



# COMPAGNIE MARITIME MONEGASQUE ZERO EMISSION

The first integrated zero-emission production & transportation company

“the TECHNOLOGY for ZERO-EMISSION ENERGY PRODUCTION and TRANSPORTATION is out there, it only needs to be IMPLEMENTED across the entire supply chain”

# CMM ZERO EMISSION

ESTABLISHED IN 2015  
TO FOCUS ON ZERO  
EMISSION ENERGY  
PRODUCTION &  
TRANSPORTATION

# AMBITION

TO BECOME THE  
FIRST ZERO  
EMISSION ENERGY  
PRODUCTION AND  
TRANSPORTATION  
COMPANY IN THE  
WORLD

WHY

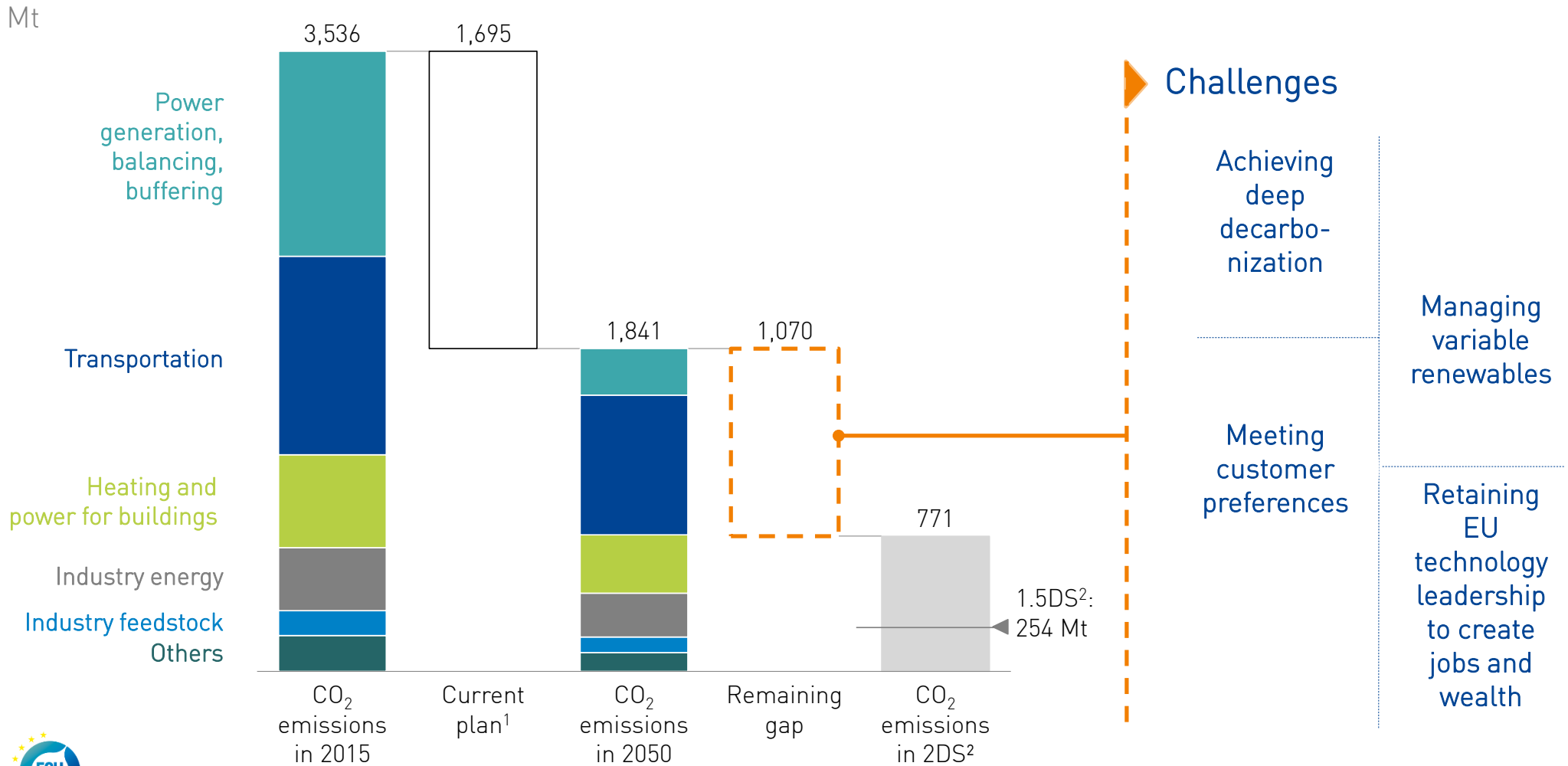
BECAUSE WE  
ALL LOVE OUR  
PLANET AND  
HAVE A JOINT  
RESPONSIBILITY  
TO PRESERVE IT



