



Hydrogen – en grøn forretningsmulighet

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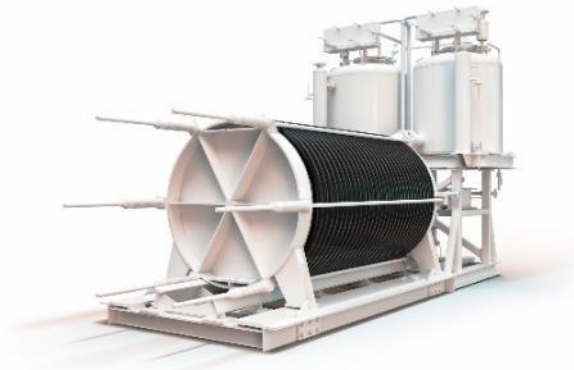
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NEL'S COMPETITIVE POSITION



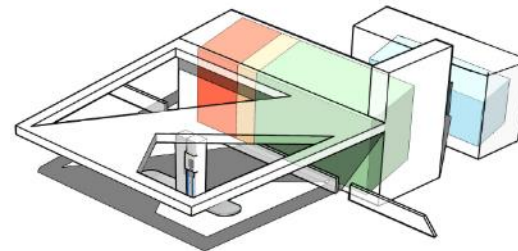
- PURE-PLAY HYDROGEN COMPANY
- STRONG MANAGEMENT TEAM IN PLACE
- SOLID BALANCE SHEET
- POSITIONED TO PLAY A LEADING ROLE IN FAST MOVING INDUSTRY

ELECTROLYSERS



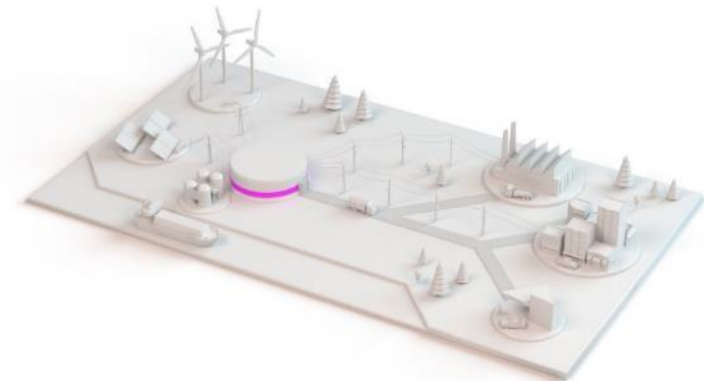
- NO. 1 SINCE 1927
- UNRIVALED PERFORMANCE
- TURN-KEY/CONTAINERISED
- GAME CHANGING ROTOLYZER

FUELING



- WORLD-CLASS TECHNOLOGY
- LEADING POSITION IN KEY MARKETS
- EARLY MOVER IN NEW MULTI-BILLION DOLLAR MARKET

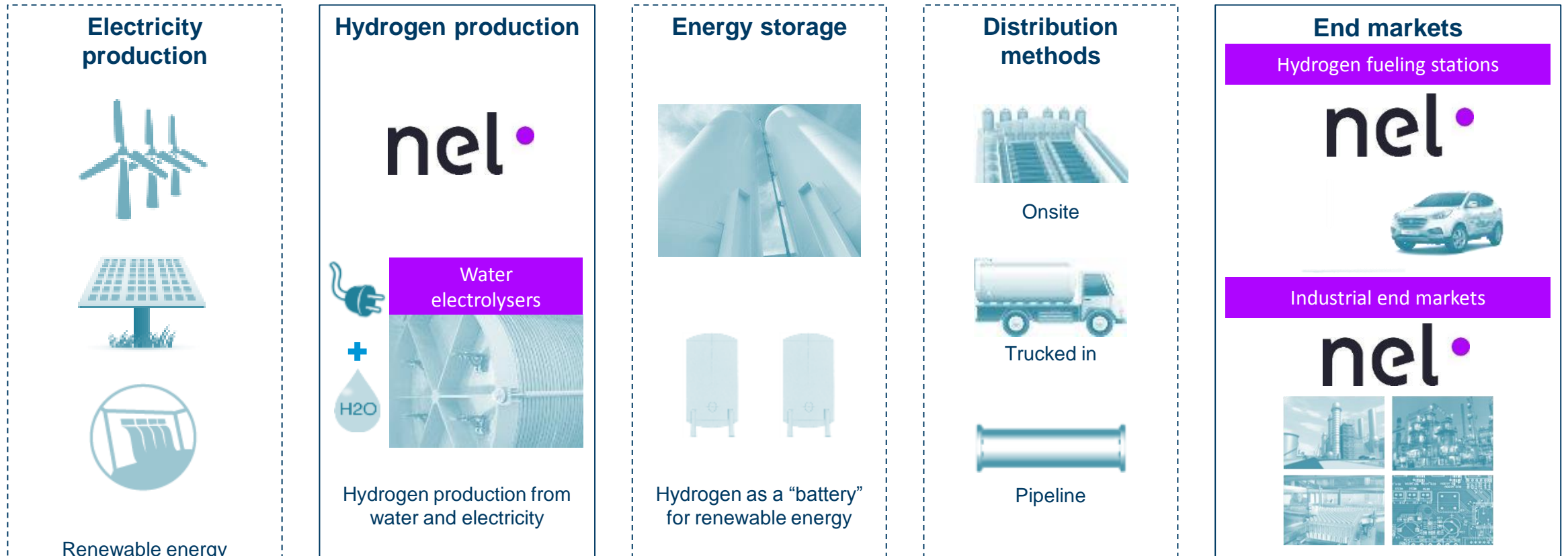
SOLUTIONS



- ONLY PROVIDER OF INTEGRATED SOLUTIONS ACROSS VALUE CHAIN:
 - ✓ HYDROGEN FUELING NETWORKS
 - ✓ RENEWABLE HYDROGEN
 - ✓ STORAGE SOLUTIONS

