



# NEL ASA – update February 2016

Jon André Løkke, CEO





- Established by Norsk Hydro in 1927
- First dedicated hydrogen company on the OSE\* (NEL.OSE)
- Extensive competence in designing hydrogen energy systems and refuelling stations, through Norsk Hydro, Statoil and H2 Logic:
  - >500 large scale electrolyzers sold in >50 countries
  - 28 hydrogen refuelling stations delivered to 7 countries
- Pure play company with long track record:
  - Most energy efficient electrolyzers, robust and proven technology
  - Refuelling stations with highest uptime and lowest cost of ownership
  - Long list of new technology developments that will secure a leading position



\* OSE – Oslo Stock Exchange

# NEL ASA Q4 2015 – IN SHORT



## Highlights of the quarter

- Entered into a letter of intent with Uno-X Gruppen AS (Uno-X), for the rollout of minimum 20 hydrogen refuelling stations covering all the major cities in Norway within 2020
- H2 Logic AS, was awarded a contract for one H2Station fueling station for H2 MOBILITY Deutschland GmbH & Co.KG with an option for multiple repeat-orders. The station will be one among the first in a planned staged expansion onwards 2023 of up to 400 stations in Germany and a total investment of around 400 million euro
- Raised NOK 111 million in gross proceeds through a private placement of 30 million new shares at a price of NOK 3.70 per share
- The cash balance at the end of the fourth quarter was NOK 313 million

## NEL Group

	2015	2014	2015	2015	2014
<i>(Unaudited figures NOK million)</i>	Q4	Q4	YTD	YTD**	Full year
Operational revenue	30.3	12.1	94.7	128.7	12.1
Total operating cost	39.2	19.1	116.4	144.7	25.2
EBITDA*	-4.2	-3.5	-0.5	7.0	-9.5
EBIT	-8.8	-7.1	-21.7	-16.1	-13.2
Pre-tax profit	-7.8	-6.1	-19.5	-14.0	-11.6
Net profit	-6.3	-1.0	-15.3	-11.1	-6.5
Net cash flow from operating activities	-14.1	-14.5	-35.0		5.5
Cash balance end of period	313.0	98.5	313.0		98.5

\* EBITDA excludes NOK 2.4 million in Q4 transaction costs, in addition to NOK 5.3 million in Q2 2015 transaction costs related to the acquisition of H2 Logic. \*\* Pro forma figures including H2 Logic from 1 January 2015.

## H2 Logic AS (unaudited)

### H2 Logic A/S (unaudited)

	2015	2015
<i>(figures in NOK million)</i>	Q4	Q3-Q4
Total operating revenue	18,1	35,7
Total operating cost	19,6	35,6
Operating profit	-1,4	-0,1
Net Financial income (expenditure)	-0,7	-0,8
Pre- tax profit (loss)	-2,1	-0,9

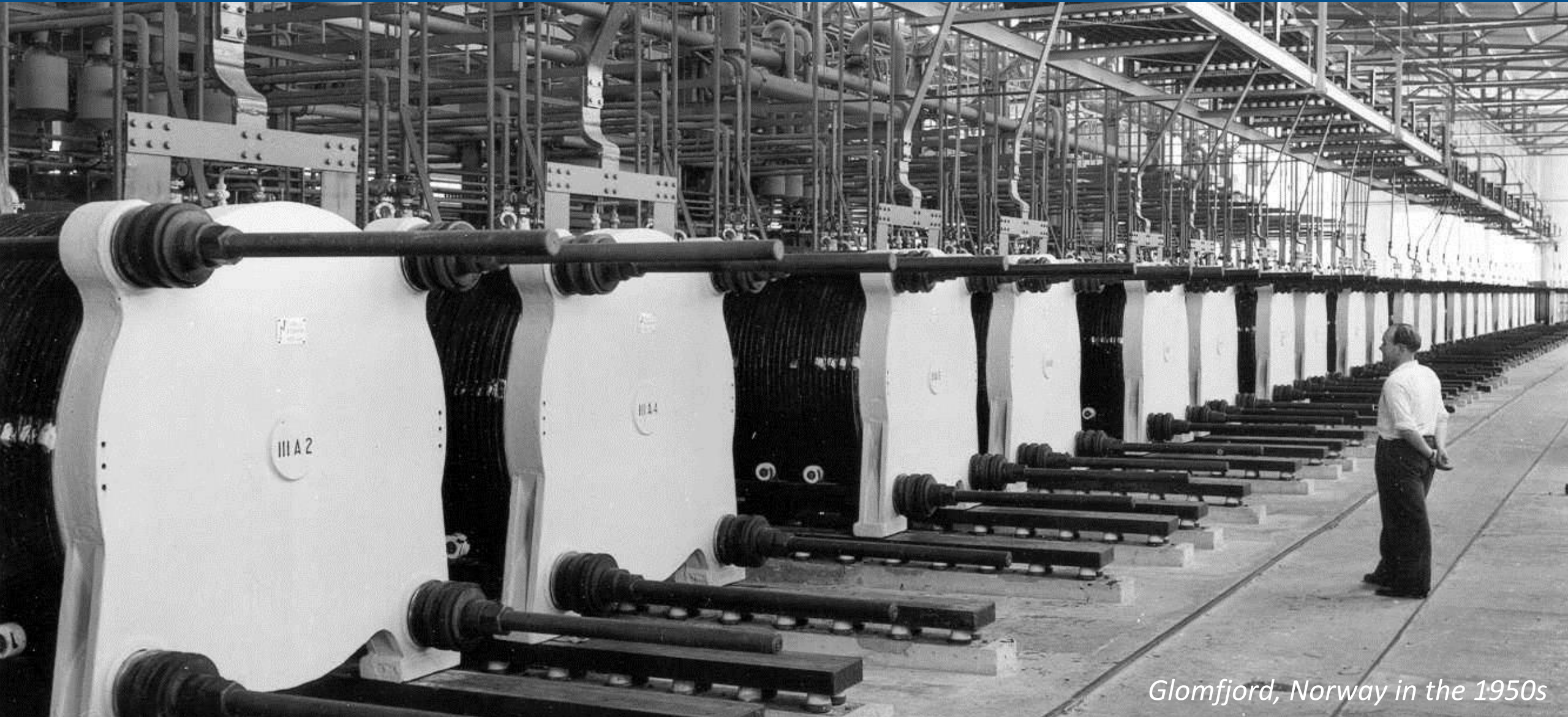
\*H2 Logic A/S was acquired by NEL ASA at the end of Q2 2015. Measured from the transaction date total profit related to H2 Logic included in the consolidated statement of comprehensive income in the first and second quarters 2015 amounts to zero.