# HYDROGEN

Current momentum in clean energy is unprecedented. Increased coordination and alignment is required to unlock the potential of a clean hydrogen economy. Hydrogen has potential to become a critical element of the energy transition, in particular helping with the transition of heavy weight transportation.

# WHY HYDROGEN: TO REALIZE THE AMBITIOUS TRANSITION OF THE EU'S ENERGY SYSTEM, A NUMBER OF CHALLENGES NEED TO BE RESOLVED



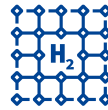
<sup>1</sup> Emission reductions from current national commitments, energy efficiency etc. as included in the IEA "reference technology scenario"  
<sup>2</sup> DS = degree scenario  
 SOURCE: IEA Energy Technology Perspectives 2017; Hydrogen Roadmap Europe team

# ACHIEVING DEEP DECARBONIZATION OF >80% OF CO<sub>2</sub> EMISSIONS REQUIRES HYDROGEN

Challenge

Hydrogen is the best or only choice for at-scale decarbonization of key segments, for example:

Achieving  
deep  
decarboni-  
zation



H<sub>2</sub> TO  
DECARBONIZE  
THE GAS GRID



FUEL CELLS/  
SYNFUELS FOR HEAVY  
TRANSPORT AND  
LONG  
DISTANCES



HIGH-GRADE  
HEAT FOR  
INDUSTRY &  
IN STEEL



ULTRA-LOW-  
CARBON H<sub>2</sub> AS  
FEEDSTOCK,  
E.G., AMMONIA

HOW

HYDROGEN

THE ONLY VIABLE  
SOLUTION FOR  
LONG DISTANCE  
TRANSPORTATION



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## HYDROGEN PRODUCTION IN TUNISIA

