



**Pareto Securities'**

# Power & Renewable Energy Conference

*CEO Mårten Lunde  
21 January 2021*

**Hydrogen pro**

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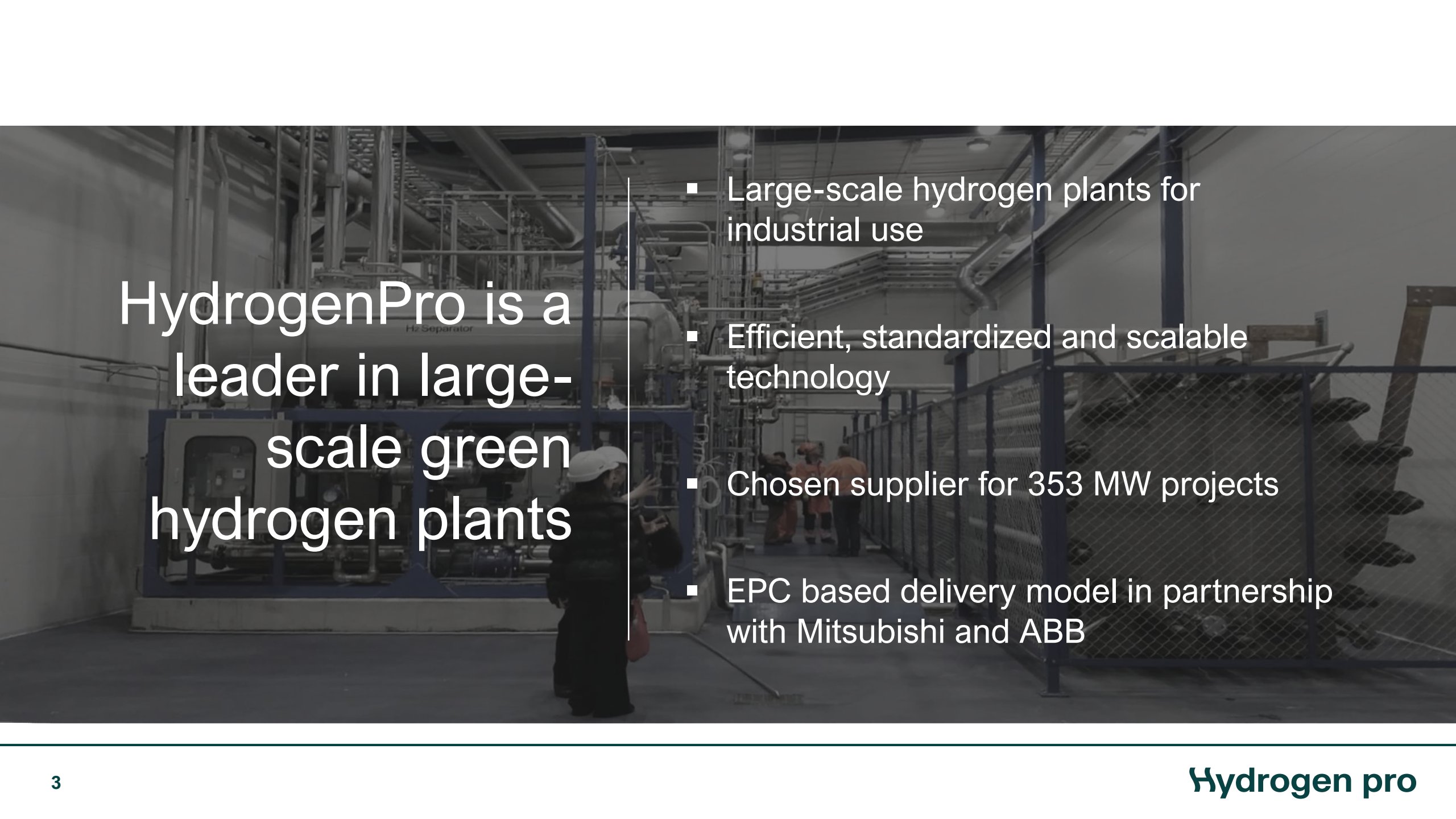
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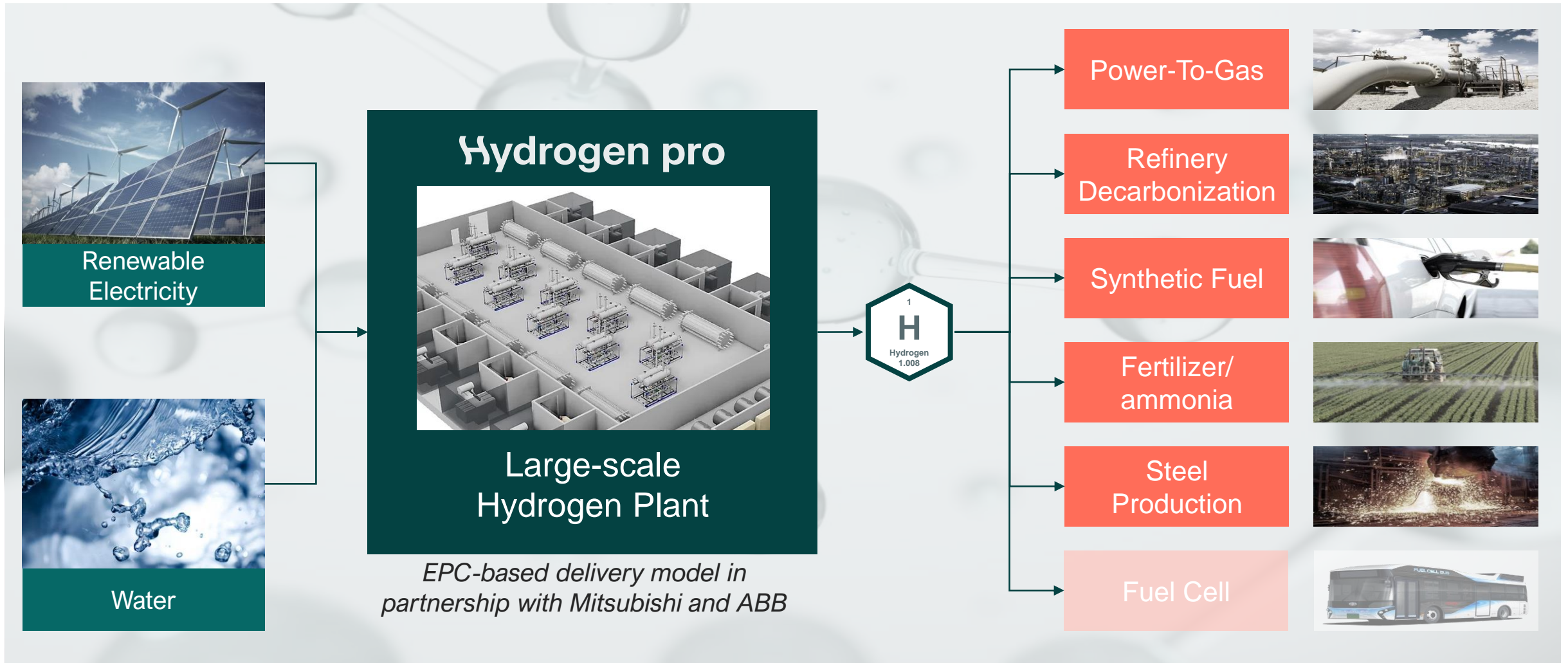
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# HydrogenPro is a leader in large-scale green hydrogen plants