## NEL Hydrogen AS (unaudited)

	2015	2015	2014
<i>(figures in NOK million)</i>	Q4	Q1-Q4	Full year
Total operating revenue	13,3	60,1	69,0
Total operating cost	14,6	56,7	54,5
Operating profit	-1,3	3,4	14,5
Net Financial income (expenditure)	0,7	0,2	0,6
Pre- tax profit (loss)	-0,6	3,6	15,0



# PROUD HISTORY & EXTENSIVE HYDROGEN KNOWHOW SINCE 1927



*Glomfjord, Norway in the 1950s*

World's largest hydrogen electrolyser plant – **135 MW / 30,000 Nm<sup>3</sup>/h**

# NEL ASA – CORPORATE STRUCTURE

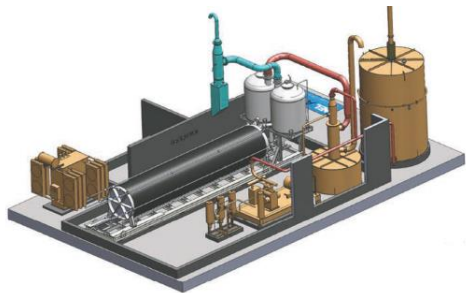


>100 years combined hydrogen experience

~75 employees

~\$250 million Market Cap

~\$35 million in cash reserve



HYDROGEN PRODUCTION  
TECHNOLOGY



HYDROGEN REFUELLING  
TECHNOLOGY

NEL FUEL



HYDROGEN STATION OWNERSHIP  
AND OPERATION

ENERGY STORAGE  
& SYSTEMS



SYSTEM INTEGRATION  
PROJECT DEVELOPMENT  
FINANCING & OWNERSHIP

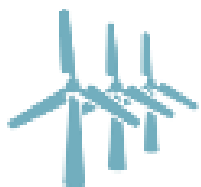


# THE HYDROGEN VALUE CHAIN



Addressing all end markets for hydrogen gas

## Electricity production



Renewable energy

## Hydrogen production



+



Water  
electrolysers



Hydrogen production from  
water and electricity

## Energy storage



Hydrogen as a “battery”  
for renewable energy

## Distribution methods



Onsite



Trucked in



Pipeline

## End markets

Hydrogen Refuelling Stations



Industrial end markets



*Upstream*

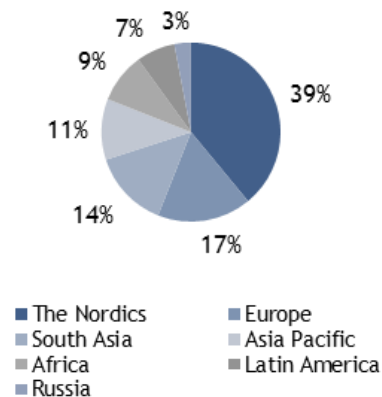
*Downstream*

## ABOUT THE PRODUCTS

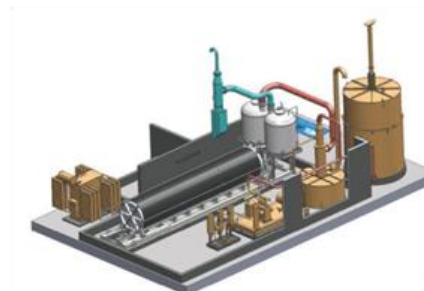
- Global leader within large scale hydrogen electrolyser plants
  - **Highest uptime, lowest conversion cost, robust and reliable**
- New technologies to be commercialized, NEL P60 pressurized electrolyser, operate at 60 Nm<sup>3</sup>/h
  - Container solution, pre-assembled before delivery, reduced time for installation and commissioning
- Developing a game-changing technology named Rotolyzer

