

# What in the World Is Happening with Hydrogen?

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**Hydrogen**  
Council



# If You Haven't Noticed Hydrogen is on the Rise

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- \$500B in new project announcements
- Extensive policy and funding support
- Many major players engaged
- Widespread recognition of the need



# Life takes Energy Hydrogen lets life flow

- Today 15% Electrons 85% molecules
- Flow of energy in time and space takes carriers
- Hydrogen is the last stop on our journey



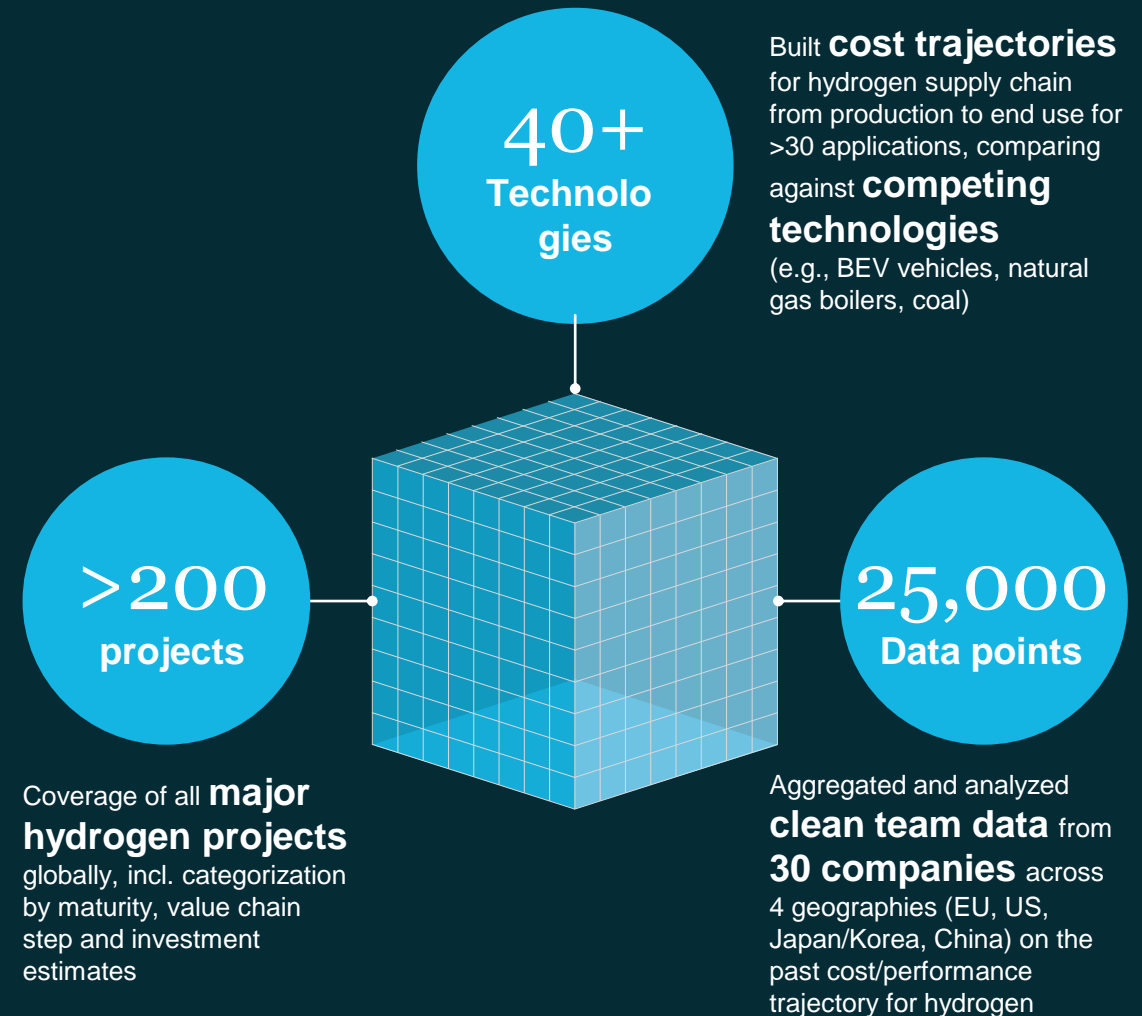
# Hydrogen Insights is developed by the Hydrogen Council and McKinsey...