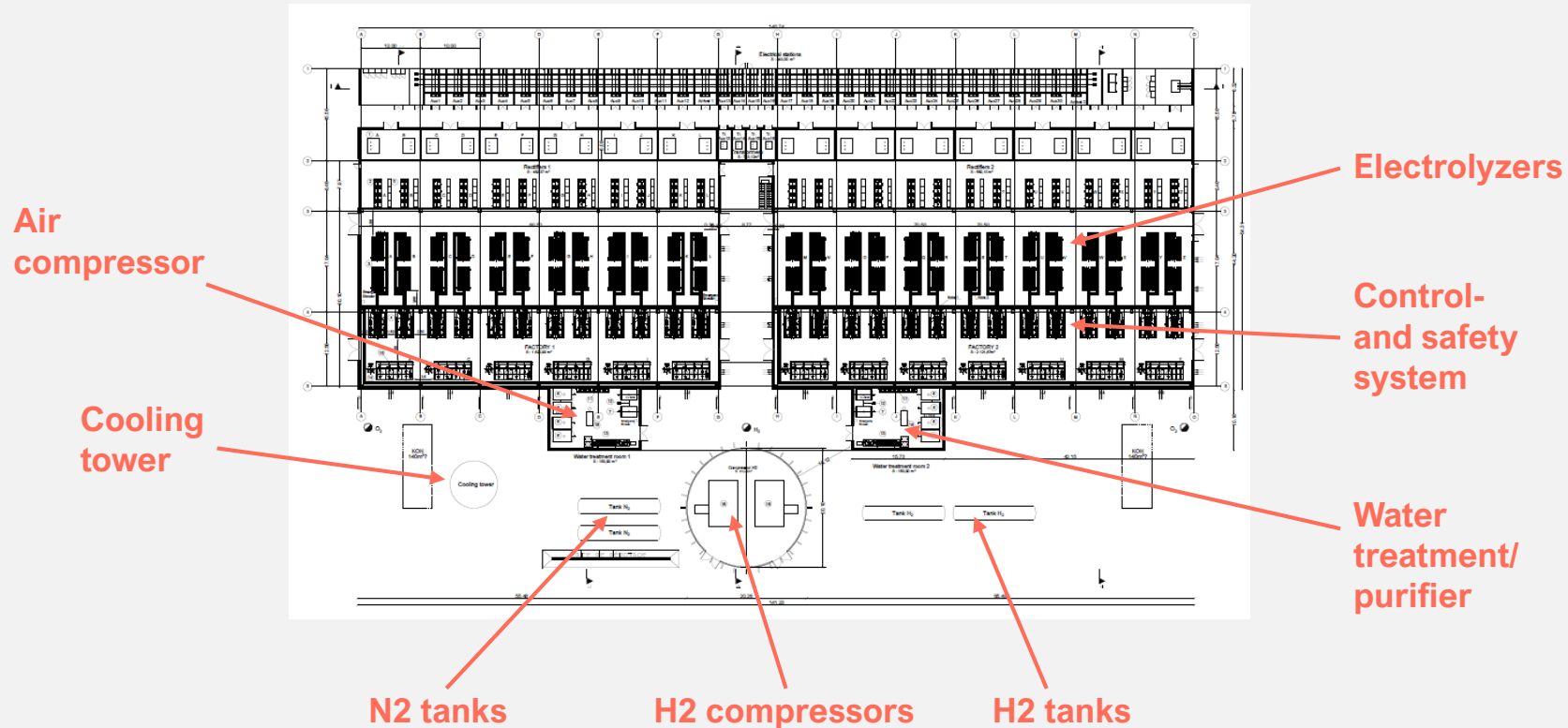
- Large-scale hydrogen plants for industrial use
- Efficient, standardized and scalable technology
- Chosen supplier for 353 MW projects
- EPC based delivery model in partnership with Mitsubishi and ABB

