

**CIMC • HEXAGON**

a hydrogen venture

CIMC – Hexagon  
Hydrogen Joint venture briefing

March 2021

**CIMC | 中集安瑞科**



# Agenda

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- Snapshot of the JV agreements
- Presentation of JV products and services
- Compelling industrial partnership
- Market prospects
- Strategic significance

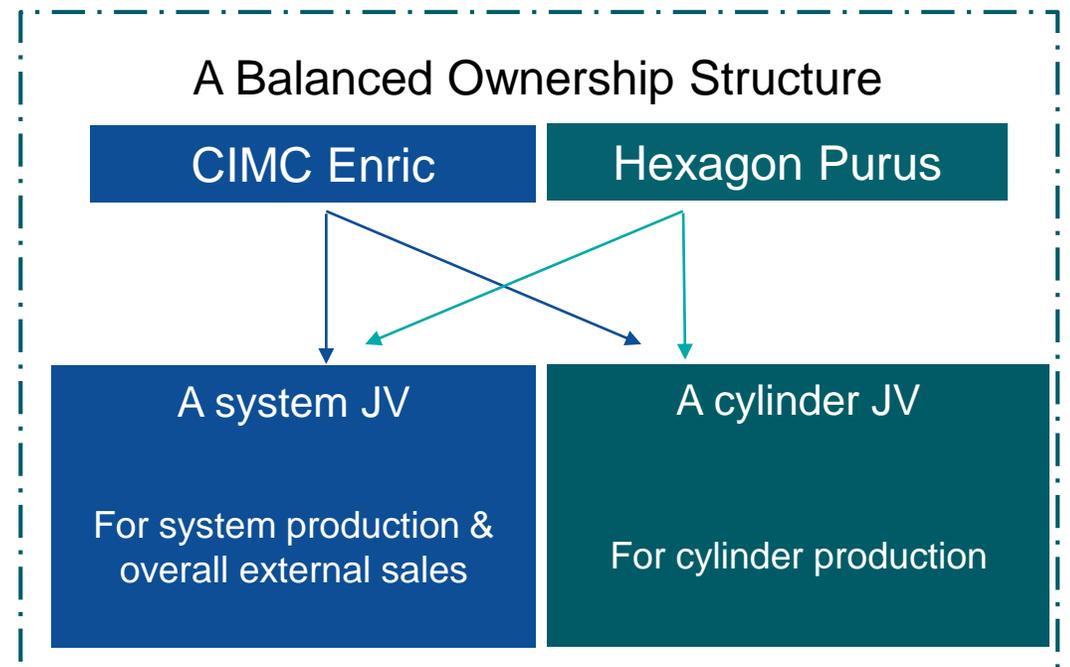
# Snapshot of Joint Venture agreement

- Chinese market for Fuel Cell Electric Vehicles (FCEV) is expected to grow rapidly to become **the largest global market over the next decade**
- **CIMC Enric and Hexagon Purus** have signed Joint Venture (JV) agreements to provide **safe, lightweight and cost-efficient compressed hydrogen fuel storage for vehicles and distribution solutions** to meet the fast-growing market demand in China and Southeast Asia.
- JVs will have two dedicated operating entities: **a cylinder JV and a system JV**
- Type 3 (T3) cylinder capacity will be built through upgrading of existing production facilities - **revenues expected from T3 fuel storage in 2021.**
- Construction of the T4 cylinder facilities are expected to commence as early as the second quarter 2021.
- Manufacturing lines designed for approximately **100,000 cylinders per annum in a first stage**, towards the middle of the decade

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# Products presentation

From Type IV tank manufacturer to solutions provider



Fiberglass/carbon full wrap, plastic liner

T4 high-pressure vessels for hydrogen are made of carbon fiber.

They are available in the pressure levels 250, 300, 350, 500, 700 and 950 bar.