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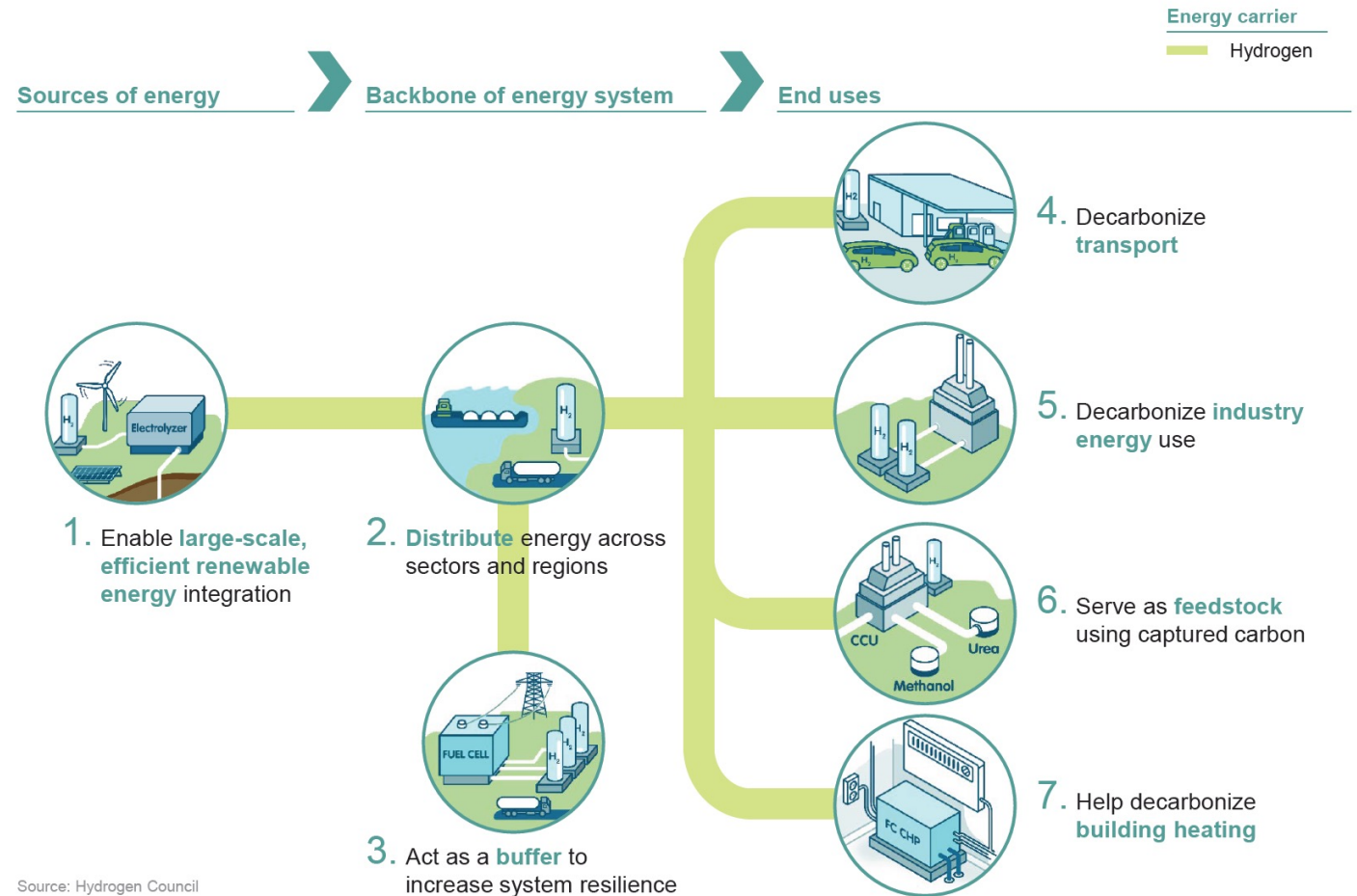
McKinsey  
& Company



