# Green Hydrogen: will it save the World?

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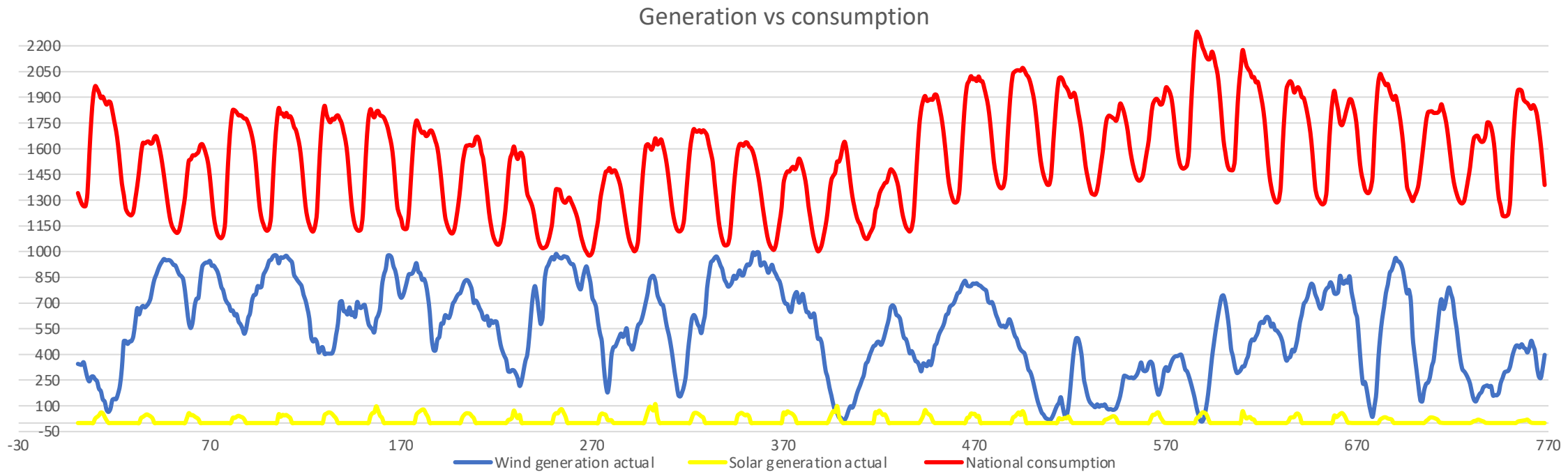
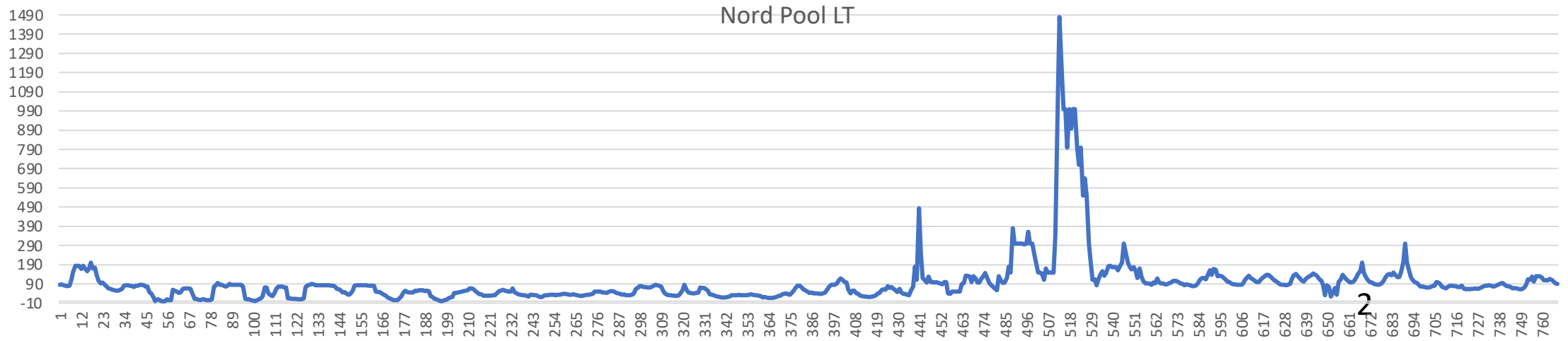
# Issue: Grid efficiency and Balance