# HydrogenPro delivers large-scale hydrogen plants



# HydrogenPro has developed a unique 100 MW system...

HydrogenPro's 100 MW hydrogen plant – Selected main components



- The first 100 MW hydrogen system globally. Will set a new industry standard for production of green hydrogen
- HydrogenPro started engineering of the system in 2018
- HydrogenPro has an asset-light model. All main components are therefore manufactured by 3<sup>rd</sup> parties based on the company's specifications

HydrogenPro's key competence is engineering, developing and integrating a large-scale hydrogen system

# ...with best-in-class efficiency and flexibility



1

## Largest hydrogen system in the world

- Ideal for large-scale industrial applications – 100 MW facilities is expected to become the new standard



2

## New exclusive electrode coating technology

- ~14% efficiency increase
- Reaching 92-93% of maximum theoretical efficiency – limited potential for marginal improvements beyond such levels



3

## Suitable for renewable energy input

- Possibility to turn on and off hydrogen production instantly
- Leveraging the highest dynamic flexibility compared to competitors



4

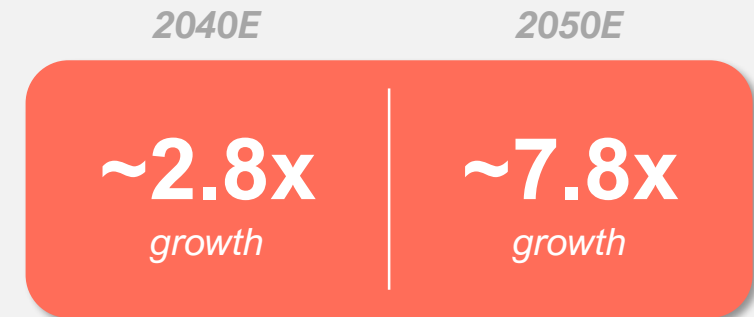
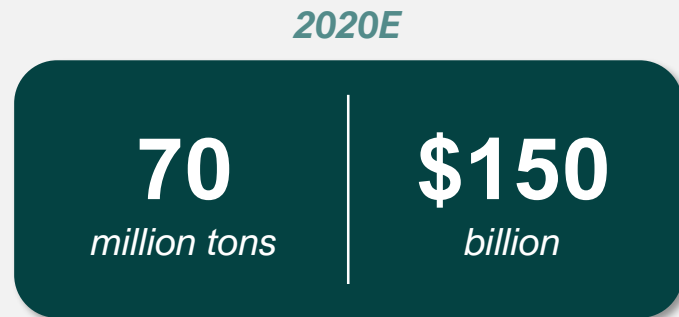
## Cost competitiveness

- Significantly lower CAPEX and OPEX – 20% overall cost reduction per unit hydrogen produced
- Longest overhaul time interval (~10 years)

# Hydrogen market set to take off...

Hydrogen is already a large established market...

...with huge growth potential going forward



Several market drivers, including renewable energy and addressing key EU development goals



