HYDROGEN MOBILITY
HYPE OR REALITY

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H2 AT TOKYO MOBILITY SHOW 2025


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HILUX BEV

Current state of the union?

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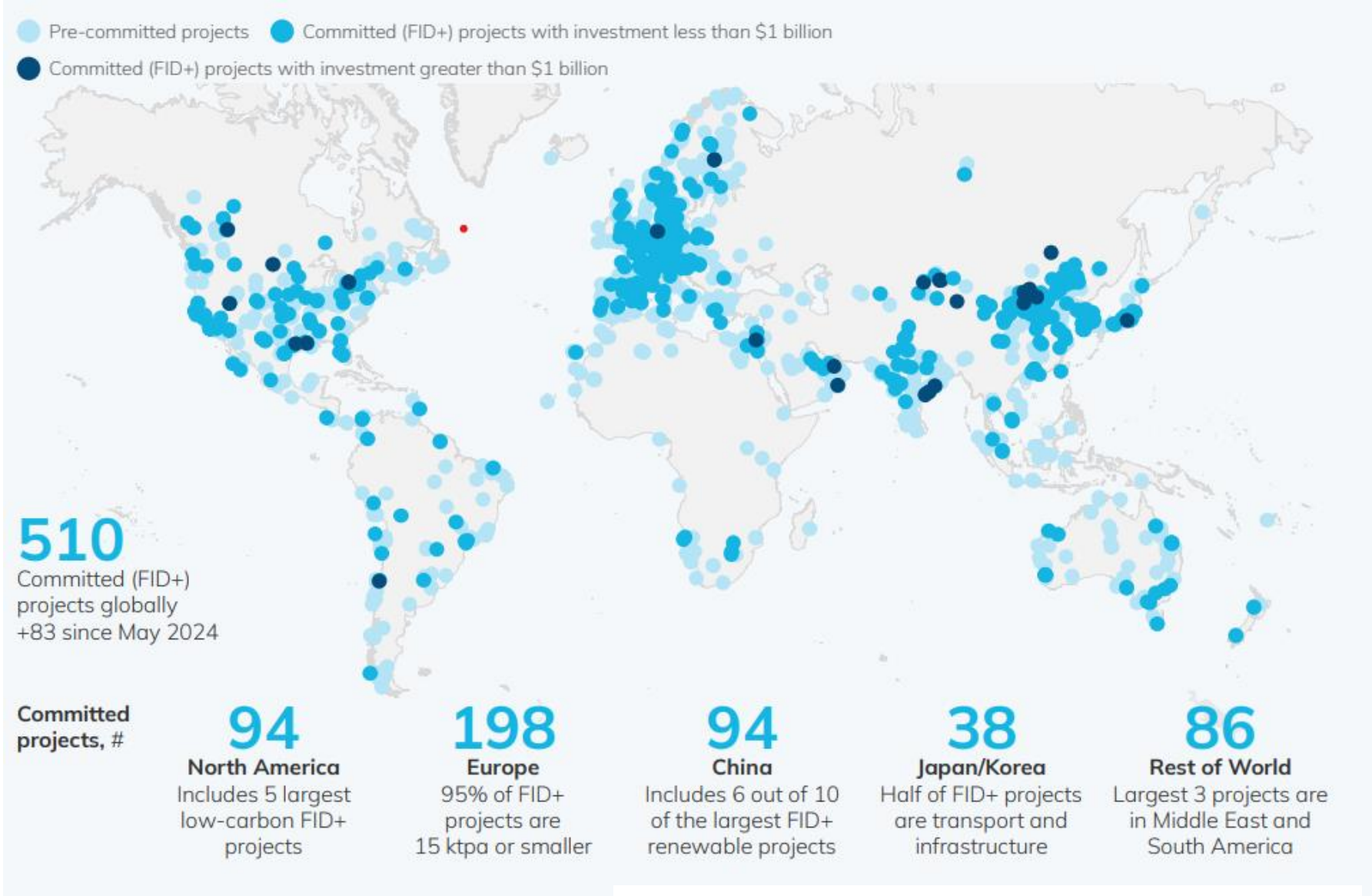
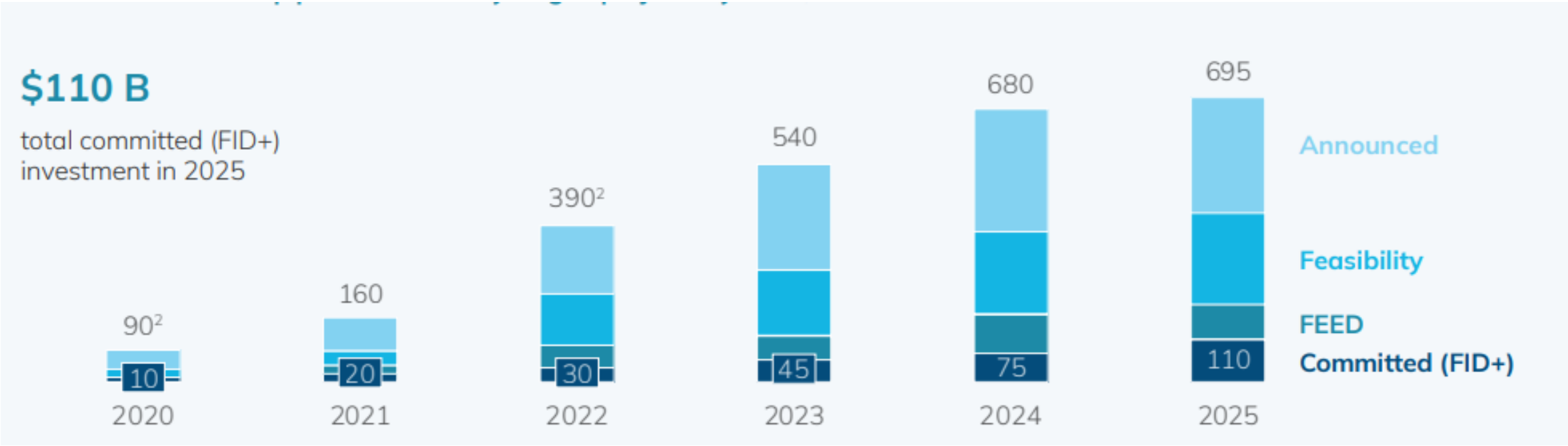
510 PROJECTS REACHED FID GLOBALLY



