

Hydrogen investment rate track post COVID 19 pandemic repercussions in India

Part -6 (Hydrogen ecosystem development and identification of key future market growth clusters in India)

RES, Power & Utilities

Bottom up estimation of investments in different technologies

Hydrogen investments rising despite COVID'19 pandemic with unprecedented private fundraising mostly for manufacturing and to meet project demand

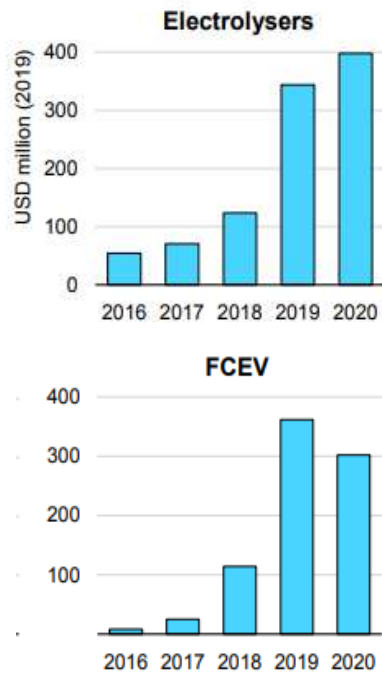
Hydrogen has proven remarkably resilient during the economic slowdown induced by the global pandemic. Companies specialised in producing, distributing and using hydrogen raised almost USD 11 billion in equity between January 2019 and mid-2021 – a considerable increase from prior years – and contracts funded by government recovery packages are expected to raise project investments substantially. Nevertheless, funding is grossly insufficient to accelerate innovation to the level required to realise hydrogen's 60 Gt of CO₂ emissions reduction potential modelled in the Net zero Emissions Scenario.

Investment in hydrogen technology deployment is also increasing. Despite near-term uncertainty about market-led uptake, hydrogen prospects look stronger than before the Covid-19 pandemic. Projects expected to deploy electrolysis capacity in 2021 raised more than USD 400 million in 2020, nearly four times the investments in 2018. In mobility, 2020 funding decreased slightly from 2019, likely reflecting impacts of the pandemic; investment is more than recovering in 2021, however, and deployments up to June point to 2022. Clearly, government action – including funding in Covid-19 recovery plans and long-term signals embedded in national hydrogen strategies – is spurring the strong momentum behind hydrogen investment. Public investment is expected to leverage much higher private spending, which could further accelerate hydrogen technology deployment. For example, as part of its national hydrogen strategy, Germany announced a EUR 9-billion package, which the German government expects to trigger an additional EUR 33 billion of private investment.

In India, the government has planned an investment of INR 800 crores for developing technologies to produce low-cost affordable hydrogen. In the private sector, some of the significant investments targeted for technological development are – (i) Reliance industries (RIL) plans an investment of USD 600 Billion to set up an electrolyser Gigafactory that will manufacture modular electrolysers to produce green hydrogen for domestic use as well as for international sales.

Annual investments in key hydrogen technologies and the ones that are not yet commercially available

