



Hydrogen: Accelerating & Expanding global deployment

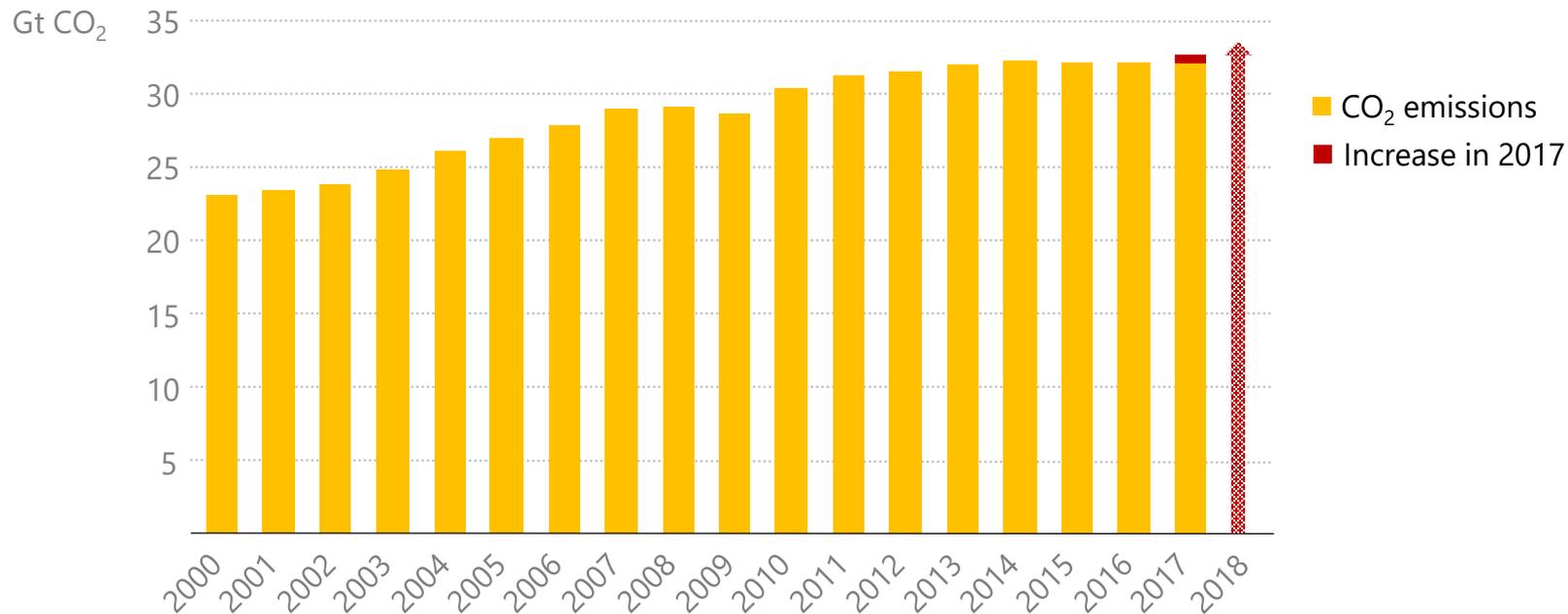
Dr. Uwe Remme, IEA

FCH JU Stakeholder Forum, Brussels, 16 November 2018

- Hydrogen can support clean energy transitions, diversify the fuel mix & address energy security concerns
- Hydrogen is already with us, currently a production of about 80 Mt per year, mainly as feedstocks for chemicals & in the refining industry
- Hydrogen deployment has technological & economic challenges, but global momentum is increasing