[1] Project announcements below 1 MW are excluded.
Source: Hydrogen Council & McKinsey Project & Investment Tracker, as of December 2020, May 2022, May 2024 and July 2025.

110 B $ COMMITTED INVESTMENT PIPELINE KEEPS GROWING

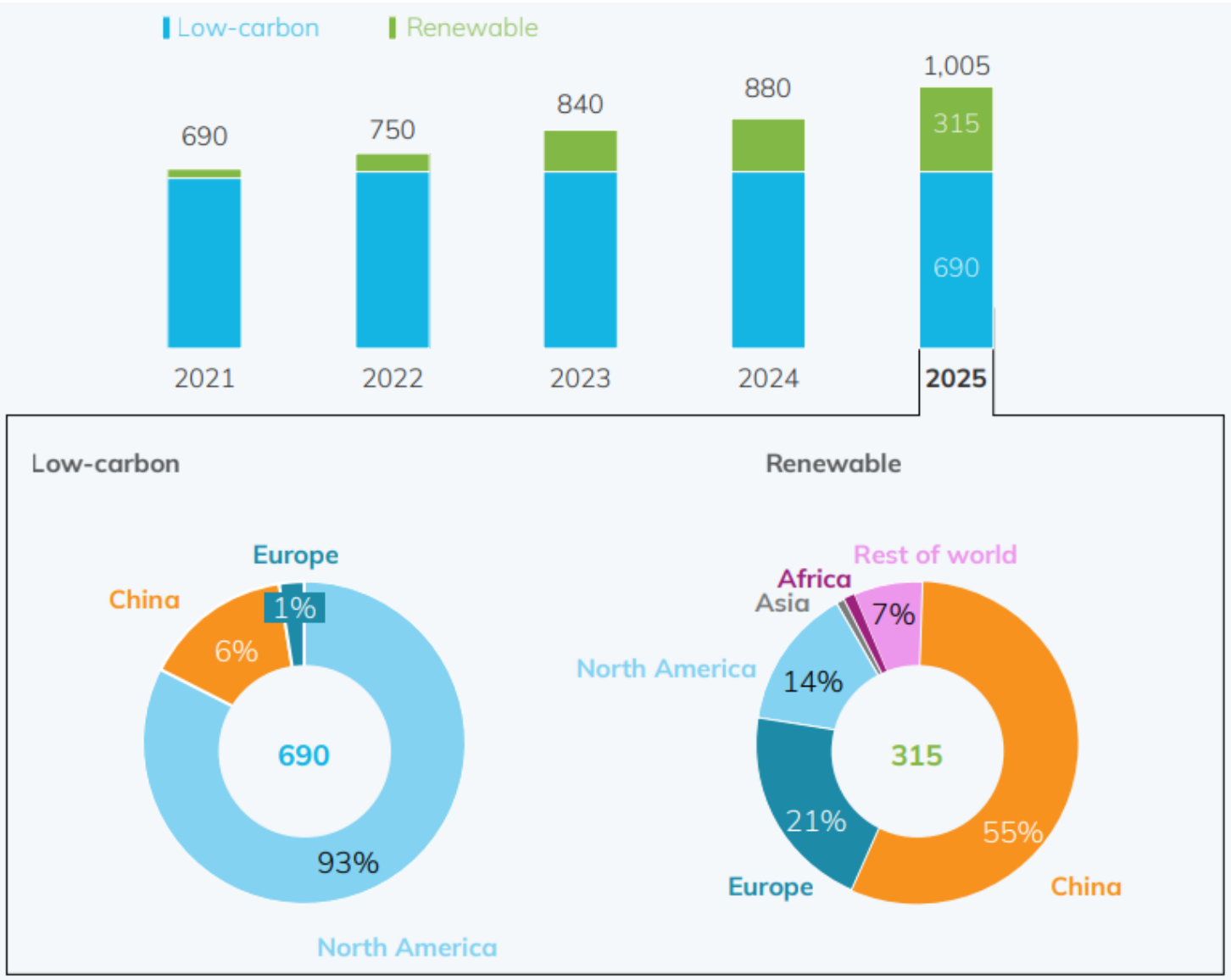