Facilitating access to hydrogen



Creating jobs and economic growth



Solving urban challenges



Facilitating sustainable cities

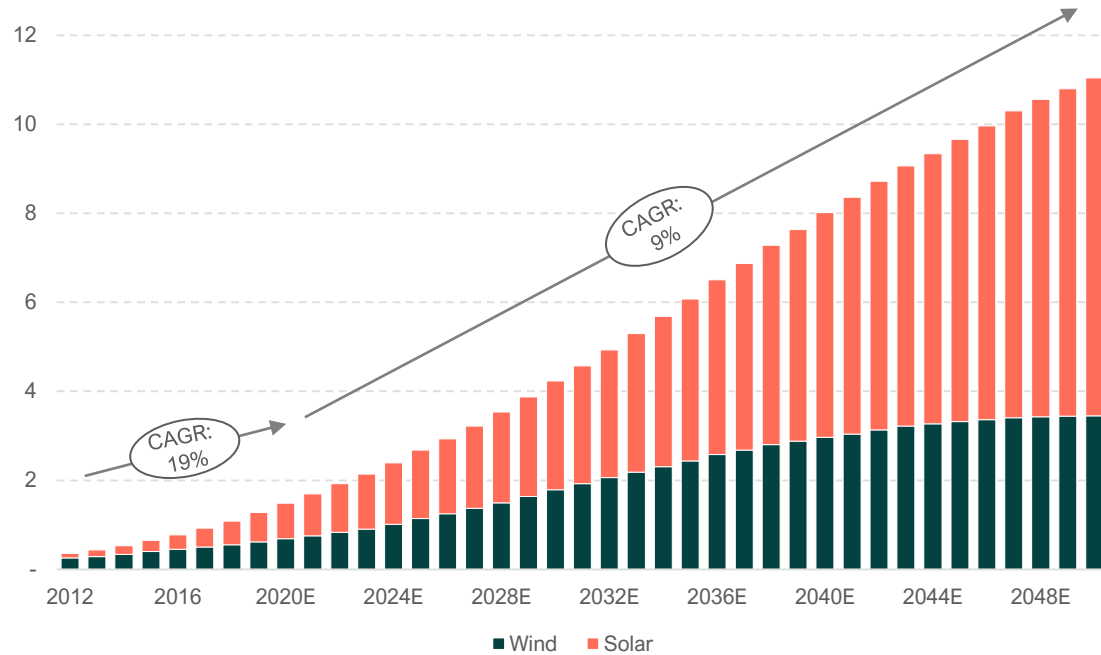


Providing green fuel

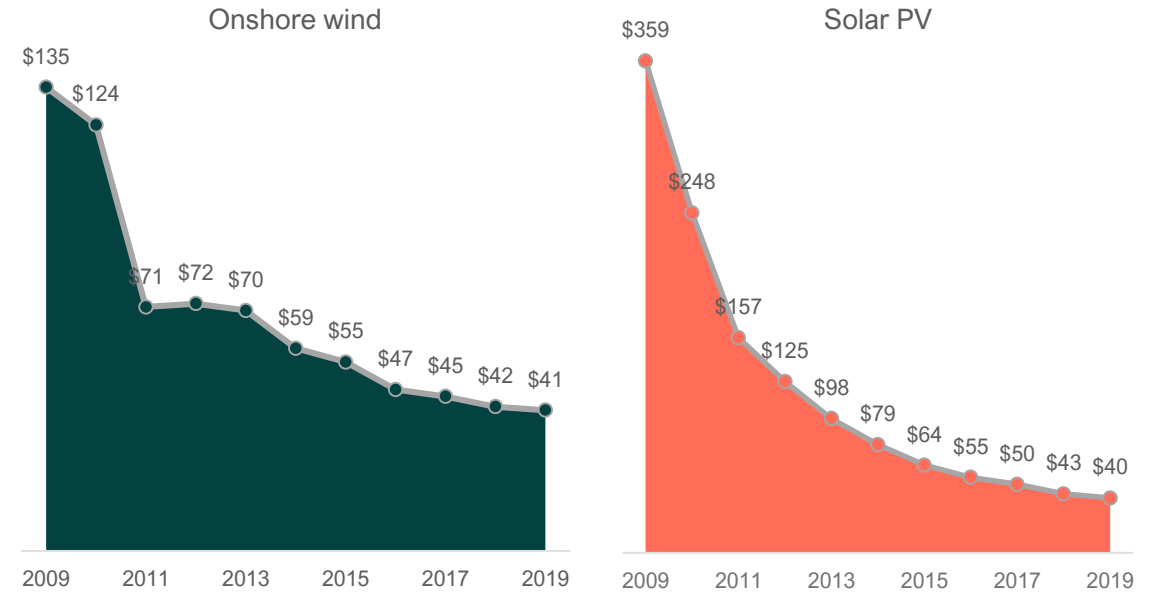
Source: Hydrogen Council

# ...on the back of rapid growth in renewables

Growth in renewable power capacity (TW)



Declining cost of renewable power (\$/MWh)\*



We need hydrogen to utilize the growth in renewables...

...and the drop in renewable power prices has made green hydrogen more economical

Note(\*): Unsubsidized levelized cost of energy

Source: New Energy Outlook (2019)



# HydrogenPro is chosen as supplier for four of the world's largest hydrogen projects

## Key contracts



### H2V Dunkirk



Phase I: **100 MW**  
Est. value: **USD 60m**  
FID: **Q2 2021**



### H2V Normandy



Phase I: **100 MW**  
Est. value: **USD 60m**  
FID: **Q2 2021**  
Other: *Air Liquide 40% ownership\**