## CUSTOMERS

Regions



Atmospheric electrolyser

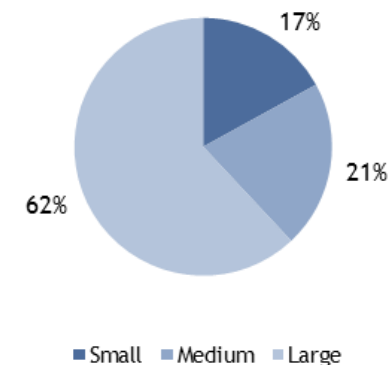


NEL A-150

NEL A-300

NEL A-485

Size



Pressurized electrolyser

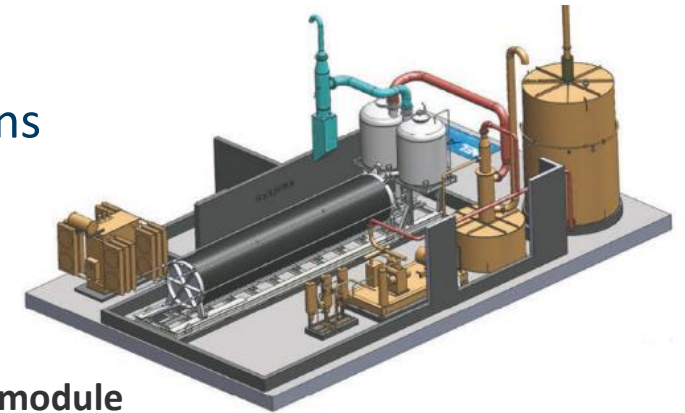
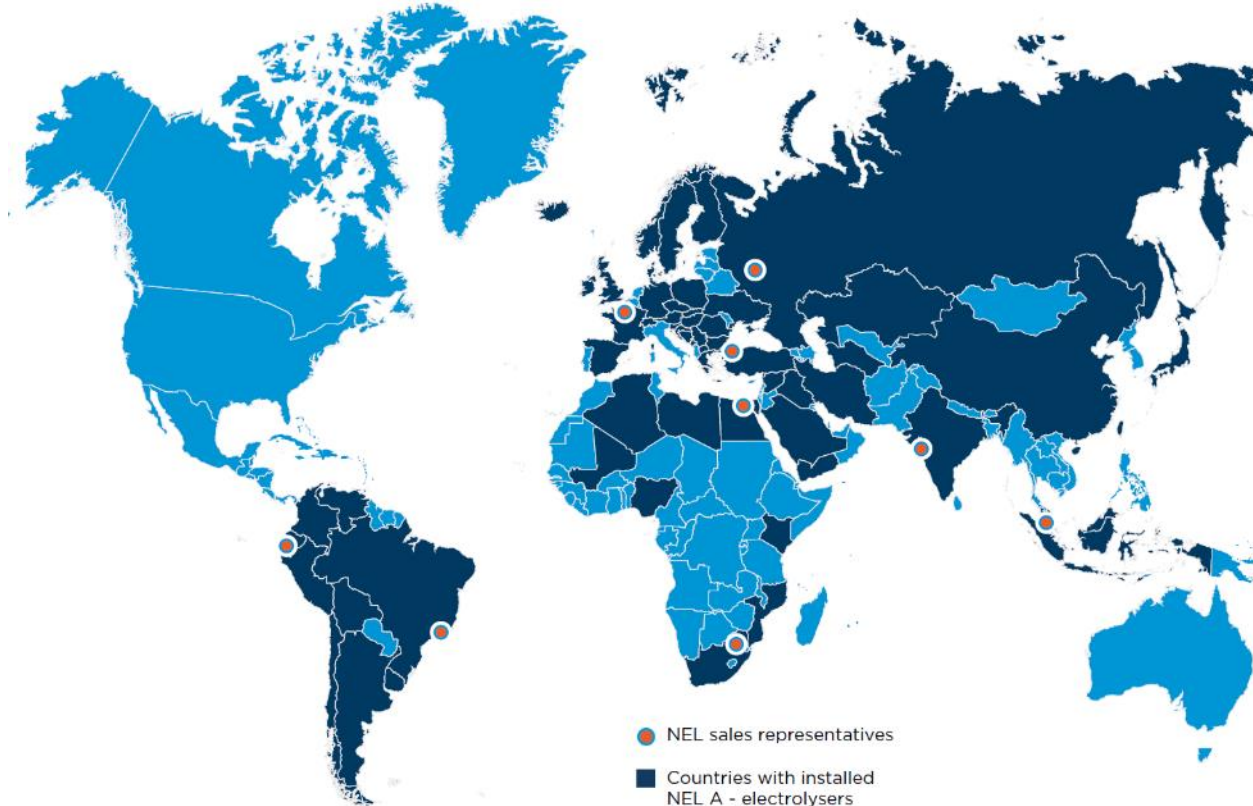


NEL P-60

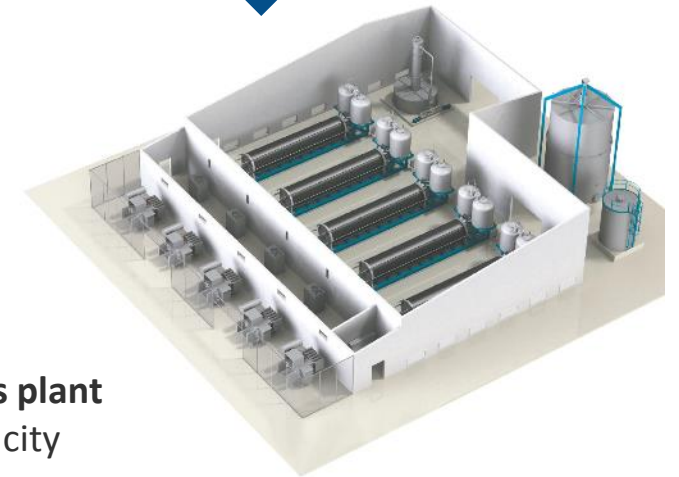
# LONG TRACK & HIGHLY SCALABLE



- World leading supplier of technology for hydrogen production
- Delivered >500 large scale electrolyzers in >50 countries
- Scalable production capacity for industrial and energy/transport applications



