



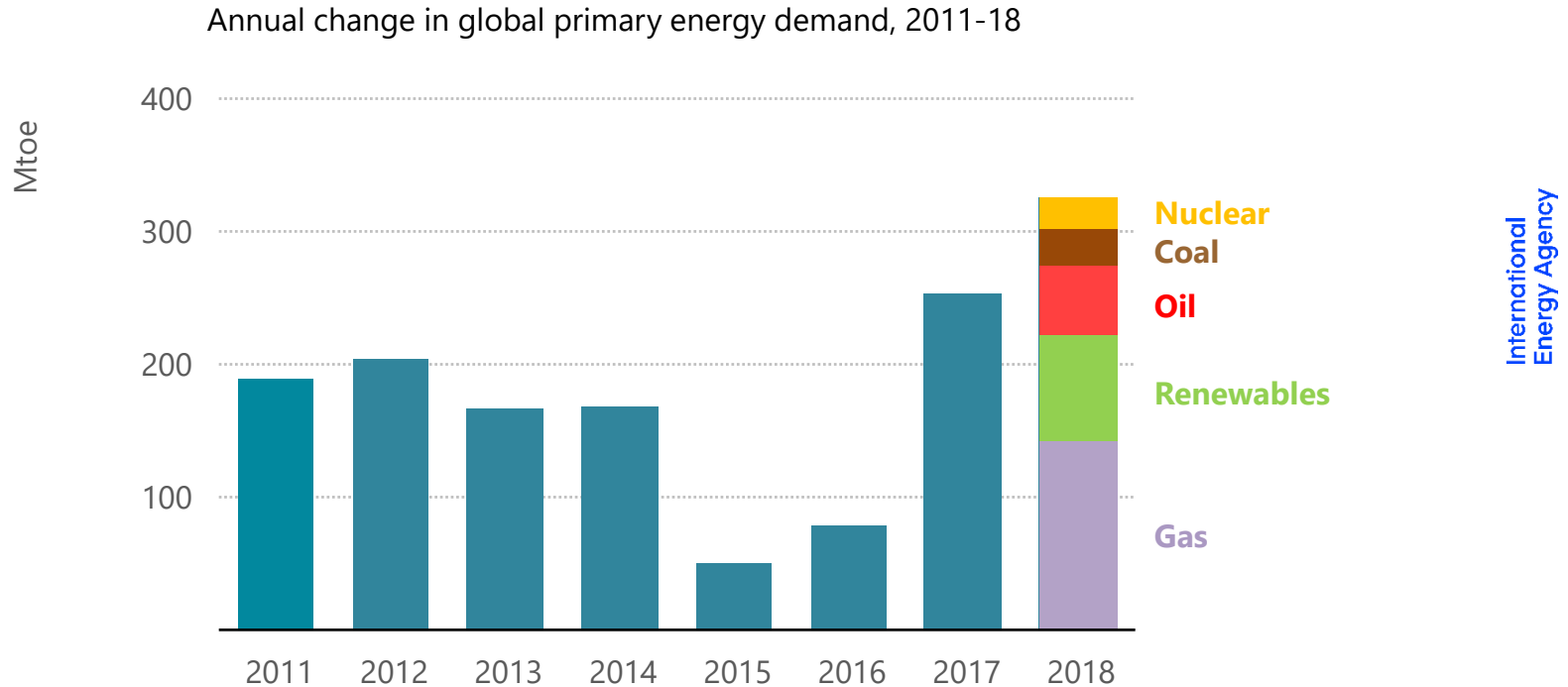
Hydrogen's role to tackle energy and climate challenges