Source: Hydrogen Council: Hydrogen Compass 2025

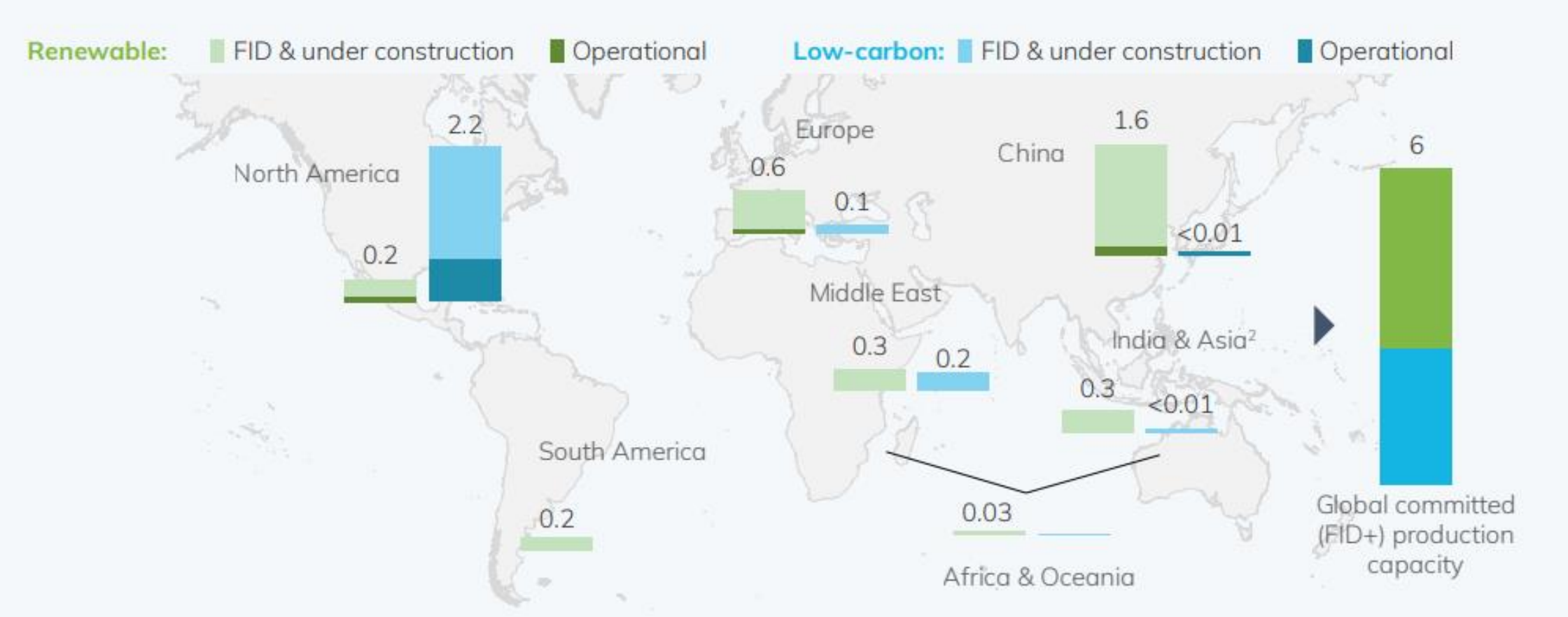
CLEAN H2 CAPACITY INCREASED 8x IN 5 YEARS

8x
Growth in operational renewable capacity in the last five years, including 65% increase since last year