### Mitsubishi Power



Phase I: **33 MW**  
Est. value: **USD 20m**  
FID: **Q1 2021**



### DG Fuels



Phase I: **120 MW**  
Est. value: **USD 70m**  
FID: **Q2 2022**

**353 MW**

## MoU

### Repsol



Phase I: **100 MW**

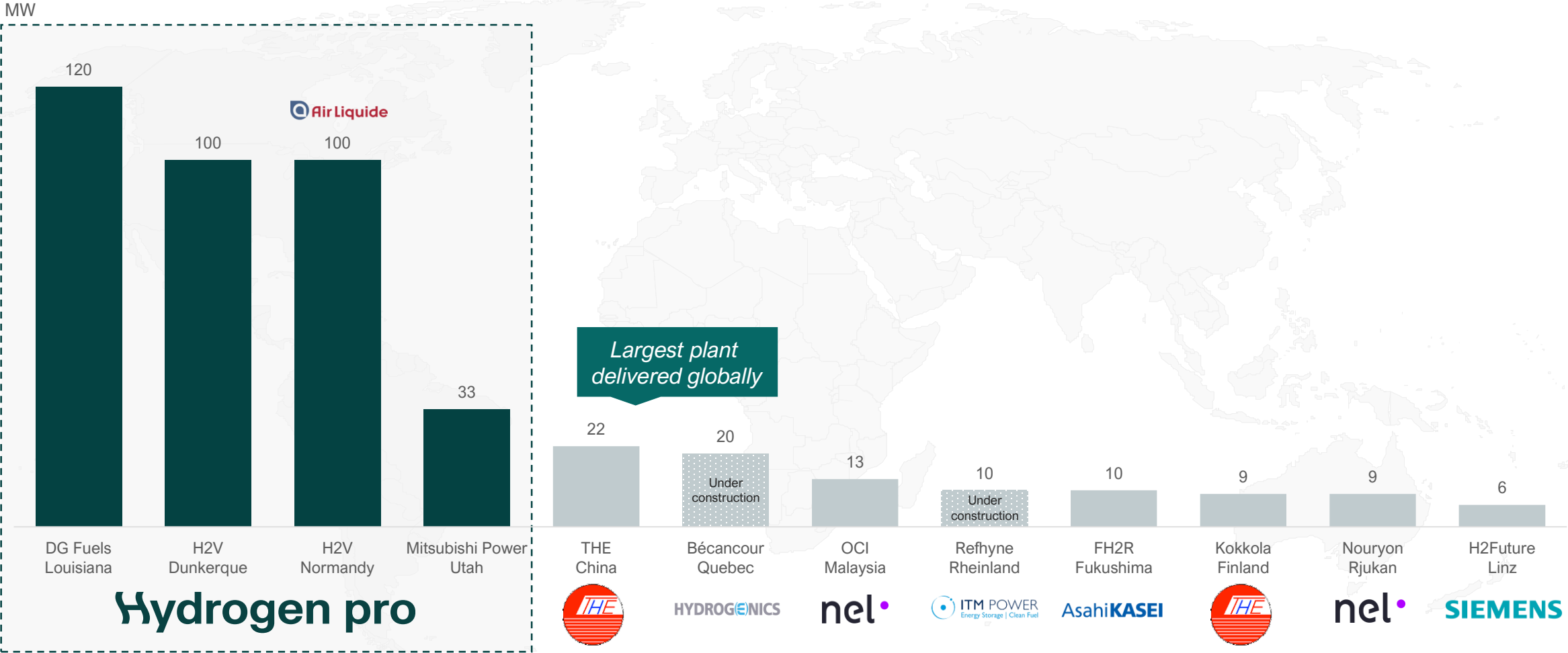
## Pipeline



Large pipeline and add-on potential from four key contracts

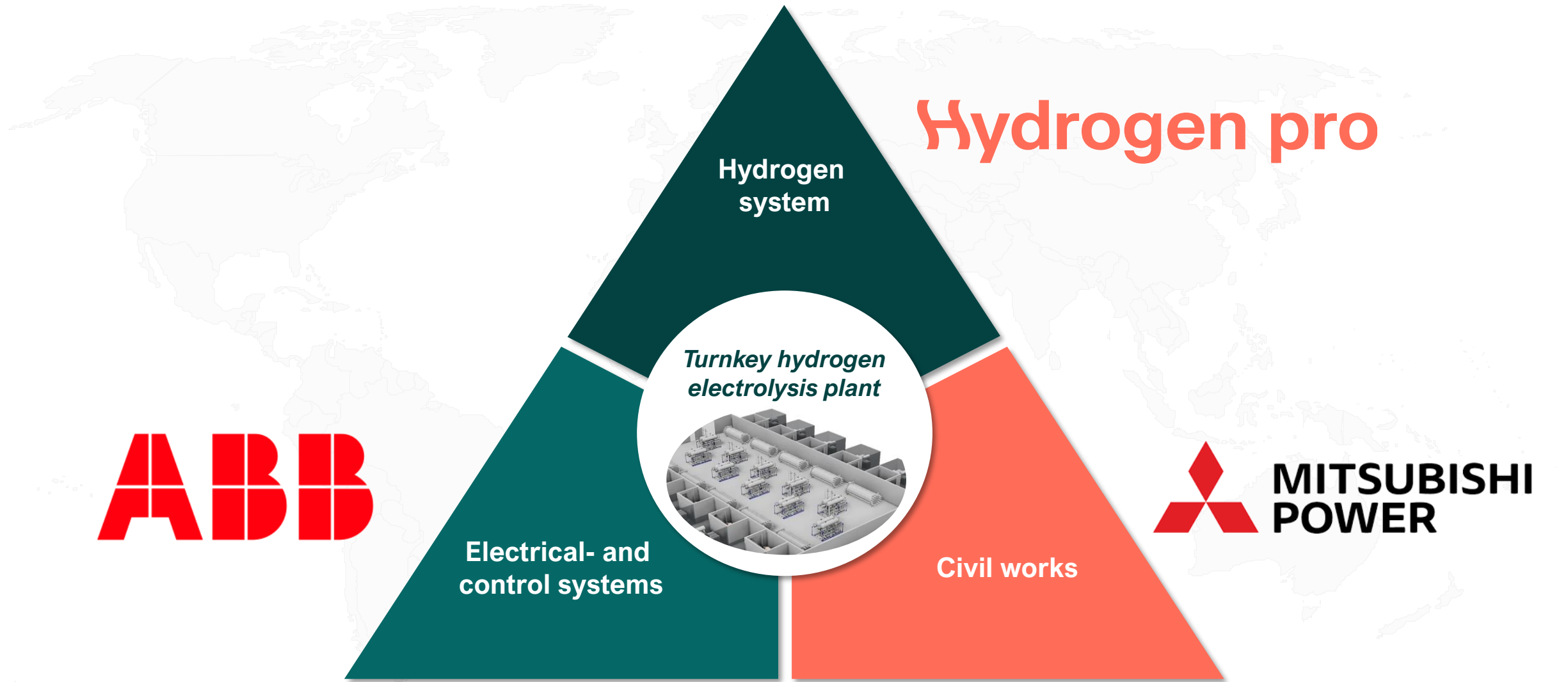
▪ Note(\*): Announced a 40% stake acquisition on 20 January 2021