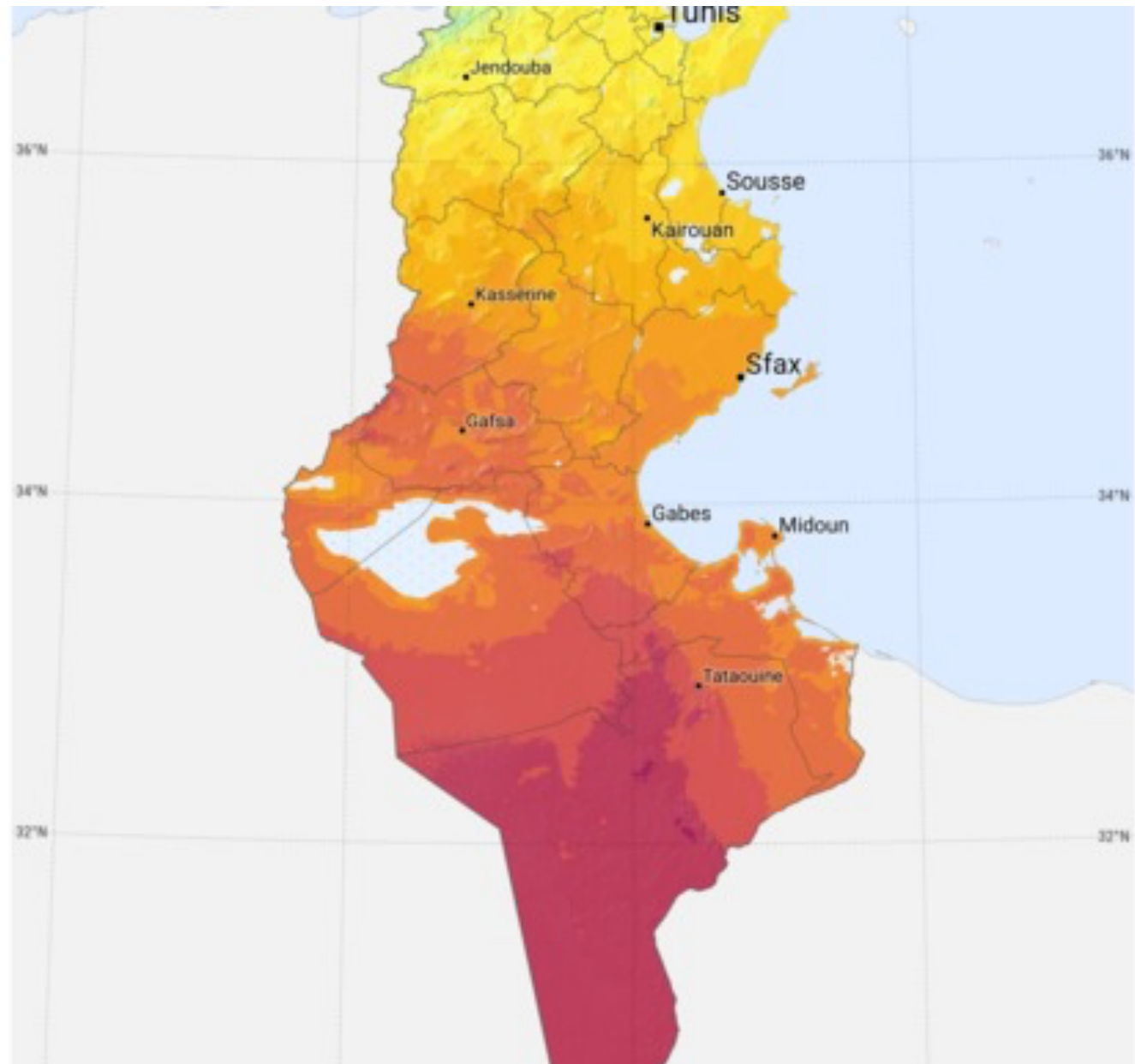
- Close to Europe
- Favorable weather conditions
- Supporting business environment



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## HYDROGEN PRODUCTION IN TUNISIA