56%
Chinese share of operational renewable capacity today

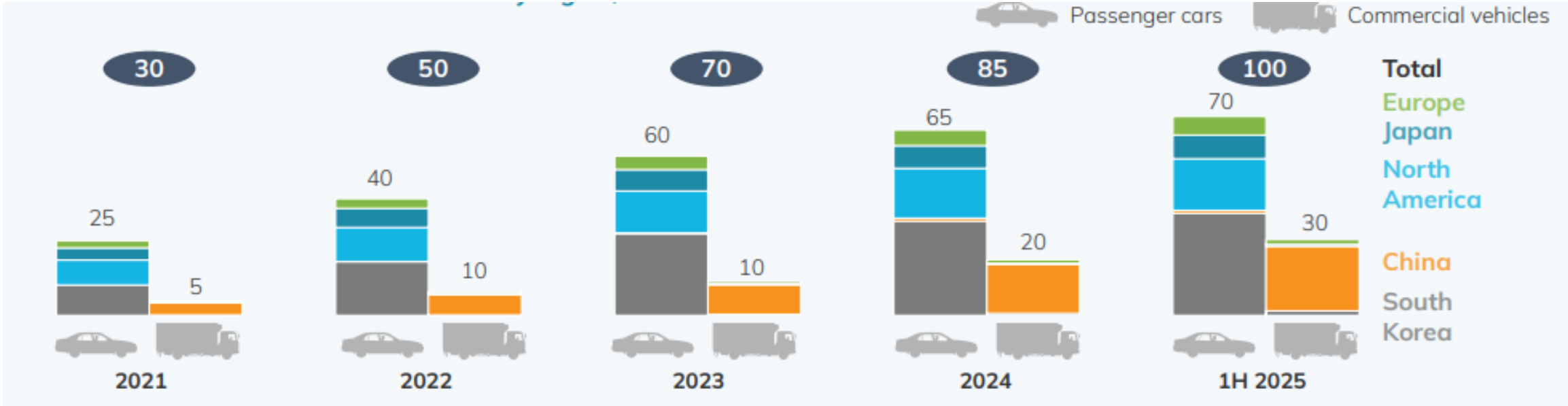


FINAL INVESTMENT DECISION BY REGION



Source: Hydrogen Council: Hydrogen Compass 2025

CUMULATIVE FCEV SALES BY REGION



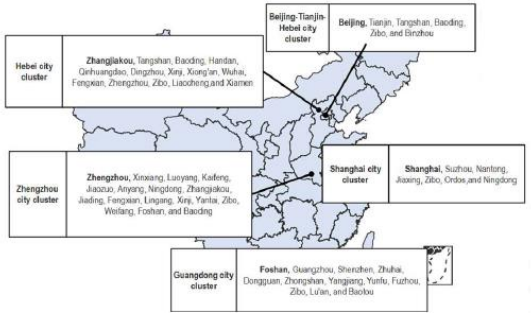
Source: Hydrogen Council: Hydrogen Compass 2025

HYDROGEN MOBILITY DEVELOPMENT IN CHINA

>500 hydrogen stations

Hydrogen price of below 5EUR at the pump

>15.000 FCEV in 5 large eco-systems



Large fleet of HDV

>4.000 HDV sales in 2024

Connect to green hydrogen production

(>125.000 t per year in 2024
~50% globally

Source: SINOPEC and IHFCA

EU direction?

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INDUSTRY CEO'S SUPPORT H2 AND CALL FOR ACTION

CEO'S LETTER

Why

1) FCEV are complementing BEV

2) Hydrogen create up to 500.000 jobs

3) Hydrogen is a tool for energetic and material independency

Why now?

- China is accelerating
- Europe is still competitive

What is the Global Hydrogen Mobility Alliance?

Global Hydrogen Mobility Alliance

The **Global Hydrogen Mobility Alliance** unites **transport, energy, and industrial leaders operating in Europe** to make **hydrogen a core pillar of the EU's mobility strategy** – driving urgent policy support for prosperity, resilience, and strategic autonomy.

https://globalh2mobilityalliance.org/

This is the time to prove hydrogen mobility works – leveraging current molecule flexibility to unlock economics and future network scaling

Current phase

1 Activation price & molecule flexibility

ALL COLOURS WELCOME TO KICK-START

Today

2030

Geographical focus to **drive local infrastructure development**

viable ecosystems with well-loaded HRS in high traffic areas

Derisked economics and supply enabled by molecule flexibility

Activation cost of €8/kg supported by targeted policies

HD (truck, bus, coach) unlock other applications (e.g., LCV, cars, maritime)

2 Connect ecosystems

CREATE CORE NETWORKS

Mid-2030s

Expand geographical coverage by connecting HRS ecosystems to create core transport routes (e.g., TEN-T)