SWEET SPOTS IN THE HYDROGEN VALUE CHAIN

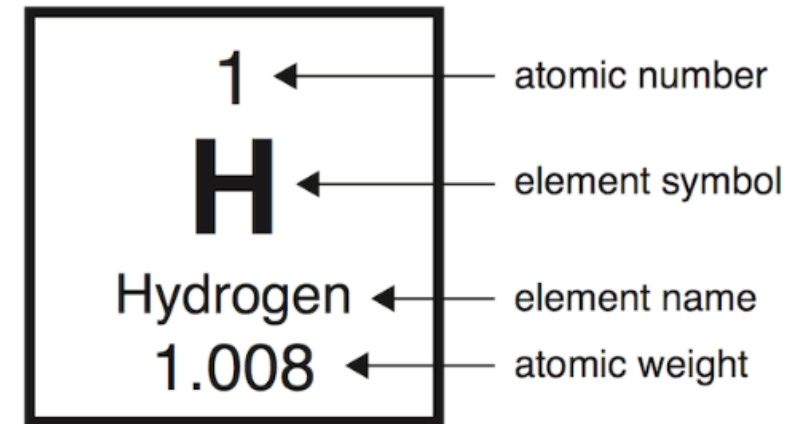
Addressing all end markets for hydrogen



THE HYDROGEN OPPORTUNITY

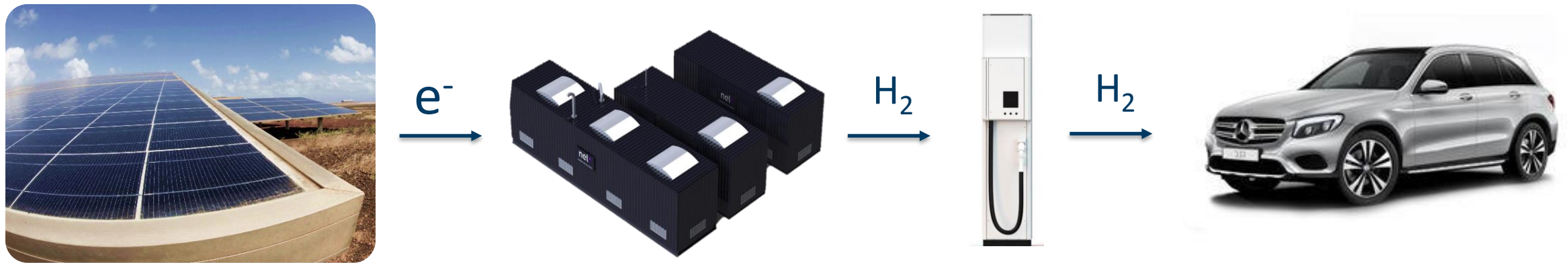
RENEWABLE HYDROGEN IS AND WILL BE #1

- World needs a new energy carrier to replace oil and gas
- The element with highest gravimetric energy density is hydrogen:
 - ~3x gasoline
 - ~150x battery
- Hydrogen can be produced from water and renewable energy
- Access to renewable energy is practically infinite
- Most new renewable electricity production is intermittent/irregular:
 - creates big challenges for the grid
 - creates big opportunities for low cost, renewable hydrogen production

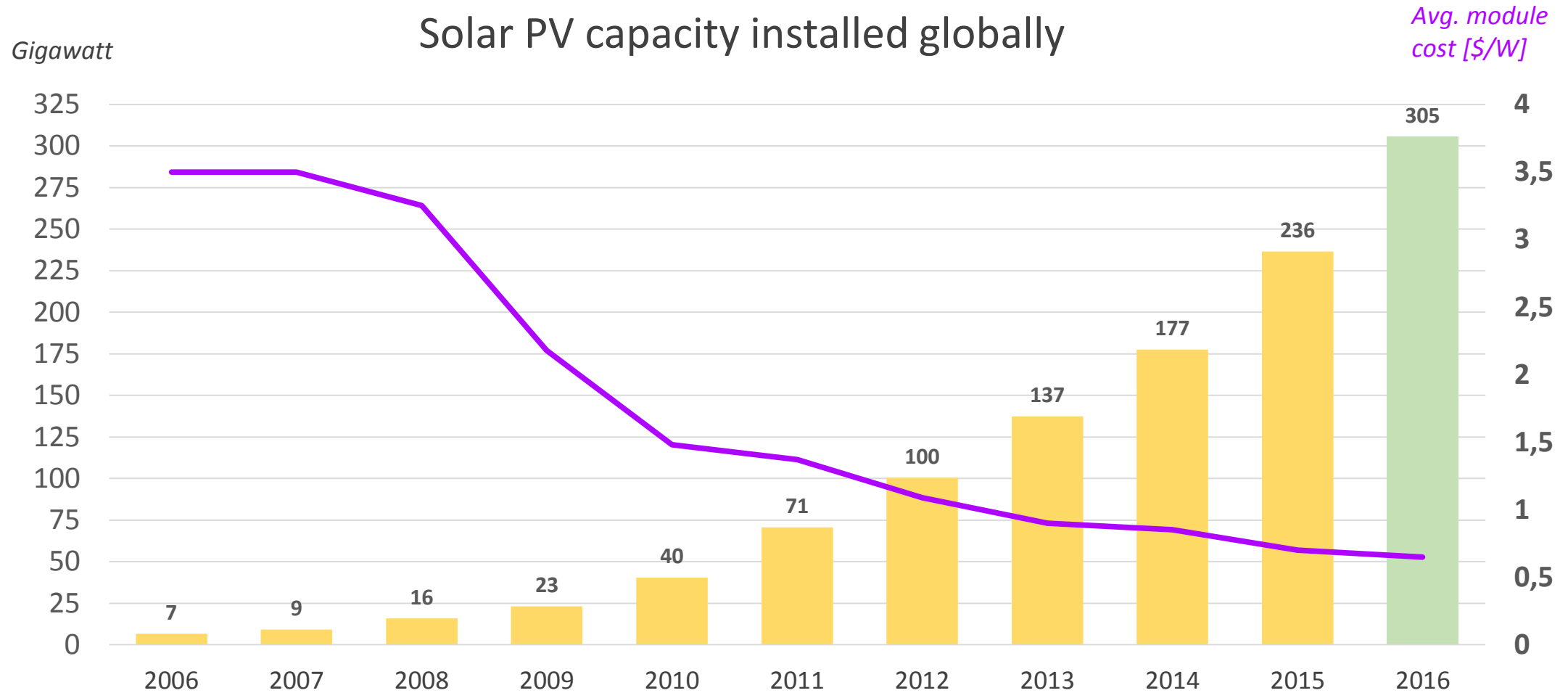


MEGATRENDS IN FAVOUR OF HYDROGEN

1. Renewable electricity is becoming competitive
 - Timing of supply/demand do not always match
 - Need hydrogen solutions to realise full potential
2. Hydrogen cars are becoming affordable and available
 - Focus on zero-emission transportation
 - Major car companies launching ambitious programs



