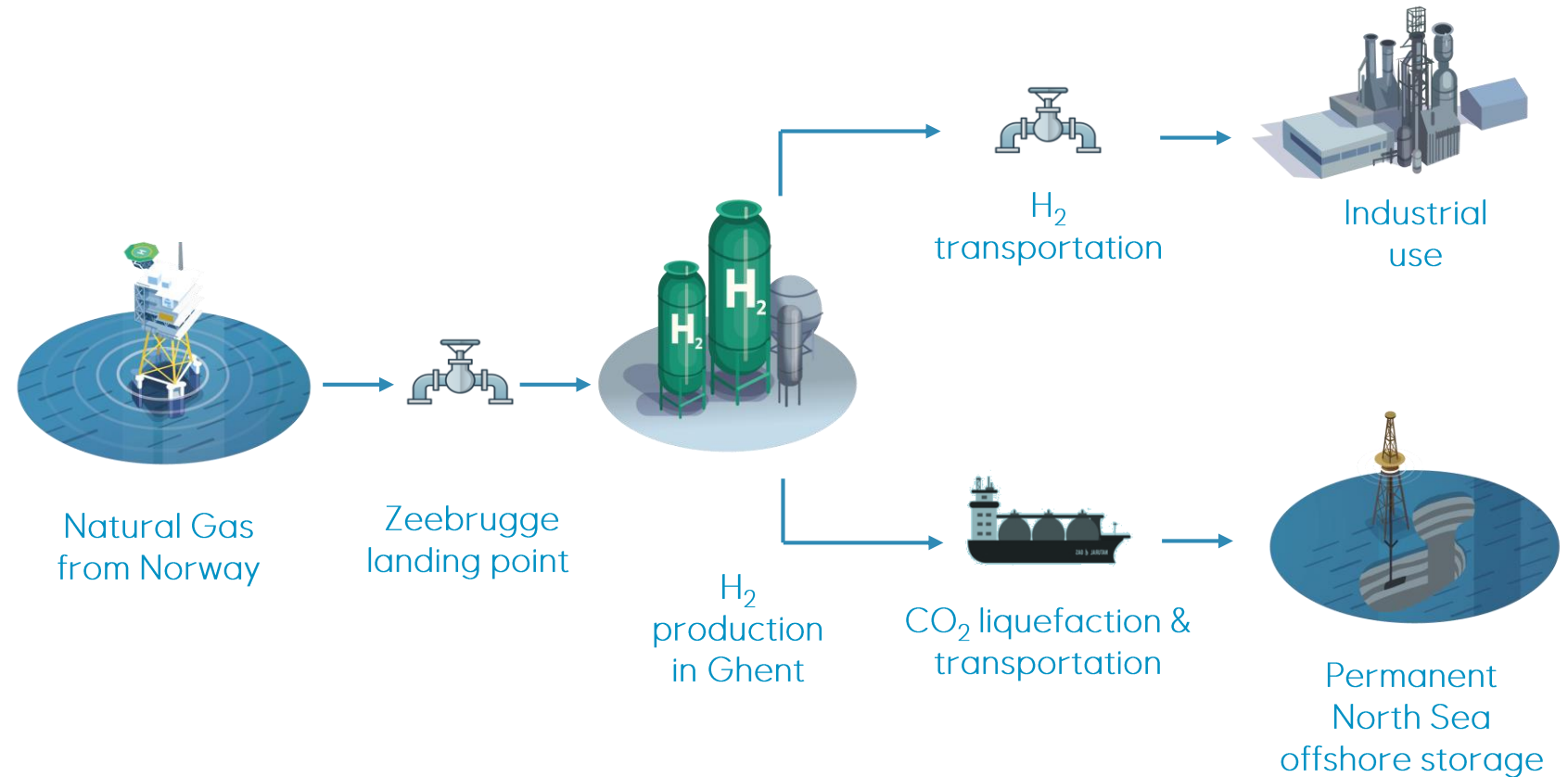
Low-carbon hydrogen from Norwegian natural gas combined with highly efficient carbon capture & storage

**1 GW**  
H<sub>2</sub> capacity

**1 B€**  
investment

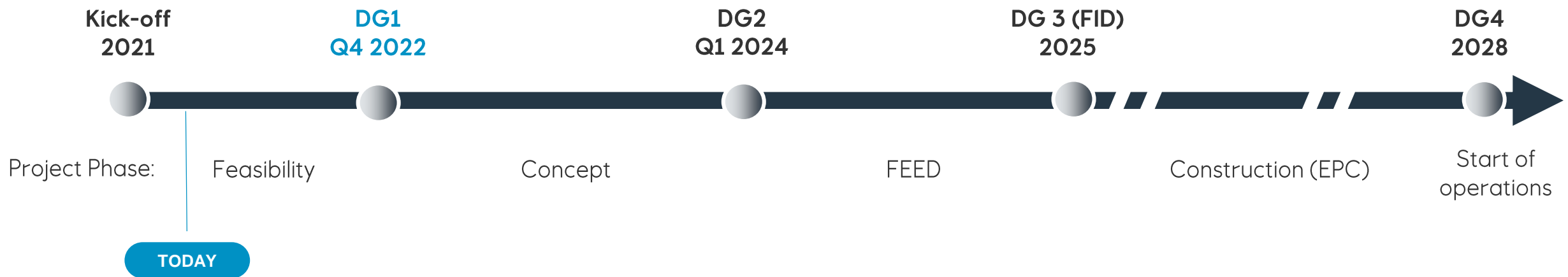
**~ 2-5 Mt**  
CO<sub>2</sub>/y abated\*

**300**  
permanent jobs



\*5 MPTA if H<sub>2</sub> used to abate steel blast furnaces

# Overall project timeline



# Contents

ENGIE & Equinor in a nutshell

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**Concluding remarks**

# H2BE : Key contributor to Belgium’s 2030 climate targets by efficiently kick-starting the hydrogen market

- H2BE: Decarbonizing Belgian industry at large scale
  - ~ 2-5 MTPA reduction in Belgian CO<sub>2</sub> emissions\*
  - Boosting H<sub>2</sub> & CO<sub>2</sub> transmission infrastructure
  - Paving the way for renewable H<sub>2</sub> uptake