- 300 hectares of land in the South of Tunisia close to a port



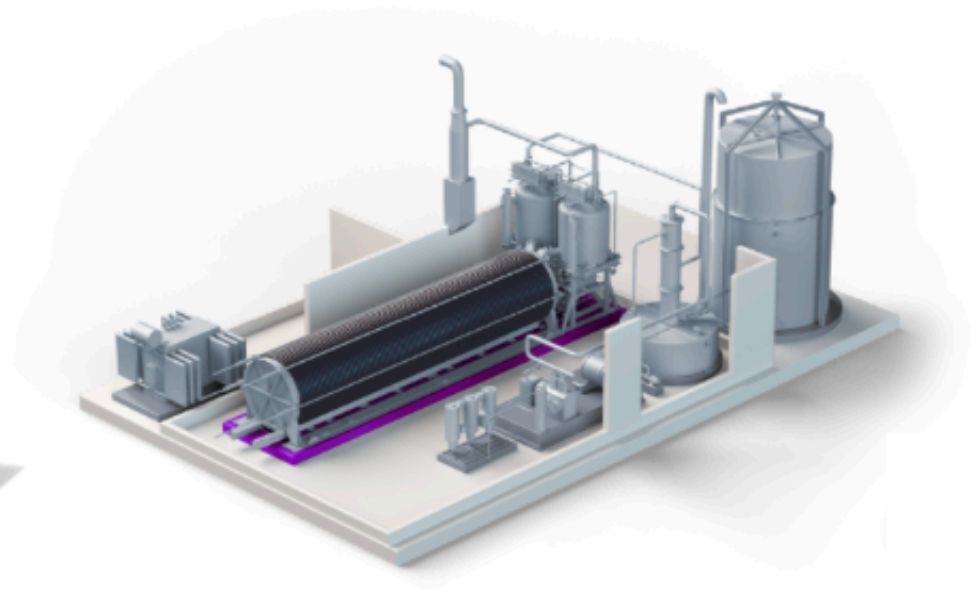
## GEOGRAPHICAL LOCATION

- Tunisia ideally positioned to supply Hydrogen to Europe by Sea





**RENEWABLE POWER  
GENERATION**



**ONSITE CONVERSION OF ELECTRICITY  
TO HYDROGEN VIA ELECTROLYSIS**

## PHASE I

Use the produced hydrogen to power trucks that transport lorries between Europe and Tunisia.

- **Target:** Replace 200 trucks that travel 60.000.000 km per year between Tunisia and Europe
- **Result:** Total annual fuel saving of 15 million liters of diesel oil



## PHASE II

Use Hydrogen powered RORO vessels to transport trucks between Europe and North Africa

- **Target:** Replace 4 existing RORO vessels that transport trucks and lorries between Tunisia and Europe with 4 zero emission RORO vessels
- **Result:** Total annual fuel saving of 40 million liters of heavy fuel oil



## PHASE III

Export Hydrogen by specialized Hydrogen carrier to Europe

- **Target:** 10.000 tons of hydrogen per month
- **Result:** Meet Europe's decarbonization target



