Hydrogen fuel for HDV

Hydrogen and Fuel Cell On-Road Freight Workshop at ACT Expo, Long Beach | April 30, 20188

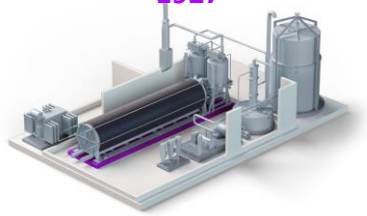
Number one by nature

About Nel Hydrogen

- **World's largest pure-play hydrogen company with a market cap of more than $300 million.**
- **200 employees in Denmark, Norway and USA with world-class experience and skills.**
- Offering hydrogen technology and solutions for industrial, energy and transport applications.
- More than 3500 hydrogen solutions delivered in 80 countries world wide since 1927.
- World #1 on hydrogen electrolysers and hydrogen fueling – unrivalled performance and track-record.

ALKALINE ELECTROLYSERS

Dates back to 1927



PEM ELECTROLYSERS

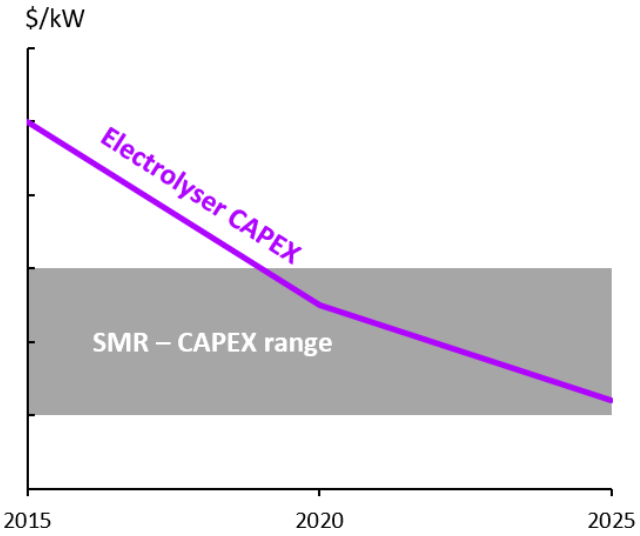
Acquired in 2017

HYDROGEN FUELING

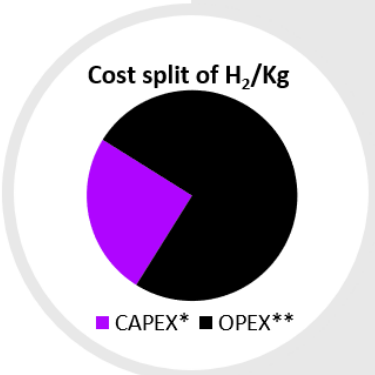
Acquired in 2015

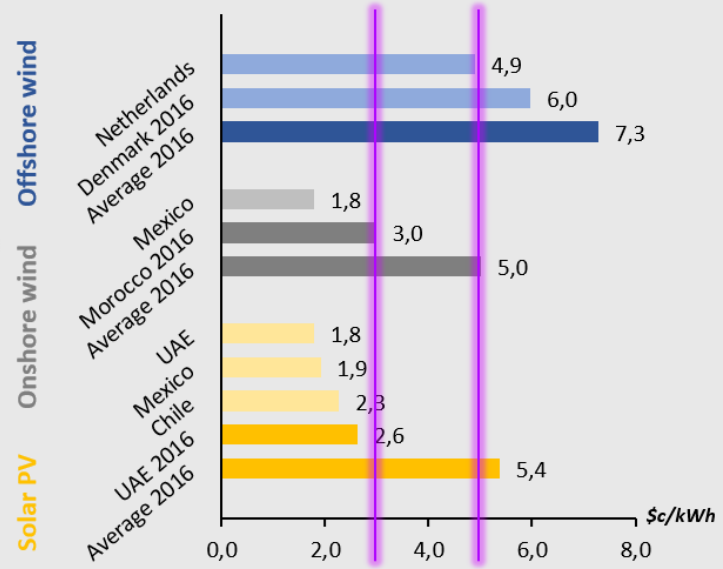
Renewables enables fossil parity for hydrogen

CAPEX: Electrolysers becoming competitive with SMR via scale



OPEX: Renewable energy already enables fossil parity for hydrogen (Industry + Fuel)