Fuel storage and delivery systems



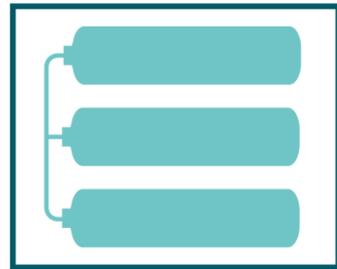
# Products and services

## Hydrogen storage cylinders and cylinder systems

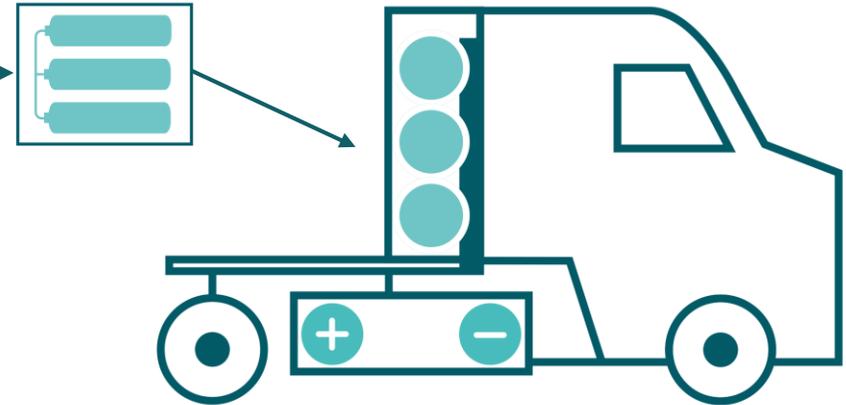
Compressed hydrogen  
Type 4 cylinders



Cylinder systems



*Example of cylinder systems  
integrated onto a fuel cell truck*



*Selection of applications for hydrogen cylinders and cylinder systems*



Heavy-duty vehicles



Light commercial vehicles



Transit buses



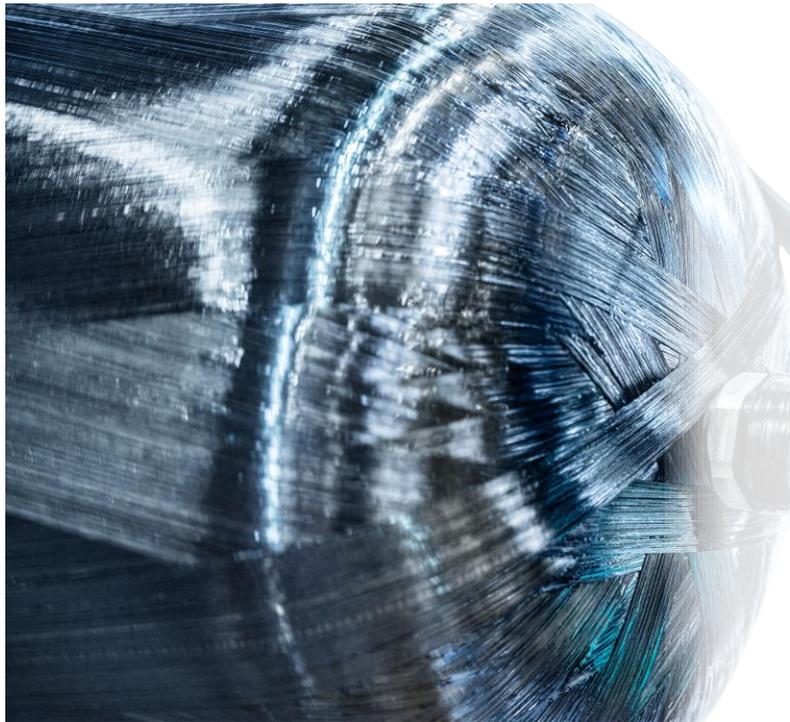
Light-duty vehicles



Distribution modules

# Local production of advanced T4 cylinders in China

## Hexagon Purus delivers state-of-the art Type 4 technology



**NON-CORROSIVE:**  
Polymer liner is corrosion free



**GOOD FATIGUE STRENGTH:**  
High-strength carbon fibre construction reduces impact damage and fatigue



**LEAK-FREE:**  
Precision-machined valve interface to ensure leak free operations



**LIGHTWEIGHT:**  
Reduces vehicles mass and enhances handling and driveability

<b>Cylinder technologies</b>	 <p>TYPE-3 All carbon full wrap metallic liner</p>	 <p>TYPE-4 Fiberglass/carbon full wrap, plastic liner</p>
<b>Description</b>	Fiber composite cylinder with aluminum lining	Fiber composite cylinder with plastic lining
<b>Total cost of ownership</b>		 <p>Lower</p>
<b>Storage density</b>		 <p>Higher</p>
<b>Mobility applications</b>		