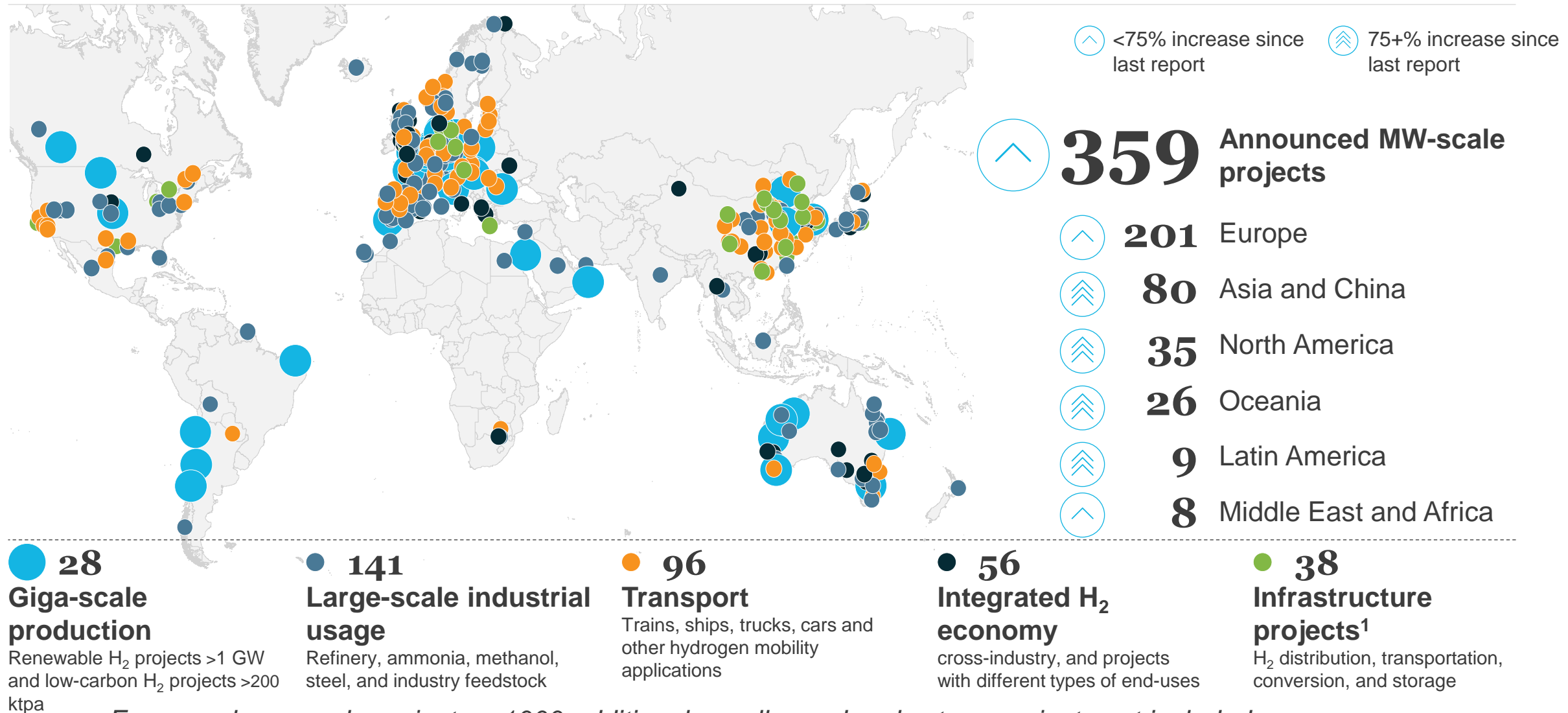
...and covers investments, scale-up and cost competitiveness of hydrogen



