



# Global Hydrogen Review 2021

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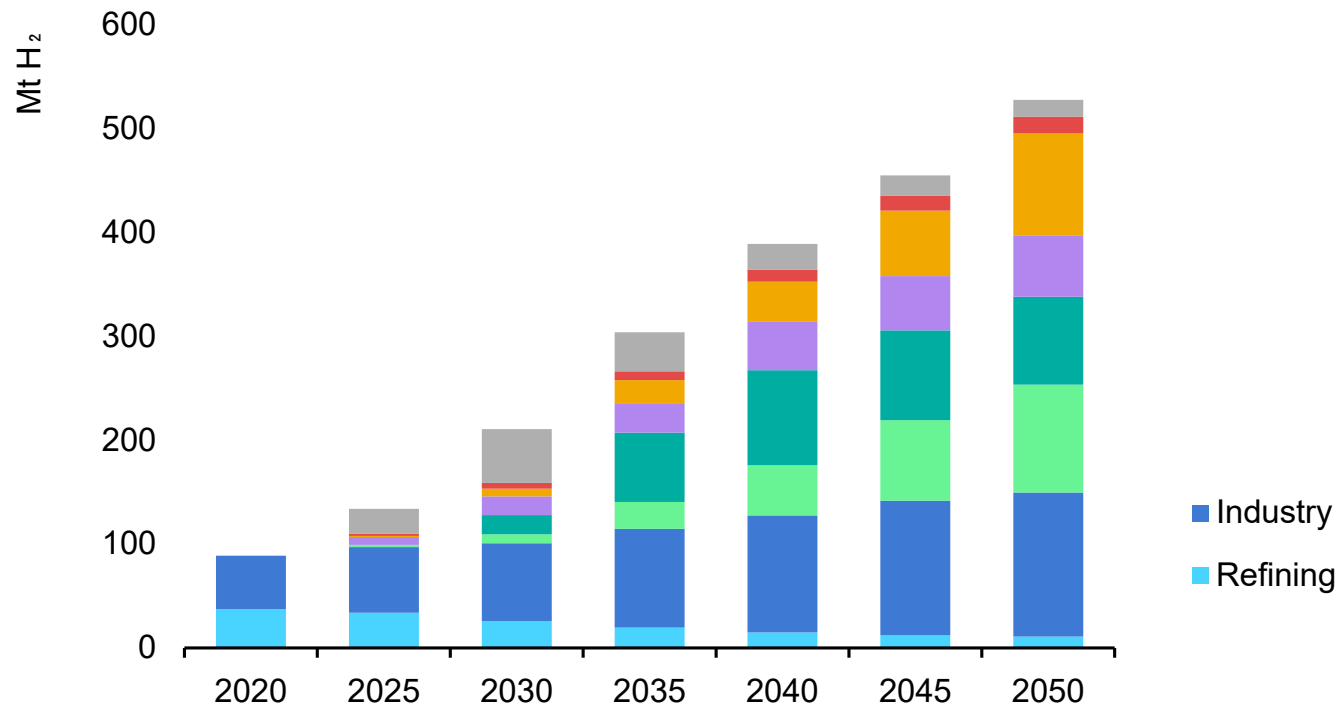
# From momentum to implementation

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- Hydrogen had many false starts but there are strong signals for the energy sector that this time could be different – momentum is turning into action:
  - A growing number of governments is defining the role of hydrogen in their energy strategies
  - Industry is moving to seize the opportunity and is increasing hydrogen-related investments
  - International cooperation has taken centre stage
- Many factors are at play that may explain the momentum; efforts to mitigate climate change and the growing number of net zero commitments are important factors
- The future for hydrogen looks bright but whether on-the-ground progress is fast enough and going in the direction required for hydrogen to play its part in addressing climate change is a key question