Type 4 cylinders - safer, lighter, higher density, lower cost

Source: Company, third-party consultant

# Compelling industrial partnership

## CIMC ENRIC 中集安瑞科

- Advanced intelligent manufacturer in clean energy industry.
- Trusted and reliable energy equipment brand in China, involved in hydrogen storage and distribution sector since 2006.
- Chinese leader in LNG cylinders
- Strong relationships with vehicle OEMs, gas distributors and regulators in China.
- Successful track record of international alliances
- SEHK listed company (3899.HK)
- <http://enricgroup.com/>



- Global leader in Type 4 pressure vessel technology, a key enabler for growth in the Chinese FCEV market
- State-of-the-art design of fuel systems for hydrogen, battery electric and hybrid mobility applications
- Expertise spans light, medium and heavy-duty vehicles, ground storage, distribution, marine, rail and backup power solutions
- Solid track record of innovating with global vehicle OEMs on FCEV projects
- Oslo Stock Exchange listed company (stock ticker: HPUR)
- <https://hexagonpurus.com>

## CIMC - Hexagon goals

- **Accelerate** the adoption of zero emission mobility
- **Reduce greenhouse gas emissions** and **improve** air quality
- **Together** become the **largest provider of hydrogen storage for Fuel Cell Electric Vehicles (FCEVs)** and **distribution solutions** in China and Southeast Asia

# Industry policies and planning in China

## Hydrogen defined as energy

In April 2020, hydrogen defined **as an energy source** by "Energy Law of the PRC (Draft)" published by the NEA. **The energy status of hydrogen was solidified in the top-level design.**

## FCEV reward incentive policy released

on April 23, 2020 by the Ministry of Finance, the Ministry of Industry and Information Technology, the Ministry of Science and Technology, and NDRC jointly release the **"Hydrogen Incentive policy", using reward instead of subsidy**

## The group standard for T4 cylinder implemented

The China Association for Technical Supervision and Information issued **T/CATSI02007-2020 "Carbon Fibre Fully Wrapping Cylinders with Compressed Hydrogen Plastic Liner for Vehicles"** in OCT. 2020, which stipulates the type, parameters, technical requirements, and transportation of T4 cylinders. National standard under developing now.