# Hydrogen Delivers Seven Critical Functions for a new energy world



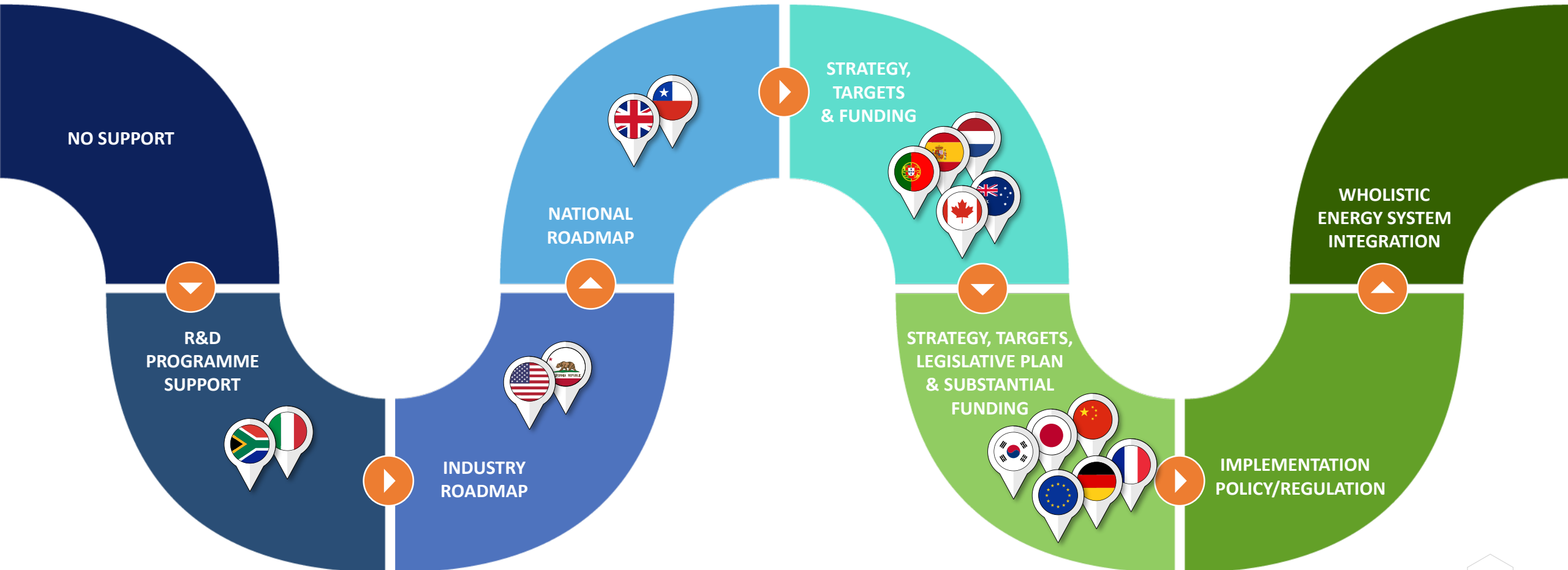
# 131 large-scale projects announced since January – Europe continues to lead with more than half of all projects



