Unlocking the Green Hydrogen Revolution

Green hydrogen production at industrial scale is a fundamental challenge that needs to be overcome if we're to hit net-zero emissions by 2050.

By driving down the cost of wind-to-hydrogen and achieving price parity with fossil fuel-to-hydrogen by 2030, wind can accelerate a carbon-free future, halt climate change, and allow us to deliver a cleaner, more sustainable future. This is achievable from onshore wind generation by 2030, and from offshore wind generation by 2035.

1 Why we need green hydrogen

Hard-to-electrify sectors stand in the way of achieving the world's 2050 net-zero targets:

- Steel and chemical industries
- Maritime shipping
- Long-haul road transport
- Aviation

75m tons

The global demand in 2019[1]

Demand for hydrogen is expected to increase by 7% per year until 2050

If these emissions alone came from one country, it would be the second largest emitter in Europe and close to the highest emitter, Germany

98% of today's hydrogen is produced using fossil fuels, mainly by reforming natural gas and through coal gasification[2]

2 Overcoming the challenges to scaling green hydrogen

The green hydrogen value chain is complex, and requires the support of many parties:

Industry / private sector needs to increase capacity of renewables

Governments and public authorities need to put frameworks in place

Investors encourage collaboration, partnerships and innovation by showcasing commercial benefits

Citizens and consumers build demand to create market size and lower costs of equipment

3 Delivering low cost hydrogen by 2030

I. Increase capacity of renewables by accelerating deployment

- In a 2050 net-zero emissions scenario, demand for hydrogen will reach 500 million tonnes[3]
- This requires between 3,000 and 6,000 GW of new installed renewable capacity, up from 2,800 GW today

II. Create a cost-effective demand-side market

Developing the green hydrogen market will:

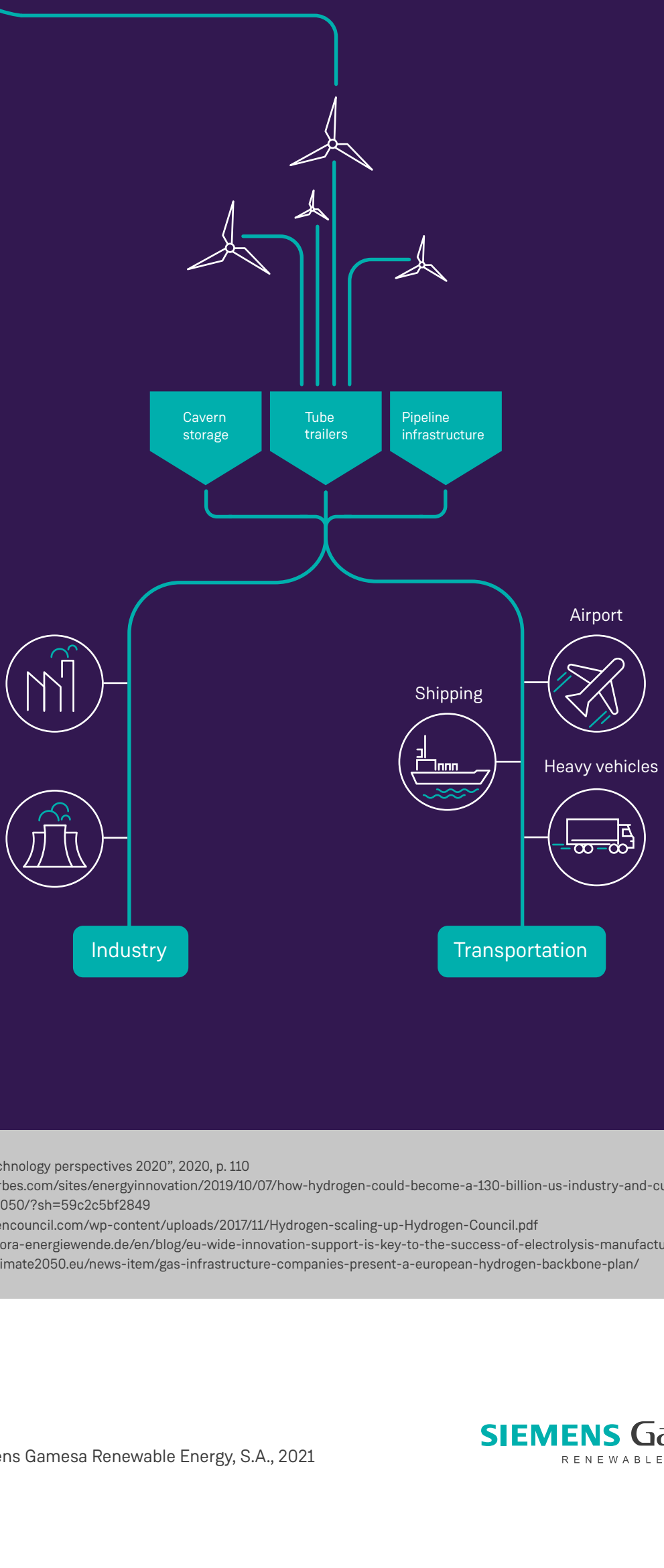
- lower costs of equipment, infrastructure, operating costs and overall financing
- Cost of electrolyzers likely to come down from c.1000 €/kW today to less than 500 €/kW in the coming decade[4]

III. Develop collaborative supply chain that is resilient and able to scale quickly

- Renewable energy companies
- Electrolyzer manufacturers
- Hydrogen network providers
- Water treatment specialists

IV. Support the right infrastructure

European Hydrogen Backbone: network of 23,000 km of hydrogen pipelines across Europe by 2040[5]



1 IEA: "Energy technology perspectives 2020", 2020, p. 110
2 https://www.forbes.com/sites/energyinnovation/2019/10/07/how-hydrogen-could-become-a-130-billion-us-industry-and-cut-emissions-by-2050/?sh=59c2c5bf2849
3 https://hydrogencouncil.com/wp-content/uploads/2017/11/Hydrogen-scaling-up-Hydrogen-Council.pdf
4 https://www.agora-energiewende.de/en/blog/eu-wide-innovation-support-is-key-to-the-success-of-electrolysis-manufacturing-in-europe
5 https://gasforclimate2050.eu/news-item/gas-infrastructure-companies-present-a-european-hydrogen-backbone-plan/

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