## 10 provinces and Shanghai 14<sup>th</sup> "Five-Year Plan" cover H2 development

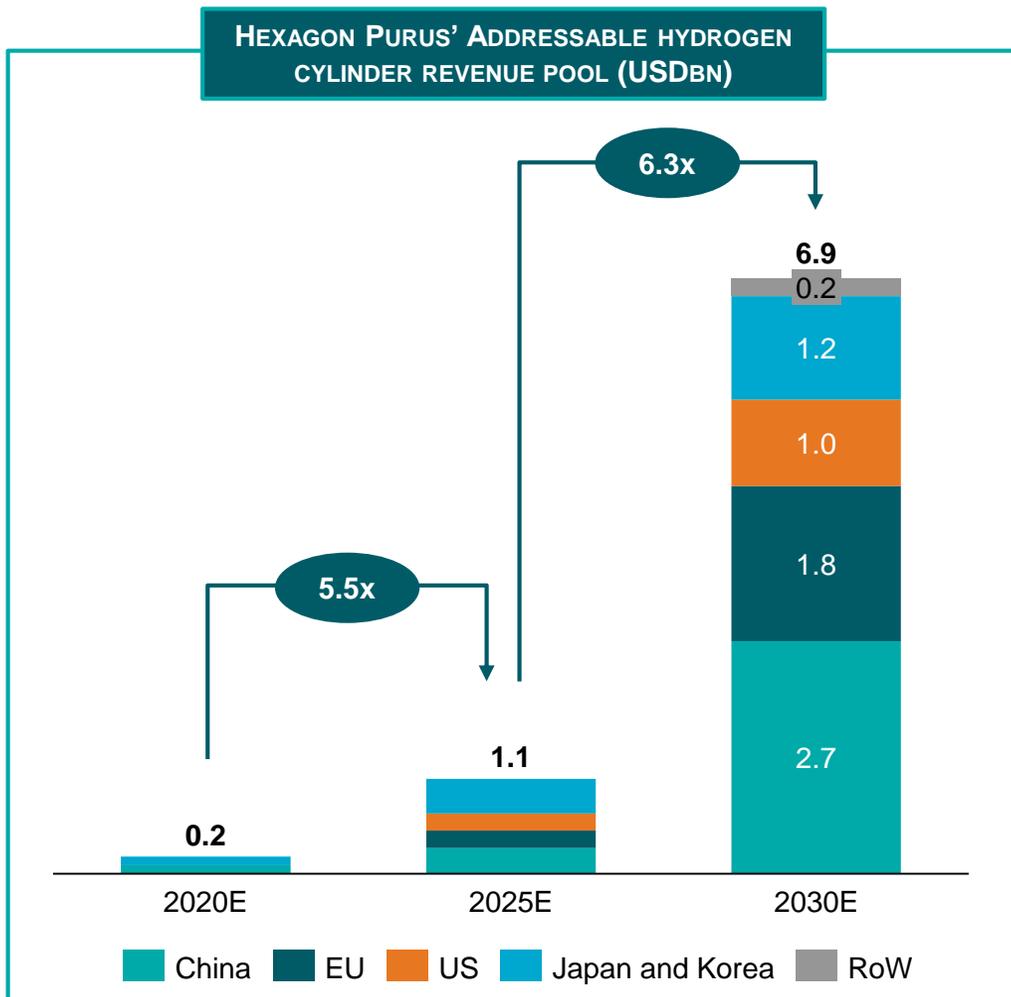
Including Guangdong, Shanghai, Hebei, Shaanxi, Jilin, Liaoning, Shandong, Guizhou, Guangxi, Inner Mongolia and Gansu). There have **been 7 related policies issued by the central government, and a total of 30 related policies issued by 22 provinces and cities**