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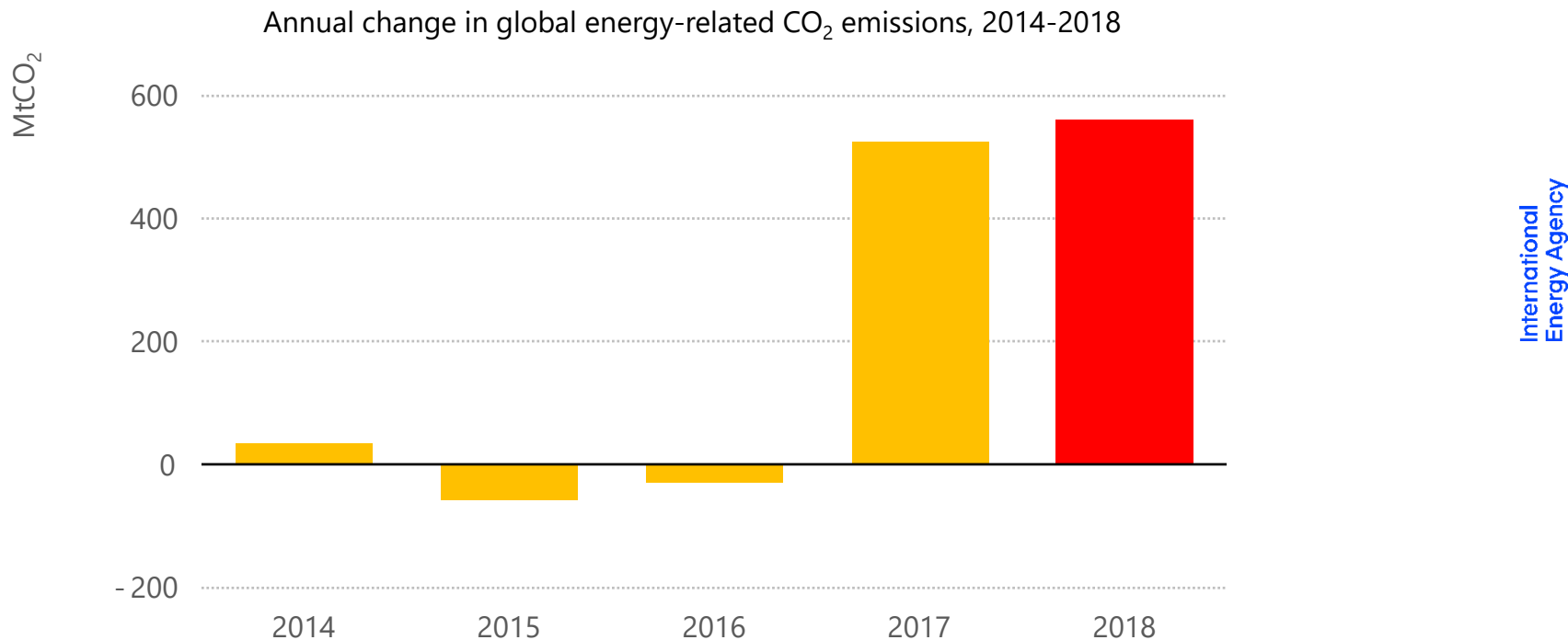
Rome, 10 October 2019

2018 – a remarkable year for energy



Global energy demand last year grew by 2.3%, the fastest pace this decade, an exceptional performance driven by a robust global economy, weather conditions and moderate energy prices.

Energy-related CO₂ emissions hit a record high...