***We invite Waterstofnet’s members to engage in further discussions with us!***

ENGIE: Matthieu Jacques - Senior Business Developer – email: [matthieu.jacques@engie.com](mailto:matthieu.jacques@engie.com)

EQUINOR: David Grainger- Leading Advisor Low Carbon Solutions – email: [davgr@equinor.com](mailto:davgr@equinor.com)

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# Deployment of renewable hydrogen in Brittany: roadmap, ecosystem and projects



**BRETAGNE** <sup>BE</sup>  
**DÉVELOPPEMENT**  
**INNOVATION**





BRETAGNE   
HYDROGÈNE  
RENOUVELABLE

BRETAGNE   
DÉVELOPPEMENT  
INNOVATION

BRETAGNE   
DÉVELOPPEMENT  
INNOVATION

Sara Minisini  
European Project Manager



L'Europe s'engage  
en Bretagne / Avec le Fonds européens  
de développement régional



# Brittany, our strenghts

## Our leadership

- #1 French maritime region
- #1 French agriculture and agrifood region

## Industrial know-how

- #shipbuilding and maritime
- #marine renewable energy
- #smart grids
- #storage applications

## A culture of

- #innovation
- #collaboration





## 1 – Applications and infrastructures

### Supporting local hydrogen loops

2020-23: Calls for public-private territorial projects for renewable and low-carbon hydrogen loops (production and applications)

€ 10M  
2020-23

## 2 – Technological development and innovation

### Supporting R&D projects

Call for H2 projects via ERDF

ERDF Funds  
2021-27

## 3 – Resources and visibility

### Major strategic plan of joint investments

Conversion of regional vessels and coaches fleets 2022-2040  
Supply of renewable H2 in regional ports  
Call for H2 projects via ERDF  
Large scale and European cooperation projects

Investment plan  
of > €200-500k €  
per strategic  
project

### A set of quantitative objectives (GHG, MWh, targets, number of projects)

400 vehicles by 2025, 2800 by 2030, 450 000 by 2050 | production of 4TH<sub>2</sub> by 2030 | -23kT<sub>co2</sub>/an direct and -70kT<sub>co2</sub>/an indirect by 2030

8 local renewable and low carbon hydrogen loops  
3 renewable hydrogen port & maritime ecosystems 2023-2030  
First fleet of 10 H2 pilot vessels  
Offshore hydrogen pilot

**80+** companies,  
 mainly SMEs

#shipbuilding  
 #composite materials  
 for storage

**15+** research and  
 training centres

**10+** local  
 authorities

**25+** business  
 support  
 organisations

**BRETAGNE**<sup>BE</sup>  
 HYDROGÈNE  
 RENOUVELABLE

Acteurs bretons de l'hydrogène renouvelable - Enquête 2021

Recherche par mots-clés: \_\_\_\_\_

Chaîne de valeur H2: \_\_\_\_\_

Type d'entité: \_\_\_\_\_

Plus de filtres (+) LÉGENDE

93 résultats

Liste Carte

**ACSYSTEME**  
 Entreprise de R&D externalisée, spécialisée dans la conception d'algorithmes spécifiques, dédiés au contrôle dynamique...  


**ACTEMIUM MORBIHAN**

**AD'Missions**  
 Le portage salarial est une forme d'emploi qui séduit de plus en plus les indépendants en quête de sécurité sur les plans sociaux...  


**ALCA TORDA APPLICATIONS**  
 Bureau d'étude créé en mars 2002, spécialisé dans le domaine de l'hydrogène énergie et des piles à combustible.  


**AMENITE**  
 Consultant auprès d'entreprises de l'agro-alimentaire et d'agriculteurs.  




Map showing locations of hydrogen actors in Brittany, including Guernsey, Jersey, and various Breton regions like Normand, Pays de la Loire, and Bretagne.

Logo Partenari: 

Demande d'ajout de fiche Source(s)

Map updated on september 2021

-  Local H2 loop
-  Shipbuilding
-  MRE H2 production
-  Research
-  Relevant application
-  Industrial supply and equipment
-  Other



# Building H2 vessels : it's here in Brittany



# BRETAGNE<sup>BE</sup> HYDROGÈNE RENOUVELABLE

BRETAGNE<sup>BE</sup>  
DÉVELOPPEMENT  
INNOVATION



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European Project Manager

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[www.bdi.fr](http://www.bdi.fr)



[Mapping of regional expertise](#)



[Mapping of regional projects](#)



[bdi.fr/hydrogenerenouvelable](http://bdi.fr/hydrogenerenouvelable)



[@BretagneH2R](https://twitter.com/BretagneH2R)



[Bretagne Hydrogène Renouvelable](#)