# All four projects significantly larger than the largest plant being delivered to date globally



Source: HydrogenPro

# Consortium model for rapid global scale-up



# Massive potential from Mitsubishi Power partnership

## Mitsubishi Power USA contracts

- In early 2020, HydrogenPro partner Mitsubishi Power announced its first hydrogen storage and power project in Utah with a total value of USD 1.9 billion
  - HydrogenPro is currently developing the hydrogen system for this project on a paid FEED from Mitsubishi Power
  - This system design will set the standard for all of Mitsubishi's future U.S. projects
- Moreover, in early September, Mitsubishi Power received a USD 3 billion contract for the next generation hydrogen power plants in New York, Virginia and Ohio

### \$3 Billion Planned for Next-Generation Hydrogen Power Plants

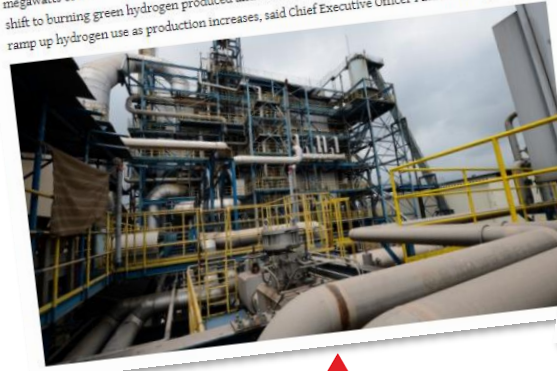
Naureen S. Malik

Published on September 02 2020, 5:00 PM  
Last Updated on September 03 2020, 11:02 PM

(Bloomberg) --

Three power plants planned in New York, Virginia and Ohio will test whether hydrogen can one day replace natural gas in electric generation.

Power producers Danskammer Energy LLC, Balico LLC and EmberClear are paying Mitsubishi Power Americas Inc. more than \$3 billion for the facilities, which will collectively generate 3,284 megawatts of electricity. While the plants will initially run on natural gas alone, they'll eventually shift to burning green hydrogen produced and stored on-site. They're designed to make it easier to ramp up hydrogen use as production increases, said Chief Executive Officer Paul Browning.



Energy & Science

### L.A. Aims to be First to Power U.S. City With Green Hydrogen

By Naureen S. Malik

March 10, 2020, 11:00 AM GMT+1 Updated on March 10, 2020, 9:52 PM GMT+1

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▶ 3:19

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Los Angeles is aiming to become the first city in the nation to use renewable hydrogen to produce electricity, with the goal of ending the use of carbon-based natural gas entirely.

In this article

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altogether

Mitsubishi Hitachi Power Systems Ltd. won the contract for the turbines last month with the promise the new plant will be able to make a faster transition away from gas to renewable hydrogen, said Paul Browning, the chief executive officer of Mitsubishi's

The city has a two-step plan to replace 1,900 megawatts of coal-fired generation produced at a Utah power plant owned by the Intermountain Power Agency.

The first step: Build a pair of gas-fired units able to produce 840 megawatts using natural gas by 2025.

The goal then is to link the units to a \$1 billion storage project adjacent to the plant where hydrogen, one of the planet's most plentiful elements, can increasingly be substituted to replace gas

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HydrogenPro is in pole position to win a lot of work with Mitsubishi Power going forward