Decarbonize H2 in line with other industries and with BEV charging

Capacity payments for infrastructure decarbonization

Fleet demand and **vehicle OEMs driving commercial scale**

Shift towards low-carbon and renewable hydrogen, including from imports

3 Full deployment

COMPREHENSIVE NETWORKS

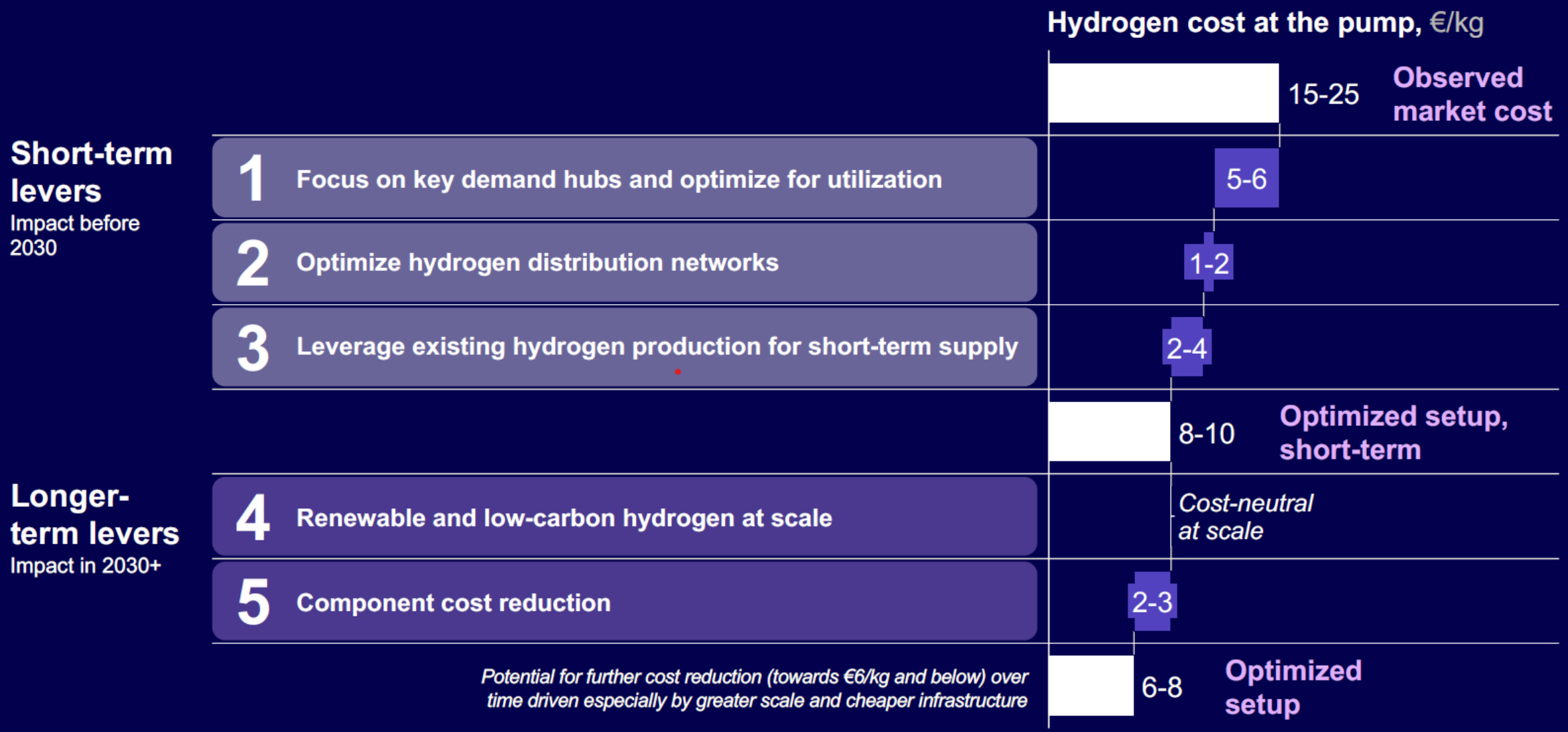
2040

Comprehensive HRS network matching today's usability

Scaling H2 adoption across relevant use cases

Focus on renewable or low-carbon hydrogen, at scale

An optimized hydrogen supply chain can already achieve meaningful cost reductions already in the short-term



Note: Excluding subsidies, incentives and credits by 2030

Source: Hydrogen Council clean team (2024)

If the specific tipping points of scale and demand certainty are met, hydrogen in road transport can already be competitive today

H2 Mobility Setup, H2 cost at the pump[2]		Production	Conversion / Storage / Distribution	HRS[1]	Vehicle
Step 0: Today	15-25 €/kg	Local sources	300 kg	250-500 kg / day 10-20%	~100 units/y
Step 1: Activation price & molecule flexibility	5-10 ecosystems of 10 HRS with 100-300 trucks around existing H2 sources 8-12 €/kg	Mix of sources	950+ kg	1,000+ kg / day 50-60%	100-500 units/y
Step 2: Connect ecosystems	Linked ecosystems of 100-200 HRS with 5k-10k trucks and decarbonizing H2 sources 7-9 €/kg	Shift to low-carbon & renewables	Shift to LH2: 4,000 kg	2,000+ kg / day 60-70%	~5,000 units/y
Step 3: Full deployment	Comprehensive network of 1,000+ HRS with 100k+ trucks using low-carbon / renewable H2 sources 6-8 €/kg *further improvements may be possible in long-term*	Low carbon & renewable	4,000 kg Pipelines	4,000+ kg / day 60-80%	10,000+ units/y