**100-1.000kg/day module**  
Flexible upgrade



**Multiple modules plant**  
Unlimited capacity



# ROBUST, EFFICIENT & LARGE SCALE



## 1. Efficient

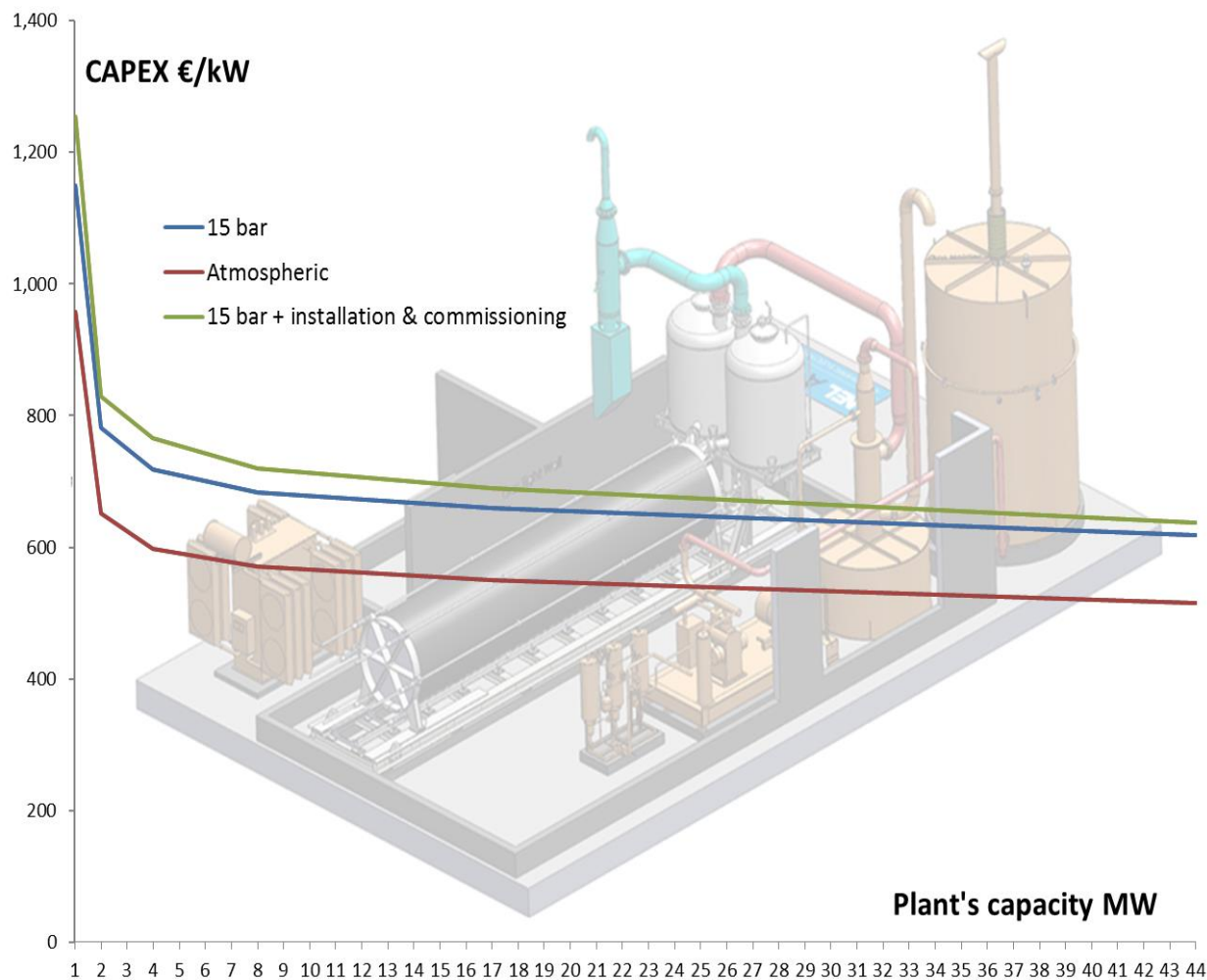
Efficient balance of plant + non-patented, active layer on electrodes → 3 – 15% more efficient than competitors\*

## 2. Robust

Uncomplicated & reliable operation, stack replacement after 7-8 years

## 3. Large & cost efficient

By increasing plant size from 250kW to 2.5MW, capex for production capacity reduced by >60%



\*EU-report, 2014: Development of Water Electrolysis in the European Union

Rotating electrolyser – several advantages:

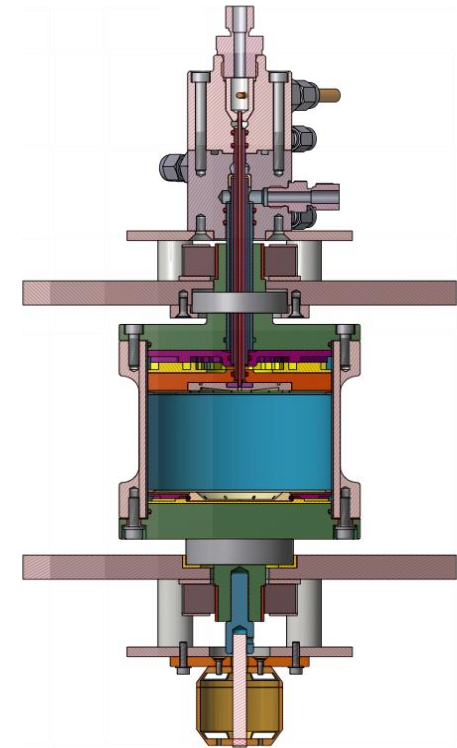
✓ **Optimal production and flow of hydrogen and oxygen**

- Cost efficient & Compact
  - Dramatically increased active area on electrodes → less material needed → more compact
  - Increased gas-lye separation and less distance between electrodes → increased efficiency

✓ **Pressurized stack**

- Higher pressure → more compact & no need for 1<sup>st</sup> stage compression downstream
- Works as a centrifugal pump – no need for lye pumps

**100x  
smaller\***



*\*cell stack, compared to atmospheric alkaline*



## ABOUT THE PRODUCTS

- World leading supplier of, H2Station®, hydrogen refuelling stations for vehicles
  - **Highest uptime and low cost of ownership**
- More than 28 H2Station® solutions delivered in countries across Europe
- **Standardized and module based design**
  - **Preparing for release next generation refuelling station**
- Industrial production based in lean production principles
  - Basis for continuous improvements
- Offer planning & procurement, delivery & installation, operation & maintenance incl. online live monitoring