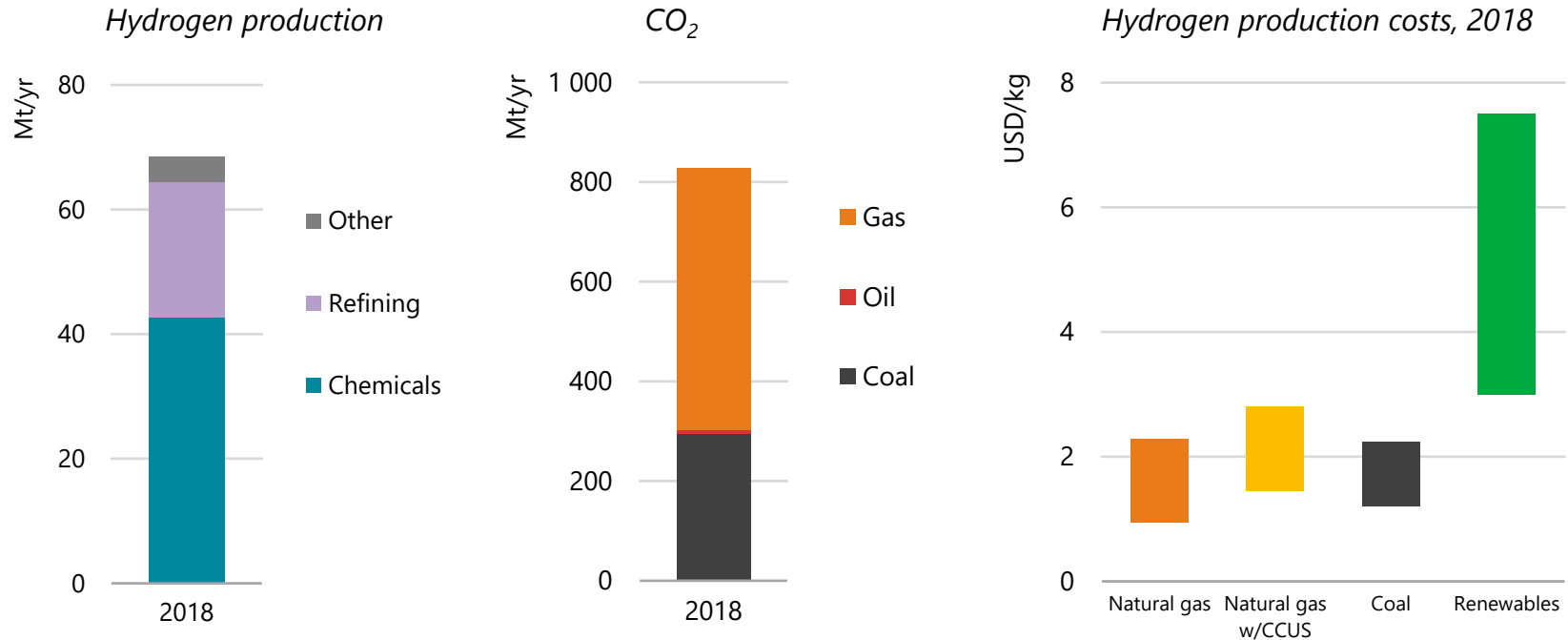


The need to accelerate clean energy transitions is underscored by recent data: CO₂ emissions rose for a second year in a row in 2018 to reach a record high

Hydrogen – A common *element* of our energy future?

- Momentum currently behind hydrogen is unprecedented, with more and more policies, projects and plans by governments & companies in all parts of the world
- Hydrogen can help overcome many difficult energy challenges
 - **Integrate more renewables**, including by enhancing storage options & tapping their full potential
 - **Decarbonize hard-to-abate sectors** – steel, chemicals, trucks, ships & planes
 - **Enhance energy security** by diversifying the fuel mix & providing flexibility to balance grids
- But there are challenges: **costs** need to fall; **infrastructure** needs to be developed; **cleaner hydrogen** is needed; and **regulatory barriers** persist

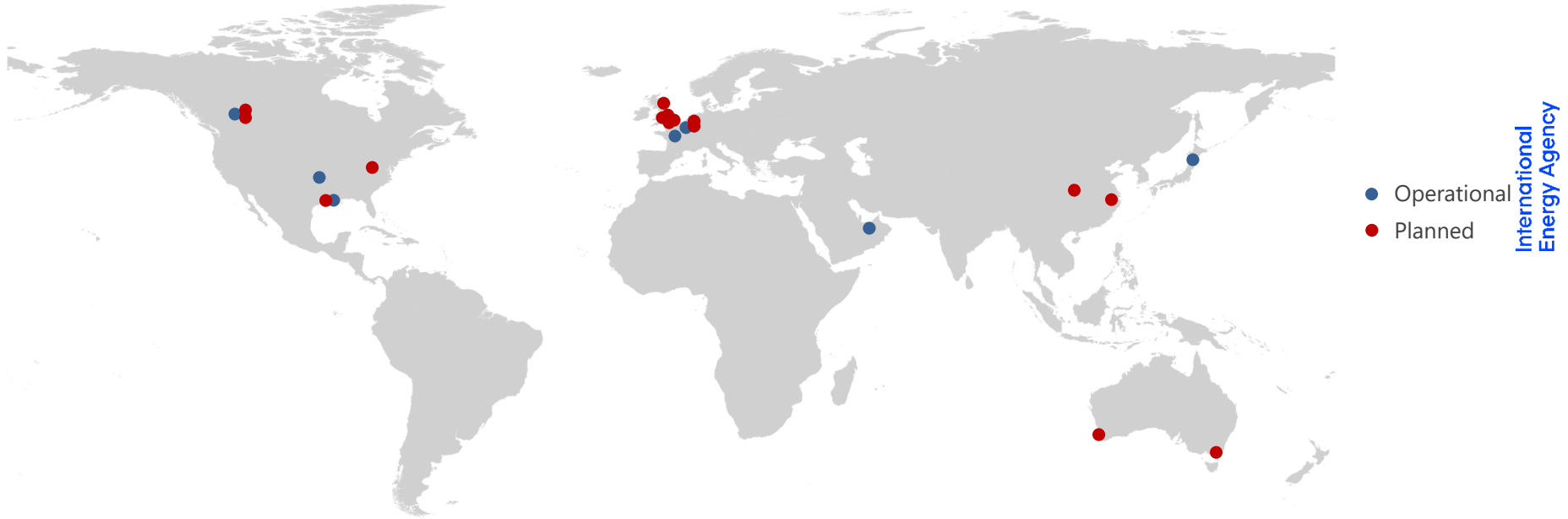
Hydrogen is already part of the energy mix



International Energy Agency

Dedicated hydrogen production is concentrated in very few sectors today, and virtually all of it is produced using fossil fuels, as a result of favourable economics.