## China to be the largest global FCEV market

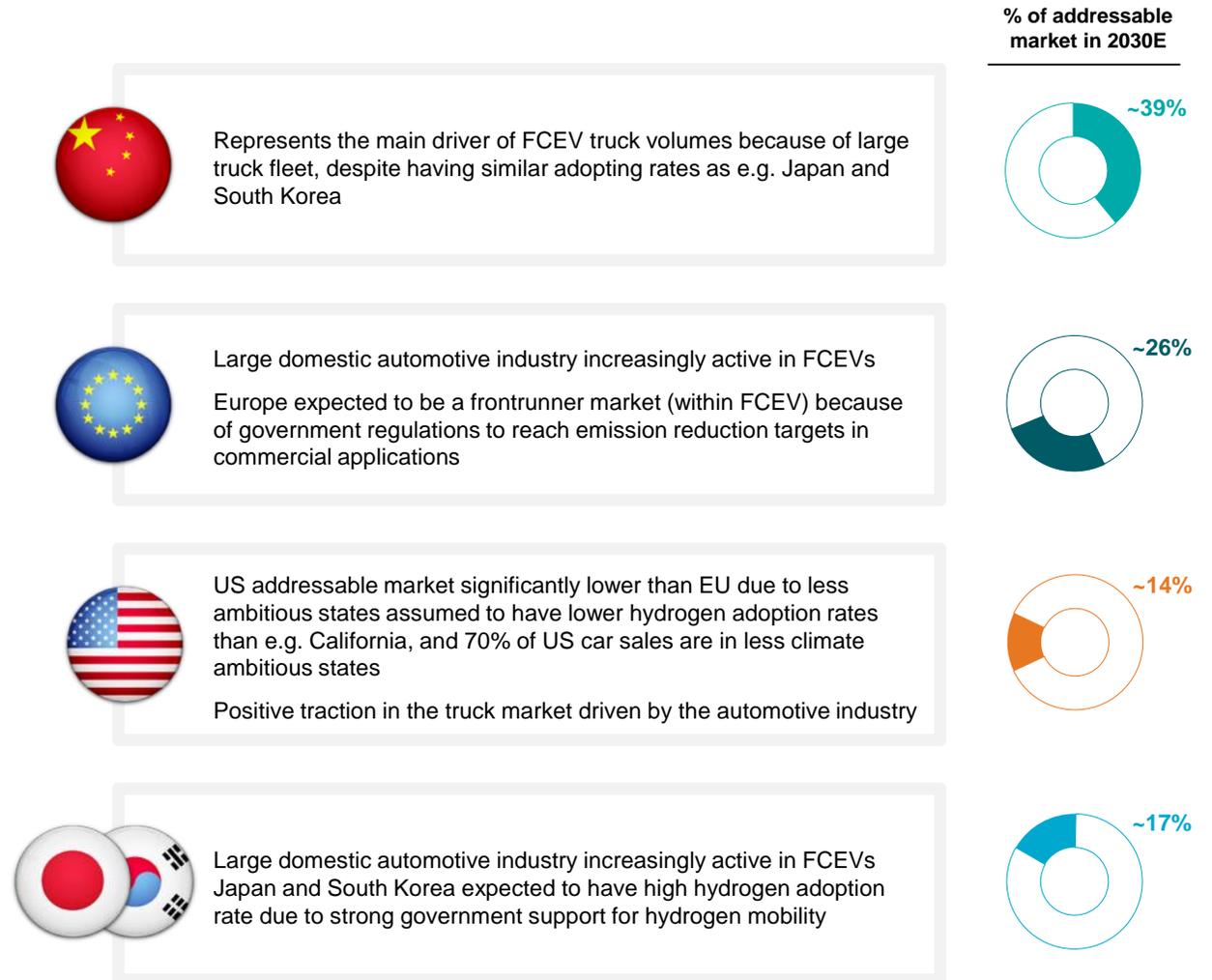
**China to be the largest FCEV market with exponential growth over the next decade and beyond.**  
2035 – planned 1.3 m FCEV and 1,000 hydrogen refuelling stations in China\*  
2020 - only 7,355 FCEVS and 118 hydrogen refuelling stations in China by the end of 2020.

\*According to the "White Paper on China's Hydrogen Energy and Fuel Cell Industry"