## H2STATION CAR-100 FOR CARS

- One-module system with installation in 48 hours
- 70MPa fuelling, up to 200kg/day capacity or ~400 vehicles in a network
- Flexible hydrogen supply – integrated onsite electrolyser or delivered
- Patented technology

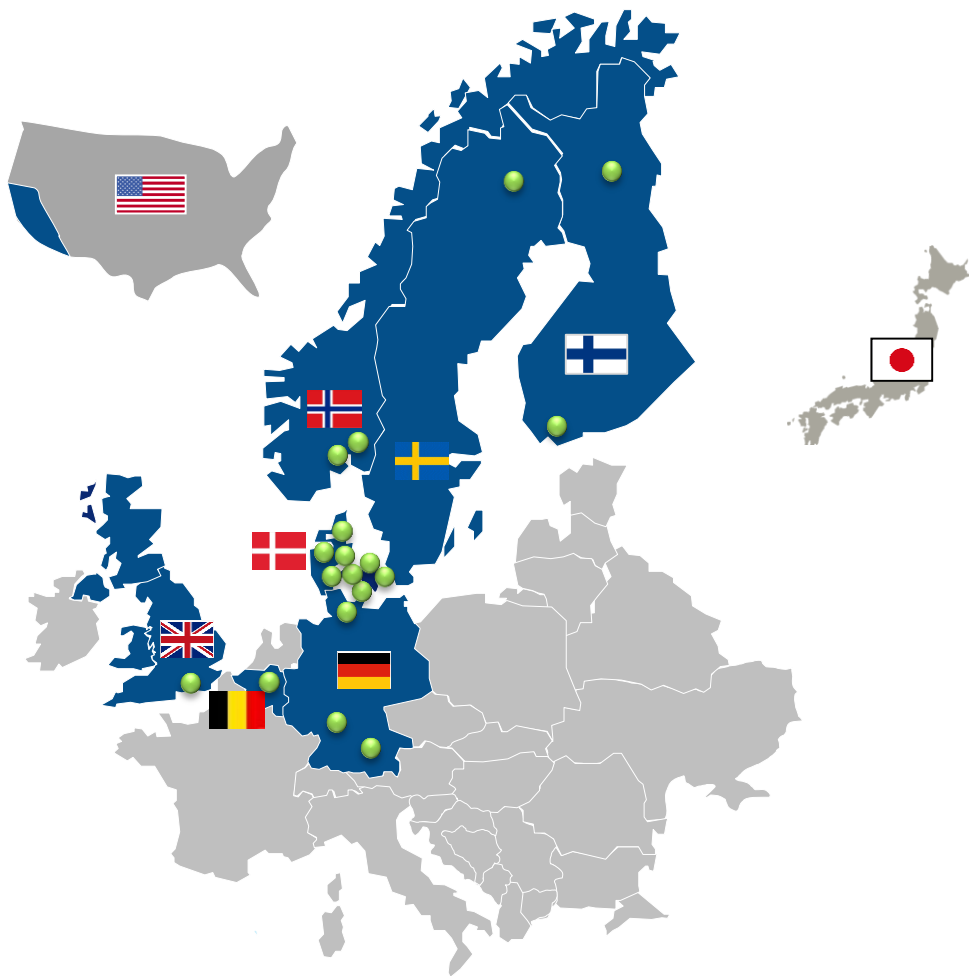


## H2STATION MH-100 FOR INDUSTRIAL VEHICLES

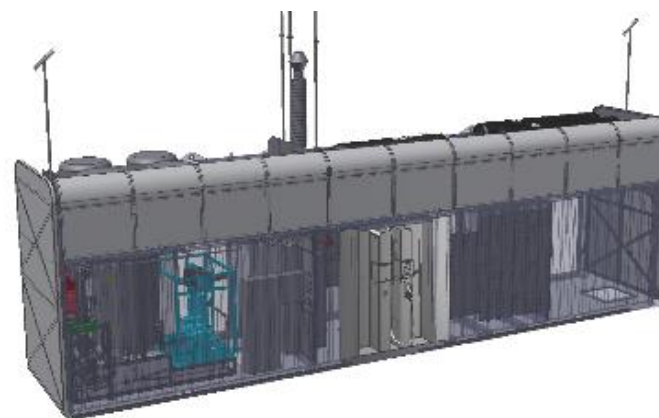
- Easy and fast installation
- 35MPa fuelling, up to 200kg/day or full tank for ~7-10 industrial vehicles or buses
- Flexible hydrogen supply
- Patented technology



# HYDROGEN REFUELLING DIVISION – H2LOGIC



- Operational partners include Shell, Air Liquide and leading car manufactures such as Daimler, Hyundai, Toyota, Honda and BMW
- More than 14.000 fuelings / 29 tons of hydrogen (6.000 fuelings / 15 tons 70MPa SAE-J2601 T40)
- Strategic collaboration with Mitsubishi for Japan
- Currently developing market entry strategy for California