MARKET

DEMAND &  
SUPPLY



ROADMAP

# HYDROGEN COULD PROVIDE UP TO 24% OF TOTAL ENERGY DEMAND, OR UP TO ~2,250 TWH OF ENERGY IN THE EU BY 2050

TWh

Final energy demand

14,100

11,500

9,300

Thereof H<sub>2</sub>

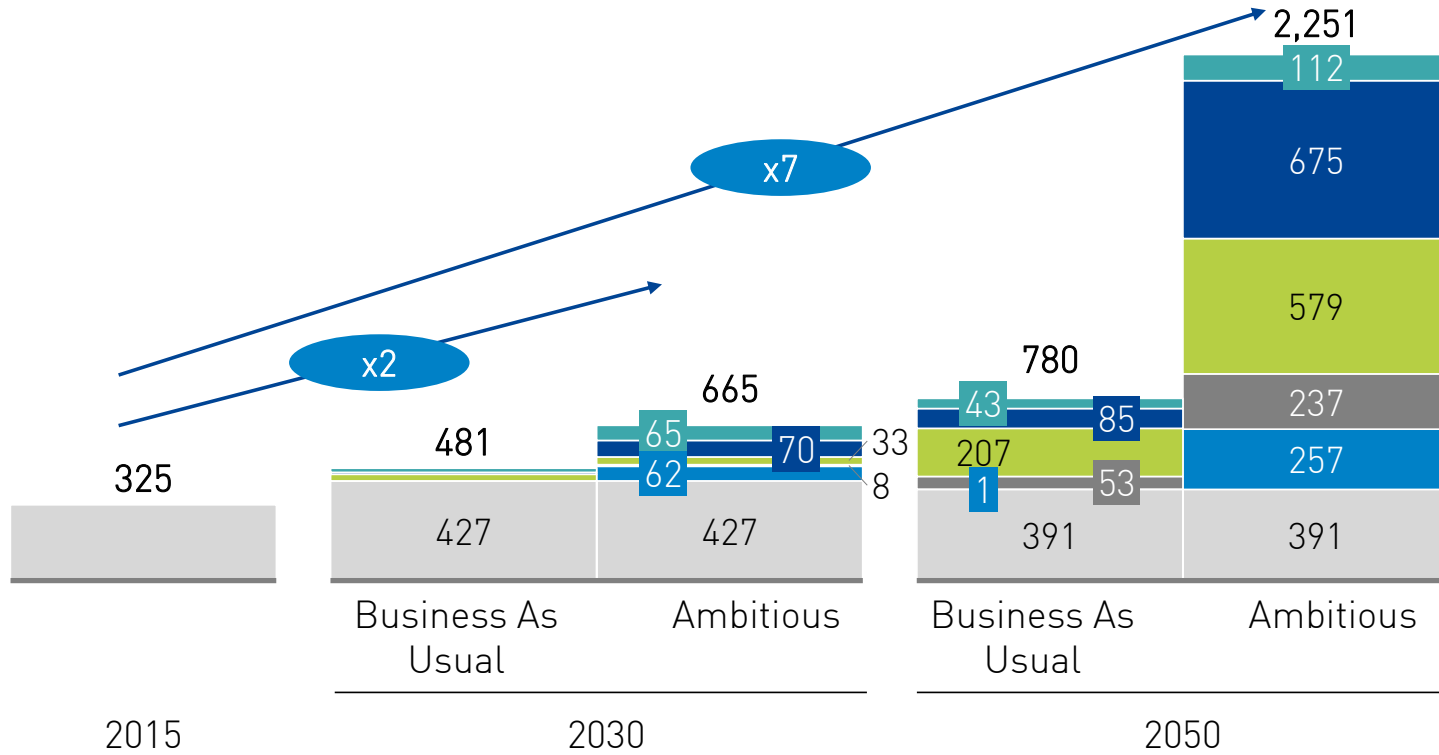
2%

4%

6%

8%

24%



Power generation, buffering



Transportation



Heating and power for buildings



Industry energy



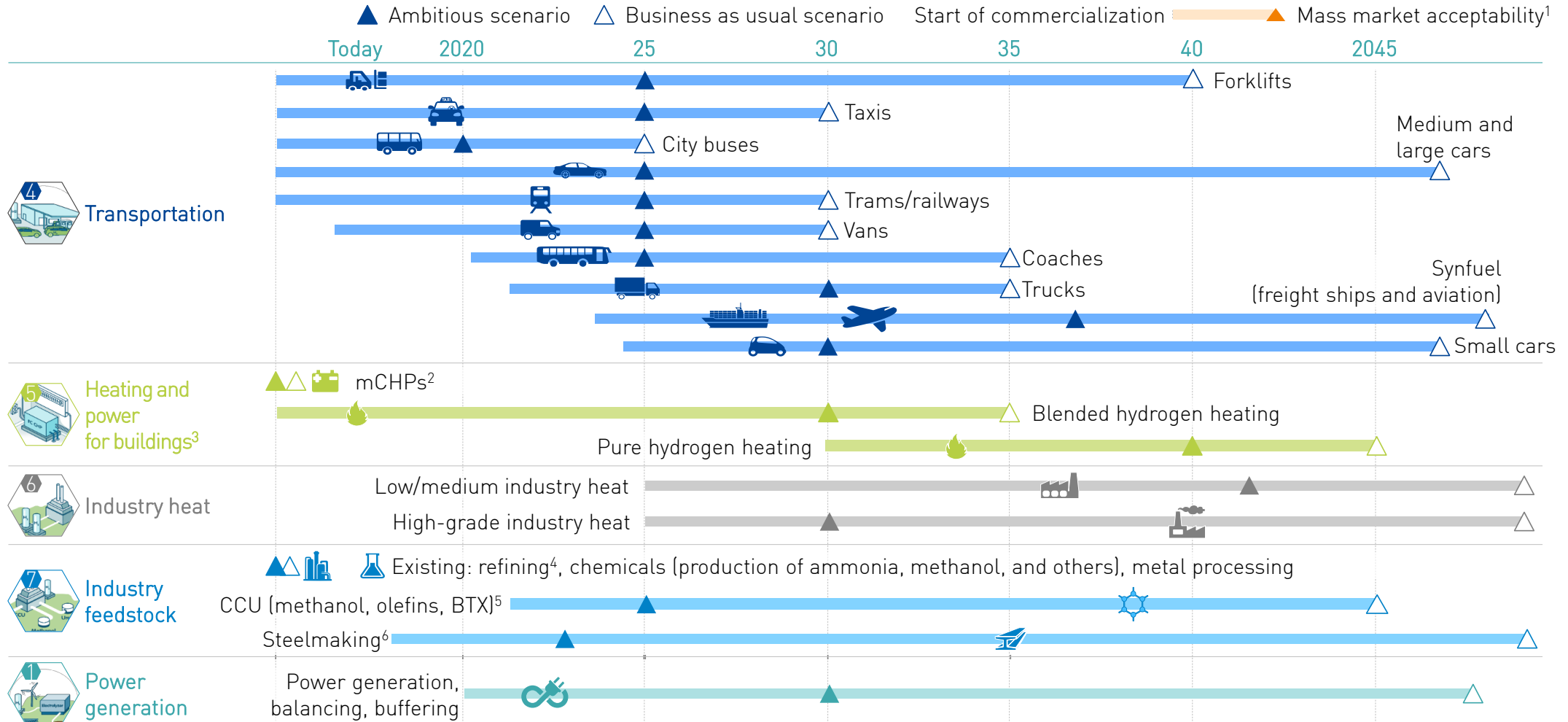
New feedstock

Existing feedstock



SOURCE: Hydrogen Roadmap Europe team

# HYDROGEN TECHNOLOGY EXISTS AND IS READY TO BE DEPLOYED



1 Defined as sales >1% within segment; 2 mCHPs sales in EU independent of fuel type (NG or H<sub>2</sub>); 3 Pure and blended H<sub>2</sub> refer to shares in total heating demand; 4 Refining includes hydro-cracking, hydro-treating, bio-refinery; 5 Market share refers to the amount of production that uses hydrogen and captured carbon to replace feedstock; 6 CDA process and DRI with green H<sub>2</sub>, iron reduction in blast furnaces, and other low-carbon steel making processes using H<sub>2</sub>