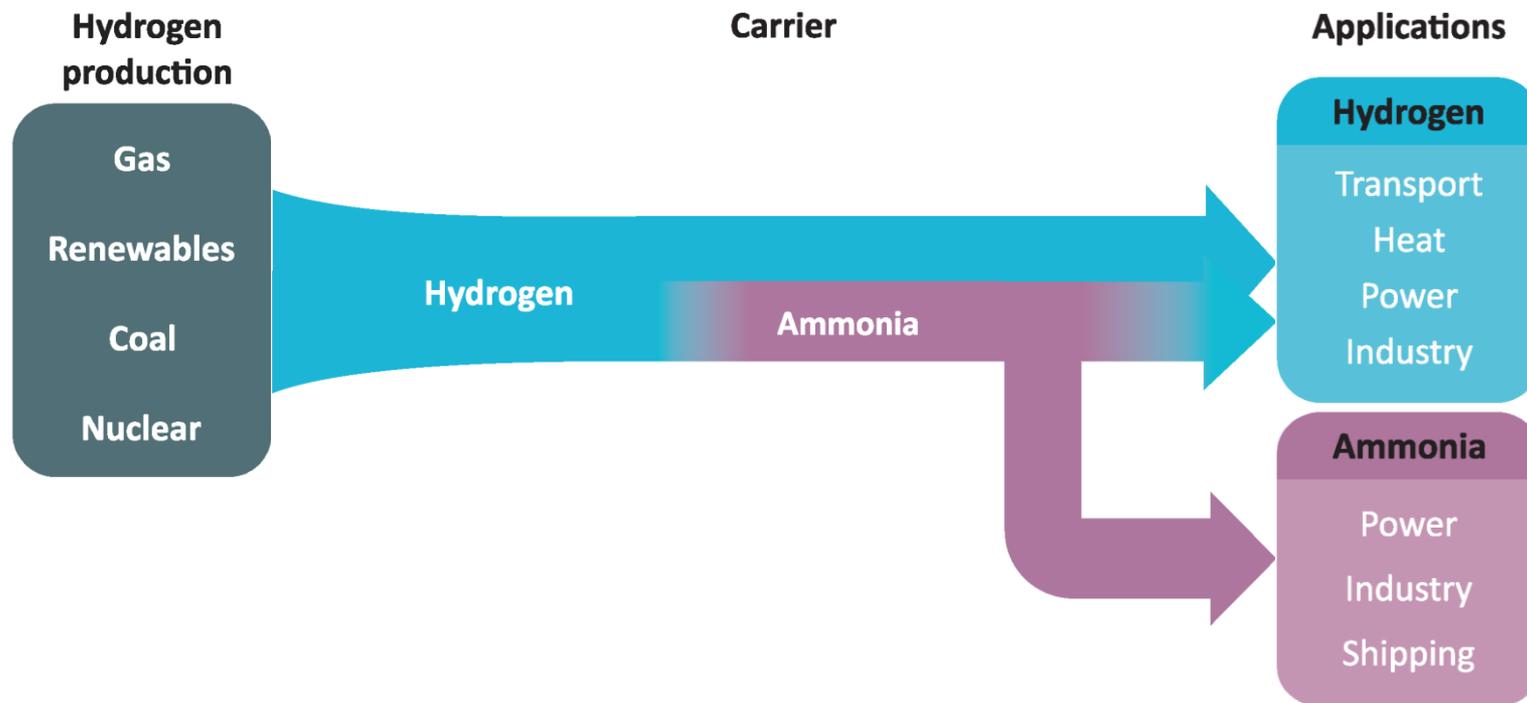
Global emissions are set to increase in 2018 – again