RENEWABLE ENERGY BECOMING COMPETITIVE

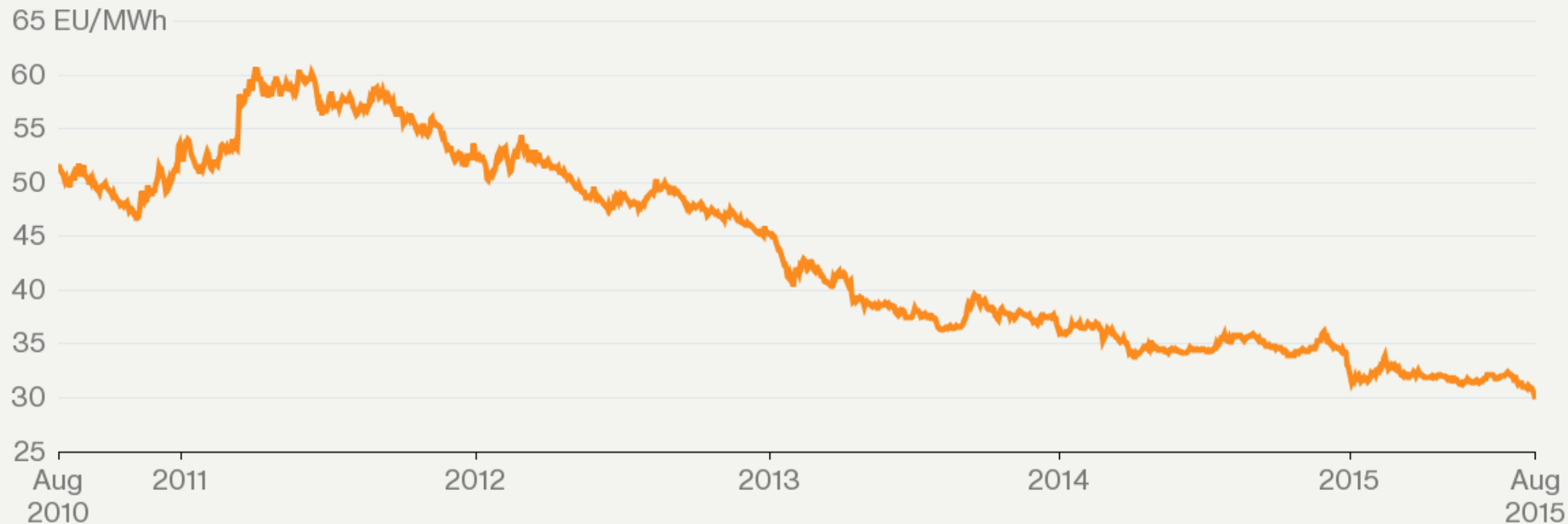


Source: Solar Power Europe, IRENA, IHS (2015 & 2016)

ELECTRICITY IS BECOMING CHEAP

German Electricity Slump

Year-ahead German power contract



Source: EEX

AVAILABLE AND AFFORDABLE

- Cost going down, volumes going up: Toyota to launch new 20% cheaper Mirai in 2019...ramping up production to 30,000 units/year from 2020*
- Hyundai, Toyota, Honda, BMW, Daimler, GM, Nissan, Ford, Audi, and Volkswagen have all launched, or announced launch, of FCEVs



2014



TOYOTA

2015



HONDA

2016



2017



Audi



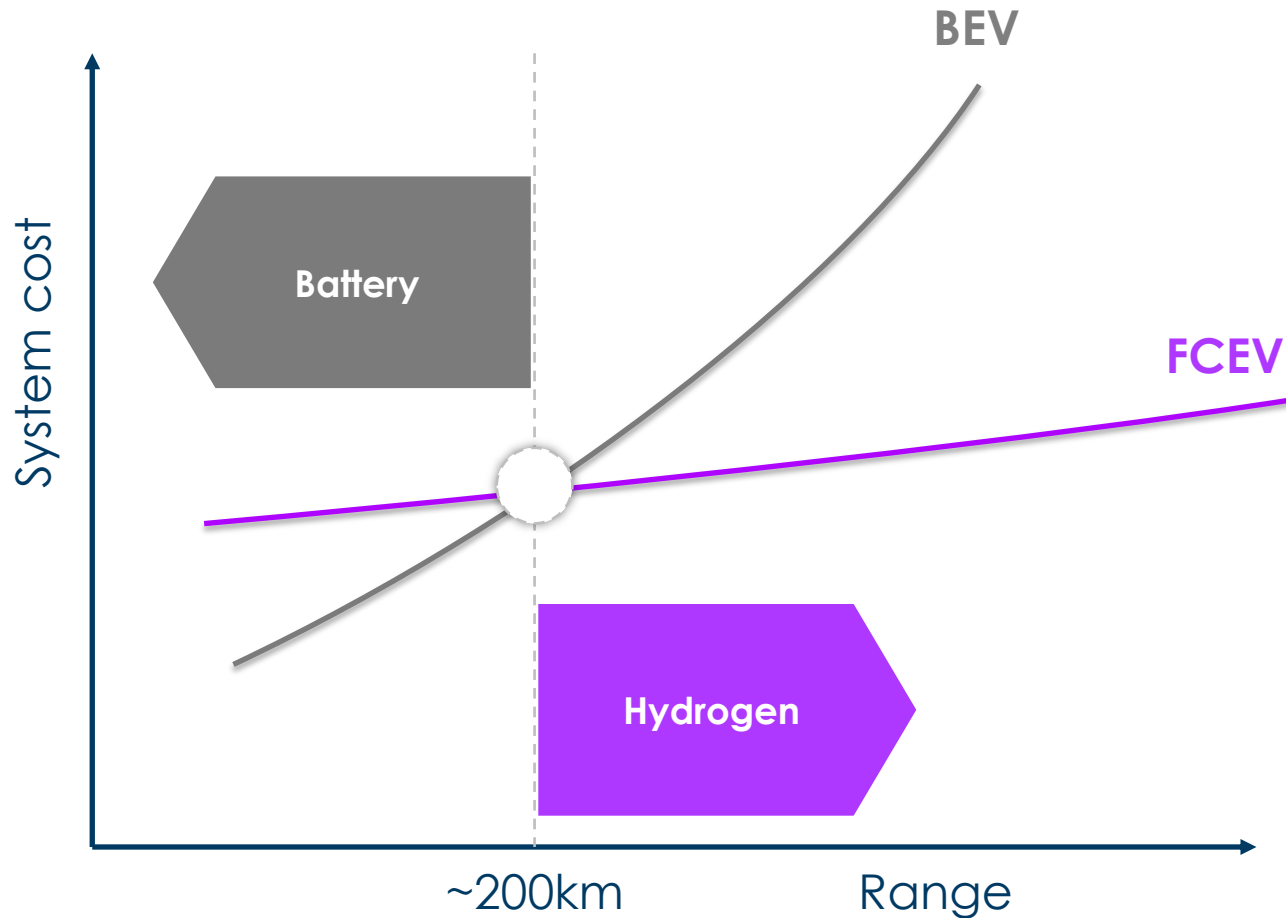
2018 - 2020

*Source: Toyota press release Q2'16

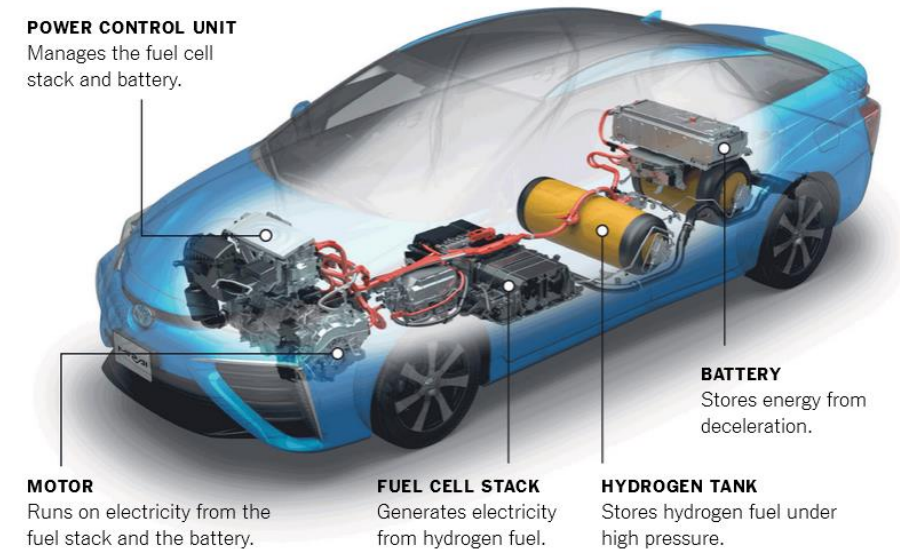
MIRAI #1 AND #2 IN NORWAY (25TH OF AUG.)



