



JM

Johnson Matthey
Inspiring science, enhancing life

Johnson Matthey and Plug Power:

Strategic partnership to accelerate
the hydrogen economy

31st January 2023

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Delivering a key strategic milestone in Hydrogen Technologies



JM and Plug agree long-term **strategic partnership**



Partnership covers

- Extension of supply of existing products from 2023
- New supply and joint development agreement to at least 2030
- Co-investment in new US manufacturing capacity of 5GW scaling to 10GW over time

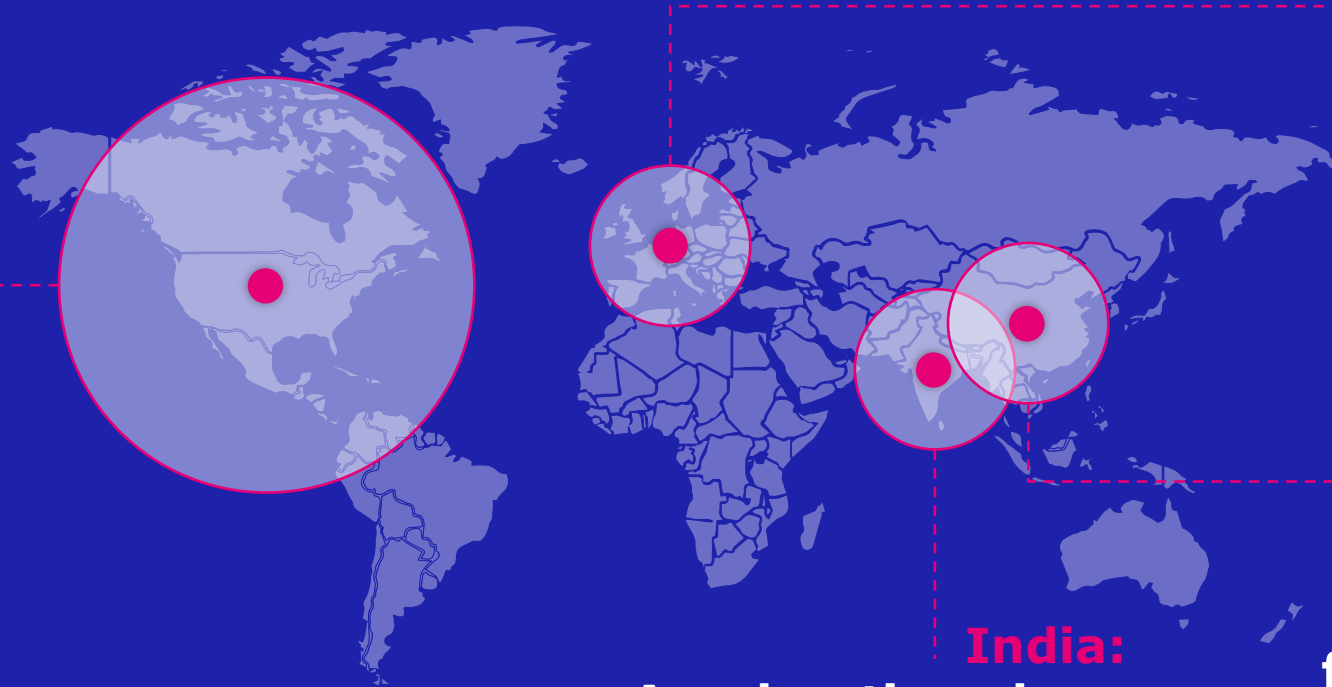


Underpins targeted sales in Hydrogen Technologies of more than **£200m by the end of 2024/25**, and an acceleration of growth thereafter

The global hydrogen market is accelerating

Key markets:

US:
Inflation
Reduction Act
transforming
clean energy
markets



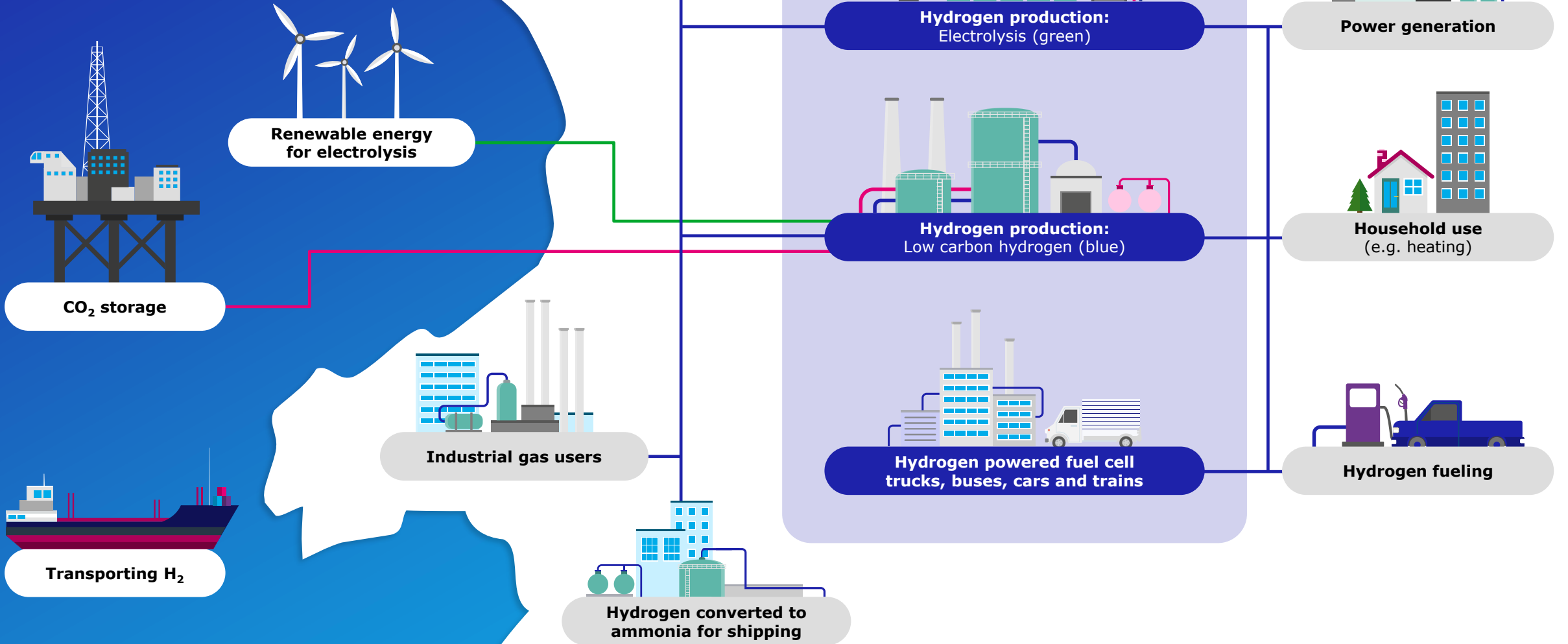
Europe:
Geopolitics
increasing desire
for energy
security

India:
Accelerating clean
energy transition

China:
Government driving
fast-paced change to
meet net zero

**Clean hydrogen demand is expected to grow
more than one hundred fold in the 10 years to 2030¹**

Developing the hydrogen economy



PGM based raw materials

#1 global refined PGM supplier and secondary recycler



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Components

CCMs drive performance in the fuel cell and electrolyser

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Proton exchange membrane (PEM)

Catalyst coated membrane (CCM)

Membrane electrode assembly (MEA)



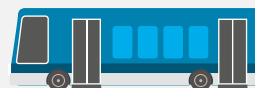
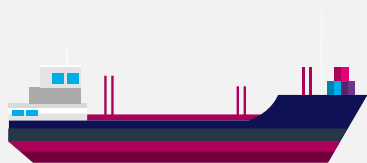
Catalysts

Sealed CCM

PGM recycling - closed loop objective

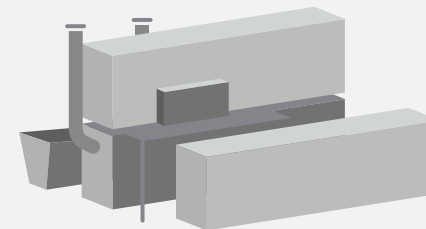
JM and Plug partnership accelerates deployment of fuel cells and electrolysers