# Hydrogen is an important contributor to a net-zero energy system

Global demand for hydrogen by sector in the NZE, 2020-2050

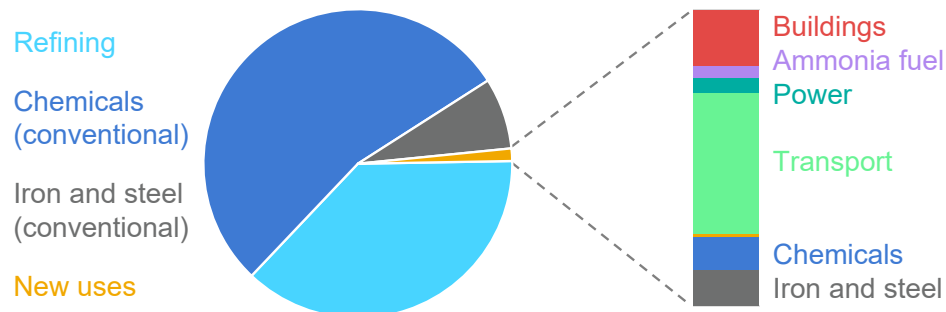


**In the NZE, hydrogen demand grows sixfold by 2050, with a critical role in particular in sectors such as industry and long distance transport**

# New uses for hydrogen are unlocking demand

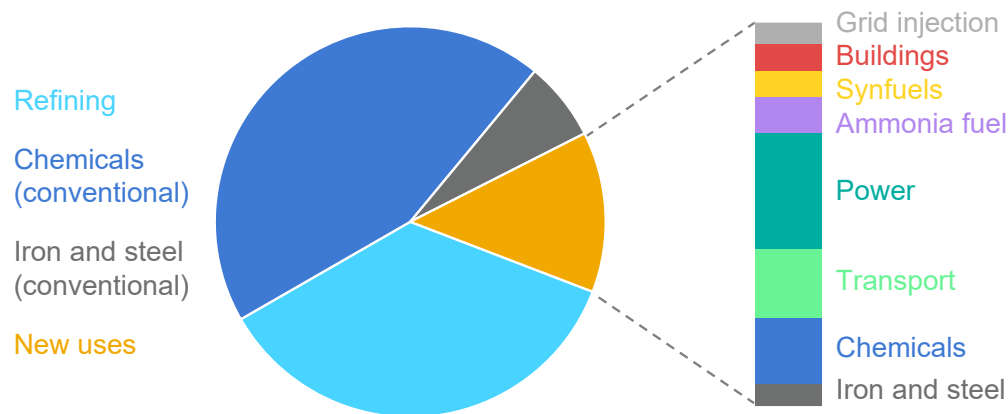