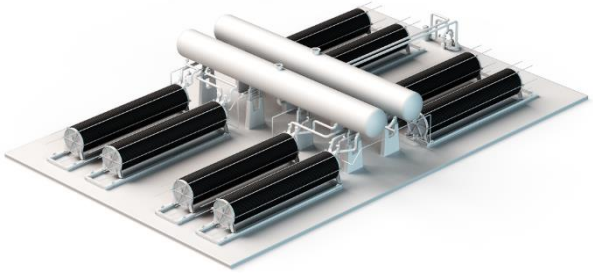


Source: Pareto Securities
EUR/USD: 1:1.2
** Incl. maintenance and operation*
*** Electricity only*

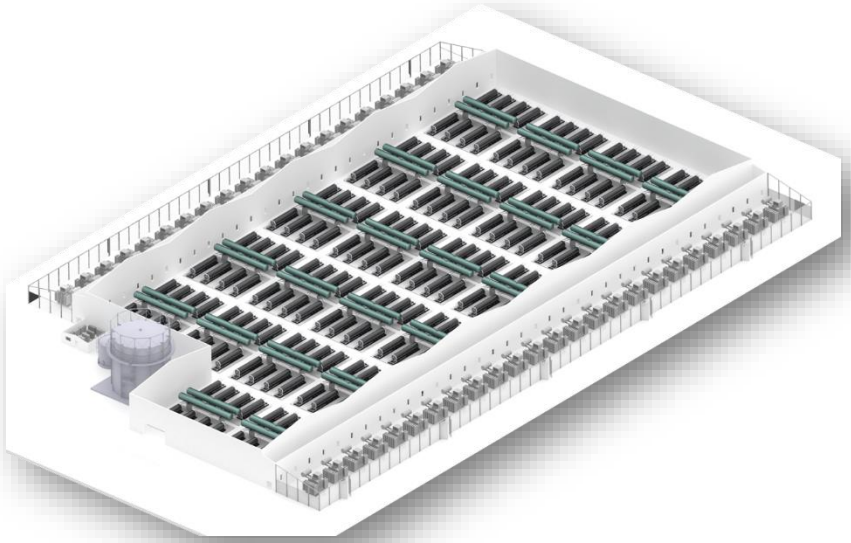
Scale drastically reduces cost of electrolysers

NEL is working on GIGA factory concept for renewable hydrogen production achieving fossil parity

- New R&D efforts on cluster concept where electrolyser stacks share balance of plant components
- Started preparing for a potential 10x ramp-up on electrolyser manufacturing capacity
- **Target is to reach <$500/kW and manufacturing scale to supply hundreds of MW**
- Works in process with clients on large-scale plant concepts.



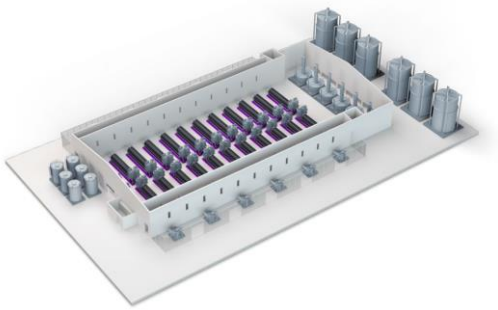
8 cluster electrolyser
Sharing balance of plant



Multiple clusters for large scale plants
MW to GW size

HDV could help provide scale to hydrogen

HDVs consumes much more hydrogen than LDVs and fleet operation enables high fueling equipment utilization.



50MW

25,000 kg/day

500/year

1,000/year

40,000/year

High fueling equipment utilization (fleet)

Low fueling equipment utilization (network)

