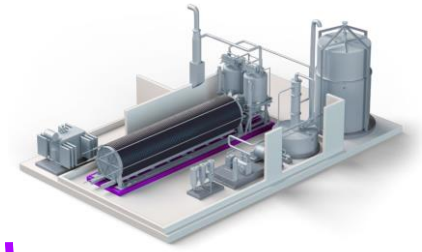
Hydrogen HDV infrastructure with Fossil Parity

Jesper Fruergaard – Nel Hydrogen Solutions

About Nel Hydrogen

- **World's largest pure-play hydrogen company with a market cap of €500 million.**
- +250 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	PEM ELECTROLYSERS	HYDROGEN FUELING
Dates back to 1927	Acquired in 2017	Acquired in 2015



Three business segments	Hydrogen Electrolysers	Hydrogen Fueling	Hydrogen Solutions

Hydrogen – JUST ANOTHER FUEL

Hydrogen shall be seen as “just another fuel”

- Together with partners - Nel can offer a full service concept
- Transition from fossil to 100% renewable made easy

Buy hydrogen dispensed at pump, just like fossil fuels

- Low hydrogen price achieved through large scale semi-centralized production from cheap renewable power
- Minimizes footprint at depo, high pressure combined distribution/storage solutions gives redundancy
- HDV can be refueled, serviced and maintained like traditional HDV

Long-term contracts for 100% green Hydrogen is available

- Per kg price incl. refueling station, operation and maintenance
- Renewable hydrogen offered at attractive price ensures FOSSIL PARITY

Hydrogen – JUST ANOTHER FUEL

Combining Lego bricks to a solution

- Standard elements can be combined as needed
- 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.

Fossil parity

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Renewable hydrogen from electrolysis reaching a tipping point

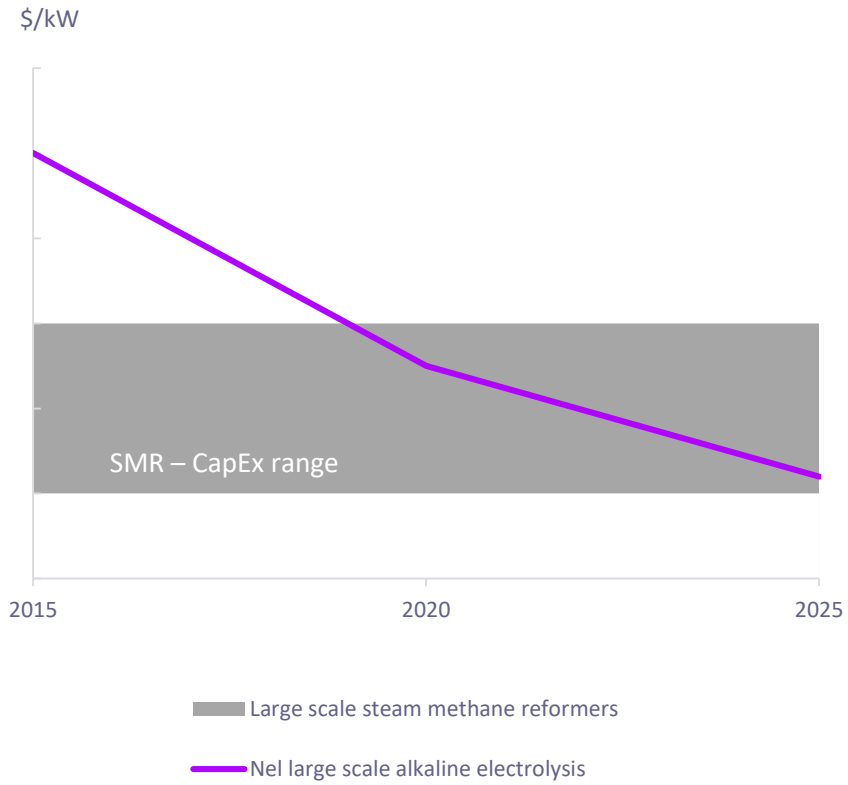
What is fossil parity?