BATTERY OR HYDROGEN



FCEV = Fuel Cell Electric Vehicle



Vehicle energy to weight ratio
hydrogen vs. battery = 3-6x*

* The larger the vehicle, the bigger the energy to weight ratio difference

SIZE/RANGE MATTERS

FIRST EVER 100% EMISSION-FREE
HYDROGEN POWERED SEMI-TRUCK

[See the Press Release](#)

NIKOLA ONE™

| | | | |
|------|-----|------|------|
| 93 | 04 | 03 | 59 |
| Days | Hrs | Mins | Secs |

DECEMBER 1, 2016 | SALT LAKE CITY, UTAH

- 100% ZERO EMISSIONS
- HYDROGEN POWERED
- 1,200 MILES RANGE
- 15 MINUTE REFILL TIME
- NEVER PLUG IN
- 100% ELECTRIC DRIVE
- THE END OF DIESEL ENGINES
- 1/2 THE OPERATING COST COMPARED TO DIESEL
- 2,000 FT. LBS TORQUE
- 1,000 HORSEPOWER
- 320 kWh BATTERY
- 1 MILLION MILES FREE* HYDROGEN FUEL
- REGENERATIVE BRAKING
- NO COMPETITION

RESERVE YOURS FOR ONLY \$1,500

100% Refundable deposit

TOYOTA HAS CONCLUDED ON HYDROGEN

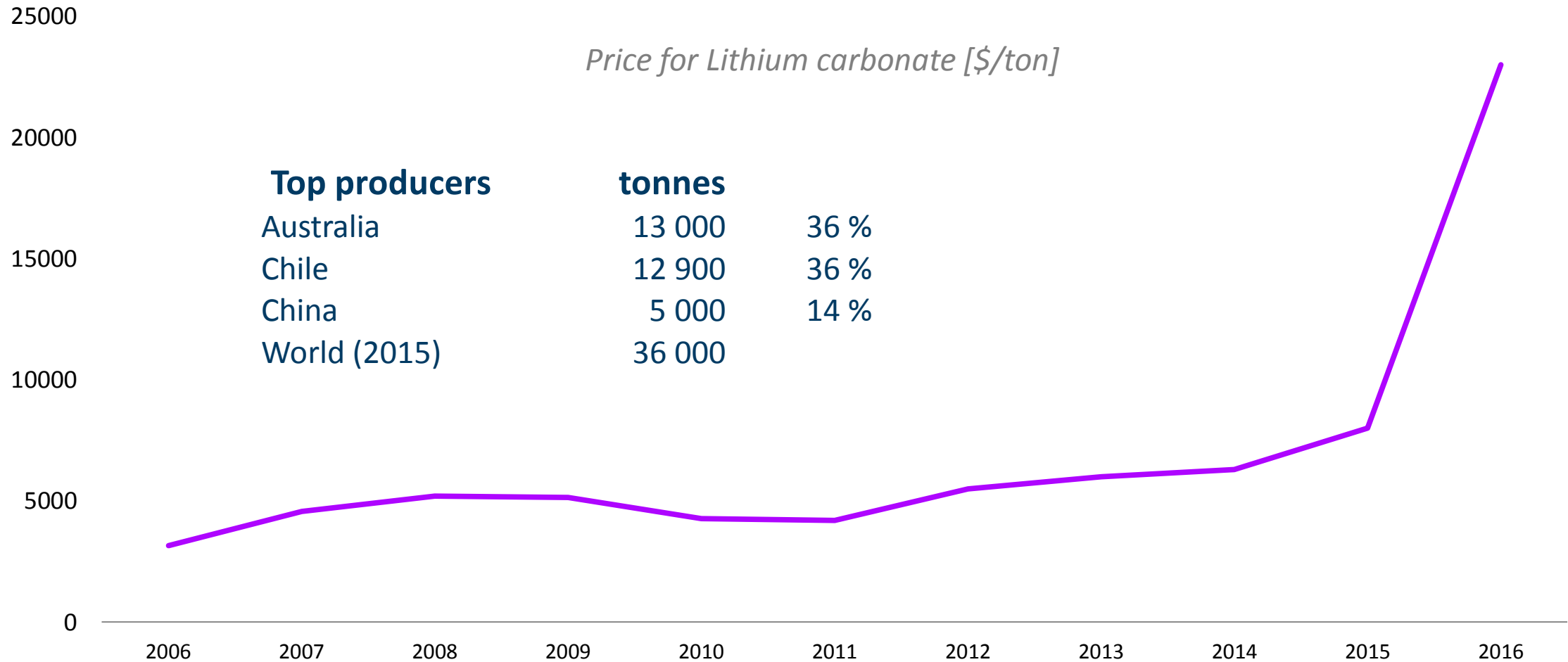
- Tesla targets to produce between 80-90.000 cars in 2016
 - Newly launched additional 15 kWh for 10.000 USD
 - Equal to 666 USD/kWh
 - Long-term battery cost target: 150-200 USD/kWh

500 km range (100 kWh) = 15,000 – 20,000 USD/system
- Toyota targets to produce 1.2 million hybrid cars in 2016
 - Has produced >9 million hybrid cars since 1997
 - All using NiMH-batteries
 - Toyota owns battery factory together with Panasonic
 - Long-term fuel cell system cost target: 30 USD/kW
 - Long-term hydrogen storage system target: 500 USD/kg

500 km range (5 kg H₂) = 3000 + 2500 = 5500 USD/system



DEVELOPMENT LITHIUM PRICE: 10X IN 10 YEARS

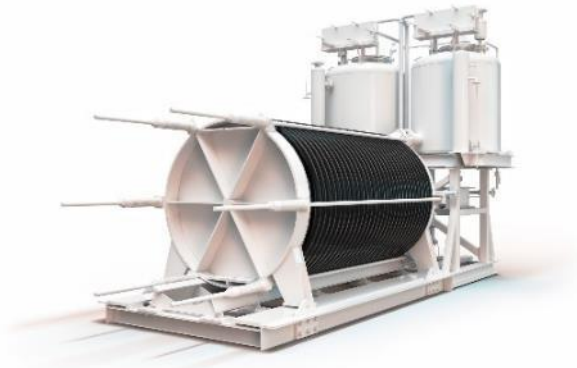


Source: www.lithiumsite.com, Chilean lithium export prices, Asian Metal Inc.