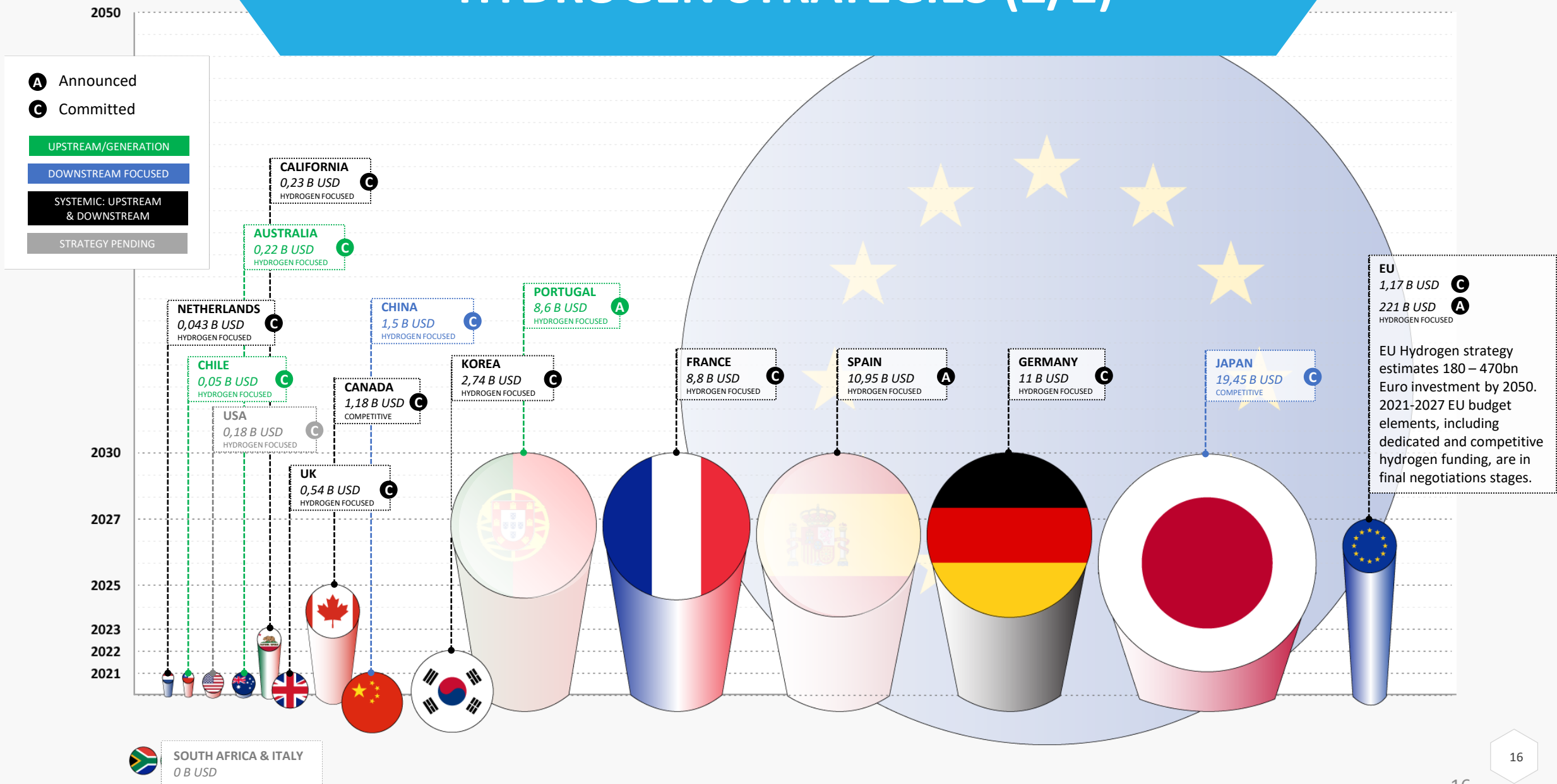
*Focus on large-scale projects, >1000 additional, smaller and early stage projects not included*