Applications

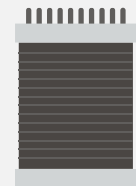


Stack assembly

to make fuel cells and electrolysers



Electrolyser



Stack

A collaborative relationship to accelerate growth

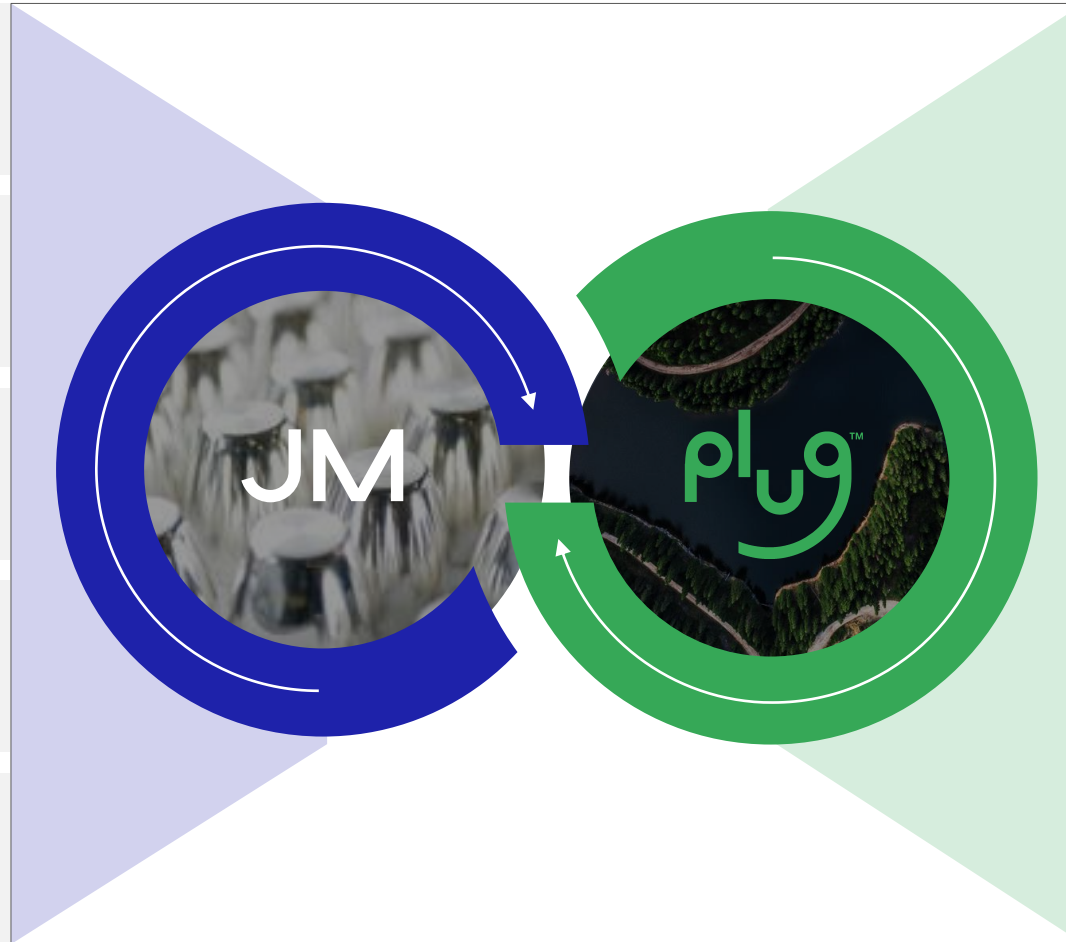
Established hydrogen fuel cell business

Expertise in PGM chemistry and catalysis

Existing manufacturing with extensive process development

Reliable supply of scarce, critical metals

Leading PGM recycler with objective to provide closed loop offering



A leading provider of turnkey hydrogen solutions for the global green hydrogen economy

Key customer relationships:



Strong demand targeting sales of US\$5bn by 2026 and US\$20bn by 2030

Strong balance sheet with over US\$3.5bn in cash and liquid investments to execute on growth objectives



Strategic
partnership
leverages
JM and Plug's
expertise

JM to be a **lead supplier** of MEA components including CCMs, catalysts and membranes – supplying a substantial portion of Plug's demand

Supports delivery of Plug's next generation technology roadmaps

Supply and joint development agreement to at least 2030

Supply of **existing products from 2023**, and **future generations** of technology

JM contributing expertise in **sourcing, managing and recycling PGMs**

Co-investment into new manufacturing capacity in the US – expected to be the largest CCM production facility in the world

Co-investing into dedicated capacity in the US



Building new plant in US, with capacity of **5GW scaling to 10GW** over time
Production expected to commence **2025**



Plug responsible for **construction of the building** and **related site services**



JM will **provide** and **operate the equipment**



JM investment broadly included within **£1bn** group capex guidance to 2024/25



Andy Marsh

CEO Plug Power

Strategic benefits reach beyond the partnership



Provides JM access to Plug's strong commercial function, selling stacks directly to the customer



Plug is the leading company developing the hydrogen value chain



Growing and expanding into new markets



Demonstrates the benefits of partners specialising in areas of expertise

Strategic partnership to accelerate the hydrogen economy

01

Delivering on
**key strategic
milestone**

02

Step-change
in development
of Hydrogen
Technologies

03

Significant proof
point of JM's ability
to be **leading
global supplier**
of CCMs

04

Underpins targeted sales
of **more than £200m** in
Hydrogen Technologies
by end of 2024/25, and
an acceleration of growth
thereafter

Catalysing the net zero transition



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Q&A