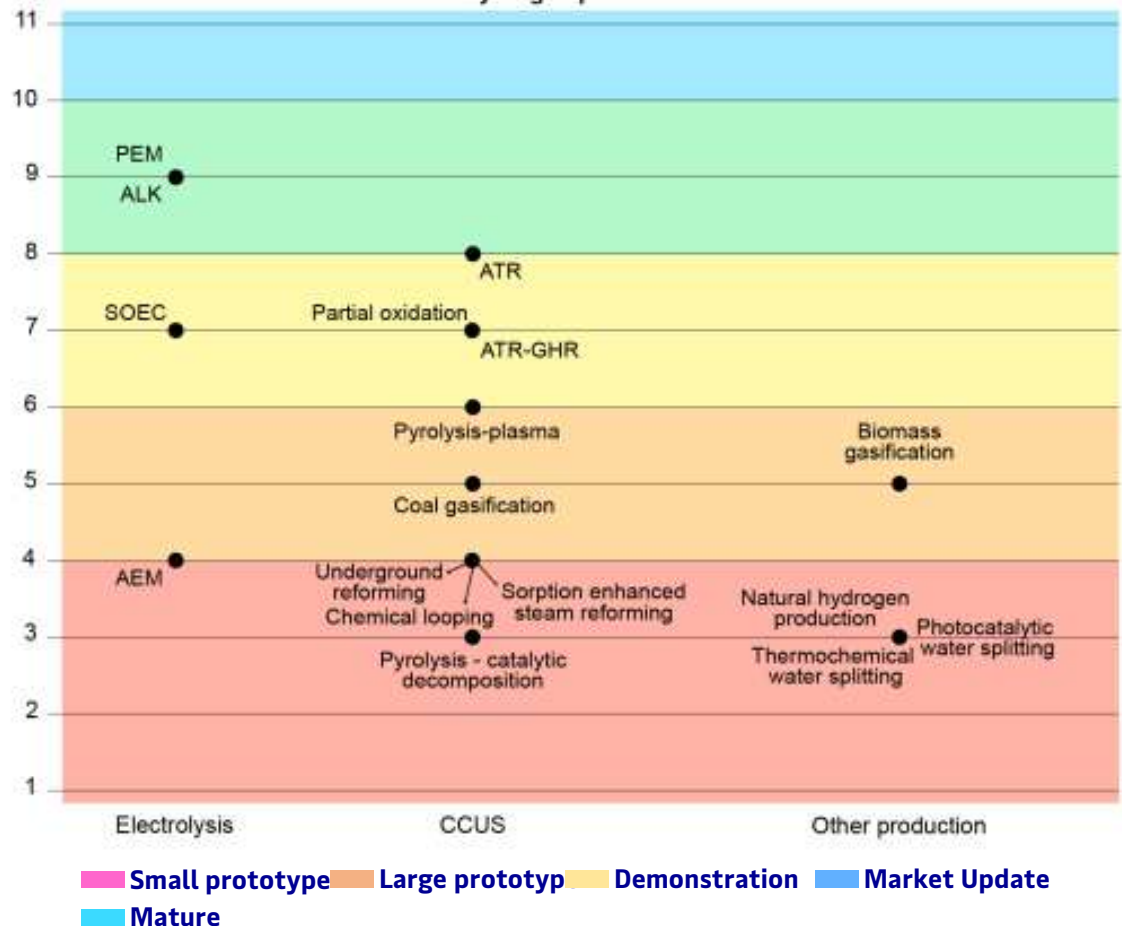
Annual Investments in electrolyser and FCEVs



Notes: AEM = anion exchange membrane. ALK = alkaline. ATR = autothermal reformer. CCUS = carbon capture, utilisation and storage. GHR = gas-heated reformer. LOHC = liquid organic hydrogen carrier. PEM = polymer electrolyte membrane. SOEC = solid oxide electrolyser cell. Biomass refers to both biomass and waste. For technologies in the CCUS category, the technology readiness level (TRL) refers to the overall concept of coupling these technologies with CCUS.

Several hydrogen technologies not yet commercially available

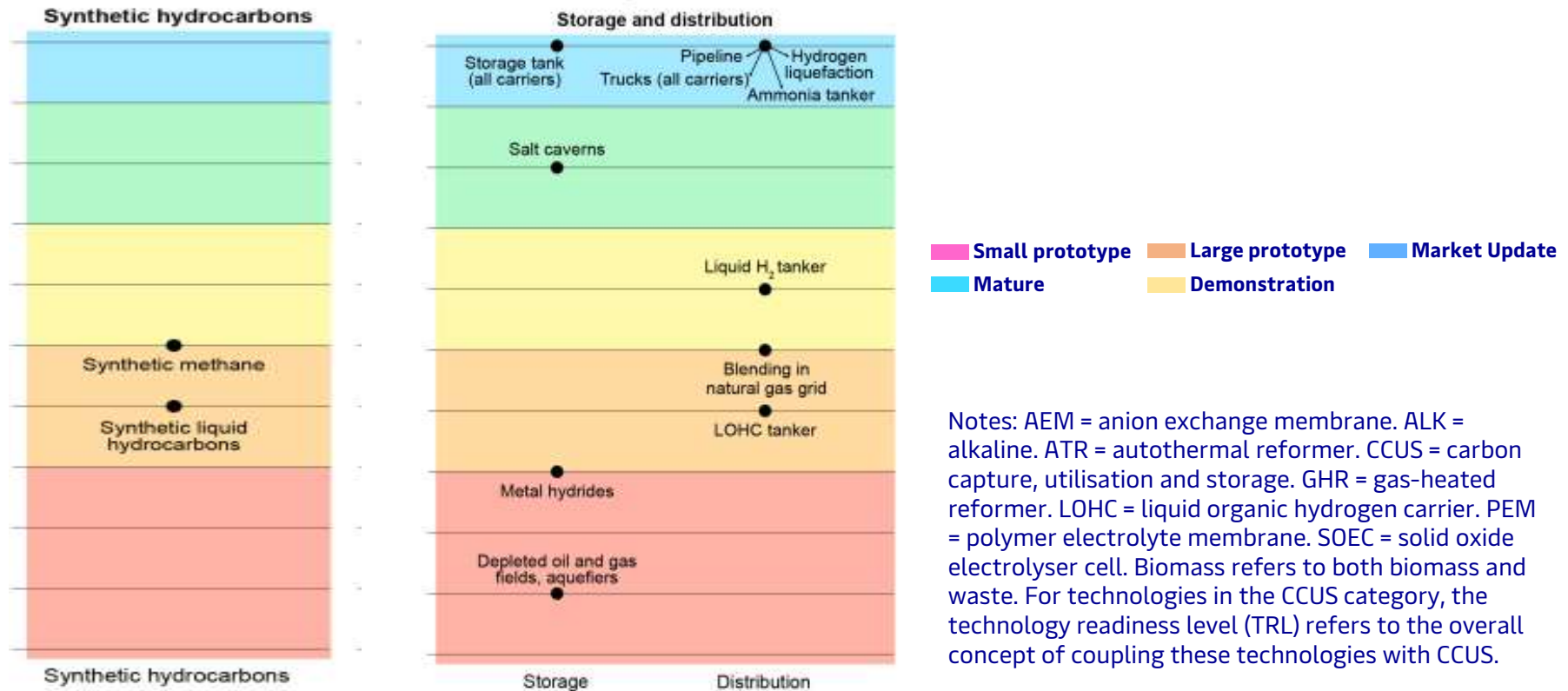
Technology readiness levels of key hydrogen production, storage and distribution technologies



