

ALL HYDROGEN TECHNOLOGIES NEEDED TO REACH NET ZERO, NEW STUDY FINDS

Brussels, 4 May 2021 – Hydrogen technologies will play an essential role in reaching the Green Deal's 2050 net zero targets by decarbonising hard-to-abate sectors, addressing gaps left by other decarbonisation solutions such as efficiency and electrification and supporting renewable integration, according to a new study released today. The study finds that total demand in 2030 could increase up to three times higher than the EU's Hydrogen Strategy projections.

“As the EU takes the first legislative steps to put its 2050 goals into action, the study shows that the contribution of hydrogen to full decarbonisation could go far beyond what the EU Hydrogen Strategy suggests,” said Johannes Trüby, Director for Energy and Regulation at Deloitte Economic Advisory. “Based on a comprehensive analysis of the European energy system, our models have shown that hydrogen will be essential for steel, chemicals and heavy-duty transportation, and that a mix of renewable and low-carbon hydrogen is best placed to deliver on the Climate Law's net zero target.”

The study looks at two policy scenarios charting pathways for hydrogen to contribute to the EU's goal of net zero emissions by 2050, based on actual European targets and transparent modelling frameworks. It looks at the technology mix, the cost of the transition, and risks associated with various policy choices. It finds that the contribution of hydrogen to decarbonising the EU's energy system can well exceed EU projections, with demand exceeding 100 million tonnes of H₂ by 2050. Low-carbon hydrogen plays an essential role in supporting the deployment of renewable hydrogen and integration of higher volumes of renewable energy. In both scenarios, renewable hydrogen scales up rapidly after 2030, however a more competitive technology mix enables a lower-cost and more effective pathway to net zero.

- More than half of total gross final energy consumption is supplied by non-electrified technologies in 2050.
- Hydrogen is essential to get the EU to net zero, particularly where electrification and efficiency gains are challenging.
- Hydrogen can unlock decarbonisation of hard-to-abate sectors such as transport – where demand exceeds 50 Mt H₂ in 2050 – and the steel and chemical industries, with a demand of 45 Mt H₂.
- Renewable and low carbon hydrogen are both needed for net zero, with natural gas and CCS remaining essential even with higher renewable ambition.
- A stronger renewable push requires infrastructure and value chain investments and represents a total system cost of an additional 70 billion per year compared to a technology diversity scenario.

The study was conducted by Research partners IFP Énergies Nouvelles, SINTEF and Deloitte on behalf of the funding partners of Hydrogen4EU. For additional details, the full study may be found at <https://www.hydrogen4eu.com/projects>

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About the project partners

Hydrogen4EU is a cross-sectoral research project aiming to concretely assess the potential contribution of low-carbon and renewable hydrogen in reaching the European energy transition goals. Based on modelling prepared by the project's Research partners, IFP Énergies Nouvelles (research), SINTEF (research) and Deloitte (project management), the project aims to chart pathways exploring the role of hydrogen in a decarbonised European energy system. The research was funded by 17 partners: BP, ConocoPhillips, Concawe, ENI, Equinor, Ervia, ExxonMobil, Gassco, Hydrogen Europe, IOGP, Norwegian Oil & Gas Association, OMV, Shell, Snam, Total, Wintershall Dea, Zukunft Gas.

Contact

Anne-Claude Martin, Media coordinator

Cambre Associates
T +32 2 897 79 06 M +32 472 76 38 89
acmartin@cambre-associates.com