Under current trends, 2030

105 Mt of hydrogen



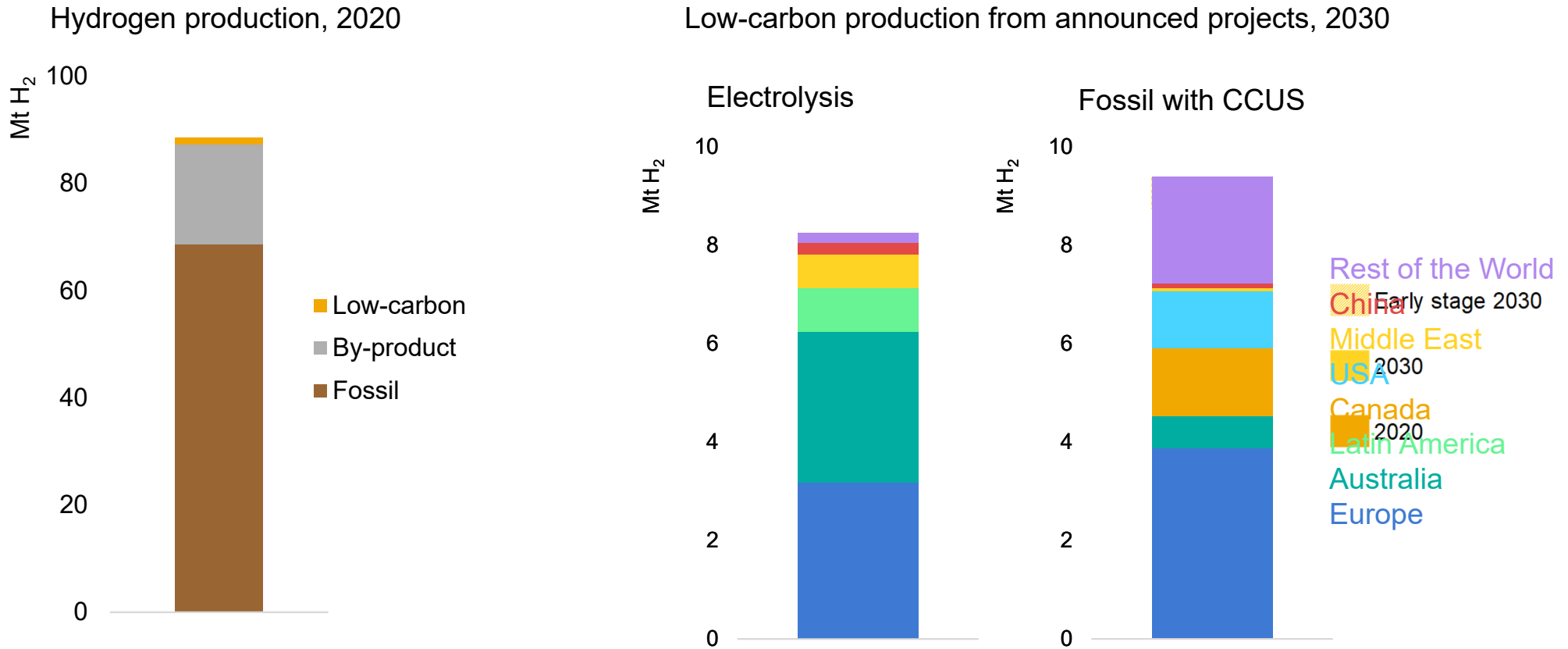
With government pledges, 2030

120 Mt of hydrogen



**The use of hydrogen is slowly expanding into new areas, but an expansion at the scale needed for net-zero emissions by 2050 will require more ambitious and concrete policy efforts**

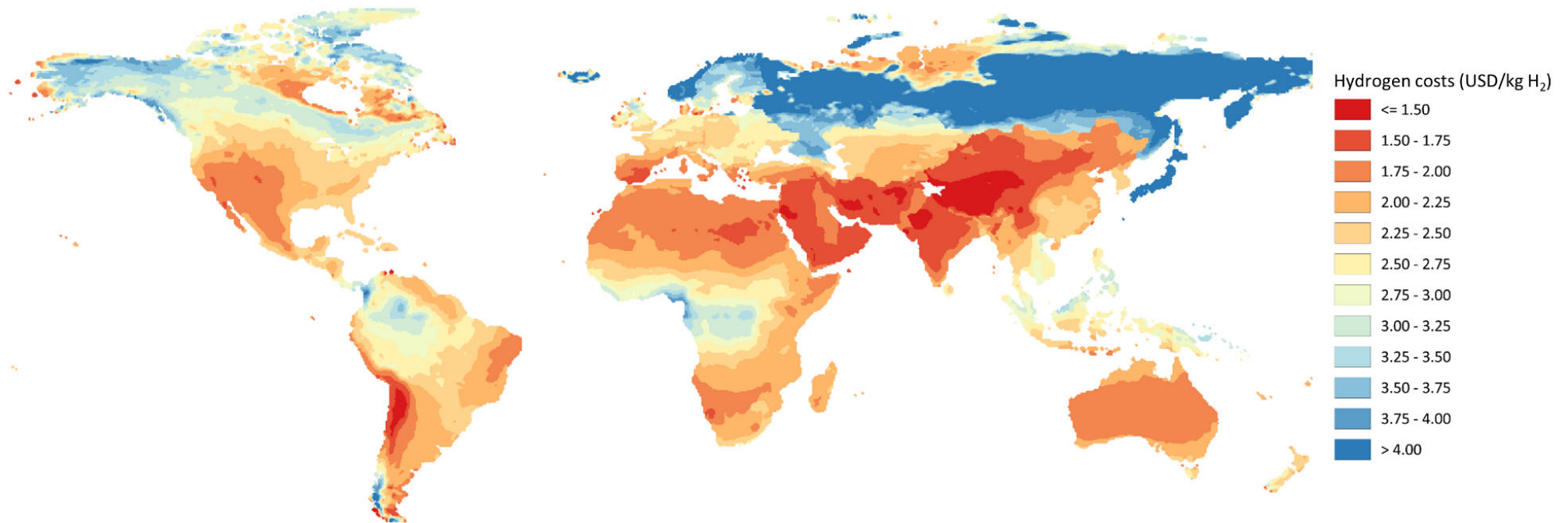
# The dawn of low-carbon hydrogen production