H2Station®



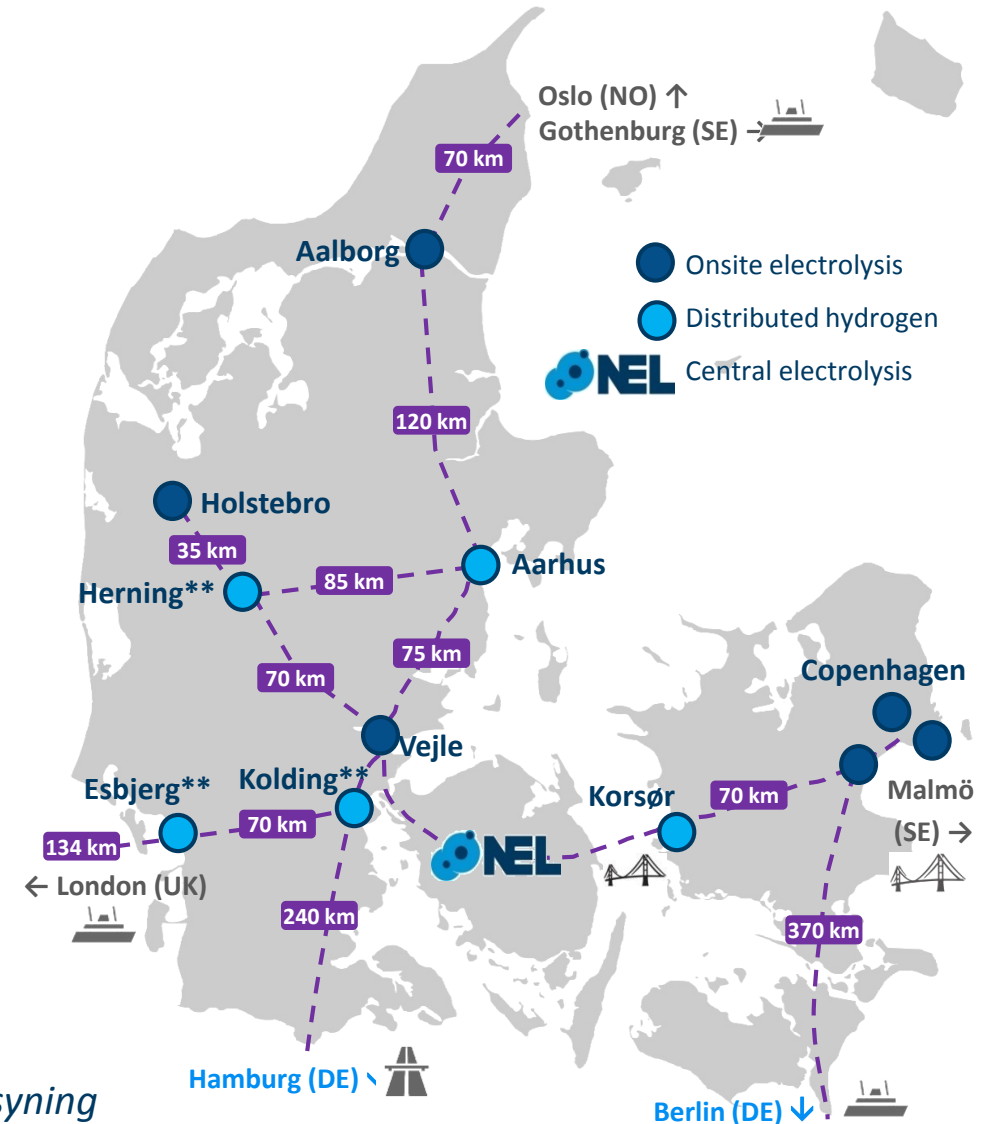


# DELIVERED THE ENTIRE DANISH NETWORK



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

- H2 Logic services and operates the entire network
  - Operated in collaboration with leading oil, energy and gas companies\*
- 100% of hydrogen sold in Denmark is from electrolysis
- 6 Hydrogen stations has onsite electrolysis
- 5 Hydrogen stations will get supplied hydrogen from central NEL electrolysis
- All stations approved by OEM's
- Same approach in other markets



\* Partners: Air Liquide, OK, Strandmøllen, Vestforsyning

\*\* Under planning/construction

## NEL FUEL NORWAY AS

- Joint Venture between Uno-X Automat AS (51%) and NEL Fuel AS (49%)
- Letter of Intent to build minimum 20 hydrogen refuelling stations w/hydrogen production units in Norway by 2020
  - Will depend on available public funding
- NEL to provide hydrogen production and refuelling station technology
  - Uno-X will be main brand of JV
- Ongoing dialogue with other relevant stakeholders/partners

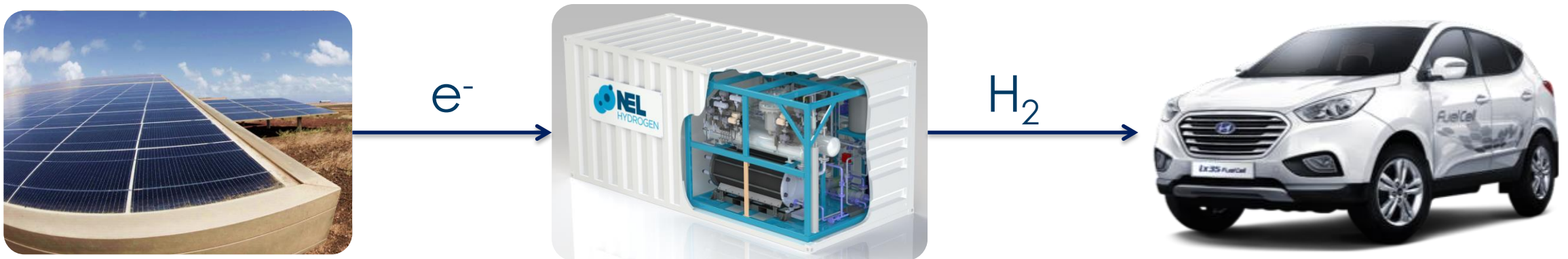




# UNDERLYING MEGATRENDS FOR HYDROGEN



1. RENEWABLE ELECTRICITY IS BECOMING CHEAP
2. GROWING NEED FOR ENERGY STORAGE SOLUTIONS
3. HYDROGEN CARS ARE BECOMING CHEAP
4. HIGH FOCUS ON CLEAN/ZERO EMISSION TRANSPORT