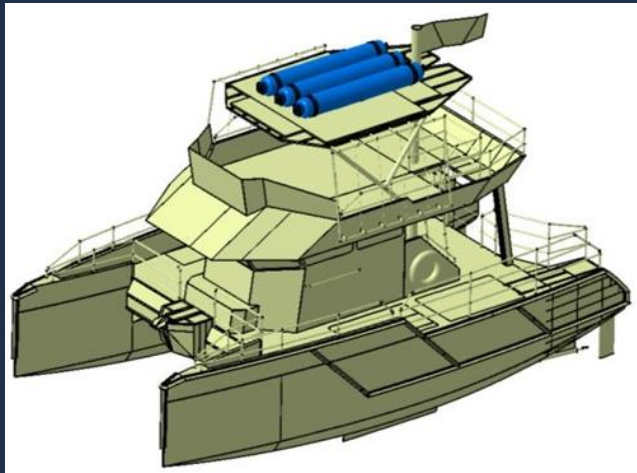
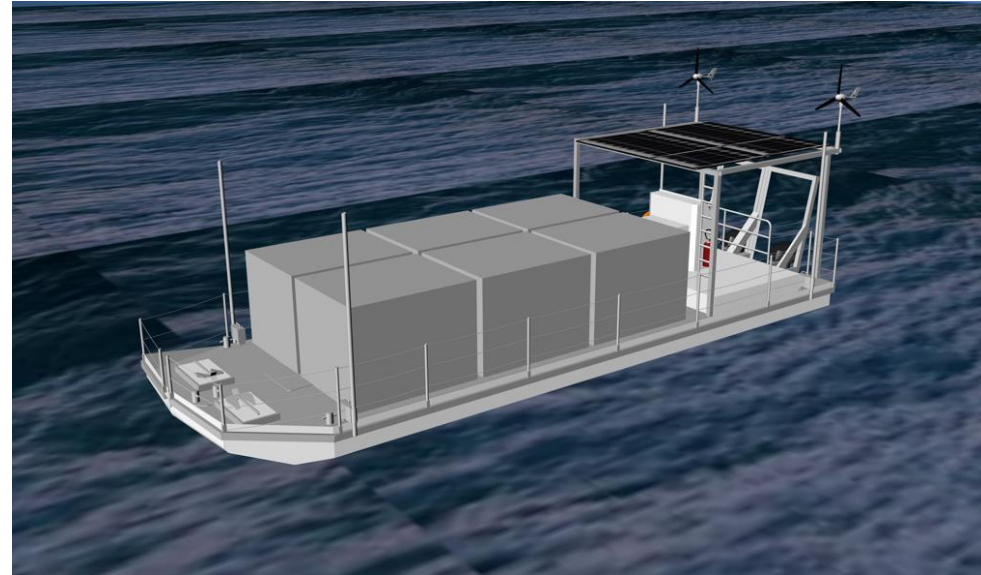
**BRETAGNE<sup>BE</sup>**  
**HYDROGÈNE**  
**RENOUVELABLE**



**Yannick Bian,**  
Managing Director



# SHIPYARD : electric powered ship





# Projet ERSEO - Renouvelable - Local

Rentable



Syndicat  
Ostréicole Ria  
d'Étel





Definition of the energy needs of all oyster farms and the solar, wind and hydroelectric potential available near the farms.



Realization of a demonstrator for the production of renewable energy from tidal turbines and solar energy on the South Brittany shipyard.



Manufacture of an oyster barge with electric propulsion recharged by renewable energies for validation by the oyster farmers of the ria.



**Yannick Bian**  
Managing Director  
Chantier naval Bretagne Sud, Belz,  
Vannes  
[y.bian@cbs.bzh](mailto:y.bian@cbs.bzh)



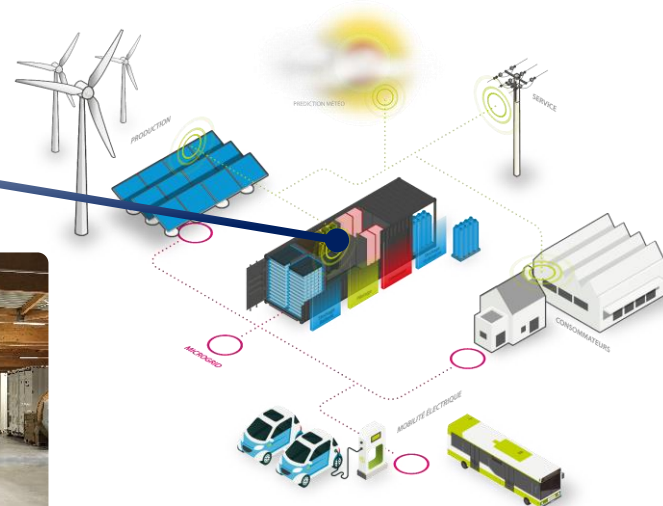
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**Raphael Gommendy**  
Hydrogen Business Developer



STORAGE  
CONVERSION  
ENERGY MANAGEMENT



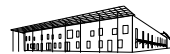
€ ~€17.0M



Creation in 2016  
235 projects delivered



70+ employees  
(40 engineers)



4200 m<sup>2</sup>, Quimper



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de développement régional

➤ **Power-to-Gas Solutions**

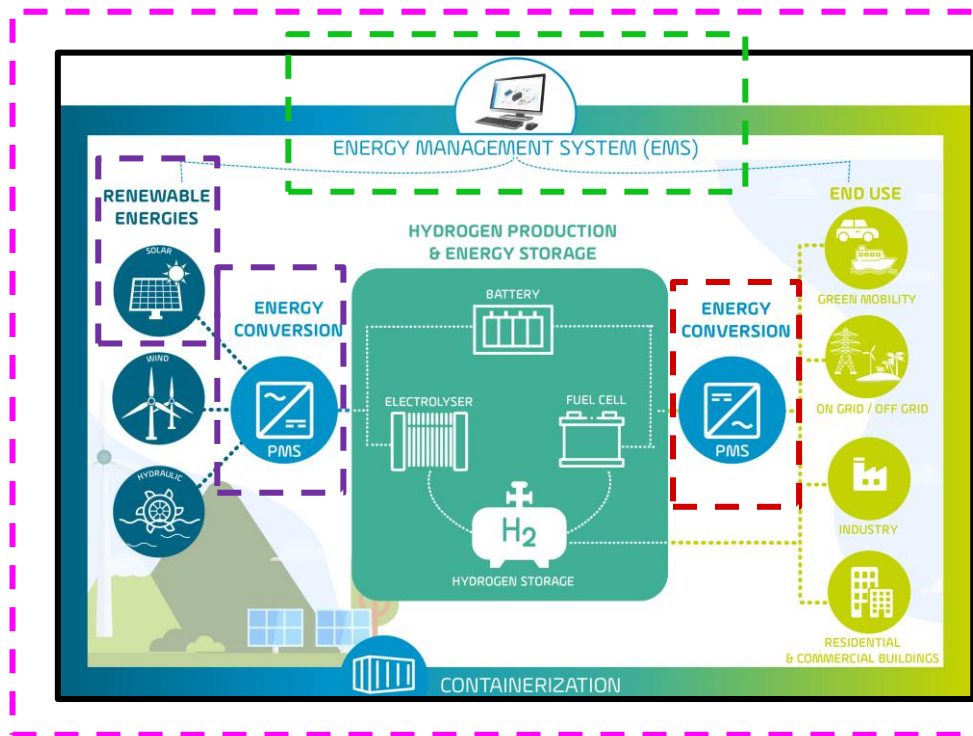
*Power conversion for direct coupling between renewables plants and electrolysers and/or connexion to the grid*