# Recent developments



Key projects progressing according to plan



Acquisition of ASP



Repsol LOI

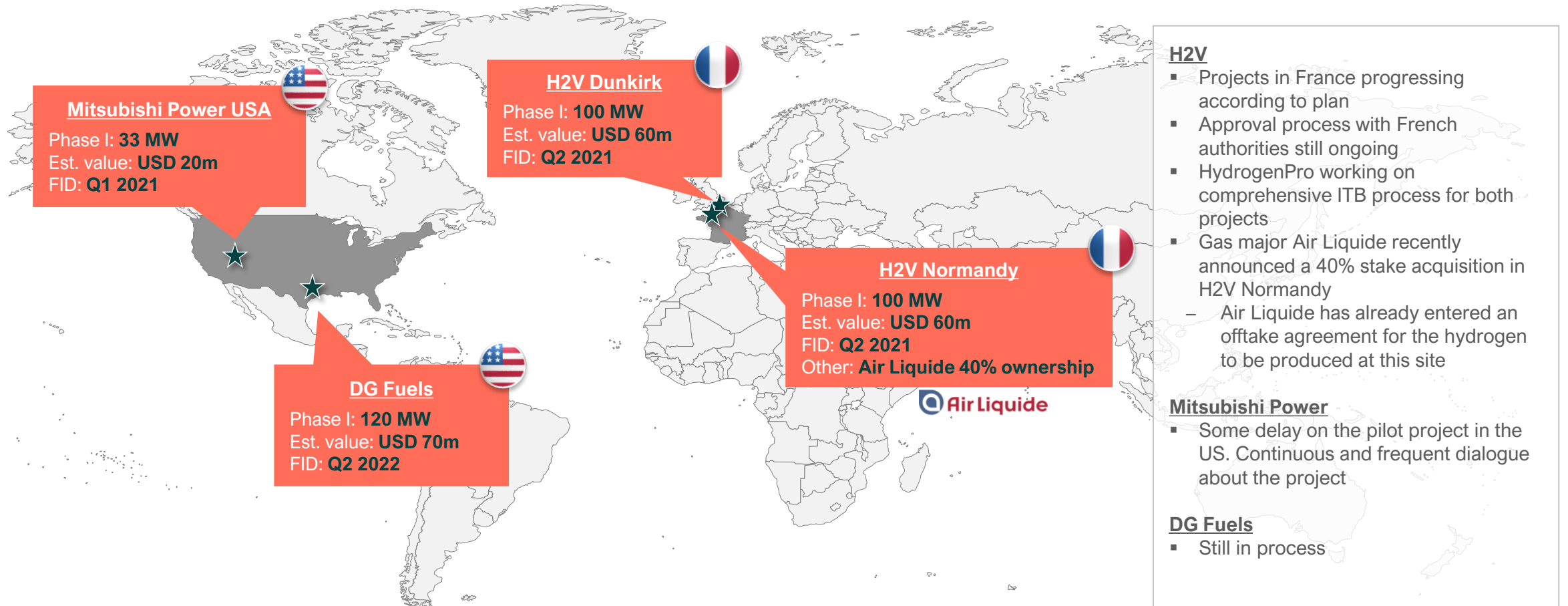


Shareholder base increased from ~225->2,000 since IPO



# The 4 key projects are progressing according to plan

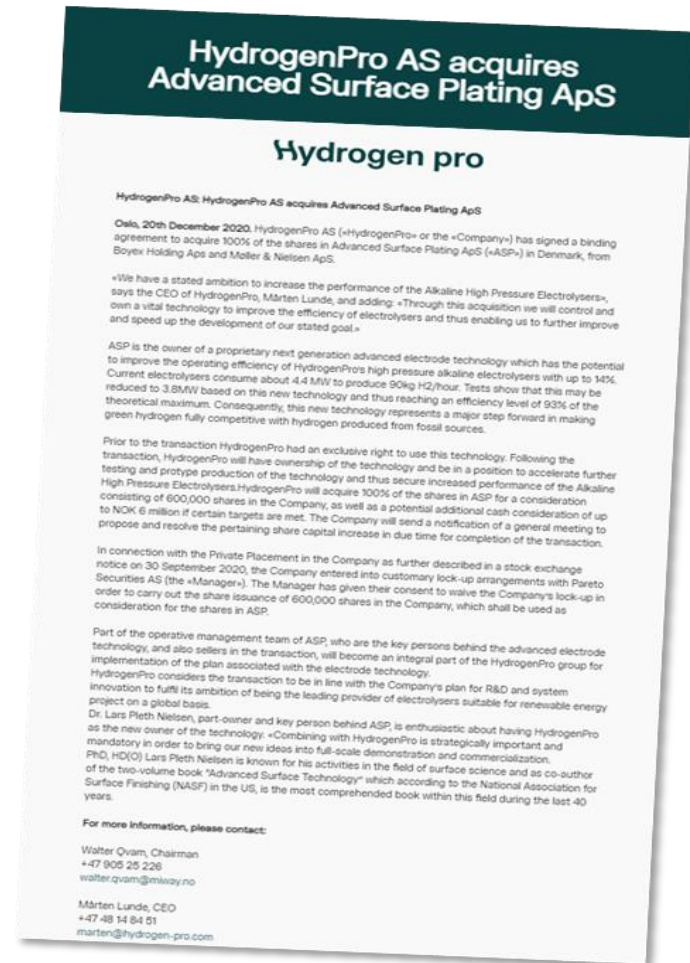
## Current status on the 4 key projects



# Ownership of technology through acquisition of ASP

## Transaction in brief

- Acquisition of 100% of the shares in ASP
- Ownership of technology
  - Proprietary next-generation advanced electrode technology
  - Potential to improve operating efficiency of electrolyzers with up to **14%**
    - Current electrolyzers consume **4.4 MW** to produce **90 kg H<sub>2</sub>/hour**
    - Tests show that this is reduced to **3.8 MW**
    - Reaching **92-93%** of theoretical maximum capacity
- Short-term plan is to build a prototype production facility for surface-plated electrodes in Denmark
- Subject to further testing: Scaling up production capacity to large-scale electrolyzer production
- Former minority owner and key person behind ASP, PhD and HD(O) Lars Pleth Nielsen\*, is the new CEO of ASP in Denmark

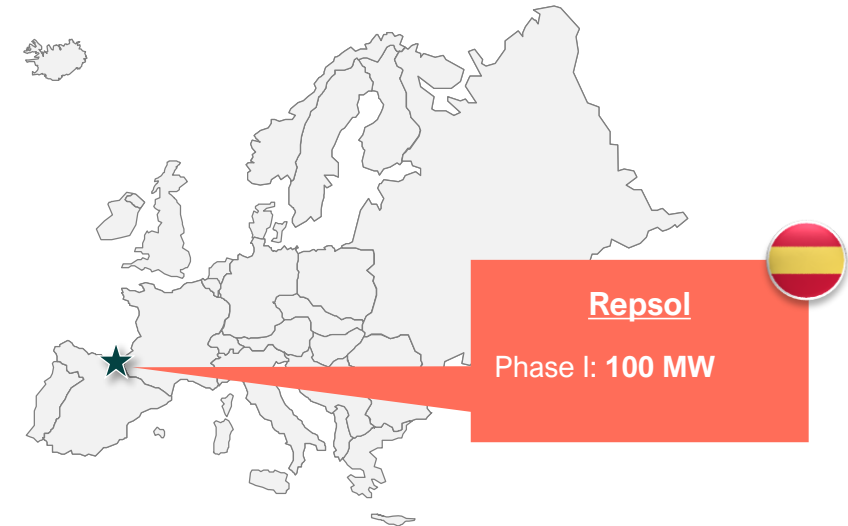


- Note(\*): Pleth Nielsen is known for his activities in the field of surface science and as co-author of the two-volume book «Advanced Surface Technology» which according to the National Association for Surface Finishing (NASF) in the US, is the most comprehended book within this field during the last 40 years