# FCEVS ARE BEING INTRODUCED



- Hyundai, Toyota, Honda, BMW, Daimler, GM, Nissan, Ford, Audi, and Volkswagen have all launched, or announced launch, of FCEVs
- Formidable cost reductions enable introduction:** *“The Toyota Mirai’s powertrain is 95% cheaper to build than the fuel-cell system in the 2008 Highlander fuel cell SUV”<sup>1</sup>*



2014



TOYOTA

2015



HONDA

2016



2017



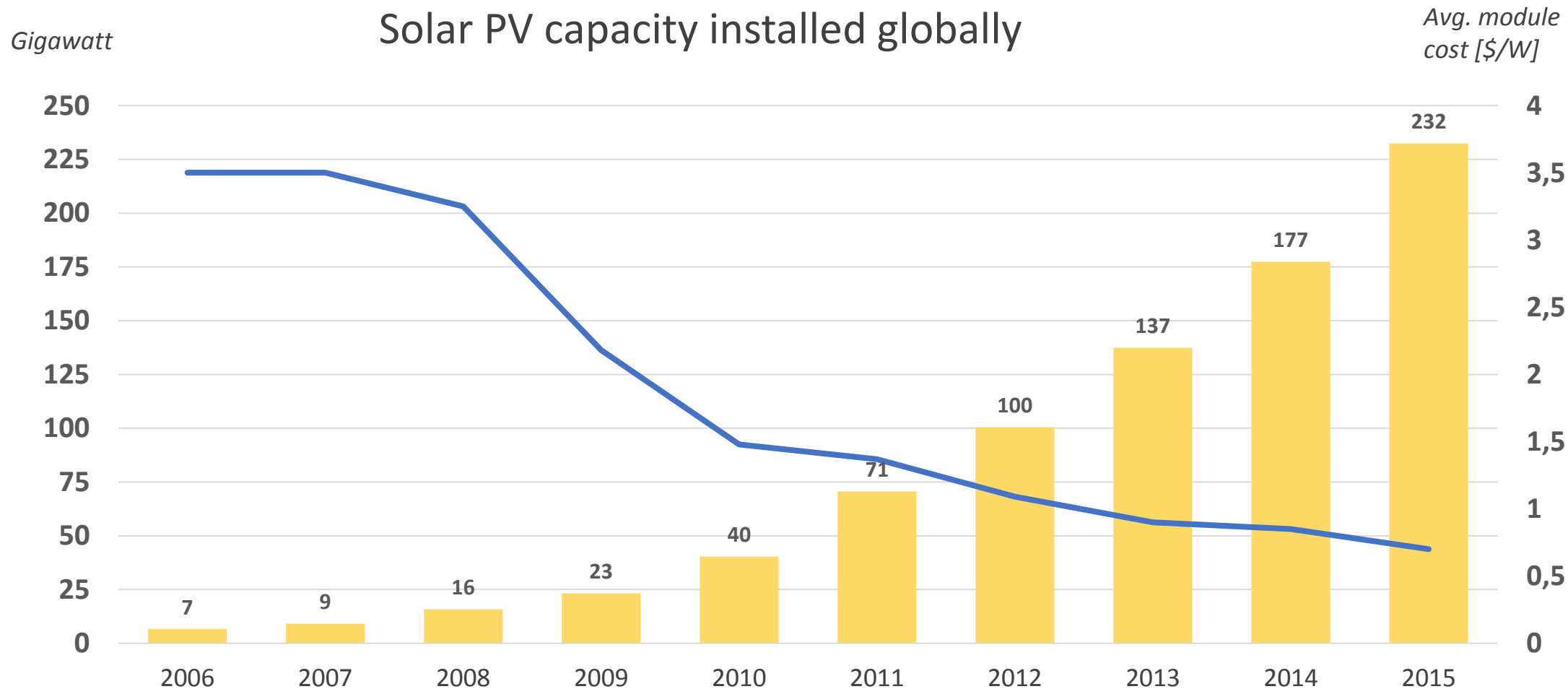
Audi



2018 - 2020

<sup>1</sup>Source: Satoshi Ogiso, Toyota managing officer at the L.A. auto show (November 2014), announcements 2016