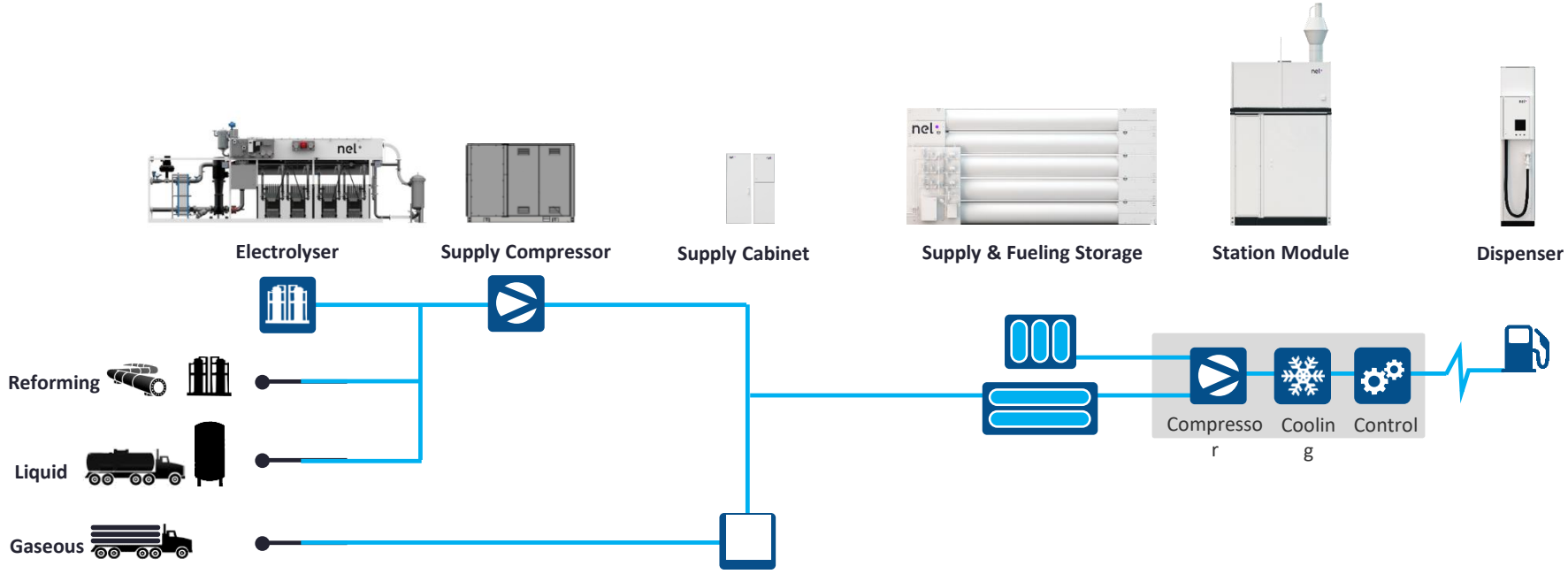
H2Station® hydrogen fueling solution

Turn-key standardized hydrogen fuelling station with dispensers for cars, busses, trucks and forklifts.

200kg per day at 70MPa or up to 600kg/day for 35MPa – all fast fuelling in accordance with SAE J2601.

Flexible configuration of hydrogen storage and fuelling capacity – very compact total footprint.

Can connect to various hydrogen supply sources e.g. onsite production or trucked-in delivery.



New H2Station® manufacturing facility in Denmark

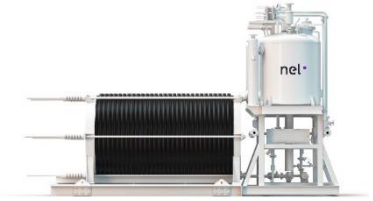
H2Station® manufactured at world's largest factory

300 H2Station® per year – sufficient for fueling 200.000 new FCEVs annually.
€9 million initial investment.

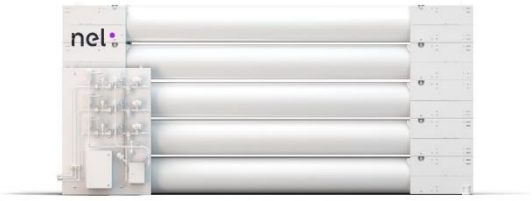
H2Station® for truck fueling in Norway (2018)

ASKO, Norway's largest grocery wholesaler with 600 trucks on Norwegian roads

- ASKO facility in Trondheim, Norway.
- Onsite renewable hydrogen from electrolysis.
- Connected to rooftop solar on warehouse.
- Containerized turn-key C-150 electrolyser.
- H2Station® for trucks, cars and forklifts.
- Delivered during 2018.

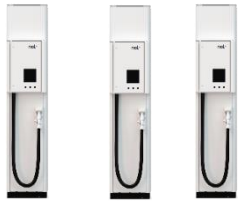


Electrolyser

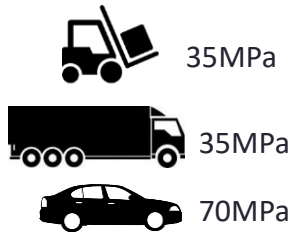


Hydrogen storage

Station module



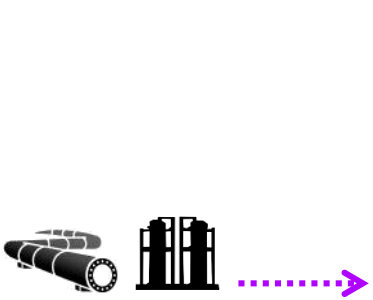
Dispensers



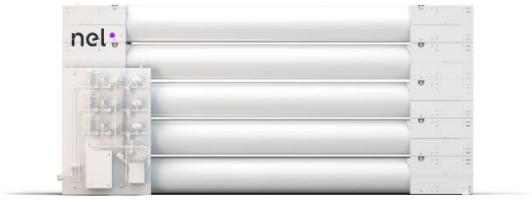
H2Station® for bus fueling in Latvia (2017)

High capacity station for 20 busses in Riga – includes dispenser for car fueling

- Bus depo facility in Riga, Latvia
- Onsite reforming of natural gas.
- H2Station® for busses and cars.
  - **70MPa:** 200kg in 12 hours
  - **35MPa:** 300kg in 5 hours
- 10 busses and 10 trams.
- Delivery during 2017.