# Signed MoU to develop joint hydrogen projects with Repsol and Ariema

## Contract in brief

- LOI with Repsol and Ariema
- Plan to develop joint hydrogen projects
- Possible 100 MW project for the Petronor refinery close to Bilbao, Spain
- A key component of the project is to implement the latest electrolyzer technology with improved efficiency to design an optimized 100 MW green hydrogen plant
- Ariema will support and assist HydrogenPro in establishing a supply chain for electrolyzer projects in Spain
- Subject to Green Deal funding
  - Application of European Green Deal financing
  - Application deadline on 26 January 2021, award Jun-Sep 2021
  - Possible production start in 2024



- **Repsol** is a global multi-energy provider with a net-zero emission target by 2050
- 25,000 employees across 34 countries
- A major player in the Spanish electricity and gas market
- Operates low-emission electricity generation assets and develops a wide range of renewable solar and wind energy projects



- **Ariema** is a Spanish company that works with hydrogen and fuel cell technology with 30 years of sector experience
- Offers advice, support, training and consulting all the way up to construction and installations



# Solid pipeline of new opportunities

Project	Location	FID	Client	Segment	Size (MW)
Pipeline #1	South America	2021	Energy major	Power-to-gas	14
Pipeline #2	New Zealand	2021	Hydrogen company	Fertilizer	5
Pipeline #3	EU	2021	Energy major	Power-to-gas	120
Pipeline #4	Norway	2021	Gas company	Fuel cell	15
Pipeline #5	EU	2022	Industrial major	Steel industry	70
Pipeline #6	EU	2022	Agriculture company	Ammonia	100
Pipeline #7	EU	2023	Energy major	Power-to-gas	100
<b>Sum pipeline</b>					<b>424</b>



HydrogenPro experiences high interest and an increasing pipeline of identified projects

▪ Note: The pipeline is defined as potential projects which, in HydrogenPro’s opinion, has a 50% or higher probability of materializing, excluding add-on potential from the four key projects

# Strengthening of team since IPO

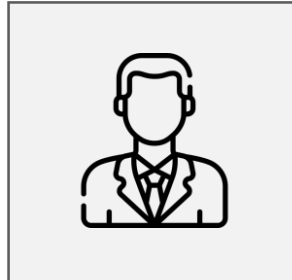
## Full-time hires

### QHSE director



- Starting 1 Feb

### CFO



- Starting 1 Mar

### Automation & Commissioning engineers

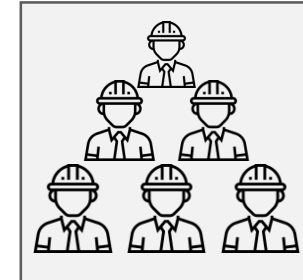


### Senior engineers



- Two highly reputed senior individuals within the electrolyser community joining through acquisition of ASP

## Co-operation



Final stage of securing close operative and R&D co-operation with teams comprising six individuals with extensive experience and competence from high-pressure alkaline electrolyzers within the following fields:

- Service, maintenance and overhaul of electrolysis stacks
- Internal design and operations of electrolyzers
- Extensive network to sub-suppliers (OEMs) and possible future partners
- Commissioning of new installations

Thus, organizational capacity is more than doubled since IPO with world-leading competent resources within electrolyzer design and operations

# Supply chain strategy



**Working on securing increased manufacturing capacity of bipolar plates**



**Secured control of electrode surface technology rights**

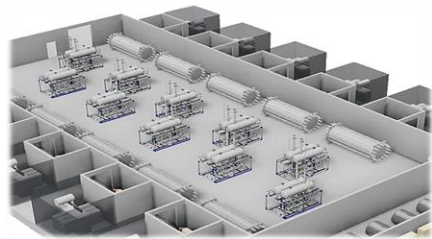


**Progressed plans and details for European and US supply chains in line with communicated strategy**

# Becoming the #1 large-scale hydrogen production systems player

*HydrogenPro with a clear roadmap to become global leader in large-scale hydrogen systems*

## Secure and deliver on key contracts



- Secure and deliver on key contracts for the four largest hydrogen plants globally
- Use first mover advantage to implement the 100 MW stack as the industry standard to drive global growth in large-scale plants

**Current**

## Market leadership through technology and consortium



- Asset light consortium strategy together with strategic partners
- Further develop and optimize the technology for large-scale systems
- Optimize supply chain and 3<sup>rd</sup> party supplier agreements

## Expand service offering



- Optimize supply chain for Europe and USA
- Build central manufacturing hub supported by local assembly and service units in JV structures
- Develop ESG-focused lifecycle service capabilities
- Introduce overhaul after 8-10 years
- Develop digital solutions for control system monitoring

## Production target



- Targeting 1,000 MW of annual project delivery



# Hydrogen pro

[www.hydrogen-pro.com](http://www.hydrogen-pro.com)