# SOLAR ENERGY IS GROWING RAPIDLY





# ELECTRICITY IS BECOMING CHEAP. VERY CHEAP.



## German Electricity Slump

Year-ahead German power contract



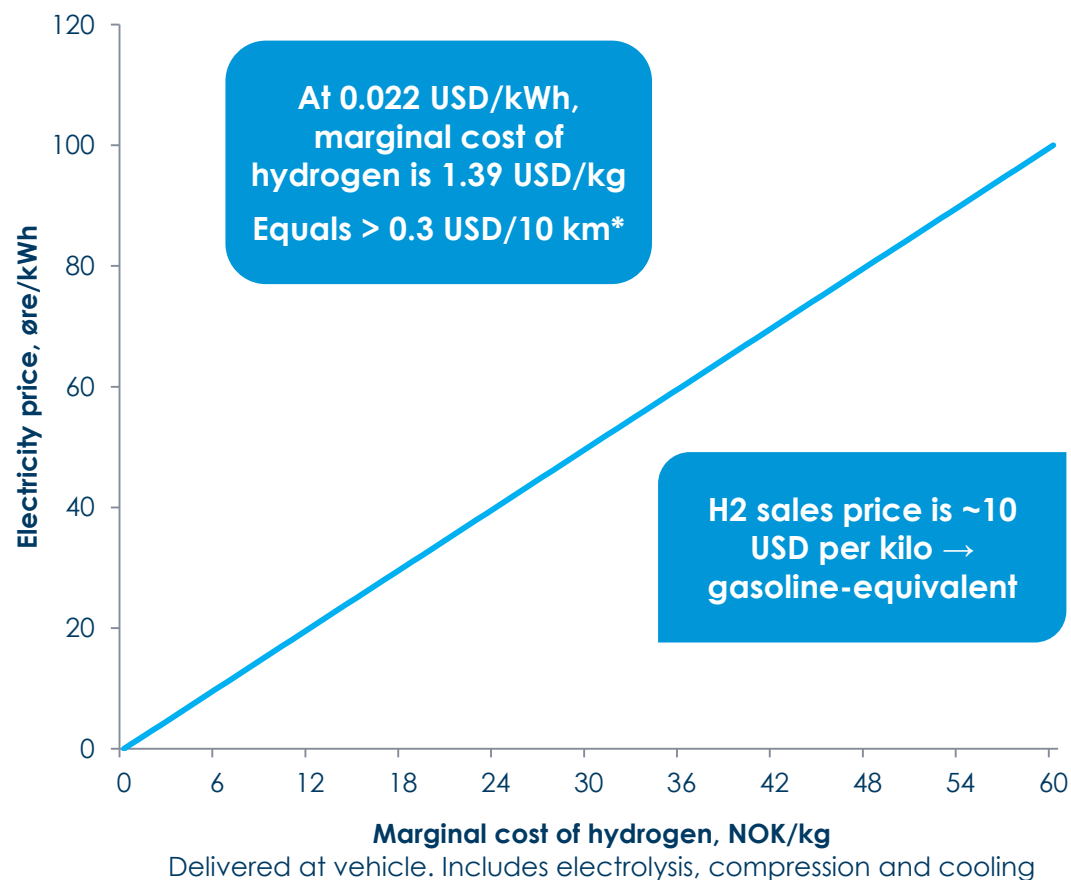
Source: EEX

Bloomberg

# COST OF PRODUCING HYDROGEN

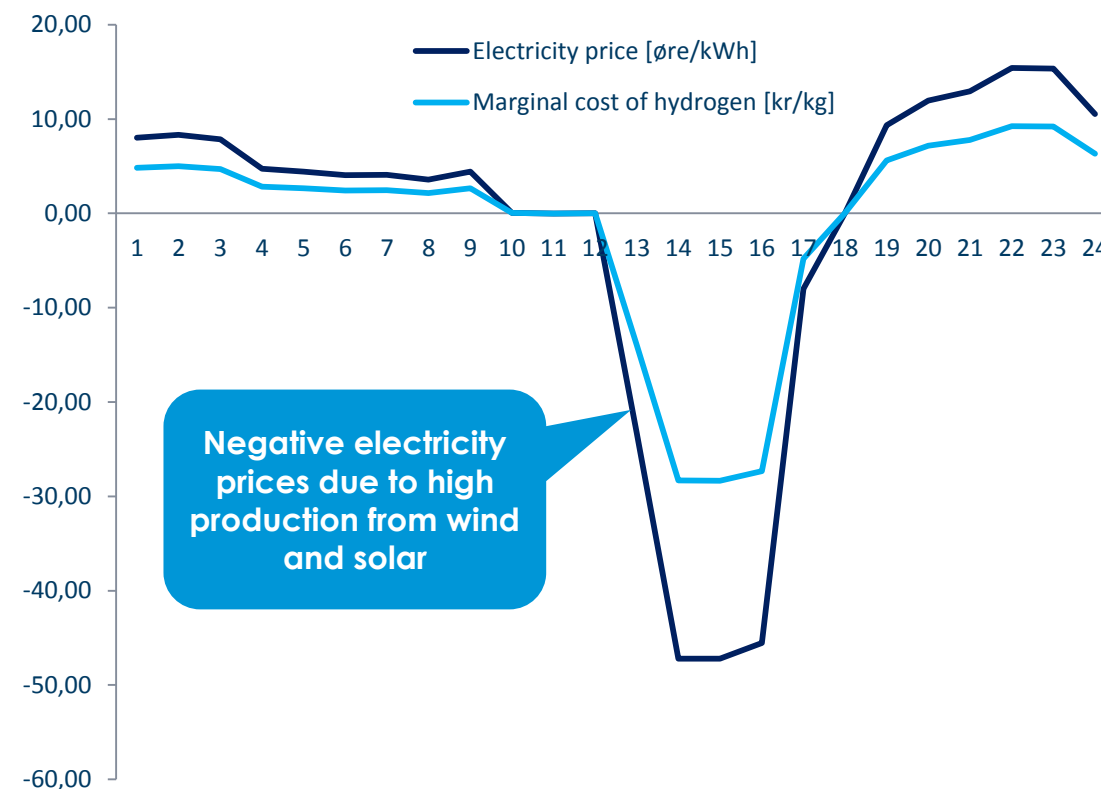


## Production cost versus electricity price



\*Exchange rate NOK/USD of 9:1

## Example: 24hr period in Germany (excess)



# MAIN DRIVER WITH INCREASE IN RENEWABLES



- Renewable hydrogen production is an increasingly hot topic
  - Can be combined with energy storage solutions
- Size of electrolyzer matters, so does...
  - Efficiency and conversion cost
  - Robustness and ease of operation
  - Track record to simplify financing
  - DC connection will reduce capex
- NEL is well positioned to capture this market





# TARGETS FOR 2016

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- Continue to capture market share both upstream and downstream
  - Increased focus on renewable hydrogen production and energy storage
- Execute on market penetration strategy for California, upstream and downstream
  - Work together with selected partners or directly in the market
  - Next funding round expected to be released by CEC\* in next number of months
- Launch next generation refueling station
  - Standard modular design, ideal for industrial production according to continuous improvement principles
- Build organization, align activities and capture synergies across NEL

*\* CEC - California Energy Commission, responsible for organizing and running funding program for hydrogen refueling infrastructure in California.*