SEGMENT DEVELOPMENT

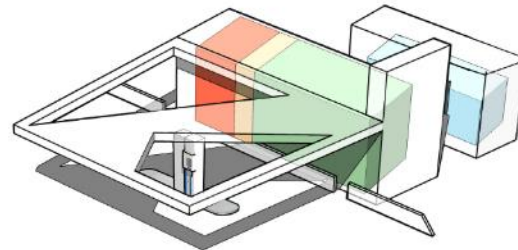


ELECTROLYSERS



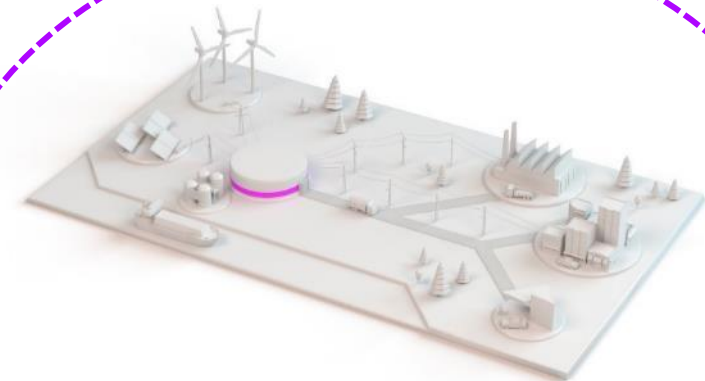
HYDROGEN PRODUCTION
TECHNOLOGY

FUELING



HYDROGEN FUELING
TECHNOLOGY

SOLUTIONS



SYSTEM INTEGRATION
PROJECT DEVELOPMENT
FINANCING & OWNERSHIP

Nel Hydrogen Solutions established to utilize market opportunities across the Nel group

- Efficient system integration, project development and sales across segments
- Only provider of integrated solutions along the entire value chain:
 - Hydrogen fueling networks
 - Renewable hydrogen
 - Storage solutions

New developments:

- Awarded hydrogen fueling station contract in Sweden
- Awarded repeat sale of two new fueling stations to European customer
- High interest in turn-key solutions from multiple markets
- Continue to actively develop markets, like California, using same approach as in Norway and Denmark
- Received requests for bus solutions in combination with renewable hydrogen

FUELING NETWORKS

- Develop entire fueling networks, incl. renewable hydrogen production
- Service and maintenance
- Network monitoring services



RENEWABLE HYDROGEN & STORAGE SOLUTIONS

- Storage solutions and “constant” renewable supply
- Renewable hydrogen
- Production based hydro, wind or solar
- Large, medium or small scale



SHOWCASE DENMARK

The world's first country-wide network in daily operation:

- Nel constructed entire network
- Nel undertakes service, maintenance and surveillance
- Collaborating with leading oil, energy and gas companies*

Key facts:

- 100% of hydrogen from electrolysis
- 6 stations with onsite electrolysis
- 5 stations with centralized Nel electrolysis
- All stations approved by OEM's
- Same approach in other markets



APPLYING THE WINNING FORMULA

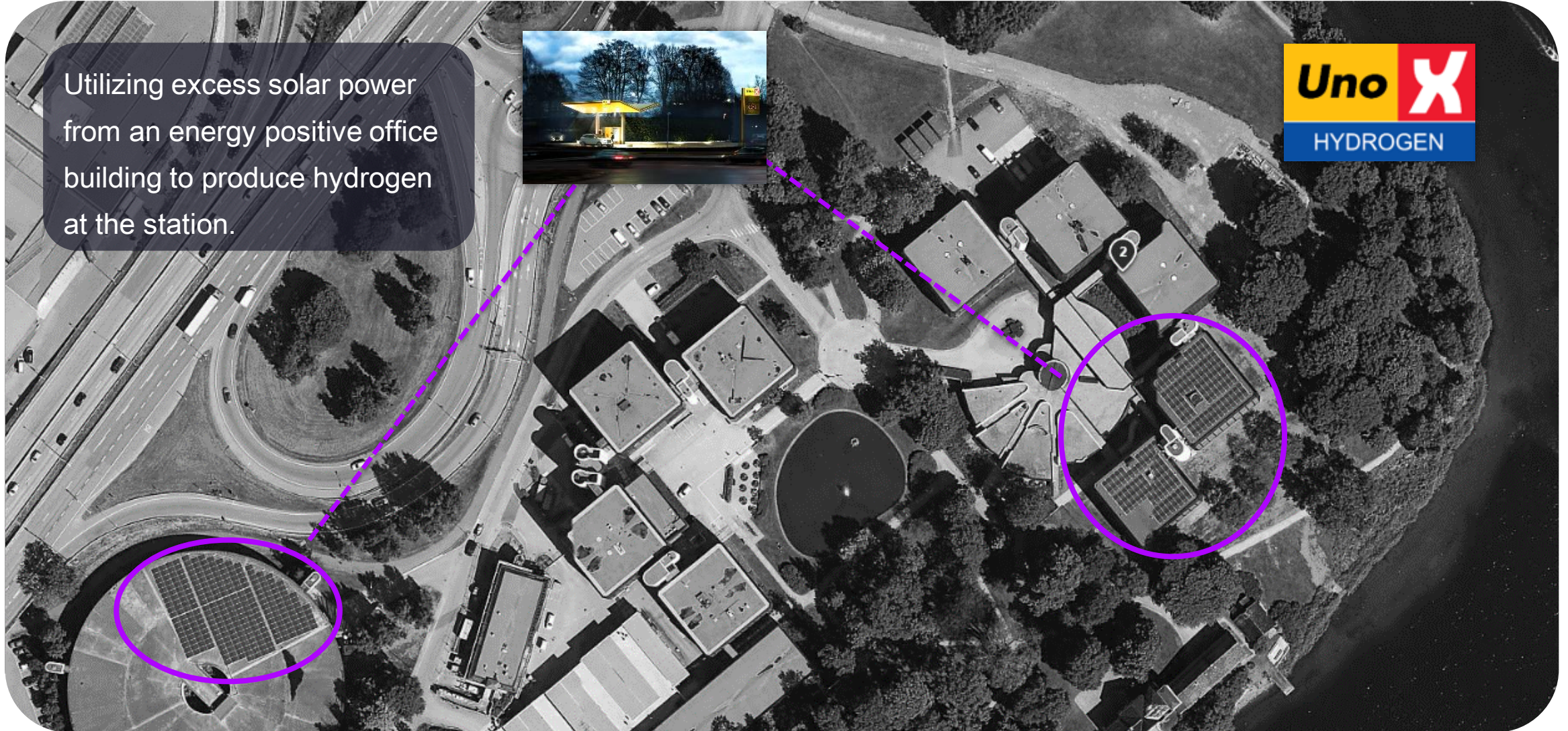
UNO-X HYDROGEN AS

- JV between Uno-X (41%), NEL (39%) and Praxair (20%)
- Target to build nationwide hydrogen fueling station network in Norway by 2020
- Strong partners with complementing knowledge and experience, Nel to provide hydrogen technology and competence
- Norway is attractive for FCEV-users:
 - World-class FCEV incentives, with no vehicle or value-added tax, free access to public transport lanes, free public parking, and free passage on toll roads
 - Hydrogen in Norway is 100% renewable