Fossil parity: Cost diesel (fossil) solution = or > renewable hydrogen solution

- Fuel Cell Electric HDV at **5 EUR/kg** equals Diesel price of ~0,9 EUR/liter excl. VAT
- No cost assigned to harmful fossil emissions like: CO2 , SO_2, NO_x, CO, HC, PM

Electrolysers outcompeting fossil alternatives

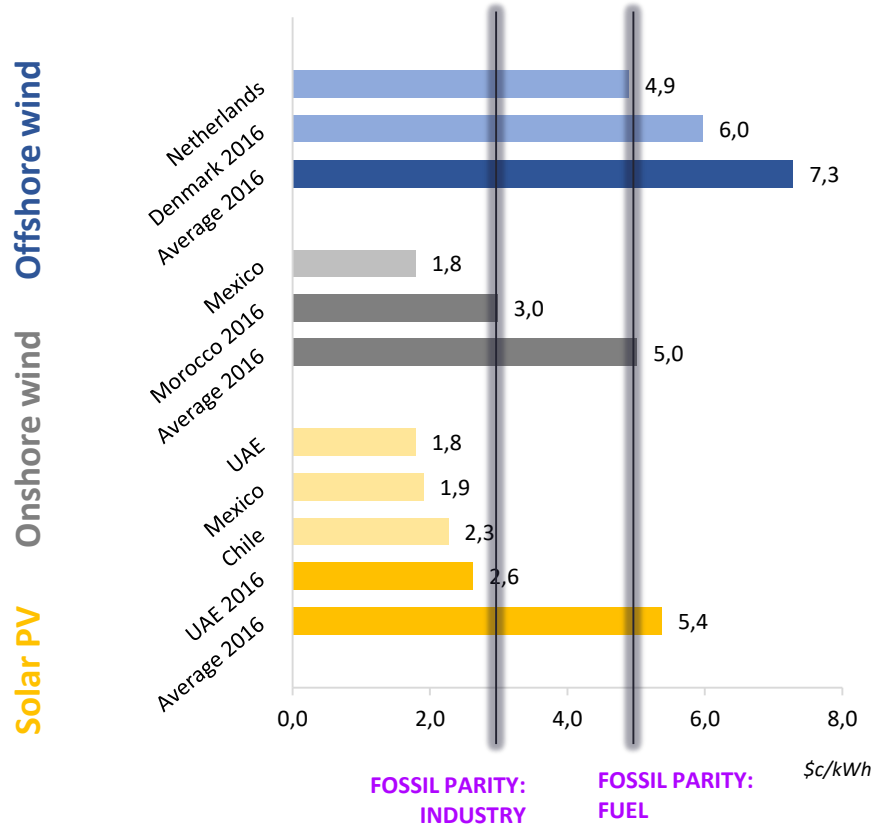
CapEx: Electrolysers from Nel - becoming competitive with SMR



Source: Pareto Securities
EUR/USD: 1:1.2

**incl. service, maintenance & operation*
***electricity*

OpEx: Renewable energy already enables fossil parity for hydrogen



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How we reach fossil parity…

New H2Station® manufacturing facility in Denmark

H2Station® manufactured at world's largest hydrogen fueling station factory

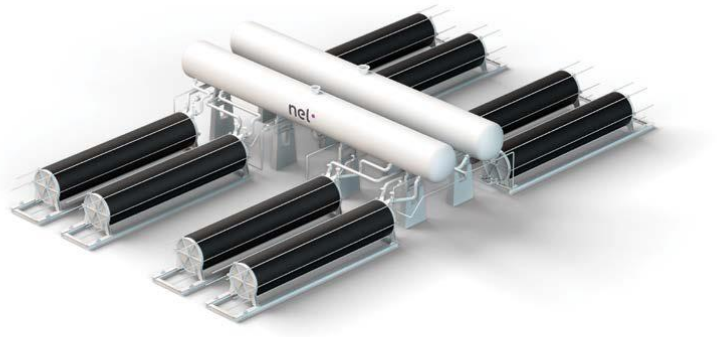
300 H2Station® per year – sufficient for fueling 200.000 new FCEVs annually

Constructing the world's largest electrolyzer plant

Name plate capacity of 360 MW per year, more than 10x current annual production

300 H2Station® per year – sufficient for fueling 200.000 new FCEVs annually

- Highly automated and designed according to lean manufacturing principles
- Industrial scale electrode production of the markets most efficient electrolyzes at a game changing cost
- Manufacturing plant will be constructed as an extension of the current facility at Notodden, Norway
- Operational in 2Q 2020 with ramp-up aligned to customer requirements
- Aiming at system cost reduction of more than 40%