# China is expected to be the largest market, followed by EU and the US

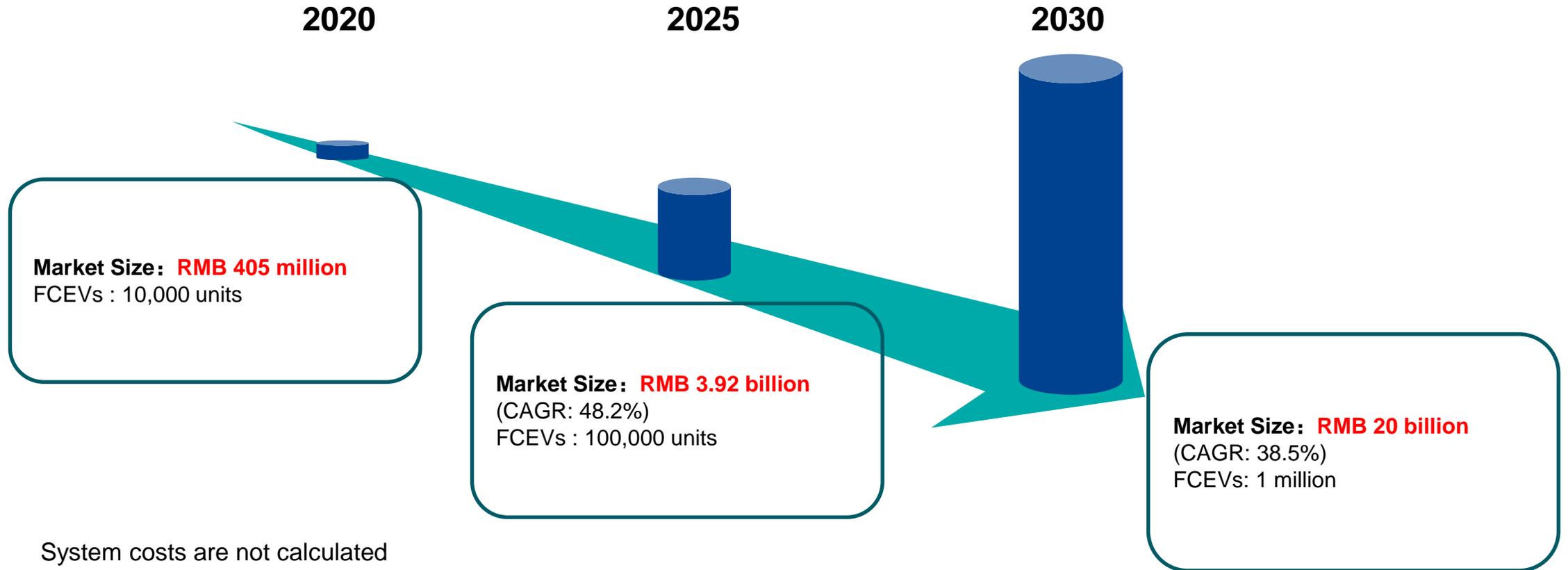


Source: Company, third-party consultant



# Market prospects

## Promising market size of on-vehicle high-pressure hydrogen cylinders in China



- System costs are not calculated and included
- Source: Trend Bank

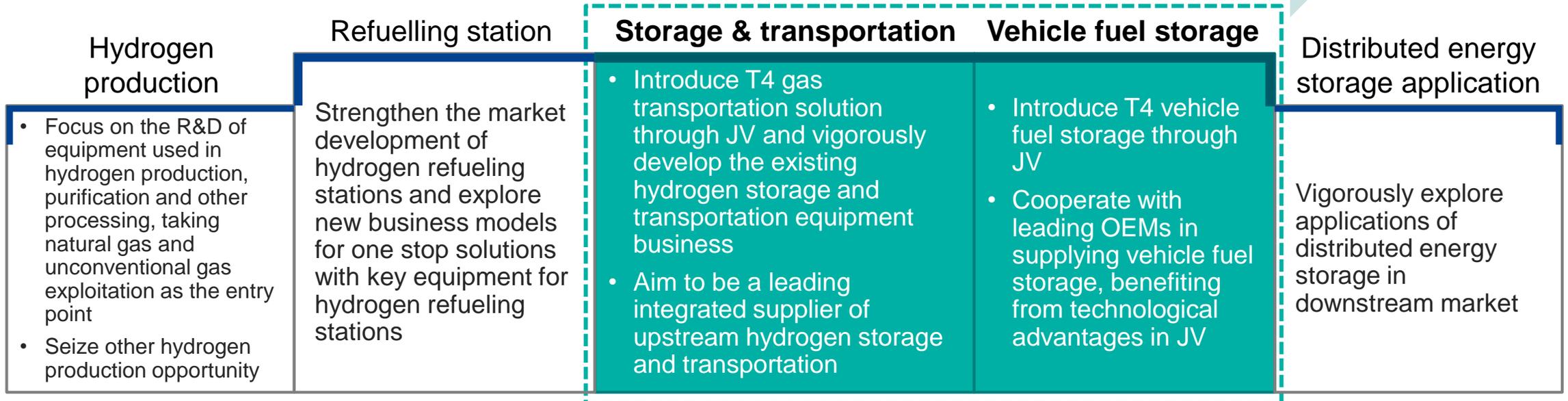
# JVs' business scope in CIMC Enric's hydrogen roadmap

## Driving China's clean energy transformation

Hydrogen business as one of major growth drivers for CIMC Enric in the future

Localization of world-advanced T4 cylinder technology & production

First-mover advantages upon China's huge FCEV opportunities



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