1ST OF 20, LIGHT-HOUSE PROJECT, SOLAR-TO-H₂

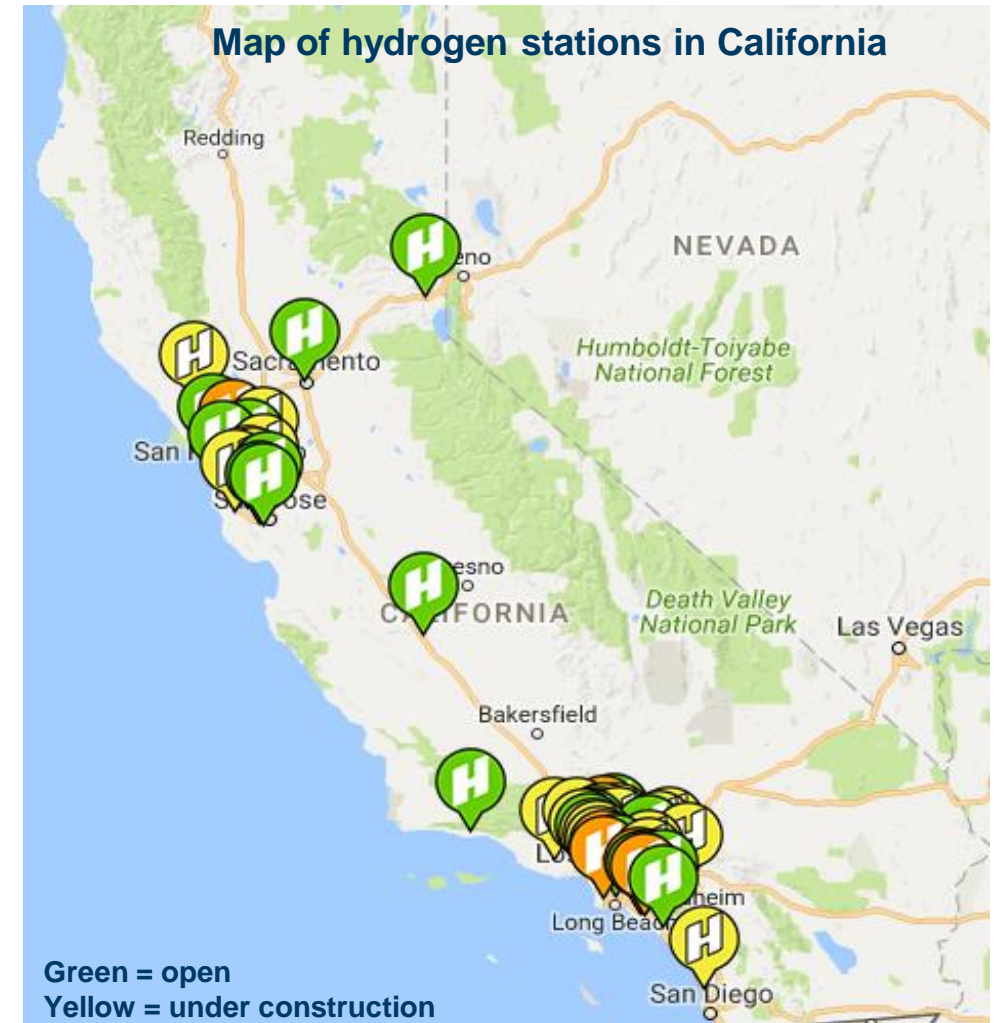
Utilizing excess solar power from an energy positive office building to produce hydrogen at the station.



MARKET STRATEGY AND OUTLOOK

CALIFORNIA

- California Energy Commission has doubled GFO* to USD 33 million, target to reach 100 hydrogen fueling stations by 2020
- Nel submitted tender 19/8, allocation expected during Q4
- Leading hydrogen technology brings Nel to the forefront in offering solutions to other companies tendering for GFO
- Direct and indirect approach to hedge market entry
- First orders for hydrogen refueling stations expected in Q1'17
- Opportunity within hydrogen production, as 33% of the hydrogen must be renewable, currently none TRUE RENEWABLE
- Connecting hydrogen production to solar/wind, working alongside leading industry actors



* GFO, Grant Funding Opportunity – formerly referred to as the PON
Image source: California Fuel Cell Partnership www.cafcp.org, retrieved August 2016

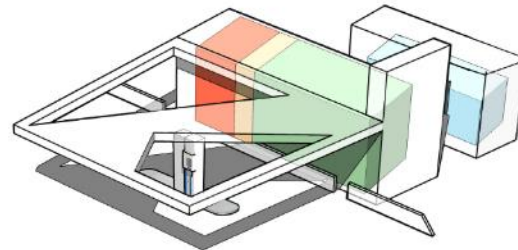


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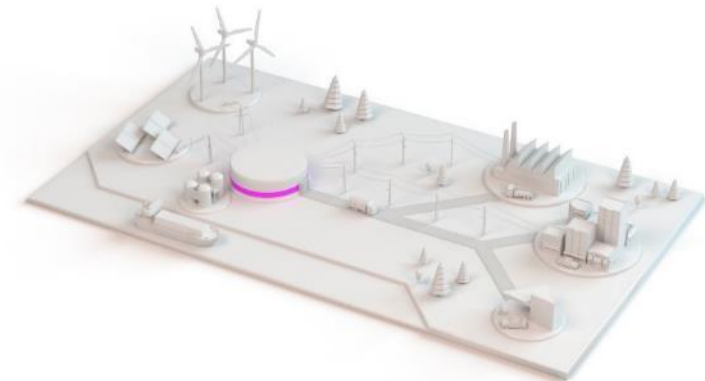
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SYSTEM INTEGRATION
PROJECT DEVELOPMENT
FINANCING & OWNERSHIP

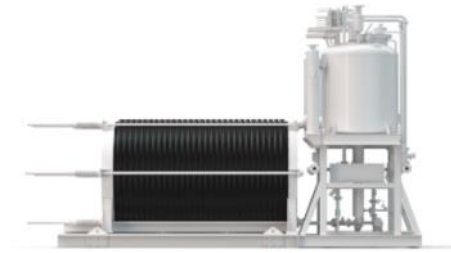
Global leader within large-scale hydrogen production plants