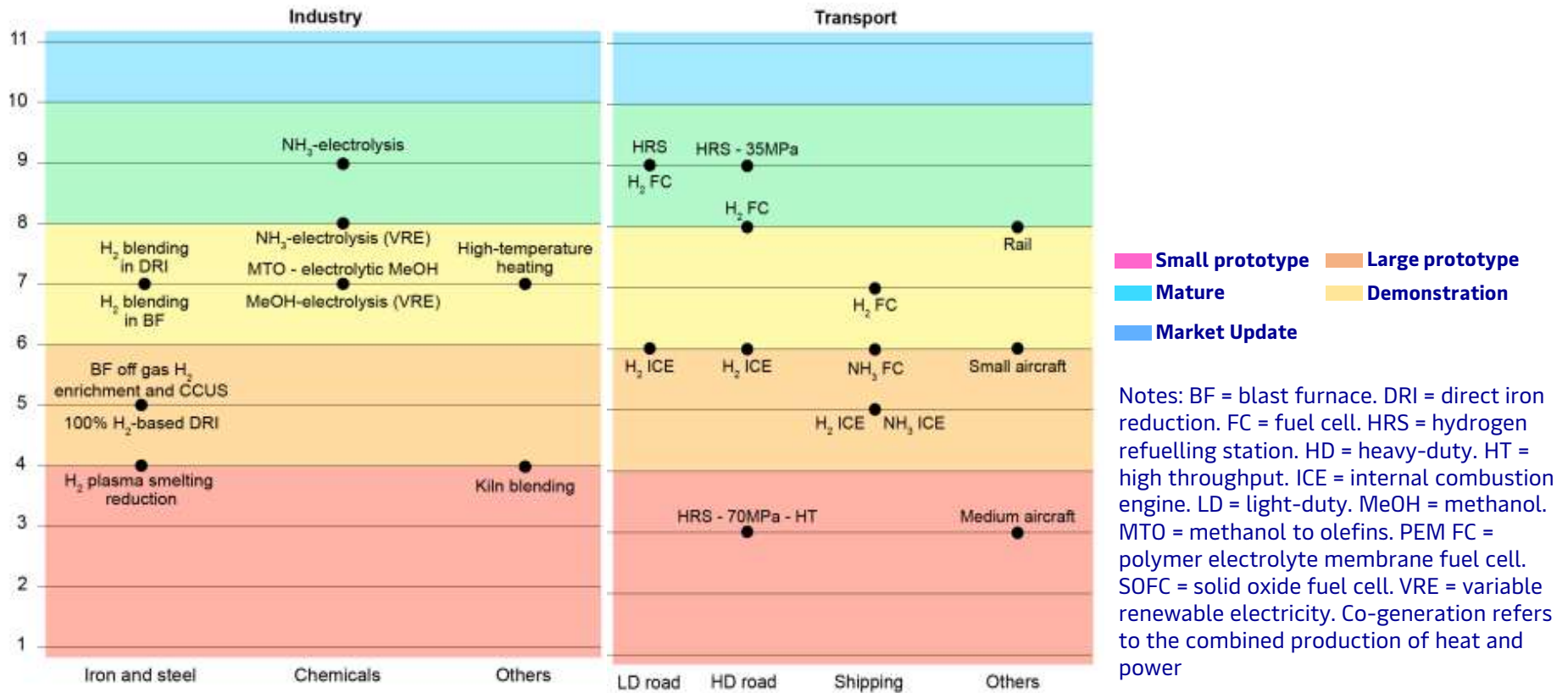
Annual investments in key hydrogen technologies and the ones that are not yet commercially available (Contd.)