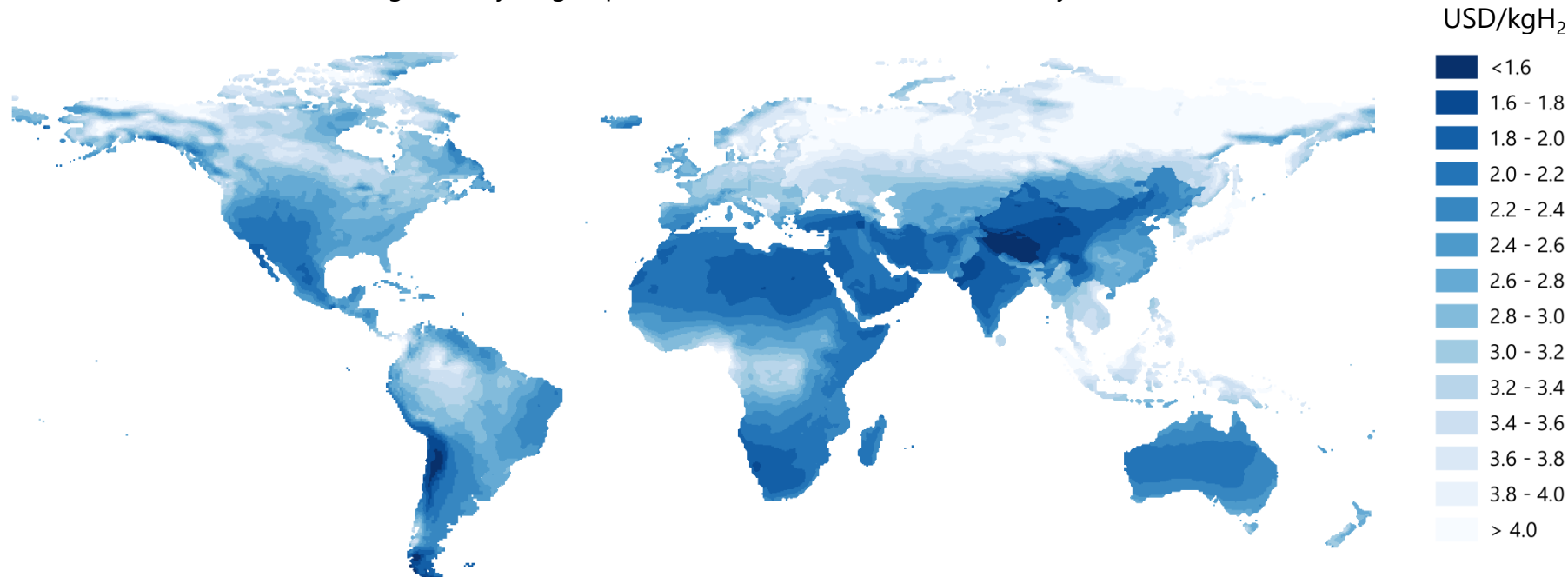
Hydrogen production with CO₂ capture is coming online



Low-carbon hydrogen from fossil fuels is produced at commercial scale today, with more plants planned. It is an opportunity to reduce emissions from refining and industry.

Renewables hydrogen costs are set to decline

Long-term hydrogen production costs from solar & wind systems



The declining costs of solar PV and wind could make them a low-cost source for hydrogen production in regions with favourable resource conditions.

Four key opportunities for scaling up hydrogen to 2030



Conclusions

- There is a growing disconnect between climate ambitions and real-life CO₂ trends
- The next 10 years are critical for commercialising hydrogen – the IEA's four near-term opportunities offer a springboard for wider deployment
- Establishing a role for hydrogen in energy strategies and setting targets helps guide future expectations for industries and other stakeholders
- Costs of hydrogen production & use need to fall through economies of scale and R&D
- Critical role for governments to eliminate unnecessary regulatory barriers and harmonise standards to reduce hurdles for project development
- IEA will continue to work with governments & industry to track progress towards hydrogen deployment and assessing technology costs

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