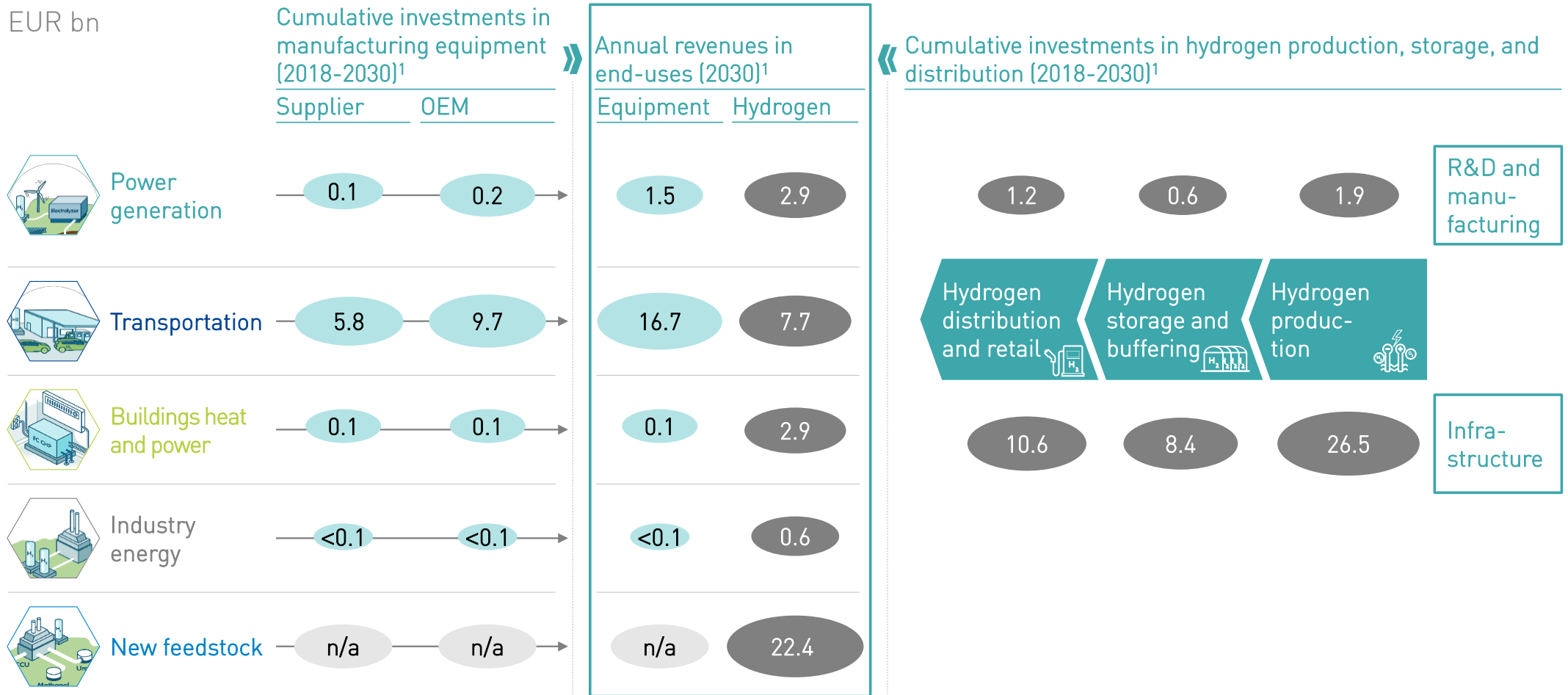
SOURCE: Hydrogen Roadmap Europe team



ROADMAP

# THE HYDROGEN ECONOMY REQUIRES EUR 65 BN CUMULATIVE INVESTMENTS AND OPENS A MARKET OF UP TO EUR 55 BN ANNUAL SALES IN EUROPE BY 2030

EUR bn



<sup>1</sup> Including investments/revenues in aftermarket services and new business models (assumption: 8% of investment/revenue)

SOURCE: Hydrogen Roadmap Europe team



ROADMAP

# IN TOTAL, A MARKET OF EUR ~150 BN AND ~1 M JOBS COULD BE UNLOCKED BY 2030

## 2030 hydrogen vision

### Estimation of industry size

EU and global market potential taken from hydrogen vision

“Fair share” of EU industry on domestic and worldwide market derived from industry statistics and industry interviews