1. Hydrogen Refueling Stations
2. Without incentives or credits

Source: Hydrogen Council clean team (2024)

Key policy asks

Enabling conditions BEV = H2

Recognise the complementarity of BEV and H2 mobility

Level playing field for BEV and H2 on the upcoming EU policy from the Automotive Action Plan

- Eurovignette amendment
- Transport corridors
- Greening of corporate fleets

Flexibility to use whatever H2 is available to kickstart H2 mobility

Independent measures to activate H2 mobility and decarbonize H2 (BEV approach)

- The target is to meet 8€ per kg at the nozzle (and below)
- Gradual adoption of low-carbon and renewable H2

Bridge the cost gap

SWiM type of funding for HRS and vehicles

Specific program for H2 mobility & flexible granting conditions

- "Consortias" HRS + Fleets
- Secure 50% min loading (coupled with capacity payment for HRS in corridors)
- Techno neutral approach H2, HRS and vehicles

Swift implementation of ETS and Eurovignette

Swift Implementation of existing EU policy and extended longevity

- Eurovignette free tolls for ZEV
- ETS2 fossil fuel tax for road transport and ETD exemption for H2 ICE
- Other enabling elements: clean ports and public procurement

THE EU WILL NEED H2 HDV & LDV TO REACH CLIMATE GOALS

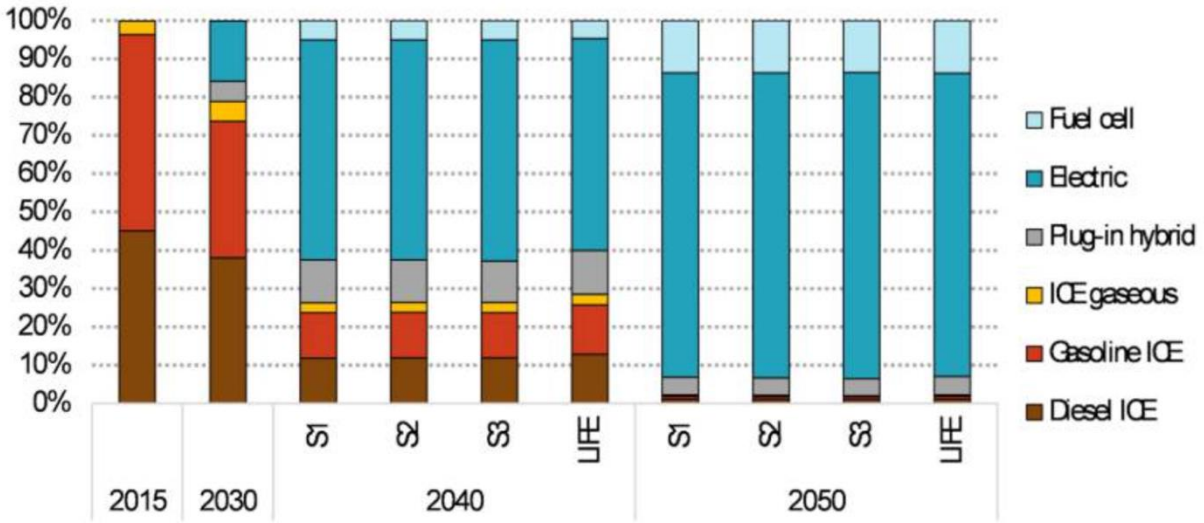
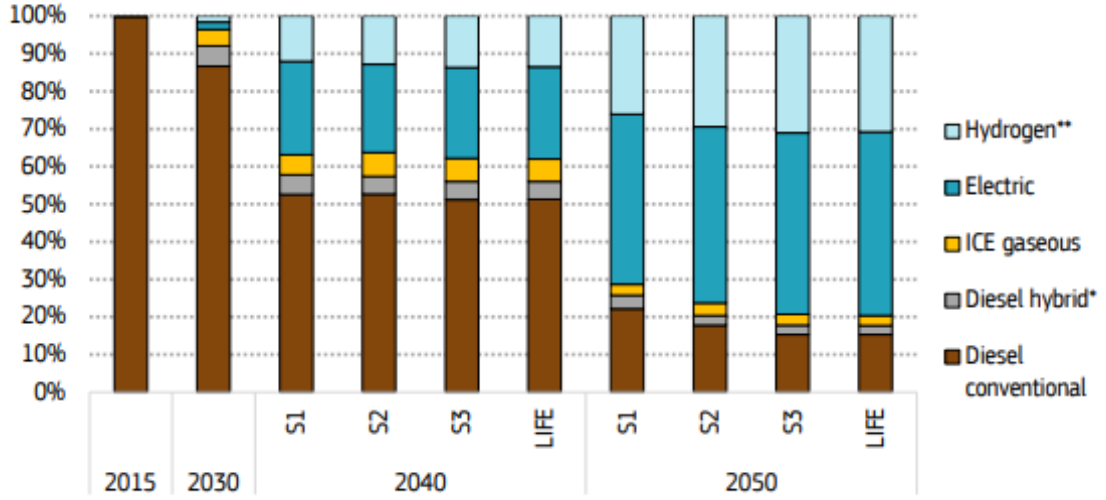


