

Binnenvaartschip op waterstof economisch rendabel?



29 March 2023

Future Proof  **Shipping**

futureproofshipping.com

Our Mission:
To accelerate the transition
to zero-emission shipping!



We connect and enable the **entire maritime and green energy value chain**



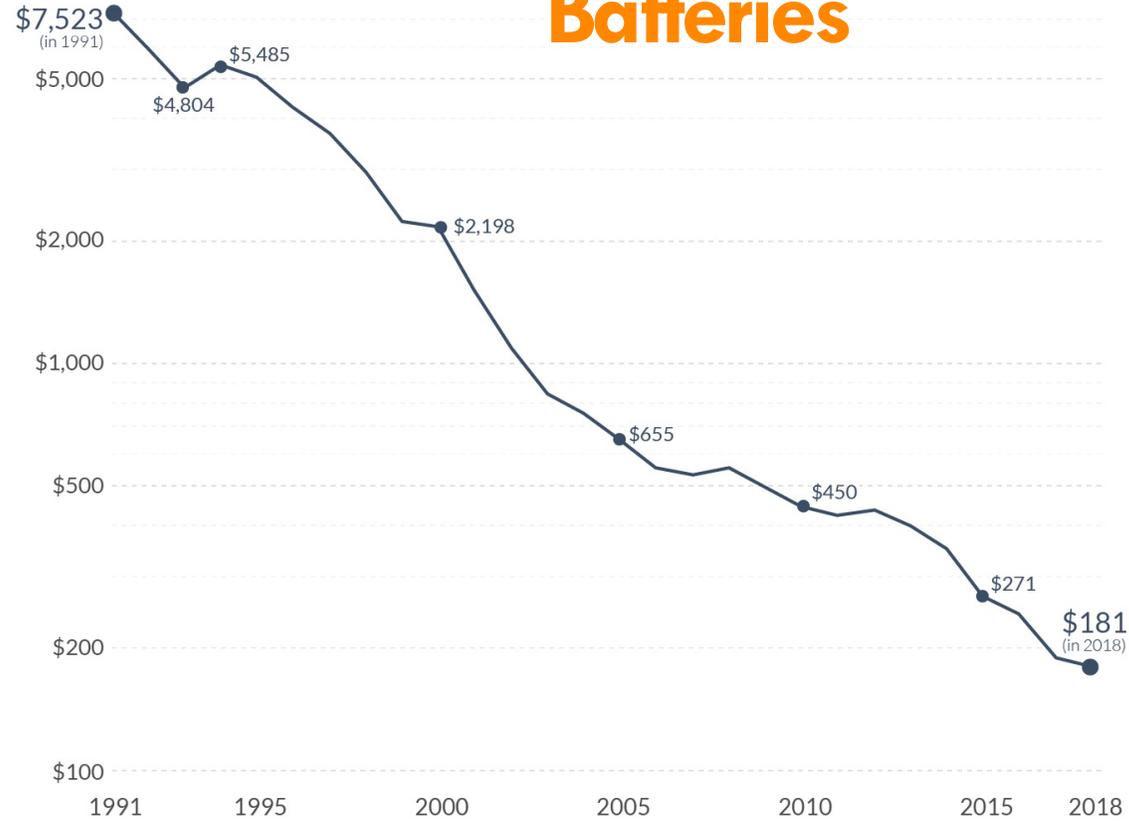
Technology Price Developments

The price of lithium-ion batteries fell by 97%

Price of lithium-ion battery cells per kWh (logarithmic axis)