➤ **Gas-to-Power Solutions**

*Power Conversion and Integration of Fuel Cell-based systems (stationary and propulsion)*

➤ **Power-to-gas-to-Power Solutions**

*Hybrid solutions for on grid and off grid systems. Microgrids with hydrogen chain*



*The EMS, PMS and SCADA are softwares developed internally by ENTECH teams.*

# Hydrogen Genset

ENTECH's scope : Conversion, storage, power and energy management, Design,  
Container integration, testing, commissioning



Client

H2X

350 kW

Battery / FC  
Hybridation

- ✓ Microgrid,
- ✓ Grid back-up



**Raphael Gommendy**  
Hydrogen Business Developer  
Entech Smart Energies  
[raphael.gommendy@entech-se.com](mailto:raphael.gommendy@entech-se.com)  
<https://entech-se.com/en/>



Thank you.  
Looking forward to future  
collaborations!



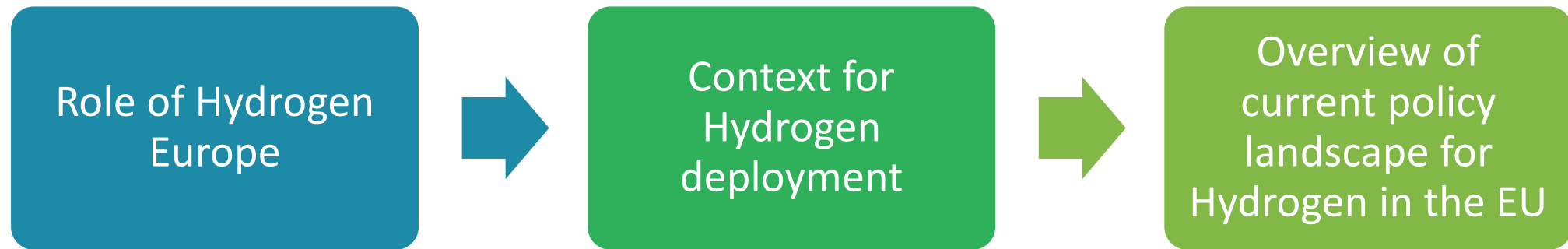
L'Europe s'engage en Bretagne / An eil Fardiz europadeg en Breizhvevandrañ

# HYDROGEN EUROPE

The role of hydrogen on the road toward a  
climate neutral economy in Europe

3 March 2022

# Structure



# Hydrogen Europe



## Our Mission

Propelling global carbon neutrality by accelerating the European hydrogen industry.

## Our Vision



We bring together diverse industry players, large companies and SMEs, national associations and other non-for-profit organizations who support the delivery of hydrogen and fuel cells technologies.

We do this to enable the adoption of an abundant and reliable energy which efficiently fuels Europe's low carbon economy.

# What do we do?

- We represent the views and aspirations of the hydrogen and fuel cells industry in Europe.
- We promote hydrogen and fuel cells as clean and efficient technologies.
- We are a dedicated resource for stakeholders wanting more information on the benefits hydrogen and fuel cells could bring to society.
- We develop, in coordination with our members, the necessary materials, documents and position papers to achieve our mission.
- We help our members to develop their business activities in Europe.



# Who are we?



We represent:

300+ Industry Members,

31 National Associations,

90+ Research organisations (through our sister organisation, Hydrogen Europe Research)



As an organisation:

We have a partnership with the European Commission in the innovation programme called Clean Hydrogen for Europe. The Partnership will be a key instrument in the implementation of the European Hydrogen Strategy. Hydrogen Europe cooperates with public authorities to facilitate this coordination through its participation in the Partnership, the EU Clean Hydrogen Alliance and the Important Projects of Common European Interest (IPCEIs).



Alongside other six non-profit organizations, Hydrogen Europe is facilitating the work of the six Roundtables in the European Clean Hydrogen Alliance, and is in particular in charge of their overall support and coordination. ECH2A aims at creating a pipeline of scale up investment projects by 2030, that ensures the deployment and roll out of renewable and low-carbon hydrogen production, hydrogen transmission and distribution, and fosters demand in industry, mobility and the buildings sectors.

# Our Work

Hydrogen Europe's work is driven by the Board, the Technical Committees and the Secretariat staff and falls into four key categories:



## Policy

Our advocacy work serves as the industry's reference point.

Working Groups on topics:

Mobility, Heavy-Duty and Non-Road Vehicles, Water Transport, Aviation, Cars and Vans, Energy, Infrastructure, Buildings, Industry, Production.



## Innovation

We partner with the European Commission and the research community in a public-private partnership (previously: FCH JU and FCH2JU, currently: Clean Hydrogen For Europe).

Our Technical Committees are responsible for shaping the annual funding calls for proposals.



## Intelligence

We provide expert industry knowledge and business intelligence through primary data collection on key market and policy indicators and through the analysis of secondary sources. We conduct data analyses and generate fact sheets and reports on a variety of relevant topics.



## Communication

We support and coordinate members' input and general communication, focusing on the latest developments of the sector.

We facilitate events, webinars, various education and networking opportunities

# Hydrogen is front and centre to EU's decarbonisation efforts

- Hydrogen: a carbon-free energy carrier to become the other leg of the energy transition
- Worldwide recognition of the role of hydrogen in realising a fully renewable energy systems
- Hydrogen strategies' main objectives:
  - reduction of greenhouse gas emissions, especially in hard to abate sectors,
  - diversification of energy supply,
  - integration of renewables,
  - foster economic growth,
  - support national technology developments,
  - security of supply and strategic reserves, and
  - develop hydrogen for export and import.
- European Hydrogen Strategy → **2x40**:
  - By 2024: electrolyser capacity of 6GW (1 Mt)
  - By 2030: electrolyser capacity of 40GW (10 Mt)





# The momentum behind hydrogen continues to grow

*“We have to move from words to deeds, transforming our industry and investing in new technologies like hydrogen”*