Figure 69: Distribution of the EU HGV stock by type of drivetrain



*Note: *Diesel hybrid vehicles include plug-in hybrids. **Hydrogen vehicles include fuel-cell vehicles and hydrogen ICE vehicles.*

Source: PRIMES.

Source: SWD EU 2040 climate goals proposal

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TOYOTA - STRATEGY

TOYOTA

MULTI-PATH FOR ENERGY AND MOBILITY

OFFERING A VARIETY OF VEHICLES

RENEWABLE ENERGY

PLANT CAPTURED CO_2

INDUSTRIALLY CAPTURED CO_2

CRUDE OIL NATURAL GAS

WATER

ELECTRICITY | BIOFUEL | E-FUEL | FOSSIL FUEL | HYDROGEN

ELECTRICITY

CARBON NEUTRAL FUEL

HYDROGEN

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HOW TOYOTA SUPPORT HYDROGEN DEVELOPMENT ?

FCEV

Fuel Cell Electric Vehicle

FC MODULE BY TOYOTA

B2B

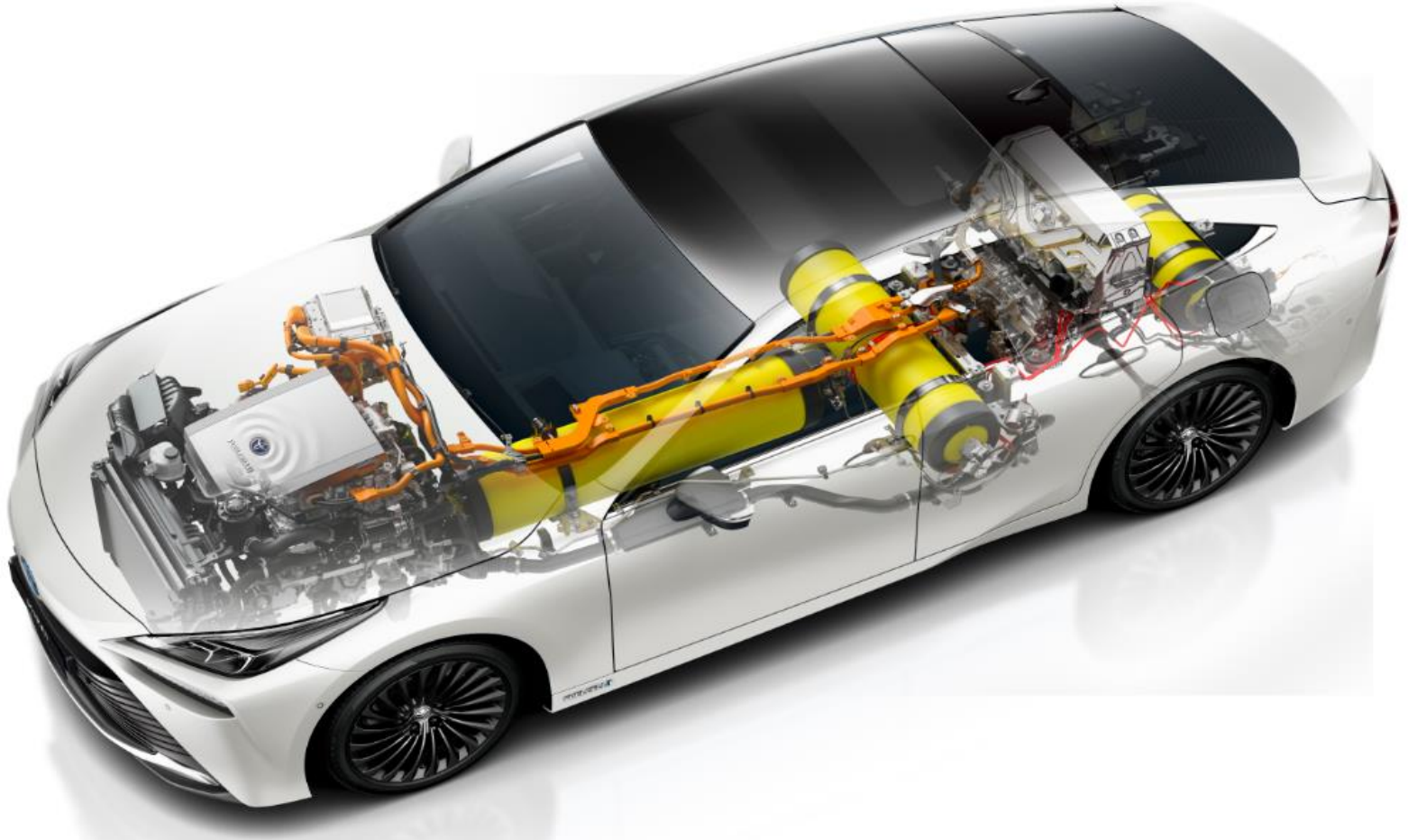
FC VEHICLES BY TOYOTA

