

Water Electrolysers for Applications of Green Hydrogen

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Company Overview by the Numbers

Pure play H₂ company

500+ People

4 Manufacturing Sites

>3,500+ PEM and Alkaline Water Electrolysers

120+ H₂ Fueling Stations

93+ Years Experience

\$2.3B Market Cap

NEL.OSE on Oslo Stock Exchange



USA (Wallingford, CT) PEM Water Electrolysers

- >2,700 systems Delivered
- Production capacity: >50 MW/year, expandable to > 100



Norway (Notodden & Herøya) Atm. Alkaline Water Electrolysers

- >800 systems Delivered
- Production capacity: >40 MW/year & 500 MW/year expandable to 2 GW/year

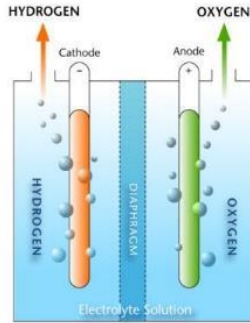


Denmark (Herring) H₂ Fueling Stations

- >300 HRS/year
- > 115 Systems Delivered

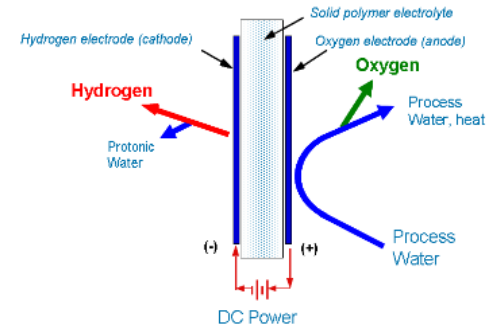
Nel Commercial Electrolysis Technologies

- Atmospheric Alkaline since 1927
 - Liquid KOH electrolyte



2.25 MW Alkaline Stack
43.3 kg/hr

- Proton Exchange Membrane (PEM) – Since 1955
 - Solid polymer electrolyte



1.25 MW PEM
22.125 kg/hr

PEM and Alkaline Electrolyzers

Both PEM and Alkaline products are offered across various market segments – but with specific focus.

- Global leader in large-scale hydrogen production plants – highest uptime, lowest conversion cost, robust and reliable.
- Proven and mature hydrogen production equipment since 1927 – delivered more than 3500 systems in 80 countries.
- Scalable production capacity for industrial, energy and transport applications – from small scale to large scale solutions.



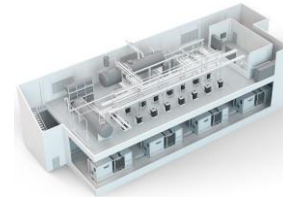
Small Scale Generators

Up to 65 kg/day
0.25 to 30 Nm³/hr
3 kW to 235 kW



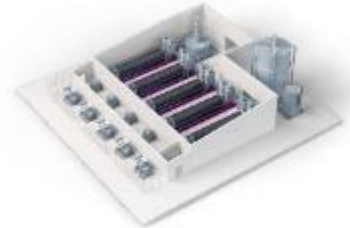
Medium Scale Turn-key Systems

Up to 1000 kg/day
Up to 500 Nm³/hr
1.25 to 2.5 MW



Large scale plant solutions

2 TPD (1000 Nm³/hr) and Up
5 MW and up to any capacity size
Standardized 25 & 100 MW building blocks



Industrial gas

Fueling

Power-To-X

Some Green Hydrogen already more economical than Grey →

Polysilicon Plant (Sarawak, Malaysia – Since 2013)

The world's largest electrolyser plant currently in operation

- 5,335Nm³/h – 11.5T/day ~25MW
- Using 100% green electricity from Hydro
- Hydrogen used for reduction process for silicon rods manufacturing for Semiconductor Industry
- Hydrogen supply is critical for the plant



*: Comparison vs. standard SMR process emitting approx. 10kg CO₂ per kg H₂ produced.