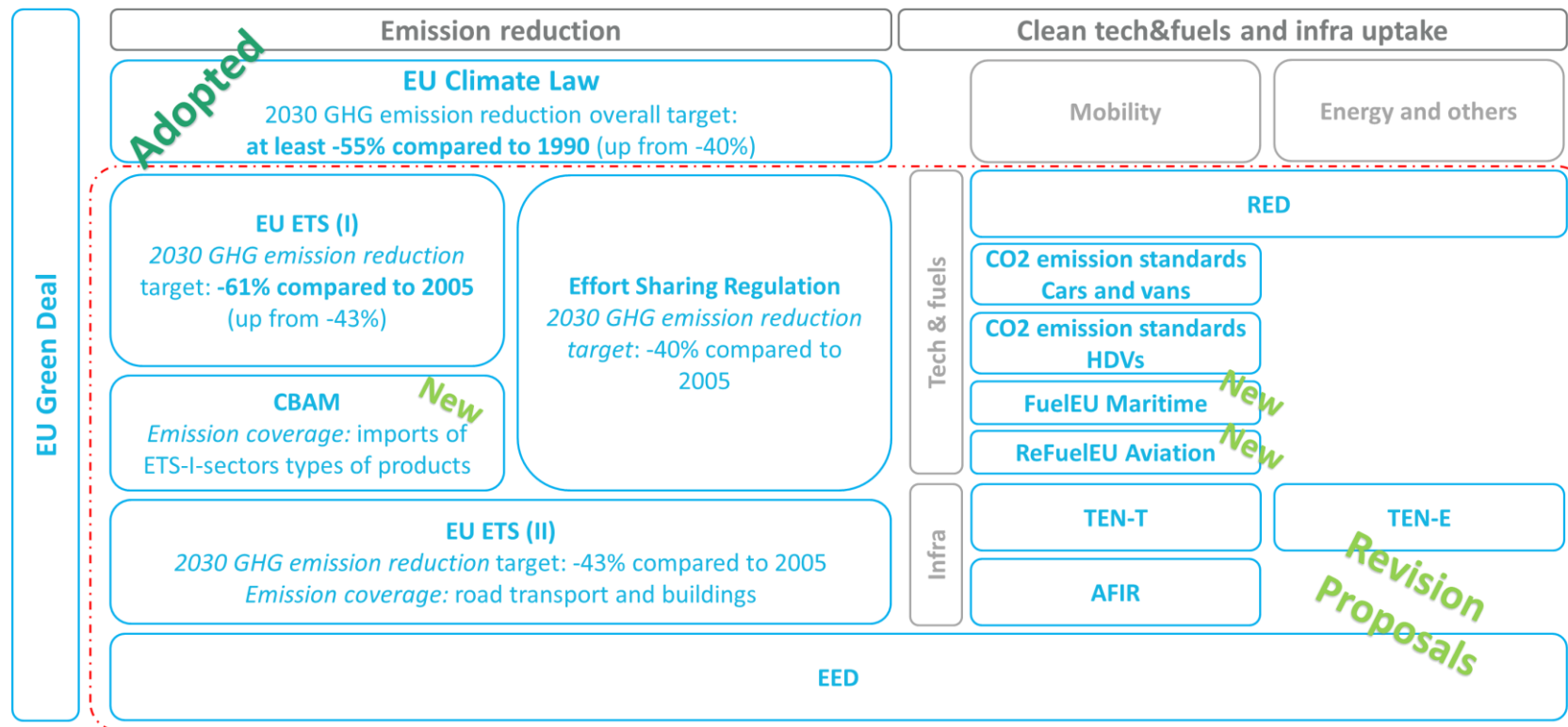


Source: <https://hydrogeneurope.eu/macron-mentions-hydrogen-to-ep/>

# The EU Policy landscape

The **Fit-for-55 legislative package**, proposed by the European Commission on 14 July 2021, represents perhaps the most fundamental change in the EU's legislative acquis since the completion of the EU's single market.

The package touches on almost all aspects of the EU economy, in particular in the areas of energy, industry and mobility.



Main energy and climate legislation and proposals relevant for hydrogen published or proposed in 2020 and 2021 (Source: Hydrogen Europe)

# What comes next?

## Fit for 55 Package, a prominent role for hydrogen

- Revision of Renewable Energy Directive
- Revision of Energy Efficiency Directive
- Revision of Trans-European transport network guidelines
- Revision of Alternative Fuels Infrastructure Directive
- Revision of CO2 emission standards regulations
- ReFuelEU Aviation – on sustainable aviation fuels
- FuelEU Maritime – on greening Europe’s maritime space
- Revision of Energy Taxation Directive
- Extension of EU ETS to transport and buildings
- Proposal on Carbon Border Adjustment Mechanism