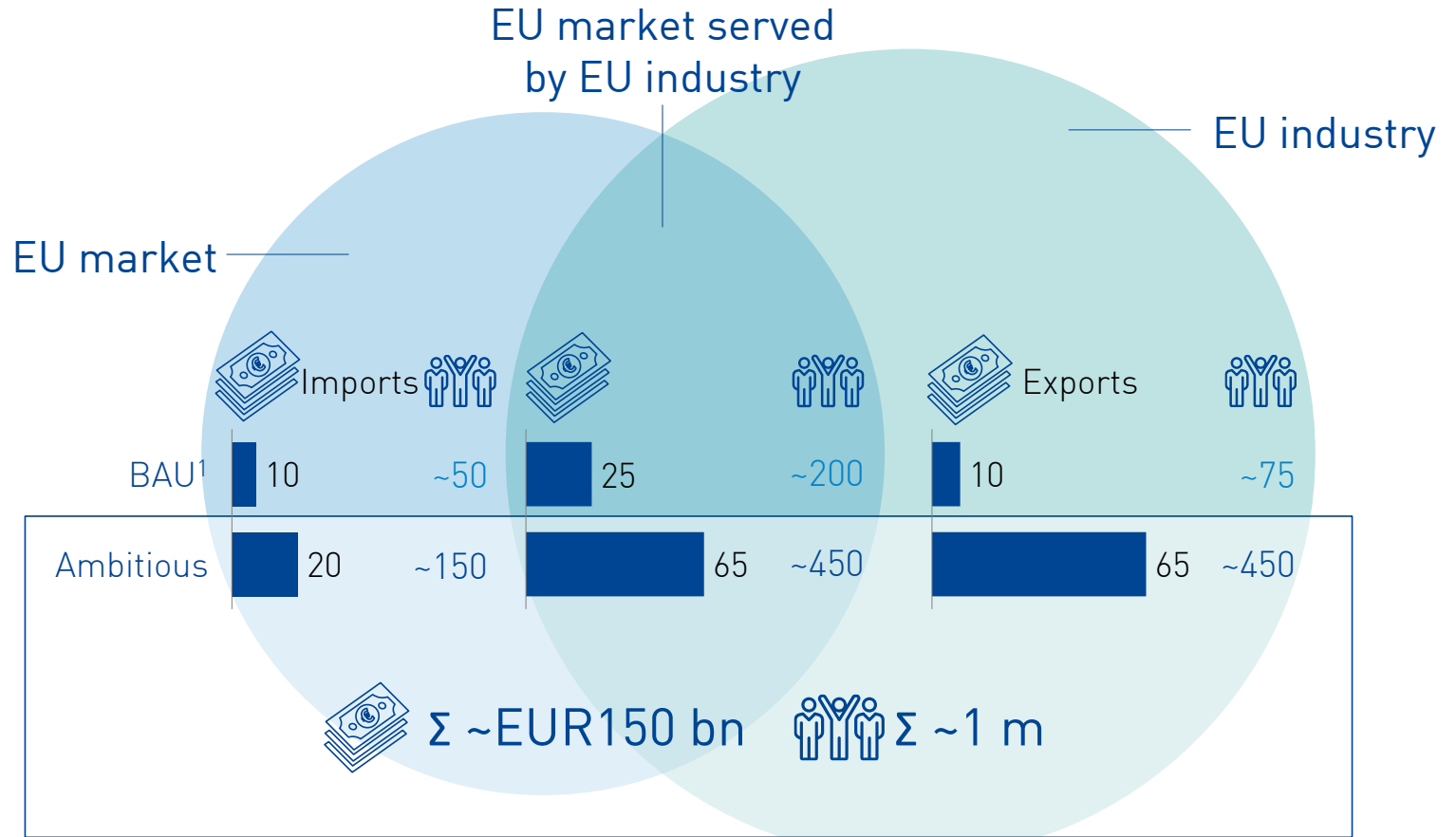
Revenue and jobs multipliers estimated from EU input-output models

### Ambitious scenario

Fair domestic market share for EU players (between 60% and 90% depending on the step in the value chain)

Fair market share for EU players in RoW (between 10% and 25% depending on the step in the value chain)

Jobs, '000      Market size, EUR billions



<sup>1</sup> Business as usual scenario

SOURCE: Hydrogen Roadmap Europe team

TEAM

EXPERIENCE IS KEY

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## EXPERIENCE



### CEO Christophe Vancauwenbergh

- CEO Compagnie Maritime Monégasque Offshore – An offshore vessel owner and operator
- Experience in building and operating Environmental Protection & Emergency Vessels



### COO Alessandro Ciocchi

- Group Offshore Director at V.Group – Global leader in ship management and marine services
- Experience in the Energy Maritime Industry

# SUPPORTING PARTNERS

BEST IN CLASS

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## SUPPORTING PARTNERS

### Damen Shipyards

- Damen is an international shipyard group that operates in every market where an opportunity to improve, innovate or invest exists. They invest a great proportion in innovation, research and development across the shipbuilding spectrum.

### John Cockerill

- Driven since 1817 by the entrepreneurial spirit and passion for innovation of its founder, the John Cockerill Group develops large-scale technological solutions to meet the needs of its time: preserving natural resources, contributing to greener mobility, producing sustainably, fighting against insecurity and facilitating access to renewable energy.

### V.Group Limited

- Operating around the clock and around the world, V.Group gives every client the quality and efficiency they need in every sector. Covering crew management and recruitment, quality ship management and technical services, together with supporting management and commercial services, they have an unrivalled industry knowledge with performance assured.





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