FCEV

HYDROGEN ECO SYSTEM

TOYOTA

TOYOTA MIRAI
COMPONENTS



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OVER 20
ACTIVE PARTNERSHIPS

PC

BMW

STATIONARY

EODev

H2Energy

MARITIME

Energy Observer

Corvus EnergY

BUS

CaetanoBus

Mercedes-Benz

TRUCK

VDL

Hyliko

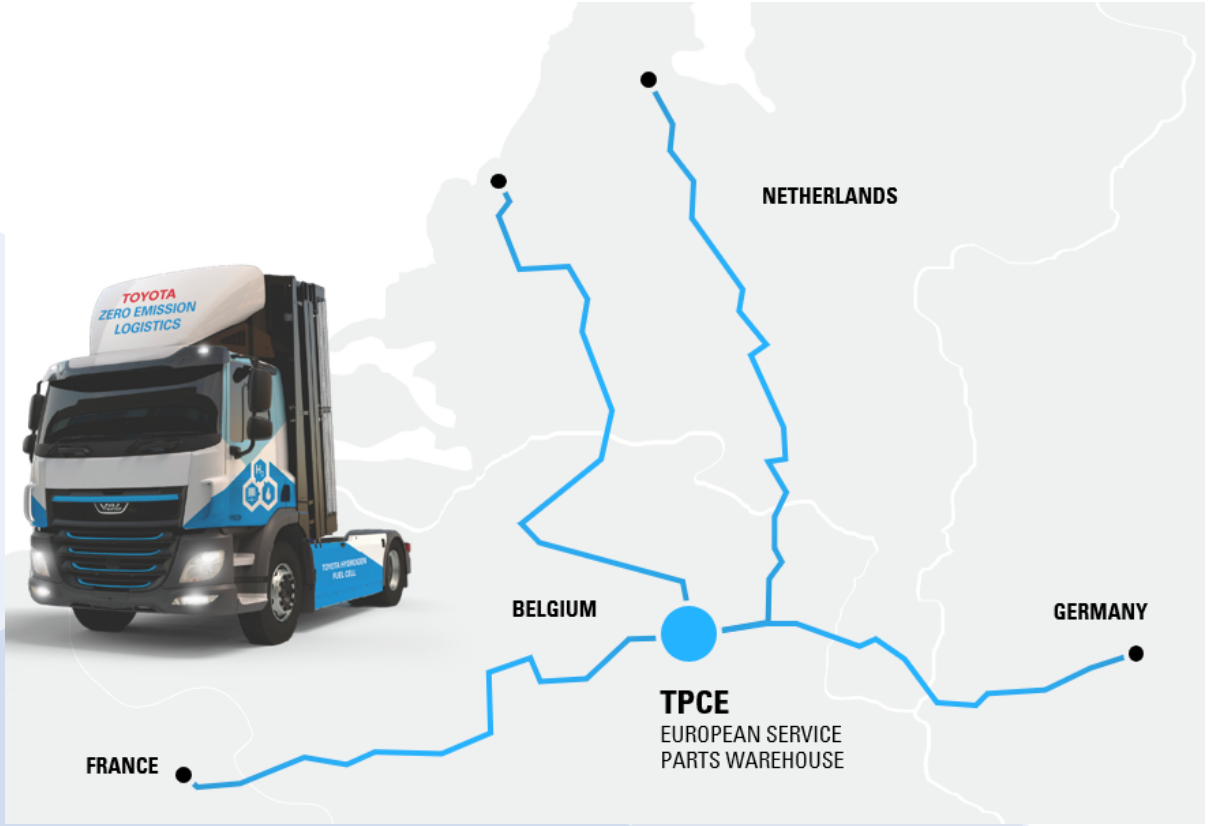
TRAIN

FCH2Rail

TOYOTA

TOYOTA IS WALKING THE TALK ON FC TRUCKS

WE ARE REPLACING DIESEL TRUCK WITH NO COMPROMISE ON OPERATIONS



> 80,000 km driven by 4 trucks since May 2025

4 logistics partners covering routes across **4 countries**

Based on **real life data** the range is **> 400 km**

9 Hydrogen refueling stations used across various routes to test the network

> 80,000 kg CO_2 emissions avoided compared with diesel

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THANK YOU