Votes in Parliament’s leading committees by end of summer\*

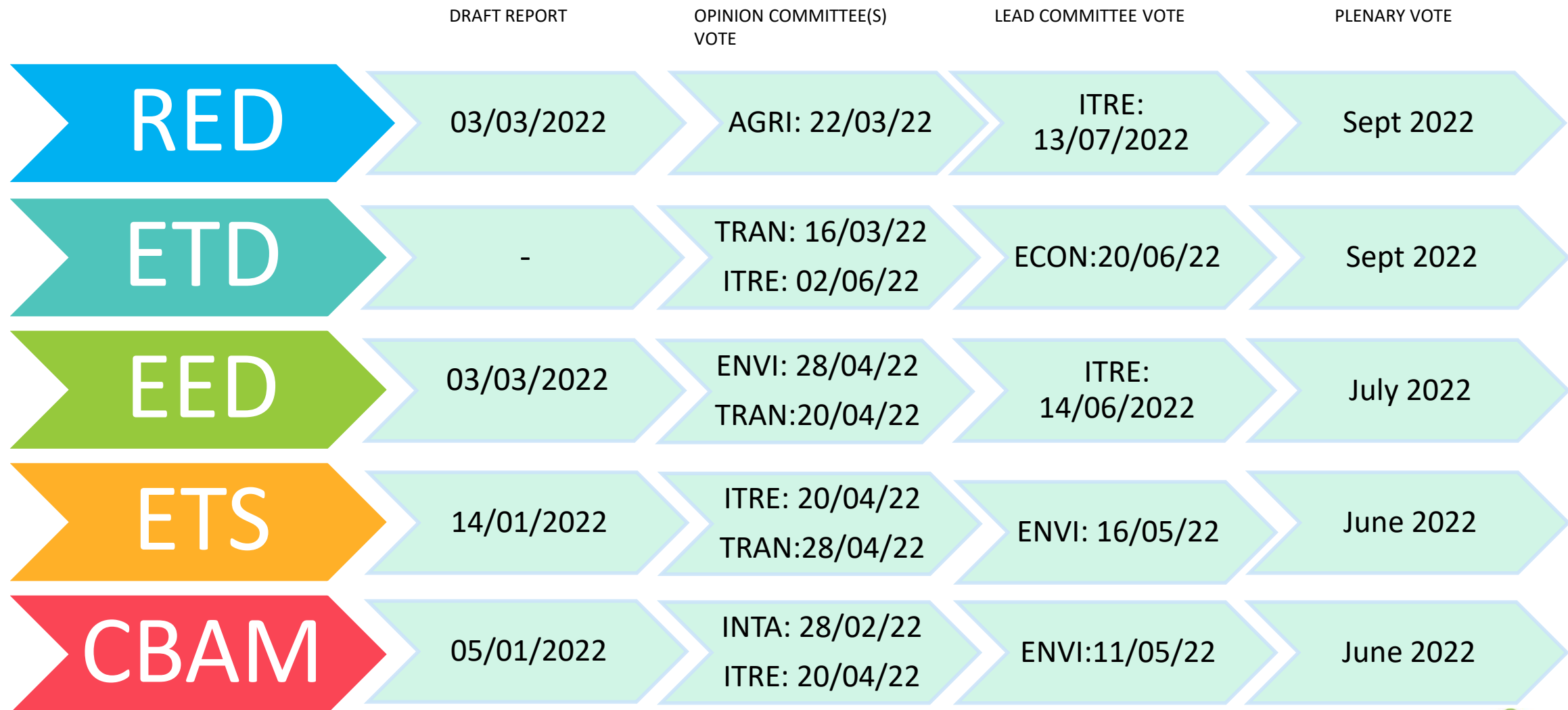
Trilogues to start under CZ presidency in September 2022.

Hydrogen and decarbonised gas markets package, a major push for the development of and world’s first internal market for hydrogen already by 2030

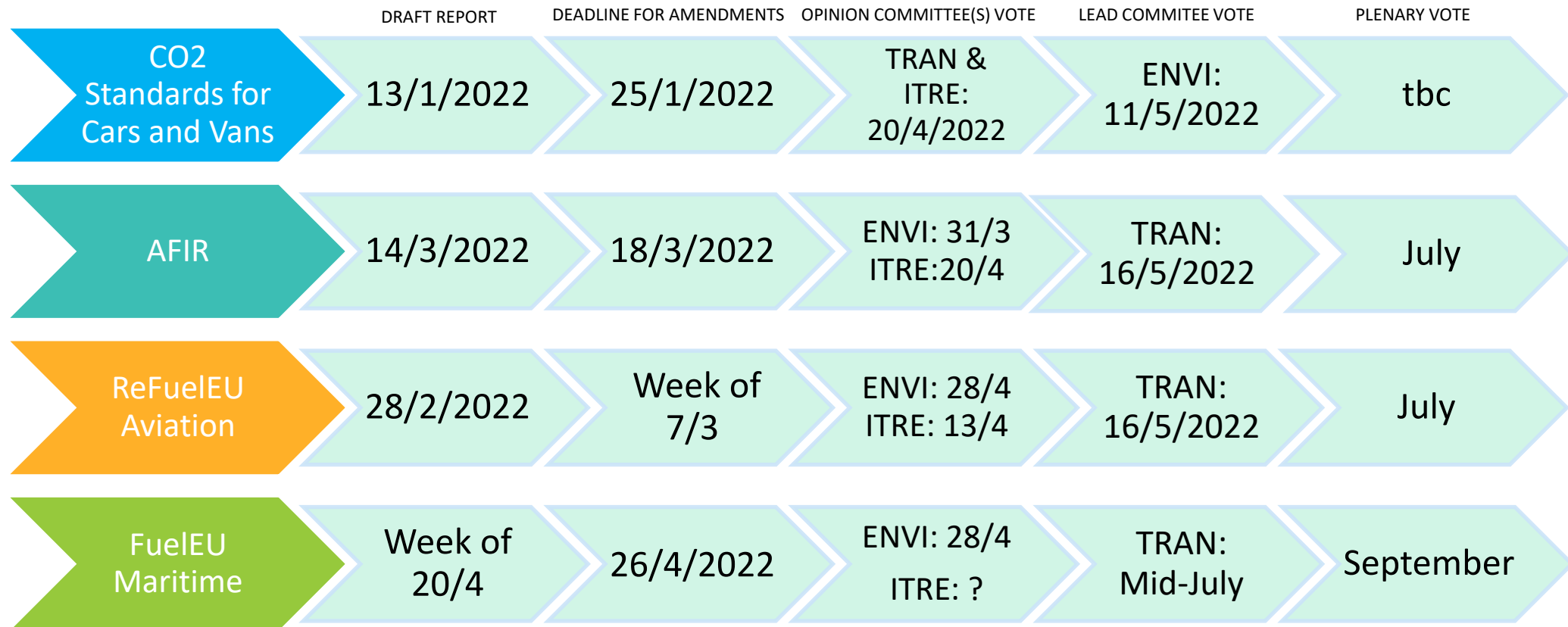
Negotiations expected to start in second half of 2022

Dialogue to start in 2023

# Timelines on Energy/Climate files in the Parliament



# Timelines on transport files in the Parliament



# Fit for 55 – HE supports



## **The revision of the Renewable Energy Directive (RED)**

Binding minimum targets for the use of RFNBOs in transport and industry, new provisions for renewable energy sources in heating and cooling, new credit mechanism for electricity supply and extension of additionality beyond the transport sector, GO

## **The revision of the Energy Efficiency Directive (EED)**

Inclusion of system efficiency and cost-effectiveness dimension, together with promotion of energy efficiency first.

