

HYDROGEN ECONOMY: SUMMARY



- ❑ The “Hydrogen Economy” (HE) refers to a transformation of the existing hydrogen (H₂) sector towards the use of “cleaner” H₂ molecules as: a low-carbon fuel (particularly for heat & fuel cells) | a solution for energy storage & transport | a feedstock for chemicals (ammonia, methanol ...)
- ❑ The HE idea is not new¹ (1970’s oil shock, 1990s, mid-2000s) but is “different this time” as various supporting drivers are aligned
- ❑ HE interest revolves around “blue” (H₂ + CCS²) and “green” hydrogen³, which represent both opposing camps and potential allies in the transition to a HE⁴
- ❑ Fundamental HE technology has finally passed pre-commercialisation phase, but significant effort is still required to drive the cost curve as well as build out the broader HE ecosystem – this is leading to an explosion in innovation and start-ups
- ❑ H₂ has the potential to penetrate many different end-sectors, with Transport (likely maritime, aviation, heavy-duty vehicles) and Industrial Heat seen as the most promising in the medium-term
- ❑ While the HE can be complementary to electrification, it can also be seen as a defensive “molecule” response from fossil fuel incumbents
- ❑ Policy, industrial and investment activity in the HE has exploded over the 2019-2022 timeframe and, although there is a risk of near-term over-enthusiasm, the outlook for the sector looks bright
- ❑ Given the stakes, investor interest – especially among corporates – is very strong, with the “commercial traction” bar lower than for many other cleantech sectors

¹ coined by John Bockris in 1970; ² carbon capture & storage; ³ hydrogen produced via electrolysis with renewable energy; ⁴ “Grey” / “brown” hydrogen already exist but are not low-carbon