Several hydrogen technologies not yet commercially available (Contd.)

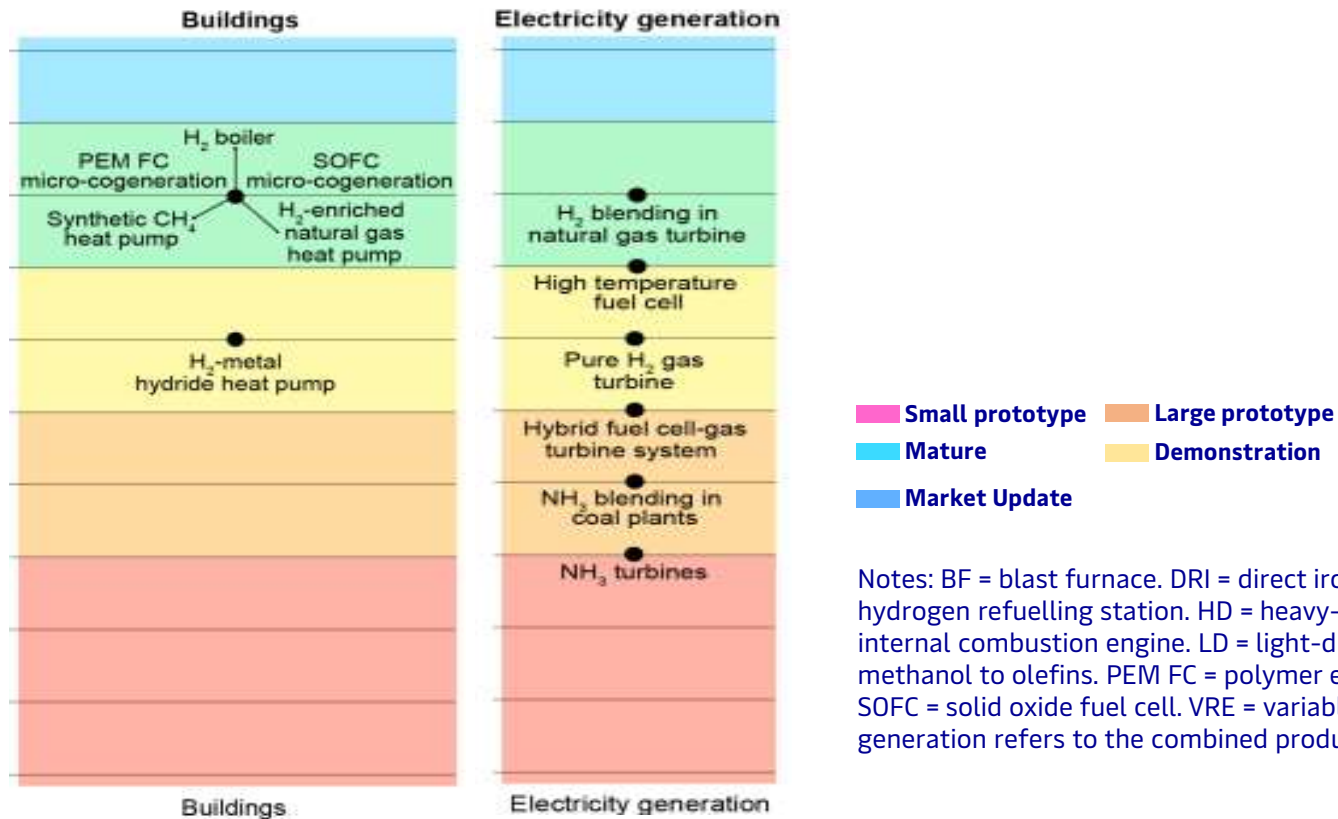
Technology readiness levels of key hydrogen production, storage and distribution technologies



Readiness levels of key hydrogen end-use technologies



Readiness levels of key hydrogen end-use technologies (Contd.)



WANT TO LEARN MORE ABOUT THE REPORT ?

WRITE OR CALL TO US

at connect@eninrac.com

+91 93190 48963/47963, +91 72900 16953