## **The revision of the EU Emissions Trading Scheme (ETS) Directive**

Including accelerated cap reduction, sectoral extensions to shipping, road transport and buildings, and new eligibility rules for free allowances

## **The new carbon border adjustment mechanism (CBAM)**

Planned phasing-in of CBAM from 2026 with parallel phase-out of free allowances (complete phase-out by 2035) for the first sectors covered by CBAM (steel, cement, aluminium, fertilisers, electricity)

## **Revision of the Energy Taxation Directive (ETD)**

Differentiated tax treatment based on the environmental performance of fuels and exemptions for RFNBOs and electricity

# Fit for 55 – HE supports



## Revision of the Alternative Fuels Infrastructure Regulation (AFIR)

Obligation to deploy hydrogen refuelling stations every 150 km on the main network.

## CO2 emission performance standards for new passenger cars and new light commercial vehicles

New target of 100% reduction in emissions by 2035, signalling the phasing out of conventional uses of internal combustion engines under the current accounting system (tank to wheel).

## FuelEU Maritime

New targets to reduce the fleet average GHG intensity of energy used on board large ships (above 5000 gross tonnage) from 2% from 2025 to 75% from 2050 for all intra-EU voyages and stays in a covered port of call, and for half of voyages between EU and non-EU ports.

## ReFuelEU Aviation

New minimum targets for increasing sustainable aviation fuels (SAF) from 2023 and RFNBOs from 2030, with a target in 2050 of a minimum of 63% SAF, of which at least 28% should be synthetic fuels.

# A workable approach for additionality

- Fully support the principle of additionality, namely that additional renewable electricity consumption must always be covered by additional renewable capacity.
- Consider exempting RFNBO producers from the requirement to prove additionality until 2025; in the same year, conduct an assessment of progress towards the H2 Strategy targets of 6 GW in 2024 and 40 GW in 2030.
- RFNBO producers should be allowed to produce renewable hydrogen from curtailed renewable electricity.
- Member States should take responsibility for providing additional renewable electricity capacity by setting dedicated RE targets to be used for RFNBO production.
- Accept guarantees of origin alongside Power Purchase Agreements (PPAs) to prove the renewable nature of electricity used in hydrogen production.
- Recognise that renewable hydrogen creates a demand exclusively for renewable energy and not for fossil fuels. All producers of renewable hydrogen must prove the origin of the renewable sources.



# REDII Delegated Act

## Advocacy on RED II

- **8<sup>th</sup> December 2021: Open industry letter to the EU Commission.**
  - 64 signatories
  - Dedicated [video](#)
  - Social media posts on [Twitter](#) and [LinkedIn](#)
- **2<sup>nd</sup> February 2022: Hydrogen Talk “Can the RED II deliver EU’s Hydrogen ambitions?”**
  - 600+ participants
  - Recording
  - Opening remarks by:



**MEP Markus Pieper (EPP)**  
(Rapporteur on RED II)



**MEP Jens Geier (S&D)**  
(Rapporteur on Hydrogen Strategy)

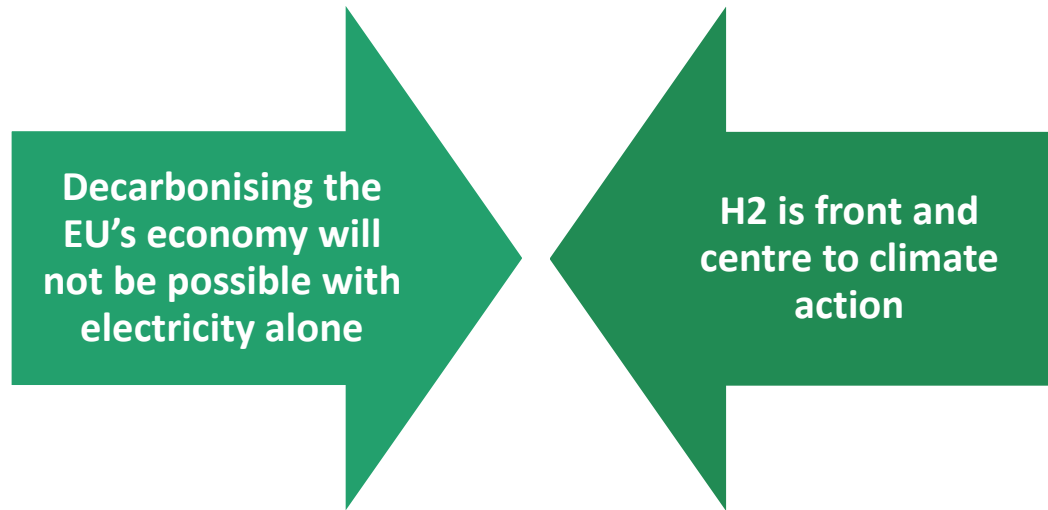
*“A Delegated Act with requirements for the production of renewable energy must be an accelerator for start-ups in Europe, and not a fence that stands in the way of the small plants of hydrogen”  
(MEP Pieper)*

## Panelists:

- **Prof. Ad van Wijk**, (Technical University of Delft); **Sopna Suri**, (Chief Operating Officer Hydrogen at RWE Generation SE), **Guillaume Rivron**, (Partner, Marguerite Fund Luxembourg) **Ruud Kempener**, (Policy Officer, EC)

# Fit for 55 Package & Hydrogen Package

Presented on 15 December 2021, the **Hydrogen and decarbonised gas package** comes with two clear messages:



## Package of proposals on energy and climate action

- Proposal of the revised gas markets and H2 directive
- Proposal of the revised gas markets and H2 regulation
- Reducing methane emissions in the energy sector
- Revision of the energy performance of Buildings Directive
- Commission communication - Restoring sustainable carbon cycles

# Legal structure: 2 legal acts



Brussels, 15.12.2021  
COM(2021) 803 final  
2021/0425 (COD)

Proposal for a

**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on common rules for the internal markets in renewable and natural gases and in hydrogen**

{SEC(2021) 431 final} - {SWD(2021) 455 final} - {SWD(2021) 456 final} -  
{SWD(2021) 457 final} - {SWD(2021) 458 final}

*[Old Gas Directive 2009/73]*

**THIRD ENERGY PACKAGE**



Brussels, 15.12.2021  
COM(2021) 804 final  
2021/0424 (COD)