- Highest uptime, lowest conversion cost, robust and reliable
- World leading supplier of technology for hydrogen production for decades
- Delivered >850 large-scale electrolyzers in 59 countries
- Scalable production capacity for industrial and energy/transport applications
- Low-cost contract manufacturing in Hungary

New developments:

- Have developed turn-key, containerised solution pre-assembled before delivery
 - Reduced time for installation and commissioning
- Pressurised electrolyser to be installed at Kjørbo
- Compact, game-changing technology - Rotolyzer

WORLD-CLASS ELECTROLYSER TECHNOLOGY

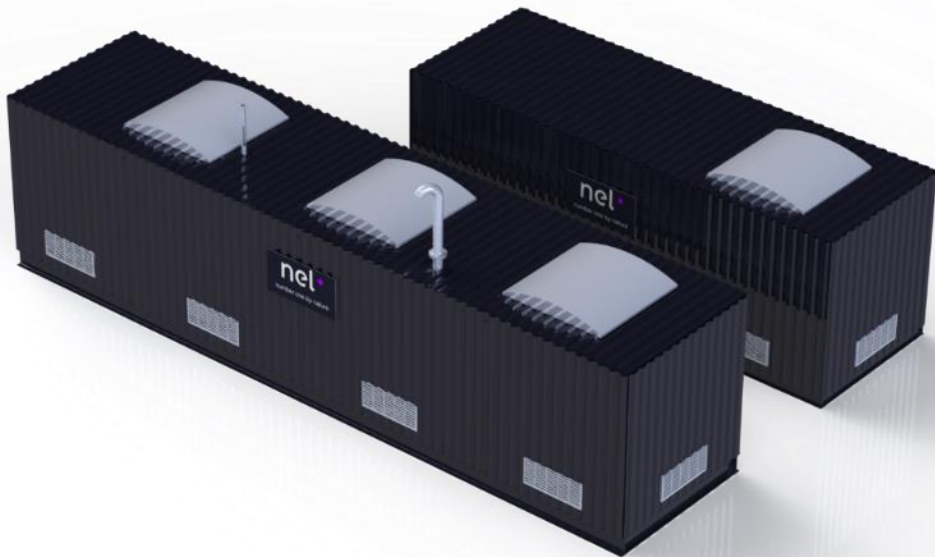


PRE-ASSEMBLED, TURN-KEY SOLUTION



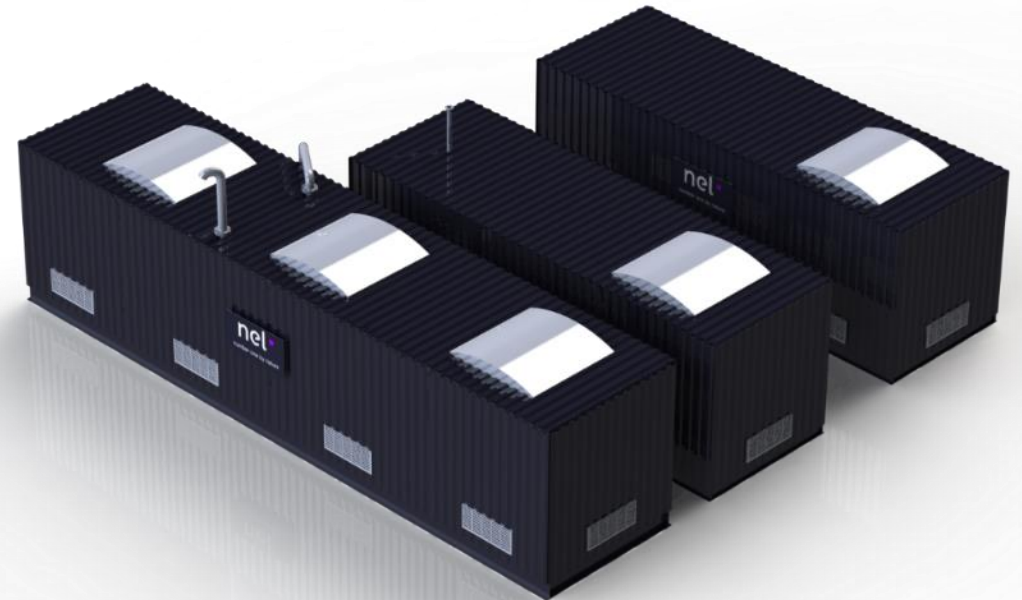
C-150

150 Nm³/h (330 kg/day)
700 kW system



C-300

300 Nm³/h (660 kg/day)
1.4 MW system



Turn-key, both delivering 200 bar output pressure

EXAMPLES OF LARGE-SCALE PLANTS



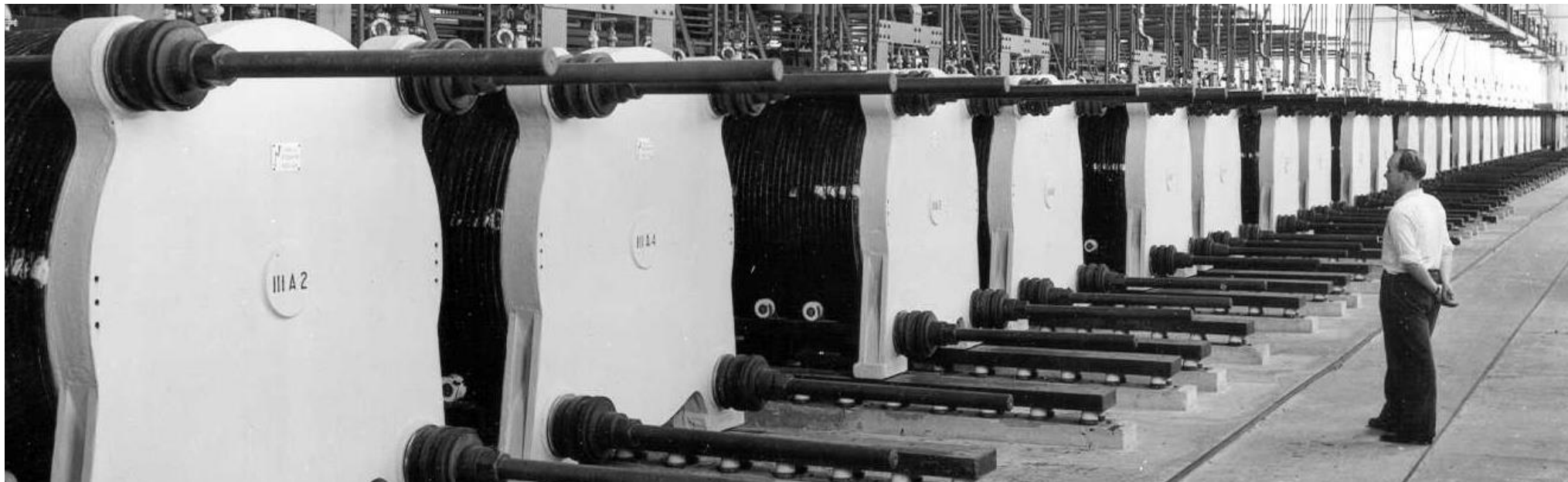
Company: Nitolsolar
Industry: Polysilicon
Capacity: 1 940 Nm³/h
Energy: 8,8 MW
Source: Hydro Power