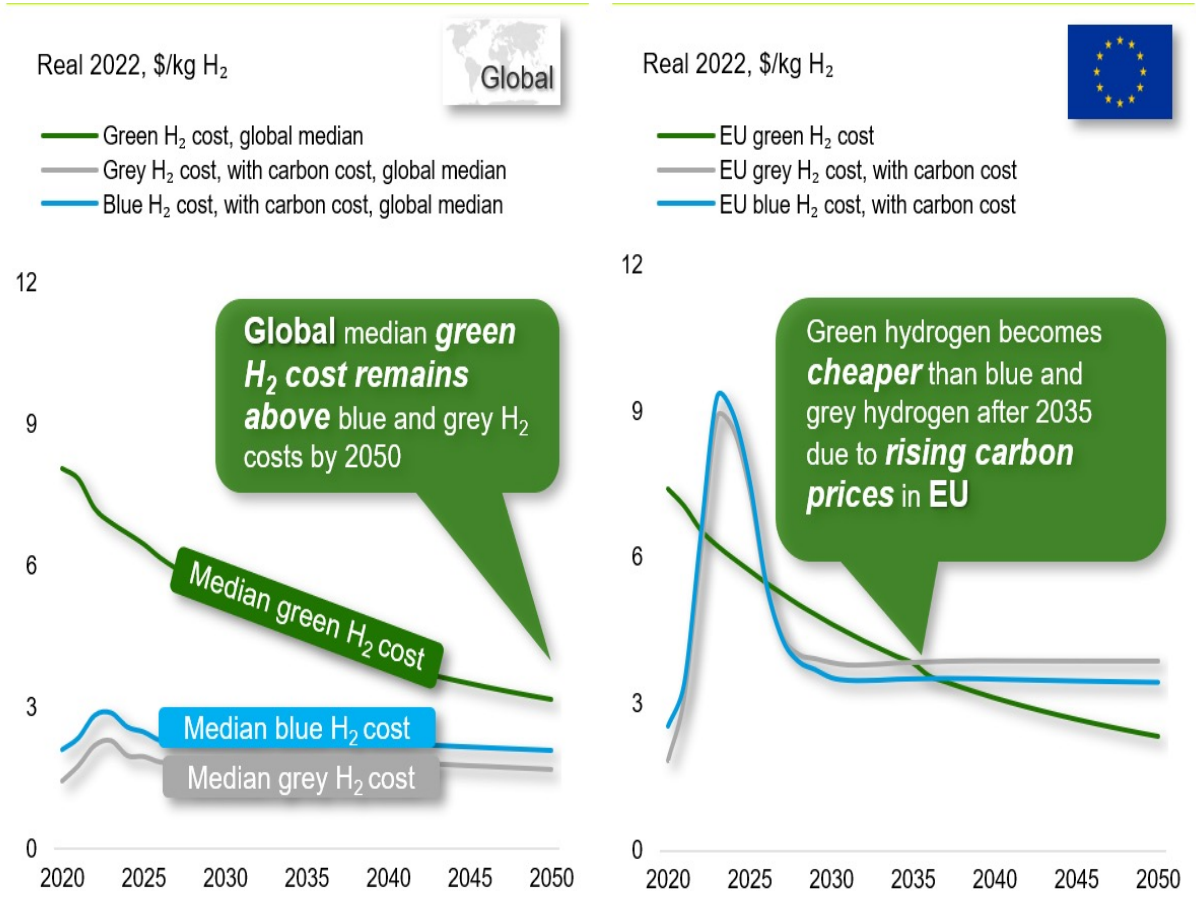



# (One of) Solution: ~~Electricity~~ Energy Grid

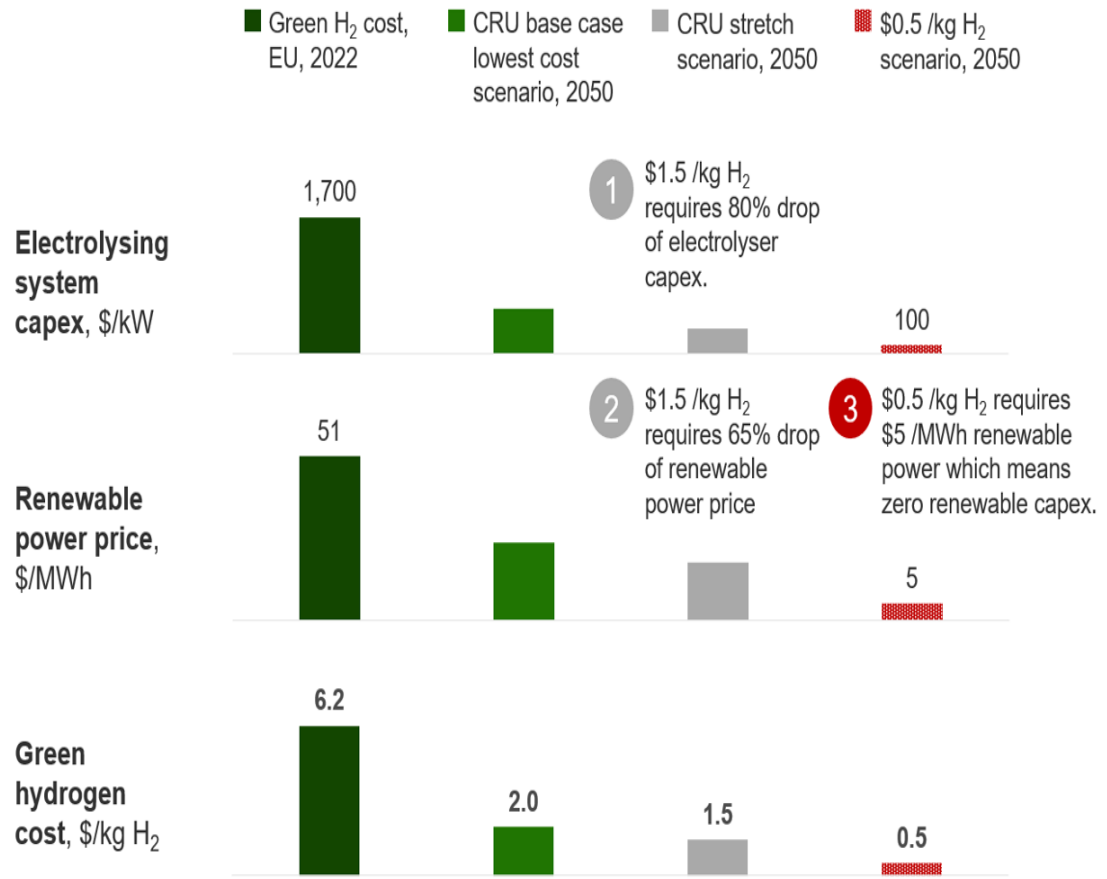
**Table 10: Summary of Distributed Energy Power Generation by Year, TWh**

| TWh | 2025 | 2030 | 2040 | 2050 |
|---|---|---|---|---|
| Offshore wind | - | 2.3 | 5.2 | 5.9 |
| Onshore wind | 2.2 | 4.4 | 7.3 | 7.3 |
| Solar PV | 0.1 | 0.4 | 2.5 | 2.9 |
| Hydro PS | 0.4 | 0.4 | 0.7 | 0.6 |
| Hydro ROR | 0.5 | 0.5 | 0.4 | 0.5 |
| Biomass | 1.0 | 1.0 | 1.1 | 1.1 |
| Natural gas | 2.9 | 2.9 | 2.0 | 1.4 |
| Other non-RES | 1.2 | 1.2 | 1.1 | - |
| EV and battery generation | 0.0 | 0.3 | 1.1 | 1.5 |
| **Total generation** | **8.2** | **13.3** | **21.5** | **21.1** |
| **Consumption** | **13.2** | **14.3** | **19.2** | **22.6** |


# Costs: what is a target?




DATA: CRU Hydrogen Cost Model; NOTE: underlying assumptions on fossil fuel and carbon prices from CRU Economics Cost Macro; costs of green power taken from CRU Long-term Renewable Energy Costs Model




DATA: CRU Hydrogen Cost Model, CRU Long-term Renewable Energy Cost Model; NOTE: hydrogen costs do not include renewables connection costs or $H_2$ storage, compression, or distribution

# Regulations: smoothly or painfully?

Green Hydrogen intended for:

- ✓ avoid the curtailment,
- ✓ serve as short/medium-to-long term energy storage,
- ✓ energy carrier,
- ✓ and feedstock for high value added goods

Restrictions under DIRECTIVE (EU) 2023/2413:

- ➢ Additionality
- ➢ Temporal correlation
- ➢ Geographic correlation
- ➢ Electricity from a “green” grid

Are complicated, expensive and will only push the H2 price up and move the H2 production installations into “green grid” area, where power dispaching issues alredy solved

The Price Signal (Power Price cap at, say 20 EUR/MWh) for “green H2” production (removing all other bariers) combinied with relevant Electrolyser CAPEX Aid would help to:

- ✓ solve Power Grid ballancing issues and
- ✓ support new Renewable Power Generation capacities deployment by ensuaring the excess power utilization and minimum price guarantee

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# Thank You!

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