Hydrogen train opportunity in North Germany

Efficient centralized H2 production

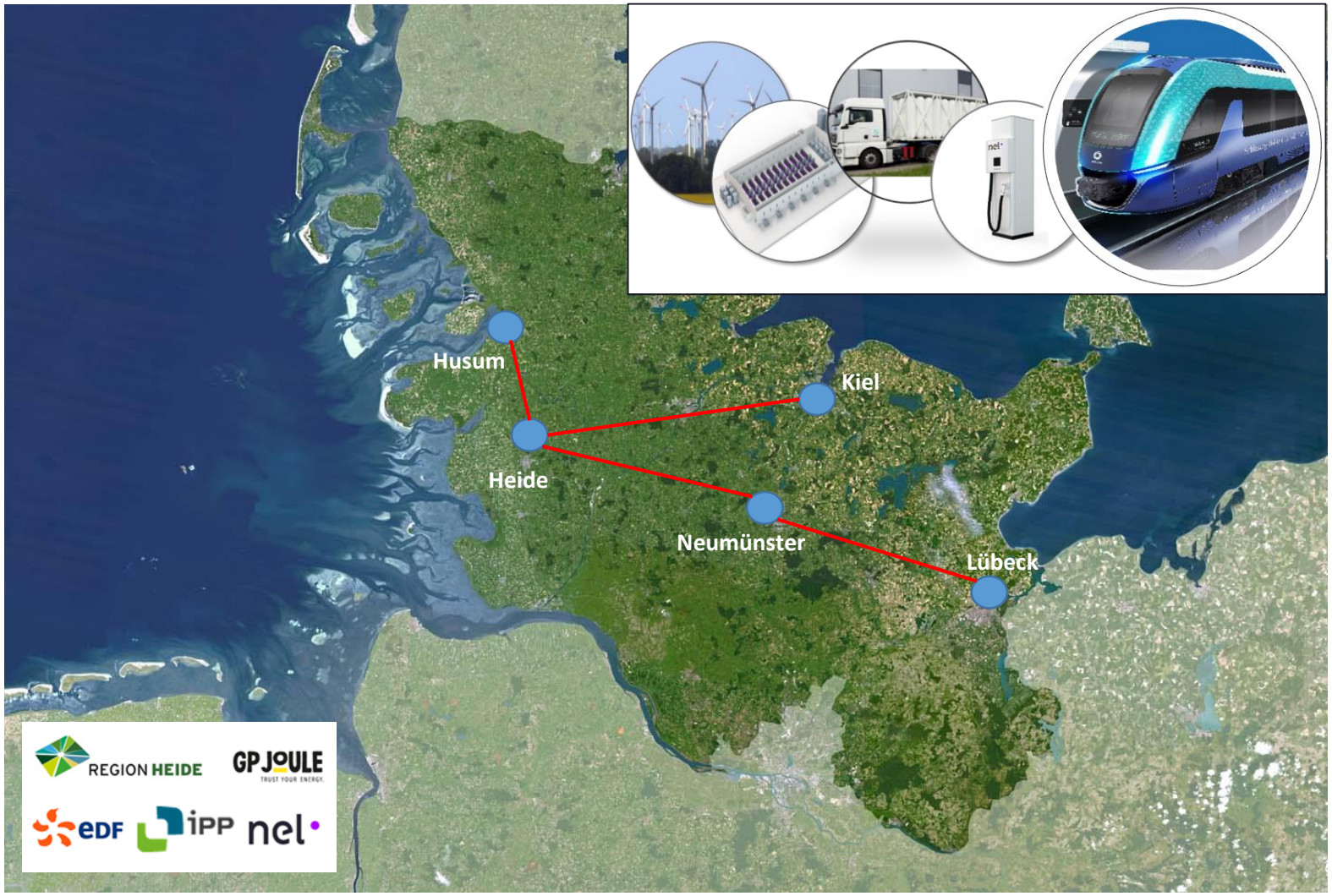
- 100% green hydrogen production by centralized electrolysis plant situated in Heide, in Schleswig-Holstein
- Produced via local renewable energy
- 7-10 T/day supply for 56 Trains

Flexible distribution setup

- Pre-compressed hydrogen distributed by truck in 50/70MPa swap containers – flexible logistics ready for further scale

Compact fueling equipment at stations

- State-of-the art hydrogen fueling equipment located at train stations in Husum, Kiel, Neumünster and Lübeck



NEL + NIKOLA: Zero emission – Zero compromise

- Solution for green hydrogen production and fast refueling of hydrogen at MEGA stations
- Zero emission fuel and freight based on renewable energy: same convenience and higher performance