Global energy-related CO₂ emissions



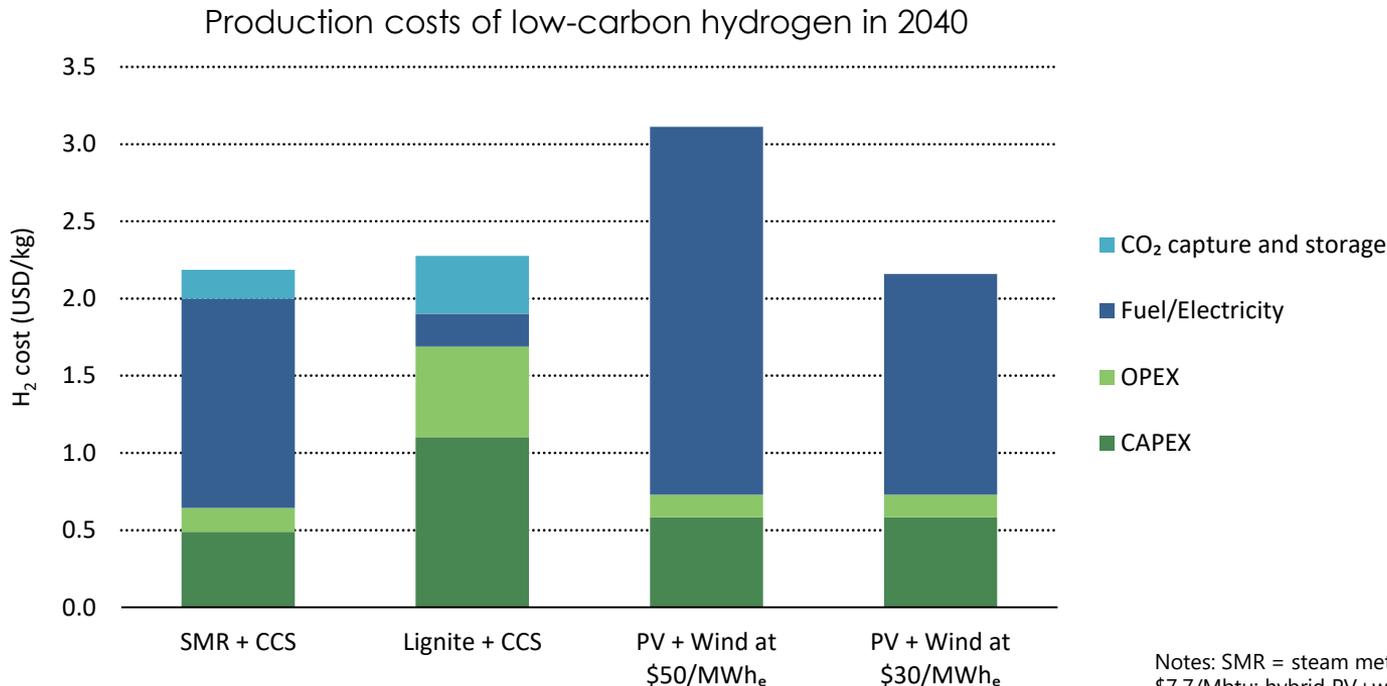
Based on preliminary IEA data, CO₂ emissions are on track to rise for a second year in a row; Hydrogen can play a role in reducing emissions while also improving energy security

Hydrogen has many production sources and applications



Hydrogen can be produced from different sources & has multiple applications, including in transport, industry, buildings & power generation; when produced from fossil fuels, coupling with CCUS maximises CO₂ benefits.

Hydrogen from renewables can become economically attractive



Notes: SMR = steam methane reforming; gas price: \$7.7/Mbtu; hybrid PV+wind capacity factor 45%; electrolyser costs \$550/kW_e; WACC 8%

To unlock the potential of hydrogen production from renewables at locations with high capacity factors, international trade in hydrogen-based fuels is essential.

- There are numerous sources for producing hydrogen & numerous applications, but technical & cost challenges still remain
- Government & industry commitments are crucial to facilitating & scaling-up investment in hydrogen
- There is a need to raise awareness & remove roadblocks, such as by harmonizing safety regulations & standards, including in cars & storage
- The IEA is ready to support governments & industry, with data, analysis, an “All-Fuels-And-All-Technologies” approach & real-world solutions
- The IEA will release a major report for Japan’s G20 Presidency on the state of play of hydrogen, its economics & its future potential

Reports



Technology Network



Workshop



Joint workshop by the International Energy Agency and the European Commission

Electrofuels

Date: Monday 10 September 2018

Business Network

Energy Business Council



IEA Ministerial Meeting (Nov 2017)

Secretariat



IEA has been active on the analysis of hydrogen for many years; our work will expand, collaborating closely with our extensive technology and business networks



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