Proposal for a

**REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on the internal markets for renewable and natural gases and for hydrogen (recast)**

{SEC(2021) 431 final} - {SWD(2021) 455 final} - {SWD(2021) 456 final} -  
{SWD(2021) 457 final} - {SWD(2021) 458 final}

*[Old Gas Regulation 2009/715]*

# Hydrogen package: 5 policy aims



- Enabling development of **dedicated hydrogen infrastructure** and market
- Facilitate access of **renewable and low-carbon gases** to existing gas network
- Fostering **network planning** electricity, gas and hydrogen
- Promote **consumer protection and engagement** in renewable and low-carbon gas markets
- Improve **resilience and security of supply**

# Definition and certification of low-carbon hydrogen

Article 8 Directive,  
Annex 6 Table 43  
Impact Assessment

## ➤ Definition of low-carbon hydrogen:

- Greenhouse gas emission savings are at least 70%, to be reviewed if threshold should be raised for installations starting operations as of 2031.

## ➤ Objective of the certification system:

- Ensure consistent and robust certification of low-carbon hydrogen (in addition to the certification already applicable to renewable hydrogen under the Renewable Energy Directive) across Europe and for imports.
- Certification based on the existing good practices of voluntary and national certification schemes already developed under the Renewable Energy Directive.
- Applying a life-cycle emission approach in line with the Hydrogen Strategy.
- The exact methodology to assess emissions for low-carbon hydrogen will be developed through a Delegated Act adopted by the end of 2024.



# ENNOH

Articles 40-46 and  
Recitals 48-49  
Regulation

- **European Network of Network Operators for Hydrogen (ENNOH)** to ensure EU level coordination of hydrogen network operators:
  - Composed of certified hydrogen system operators;
  - With mandate for all hydrogen topics, incl. H2 TYNDP, H2 network codes, etc.;
  - Working in cooperation with the other ENTSOs and consulting relevant stakeholders; and
  - Financed by hydrogen network operators (NRA can take the costs into account in calculation of tariffs).
- **A separate ENNOH:**
  - Underpins the role of hydrogen in decarbonisation, equal footing with ENTSO-E and ENTSG;
  - Ensures dedicated approach to better target the development of hydrogen networks to the real needs of the hydrogen market;
  - Takes into account that the use of hydrogen and thus the hydrogen infrastructure needs are expected to differ from the current gas market;
  - Managed gradual transfer of infrastructure planning tasks from ENTSG to ENNOH.



# 5% allowed cap for hydrogen blends at interconnection points

Articles 20, 65(7) Gas Regulation; Annex 7 and table 50 of IA

- It is a cap, not a blending obligation. It means that transmission system operators must accept at interconnection points max. blend of 5% to avoid market segmentation.
- Provides a process to agree on the practical implementation (technical solutions and financing) with clear roles for market participants and regulators.
- It applies at interconnection points between Member States. It does not set a cap for a Member State's domestic network.
- Voluntary agreements for higher blends at interconnection points between Member States remain possible.
- In line with the Hydrogen Strategy: reflects the priority to use hydrogen in its pure form.
- 5% was found by studies cost-efficient in terms of abatement and adaptation costs for end-users and infrastructure operators.



# H2 quality management in the H2 network

Articles 46 and 72 Directive,  
Articles 39, 42, 48, 50-51, 54 and  
65 Regulation and Annex to  
Regulation, table 38 Impact  
Assessment

- The quality of hydrogen (purity and contaminants) varies depending on production technology and mode of transportation.
- But, a number of hydrogen end-users have specific quality requirements, in particular industry and fuel cell applications.
- In an interconnected hydrogen network quality management can become more complex and costly.
- The aim is to ensure system integrity, cross-border interoperability and delivery of the required quality to end-consumers in a cost-efficient manner.
- Therefore, the proposal consist of three main elements:
  - Harmonised approach to hydrogen quality management in the Member States;
  - Cross-border coordination on hydrogen quality problems; and
  - Hydrogen quality standardisation.



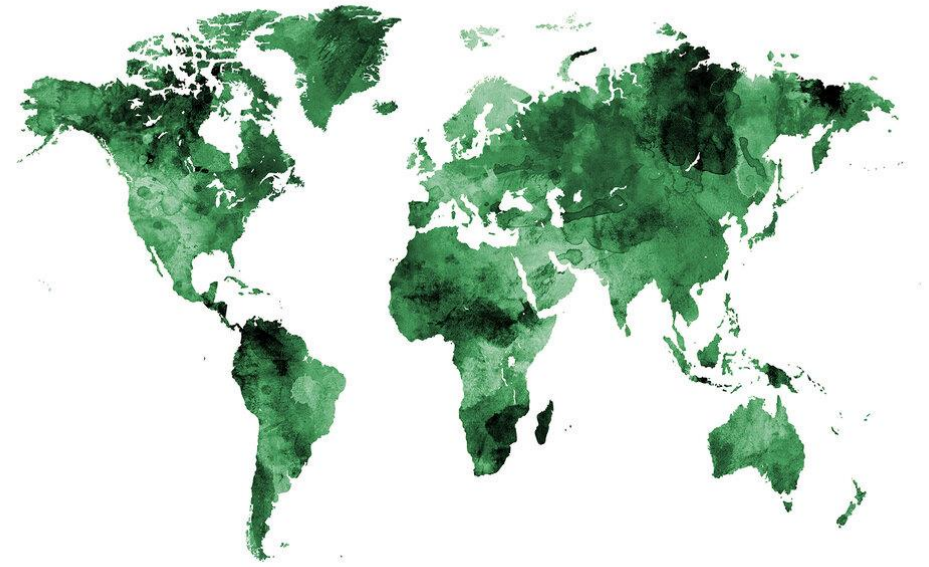


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# Summary - turning hydrogen into a global commodity

- Workable approach to additionality, geographic and temporal correlation
- Clear definitions for H<sub>2</sub> and science-based thresholds for calculating carbon content
- CO<sub>2</sub> must become the new currency of the energy system
- Certification system for all types of clean hydrogen
- RFNBO targets in the industry and transport sectors
- Access to hydrogen for all customers





# Thank you for your attention!



Hydrogen  
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*Want to know more?*

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