Electrolysers
Hydrogen production
A-3880 - 8T/day

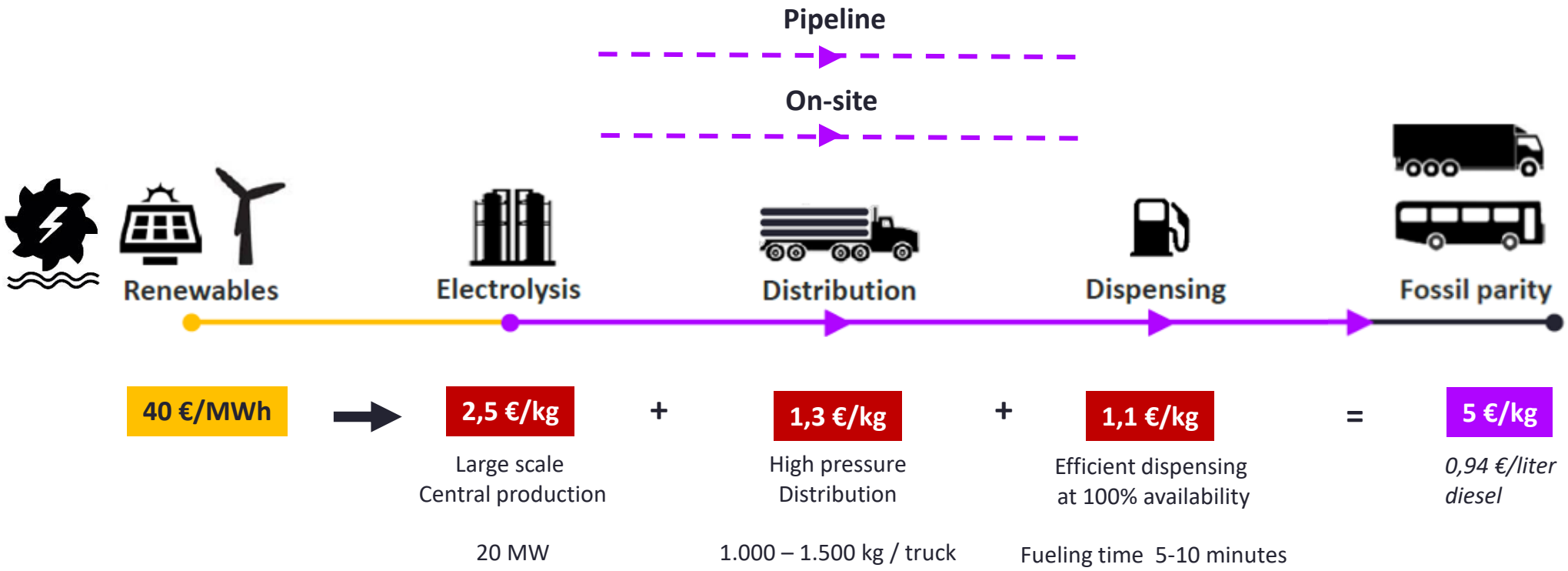
H2Station®
Hydrogen fueling
80 kg / 10 min

© Nikola Corporation

MOTOR COMPANY

Hydrogen supply chain for the mobility sector

- Zero-Emission hydrogen supply chain enable **Fossil Parity** at the dispenser
- Hydrogen based on renewable electricity with flexible production
- On-site production or pipeline when energy cost and site allows



Implications of Scale?

At Scale

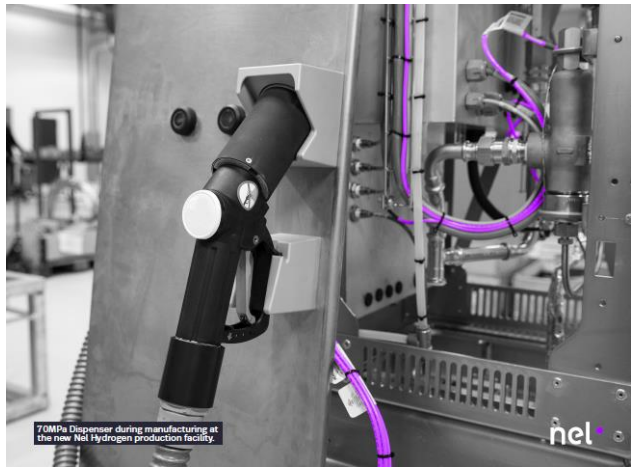
- Fuel Cell Electric Bus (FCEB) = cheapest ZE public transport solution (bus prices already quoted at FCB CPH17*)
- As production goes up further price will decrease accordingly

No expensive investment in fueling / charging infrastructure

- Supplier of hydrogen provides refueling infrastructure
- Refueling done at depot – no interference with traffic/problem for the city during setup and operation

Fuel Cell electric busses are 1:1 substitution for diesel buses

- Same range, can service existing routes, i.e. no need to adapt routes and schedule
- Refueling done at depot, once per day like a diesel bus
- Fueling capacity increase at depot made easy – just add additional trailers



* See published white paper for TCO analysis

End of presentation

Thank you for your attention

Questions?

Jesper Fruergaard M:+45 3059 7351 E: jeand@nelhydrogen.com
www.nelhydrogen.com