

CCUS synergies in hydrogen and materials transitions 2nd IEF High-Level Roundtable on Carbon Management Technologies

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CCUS and Hydrogen could deliver significant emissions abatement across key sectors

100% green hydrogen would require more than doubling existing power grid, result in an increased CO2 mitigation cost, and extended decarbonization timeline

Renewable electricity has greater value in decarbonizing the power grid

CCUS enables the cheapest and fastest pathway to net-zero

100% green hydrogen would require more than doubling current global power production





34,980 TWh

of renewable electricity to produce the required hydrogen demand⁽¹⁾



is 2020 global electricity generation⁽²⁾

- Feasibility challenges
- Not economical: \$2/kgH2 blue vs. \$5/kgH2 green
- Slow deployment rate as electrolysers efficiency and RE capacity factor are limited

Saudi Aramco: Company General Use

Hydrogen Council

Renewable electricity has greater value in decarbonizing power

Emissions abatement from 1MWh of renewable electricity (kgCO2)



The required renewable energy to produce "100% green hydrogen" could displace all existing fossil based power generation and deliver on net-zero power sector



Green hydrogen production should only be considered where there is no opportunity to feed renewable electricity into a grid to displace fossil generation

Global CCS Institute

CCUS enables the cheapest and fastest route to net-zero



Without CCS, long-term global climate goals may be unobtainable

The cost of decarbonization could be \$4 trillion greater globally without CCUS

Jubail CCS hub will be one of the world largest in 2027



Oil and gas will continue to be key parts of both energy and materials transitions



Aramco focuses on enabling low-carbon energy solutions such as Hydrogen, CCUS and advanced polymer based materials

Examples of high-impact hydrogen technologies and pilots



Blue ammonia supply chain demonstration



Saudi Arabia's first hydrogen station





Electrified reforming



Ammonia cracking