1. Includes 9 hydrogen production projects in China without announced end-use

# HYDROGEN STRATEGIES (1/2)

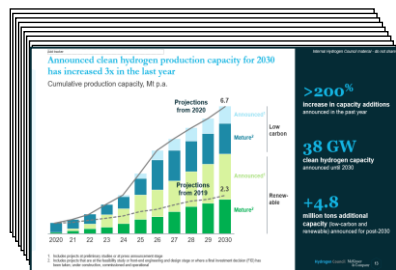


# HYDROGEN STRATEGIES (2/2)





# The world of hydrogen has changed from the last publication to now



Status as of  
January 2021



Hydrogen Insights

Update  
July 2021



228

large-scale projects<sup>1</sup> announced worldwide



70

bn USD pledged by governments for development of hydrogen economy



37 GW

electrolyzer announcements globally

1. Focus of the project tracker are large-scale hydrogen projects; there are >1000 additional hydrogen projects at smaller scale that are tracked here



359

large scale projects announced worldwide



76

bn USD pledged by governments for development of hydrogen economy

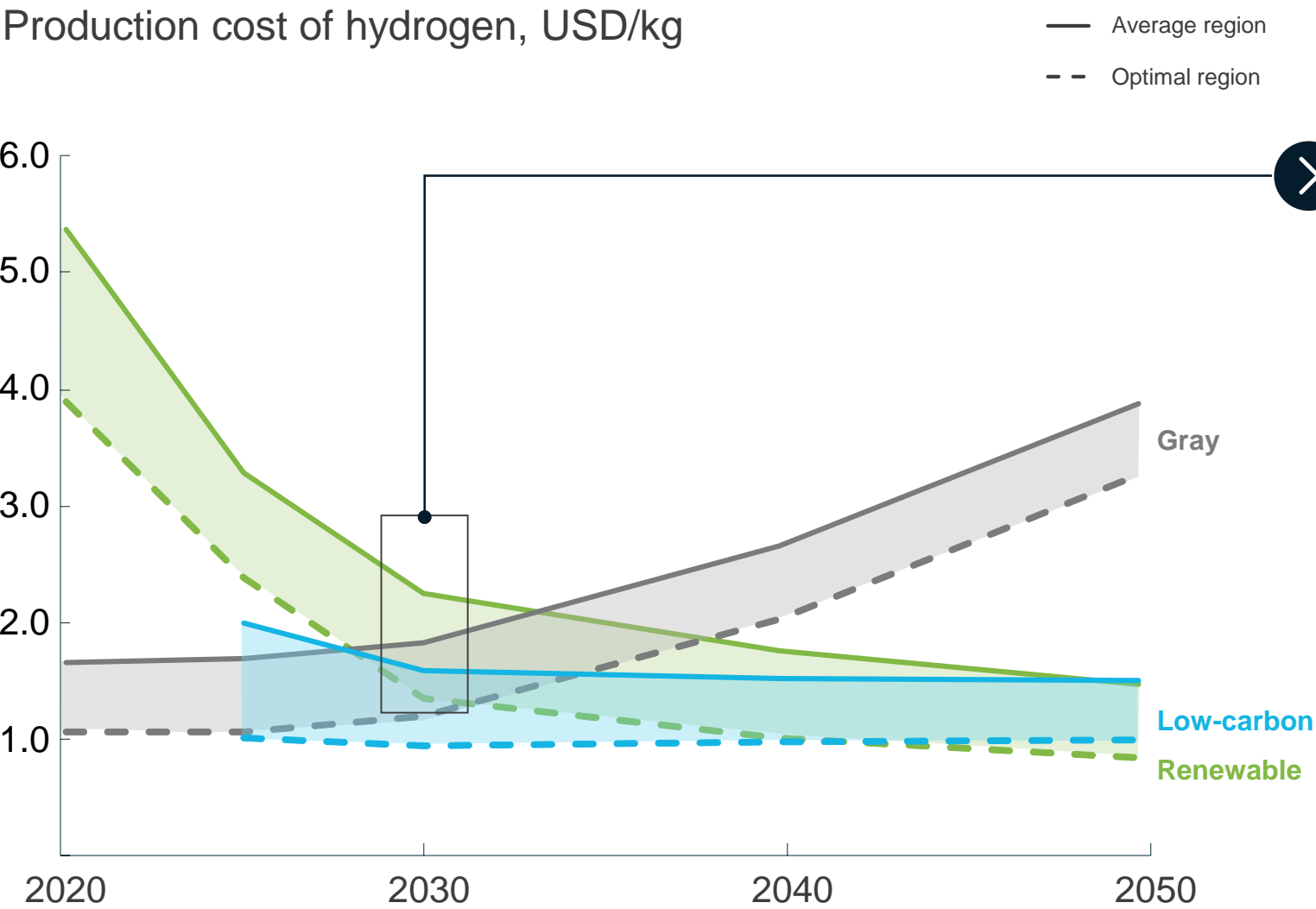


69 GW

electrolyzer announcements globally, +90 GW on initiatives/studies (e.g. 67 GW HyDeal)

# Introducing CO<sub>2</sub> costs can bring the earliest breakeven for clean hydrogen to 2028–34

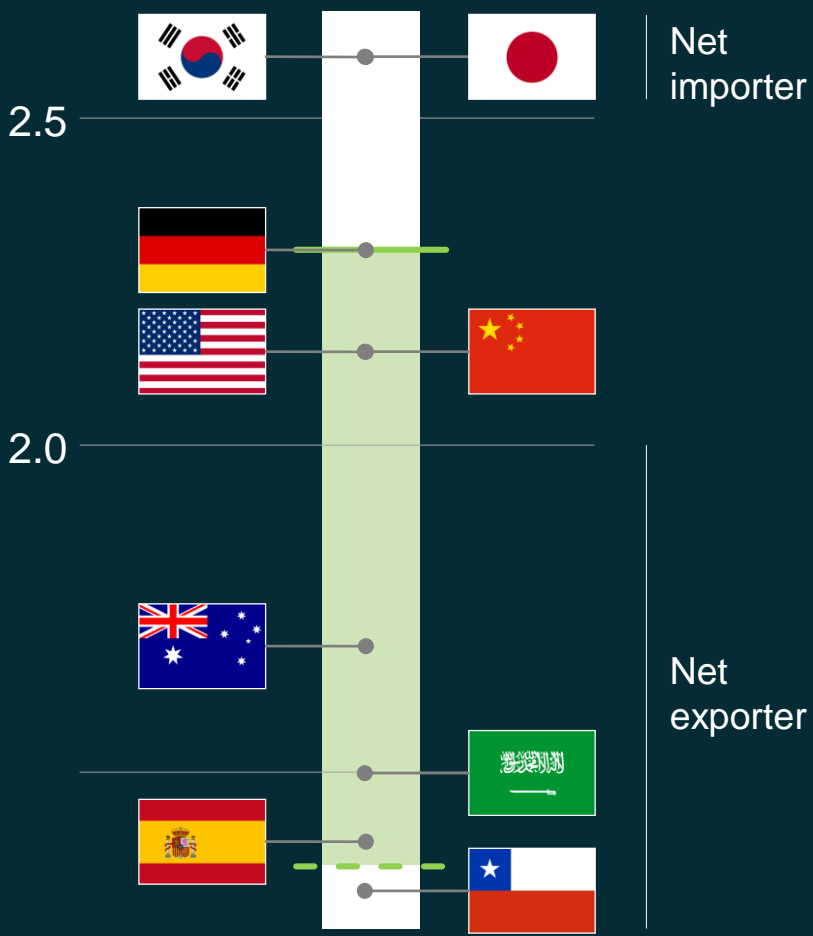
Production cost of hydrogen, USD/kg



**Key assumptions**

- Gas price 2.6–6.8 USD/Mmbtu
- Cost USD/Ton CO<sub>2</sub> 30 (2020), 50 (2030), 150 (2040) and 300 (2050)
- LCOE USD/MWh 25–73 (2020), 13–37 (2030) and 7–25 (2050)

## 2030 Renewable hydrogen cost USD/kg





# Where is your Hydrogen Story?

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- Cost trajectory is clear and attractive
- Complementary to renewables
- Fully localizable story
- Growing policy support around the world