Company: Tokuyama
Industry: Polysilicon
Capacity: 2 500 Nm³/h
3 000 Nm³/h
Energy: Total 25 MW
Source: Hydro Power

UPCOMING LARGE-SCALE OPPORTUNITY

- **Glomfjord Hydrogen AS** established to develop large-scale, low-cost hydrogen production in Glomfjord Industrial Park in Meløy, Norway
- Initial target capacity of 6000 kilograms of low-cost hydrogen per day (13-15 MW)
- Plant will provide hydrogen for industrial applications, as well as personal- and public transportation incl. boats and ferries



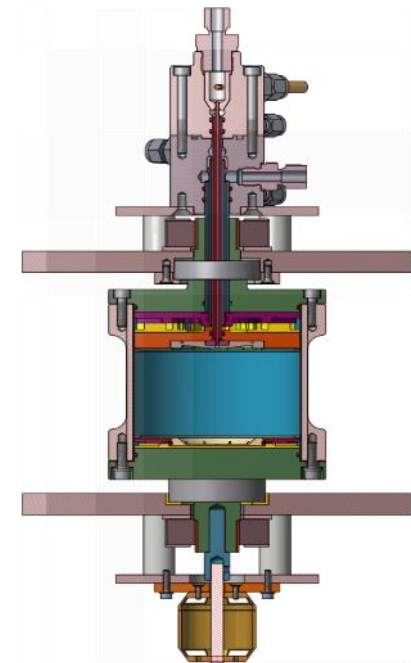
One of the history's largest water electrolyser plants was located in Glomfjord, Norway, until the 1990s

ROTOLYZER ON TRACK FOR 2018 MARKET ENTRY **nel**

Rotating electrolyser with several advantages:

- **Optimal production and flow of hydrogen and oxygen**
 - Cost efficient and compact
 - Dramatically increased active area on electrodes → less material needed → more compact
 - Increased gas-lye separation and less distance between electrodes → increased efficiency due to less ohmic resistance
- **Pressurised stack**
 - Higher pressure → more compact & no need for 1st stage compression downstream
 - Works as a centrifugal pump – no need for lye pumps

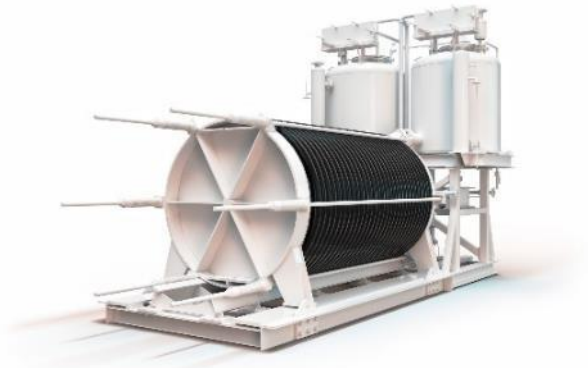
100x
smaller*



*cell stack, compared to atmospheric alkaline

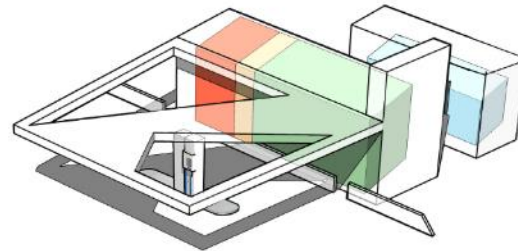


ELECTROLYSERS



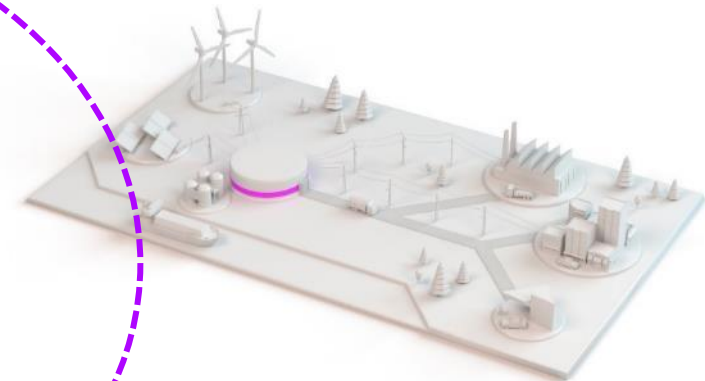
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HYDROGEN FUELING
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SOLUTIONS



SYSTEM INTEGRATION
PROJECT DEVELOPMENT
FINANCING & OWNERSHIP

World leading supplier of hydrogen fueling stations

- 30 stations delivered in 8 countries across Europe
- More than 15.000 fuelings (40 tons of hydrogen)
- Strategic collaboration with Mitsubishi Kakoki Kaisha in Japan for CAR-100

New developments:

- Have developed the world's most compact and flexible hydrogen fueling station – CAR-200
- Have started production of first units for delivery to Kjørbo/Sandvika, Norway
- Preparing for takeover of new production facility

H2STATION® CAR-200

- One-module system with fast installation
- 3x capacity, 1/3 footprint of previous model
- Standardized and module based design
- Industrial production
- Patented technology



H2STATION® FOR LARGE VEHICLES

- Easy and fast installation
- 35MPa fuelling for large and small fleets of industrial vehicles or buses
- Technology adaptable for other large vehicles, e.g. fork trucks
- Flexible hydrogen supply
- Patented fueling technology



SCALING UP THROUGH NEW FACTORY INVESTMENT **nel**

300

stations per year

- Next generation fueling stations ready for volume production according to lean principles
 - Series production for standardisation and volume, enabling Nel to offer better products at a lower cost
- Total capex of NOK 85 million, including land, building, and production equipment
- Will ensure continuous improvement and scale benefits
- EU & U.S. stations built at same production line



H2STATION[®] CAR-200

10 m²
footprint

100 kg/3 hr
for peak hour

- New generation H2Station[®] for 70MPa fueling, designed for EU and USA
- 1/3 footprint and 3 times capacity vs. previous version
- 1 hose configuration with 200kg per day, prepared for upgrades
- Peak "rush hour" capacity of up to 100kg per 3 hours (one hose)
- Dimensioning of storage fully flexible to fit any demand and supply source



NEW & COMPACT HYDROGEN DISPENSER



1/3

footprint

50 m

from station

- Dispenser at 1/3 footprint of conventional gasoline dispensers
- Flexible placement at site, up to 50m away from H2Station[®]
- Shares fueling lane with gasoline/diesel
- Useable from any side
- No equipment underground
- Intuitive designed user-interface

nel.

number one by nature

nel.