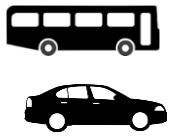
Reforming



Hydrogen storage

Station module

Dispensers



35MPa

70MPa

Hydrogen Production and Fueling for SunLine

Electrolyser and H2Station® for world's largest onsite hydrogen fueling station in California

- $8.3 million order for SunLine – World's largest onsite hydrogen fueling station in California.
- Turn-key solution including civil works and permitting:
  - PEM electrolyser for hydrogen production – 900kg/day
  - 2 x 35MPa dispensers with supporting hydrogen storage and compression
  - Capacity for up to 25 hydrogen fuel cell busses per day.

Electrolyser

2 x Hydrogen storage

2 x Station module

2 x Dispenser

35MPa

Hydrogen Production and Fueling for Nikola Motors

Electrolyser and H2Station® for fueling of Nikola Motors fuel cell trucks

- $9 million order for Nikola Motors on two production and fueling solutions of 1,000kg/day each.
- Strategic collaboration on developing 16 sites with production and fueling of up to 32,000kg/day/site.
- Effort is to support the fuel cell truck deployment plans of Nikola Motors in the US during 2019-2021.

2 x Electrolyser

2 x Hydrogen storage

2 x Station module

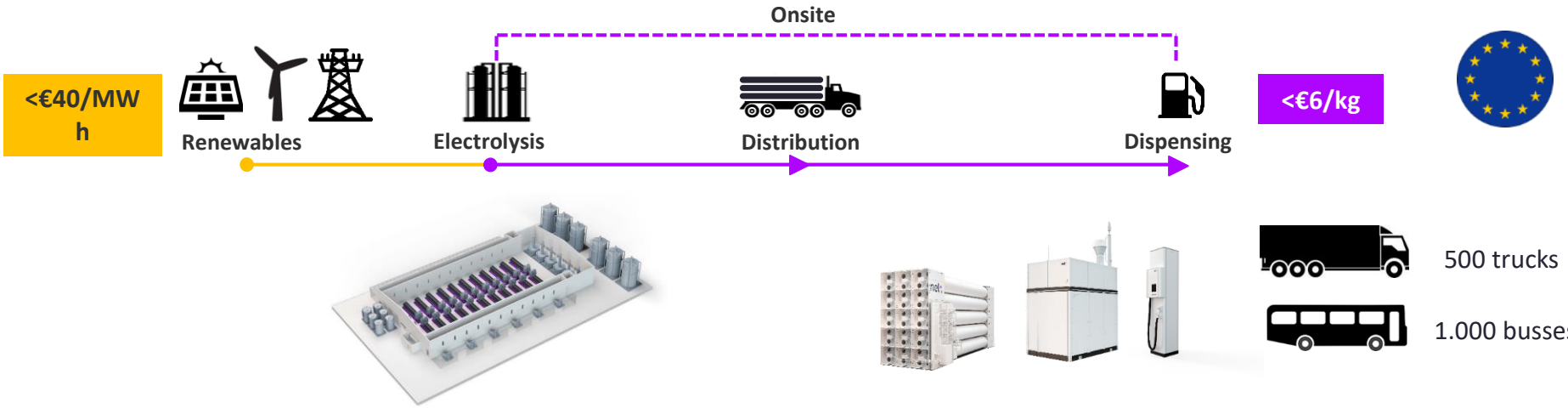
2 x Dispenser

Renewable hydrogen is competitive with diesel in EU

In Europe unsubsidized renewable hydrogen at scale enables a pump price <€6/kg competitive with diesel for busses/trucks.

In US, public contributions to infrastructure can further reduce price down to <$5/kg competitive with low US diesel price.

Centralized production can use low cost renewables and achieve high scale – Onsite production eliminates costs for distribution.



50MW Electrolyser
25.000 kg/day

Multiple H2Station®
Scaled for local demand

End of presentation

Thank you for your attention

Questions?

www.nelhydrogen.com

Number one by nature