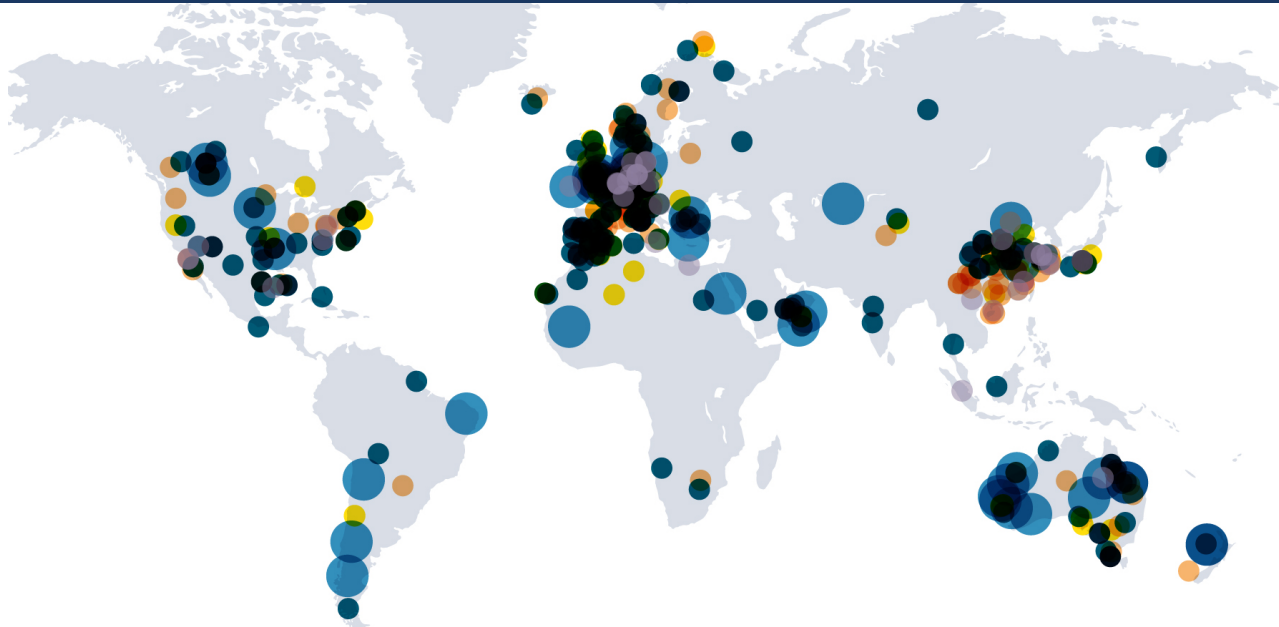


# Clean hydrogen projects and investment around the world\*

Clean hydrogen includes blue hydrogen produced using carbon capture and storage and green hydrogen produced using renewable energy sources. Global announcements of hydrogen projects by 2030 add up to \$160bn of investment, with half of the investments being planned for green hydrogen production. Leading lights in the move towards green hydrogen are the EU, China, India, Japan, South Korea and the US.



**221** large-scale industrial usage

Refinery, ammonia, methanol, steel and industry feedstock

**133** transport

Trains, ships, trucks, cars and other hydrogen mobility applications

**74** integrated H<sub>2</sub> economy

Cross-industry and projects with different types of end uses

**51** infrastructure projects

H<sub>2</sub> distribution, transportation, conversion and storage

**43** giga-scale production

Renewable H<sub>2</sub> projects > 1 GW and low-carbon H<sub>2</sub> projects > 200 ktpa

\* As of November 2021

Source: IRENA/Hydrogen Council

Source: Hydrogen Council (2021). Map source: Natural Earth, 2021

Note: The figure describes large-scale projects only, including commissioning after 2030. It does not include more than 1000 small-scale projects and project proposals. GW = gigawatt; H<sub>2</sub> = hydrogen; ktpa = kilotonnes per annum.

Disclaimer: This map is provided for illustration purposes only. Boundaries shown on this map do not imply any endorsement or acceptance by IRENA.