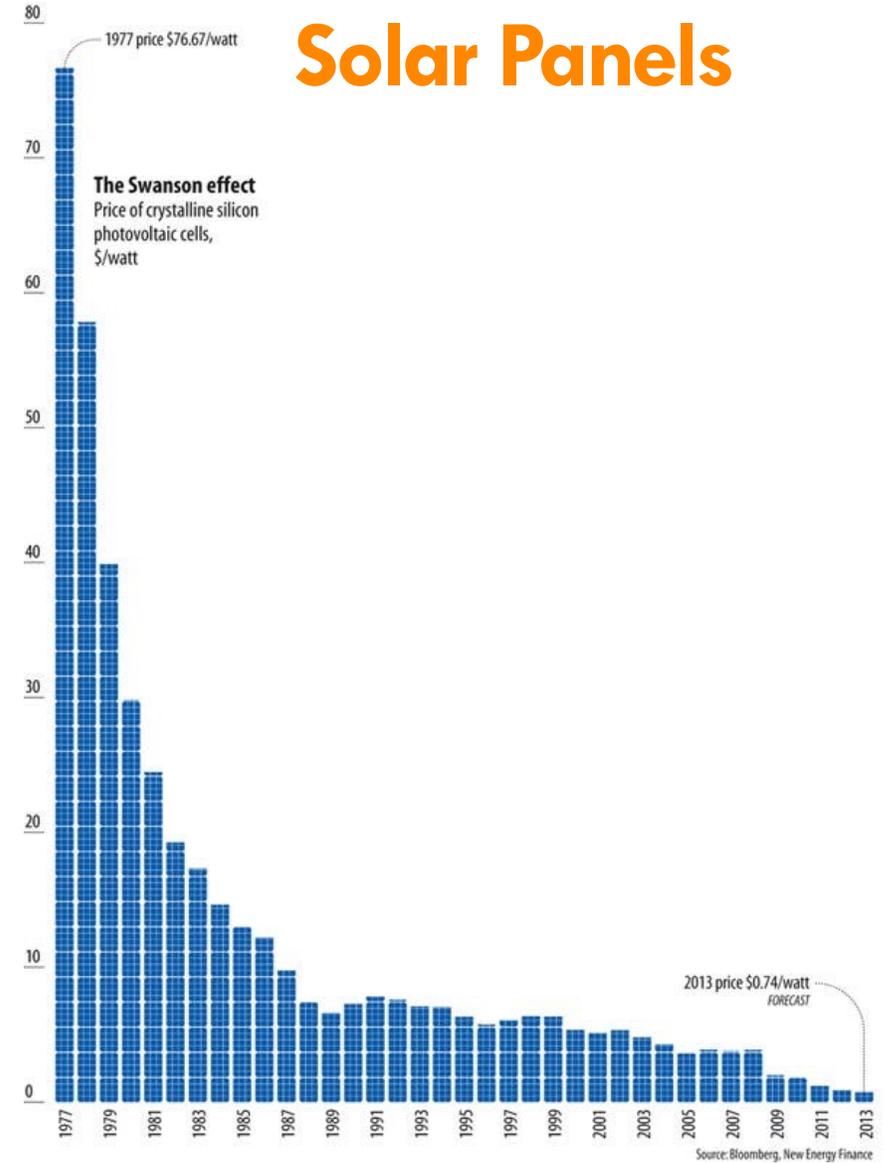
Our World
in Data

Batteries



Prices are adjusted for inflation and given in 2018 US-\$ per kilowatt-hour (kWh).
 Source: Micah Ziegler and Jessika Trancik (2021). Re-examining rates of lithium-ion battery technology improvement and cost decline.
 OurWorldinData.org - Research and data to make progress against the world's largest problems. Licensed under CC-BY by the author Hannah Ritchie.

Solar Panels

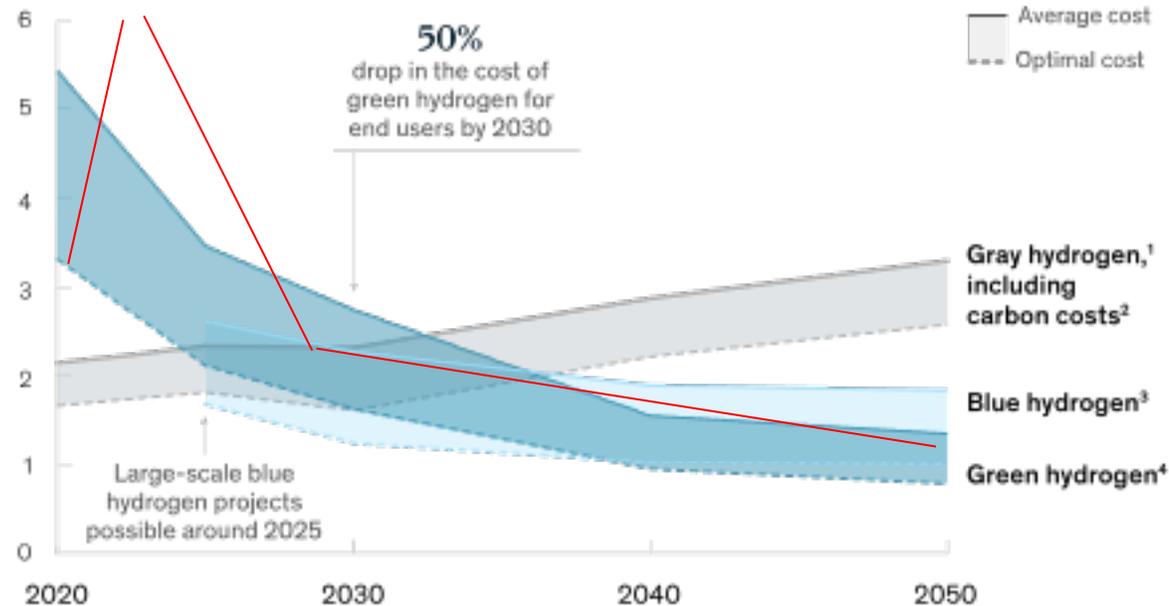


Fuel Prices (Green Hydrogen)

Green hydrogen production costs are expected to fall by approximately 50 percent by 2030.