**Announced projects to produce low-carbon hydrogen are growing quickly, particularly in Europe, Australia, Canada, the United States and the Middle East. Around 17 Mt of low-carbon hydrogen could be produced by 2030**

# Low-carbon hydrogen costs are falling

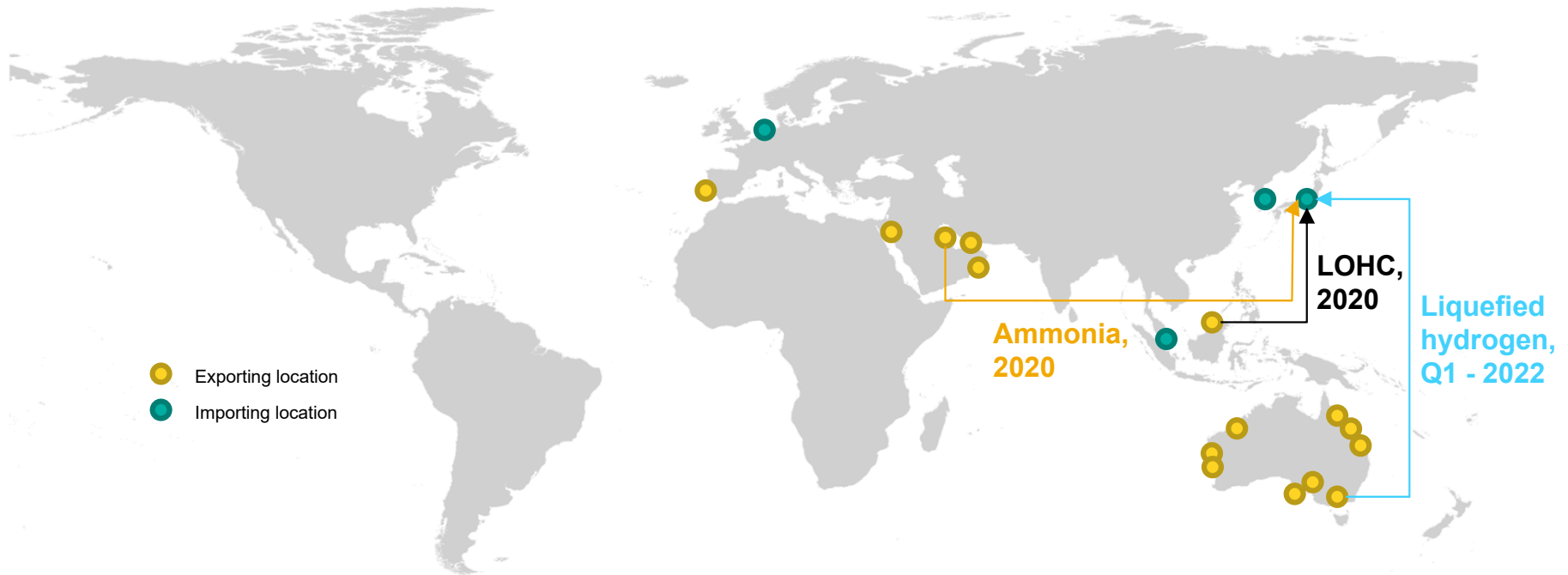
Hydrogen production cost from hybrid solar PV and wind systems in the NZE, 2030



**Ambitious policy for deployment can make hydrogen from electrolysis competitive with hydrogen from fossil fuels within this decade**

# The first steps for international hydrogen trade have been taken

Selected international hydrogen trade projects



**A global hydrogen market can help countries with limited domestic production potential and provide export opportunities for countries with good renewable resources or large CO<sub>2</sub> storage potential.**

- Develop strategies and roadmaps on the role of hydrogen in energy systems
- Create incentives for using low-carbon hydrogen to displace unabated fossil fuels
- Mobilise investment in production, infrastructure and factories
- Provide strong innovation support to ensure critical technologies reach commercialisation soon
- Establish appropriate certification, standardisation and regulation regimes



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