Recent Green Projects



Green Steel Pilot: Alkaline

- 910 NM³/hr (81 kg/hr) (5 MW)



Green Mining Equipment Pilot: Alkaline

- 700 NM³/hr (62.5 kg/hr) (3.5 MW)



Green Hydrogen for Transit Fleets: PEM

- 400 NM³/hr (37.5 kg/hr) (2 MW)



Green Hydrogen for Transit Fleets: PEM

- 400 NM³/hr (37.5 kg/hr) (2 MW)

New Recently Awarded Projects

- 20 MW PEM Electrolyser for a green fertilizer project in Spain



- 5 MW Alkaline for the world's first 100% hydrogen-to-homes heating network on the east coast of Scotland for carbon free heating and cooking 300 to 900 homes

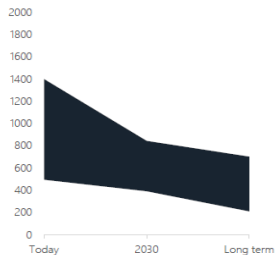


Renewable Energy and Electrolyser Cost Trends Indicate Enabling Carbon Reduction for Industry and Mobility

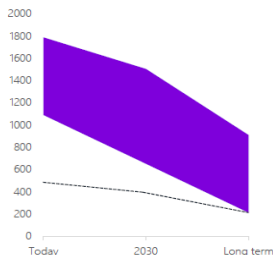
SCALING TECHNOLOGY FOR A 10X MARKET

Electrolyser capex evolution

AE CAPEX Evolution
(2010-2030, \$ per kW)



PEM CAPEX Evolution
(2010-2030, \$ per kW)



Sources: IEA

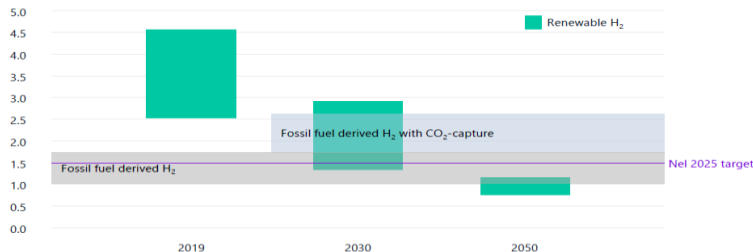
- Capex for electrolyser expected to dramatically decrease by 2030
- PEM trailing alkaline earlier years
- Both converging towards 300\$/kW by the end of decade

- Decreasing cost of renewables and electrolyzers is accelerating the market in existing and new sectors

SCALING TECHNOLOGY FOR A 10X MARKET

Renewable/green hydrogen is on a trajectory to outcompete grey and blue hydrogen

Forecast global range of levelized cost of hydrogen/TCO production from large projects
2019 \$/kg



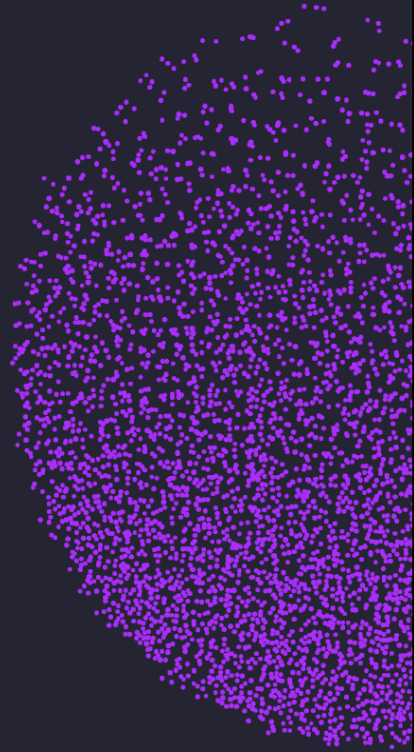
- Green hydrogen cost expected to decline and close gap with fossil sources by 2030
- IEA expects cost parity by 2030 – Nel expects to reach this target by 2025
- Focus on reduction of capex, increase lifetime, improve efficiency, increasing current density, lowering catalyst, and scaling up system components

1.5 \$/kg

Nel green hydrogen cost target by 2025

Assumptions: Nel analysis based on electricity of 20 \$/MWh, 10% cost of capital, cost of land, civil works, installation, commissioning, building water etc., lifetime 70 years incl. O&M cost, at 30 bar

Source: BloombergNEF & IEA / conversations with oil & gas majors



Thank you!

www.nelhydrogen.com

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