Forecast as of September 2022

Projected global production cost of hydrogen, \$/kilogram



¹Steam methane reforming (SMR) without carbon capture, utilization, and storage (CCUS).

²Based on projected average global CO₂ costs of \$57/ton (2030), \$94/ton (2040), and \$131/ton (2050). For Saudi Arabia, CO₂ costs are assumed to be \$33/ton in 2030, \$69/ton in 2040, and \$105/ton in 2050.

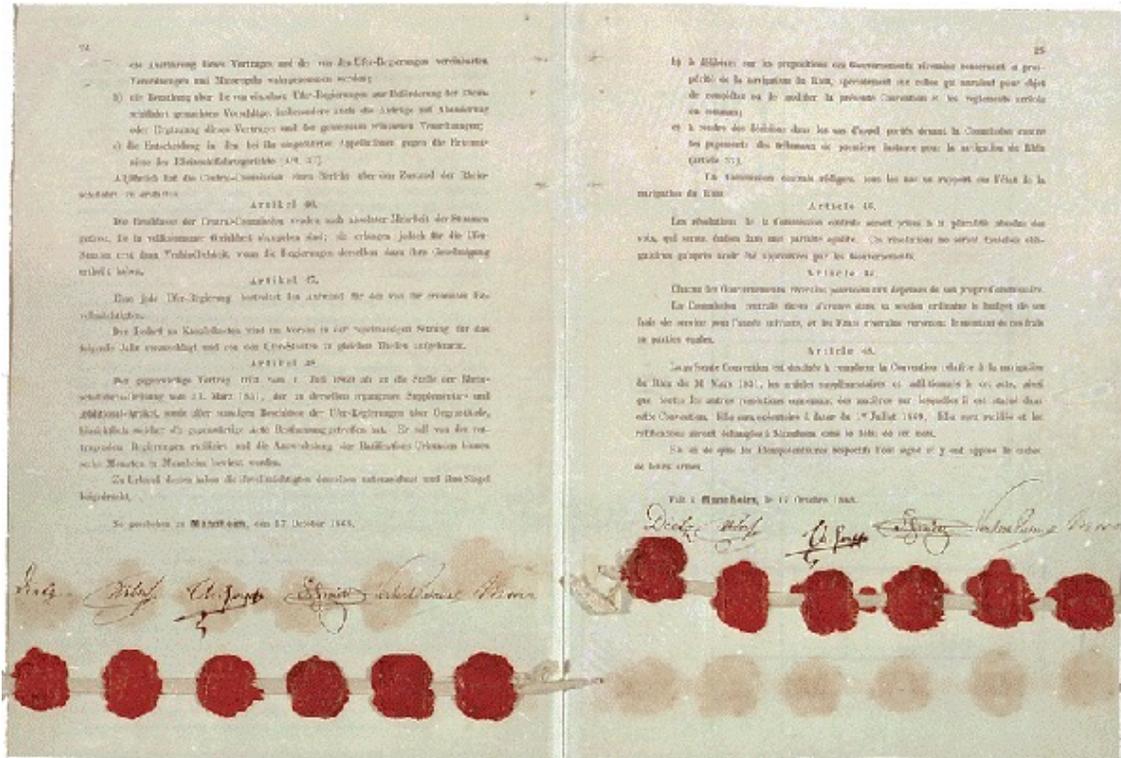
³Gas prices of \$2.60 to \$6.80/MMBtu (approximately \$3/MMBtu in Saudi Arabia).

⁴Refers to the cheapest green hydrogen, which is provided by solar energy.

Source: McKinsey Hydrogen & Derivatives Flows Model, October 2022

Invisible Factors

Mannheim Act



EU ETS

European carbon reaches €100 a tonne

Price (€/tonne)



Source: Refinitiv
© FT

Maintenance Cost Expectation



2000+ moving parts



~50 moving parts

The priceless things we get on the way to **ZERO**



We are making it happen



Let's define shipping's new normal together!



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The logo for Future Proof Shipping, featuring a stylized white wave with an orange arrow pointing right, positioned above the word 'Shipping'.