



POWERING INNOVATION. ENERGIZING TOMORROW.

Redeye - Hydrogen & Fuel Cells Event

24 September 2024

HydrogenPro



HydrogenPro is a global provider of market-leading, largescale green hydrogen technology & systems

1

THE WORLD'S LARGEST ELECTROLYSER

- 5.5 MW single stack suitable for renewable energy input
- A modular system that can be scaled to any size for large-scale industrial applications
- Pressurised hydrogen ready for industrial use

2

GAME-CHANGING ELECTRODE TECHNOLOGY

- Significant lower energy need for same H2 output
- Reduced cooling water need
- Reduced OPEX from H2 production

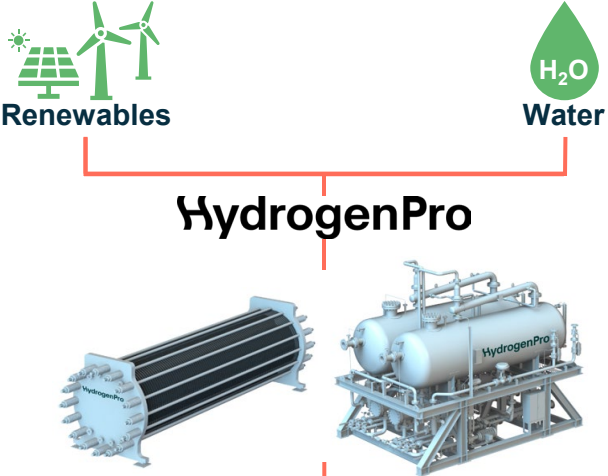


Market-leading levelized cost of hydrogen

Serving industrial applications and hard-to-abate sectors

The world's largest electrolyzer

- 5.5 MW single stack suitable for renewable energy input
- Modular system that can be scaled to any size for large-scale industrial applications
- Pressurized hydrogen ready for industrial use



Game-changing electrode technology

- Significantly lower power consumption needed for the same H₂ output
- Reduced cooling water need
- Reduced LCOH



Selected industries

Power-to-gas

- Transports 10-20x more energy than electrical cable
- Can be converted to accommodate hydrogen at a minimal cost

Steel production

- Replacing coal with green hydrogen could significantly reduce carbon emissions by up to 90%

Refinery decarbonization

- ~50% of current hydrogen production is used by refineries
- Refinery companies are focusing on green hydrogen to reduce their CO₂ footprint

Synthetic fuel

- Sustainable Aviation Fuel results in up to 85% lower lifecycle greenhouse gas emissions versus conventional jet fuel

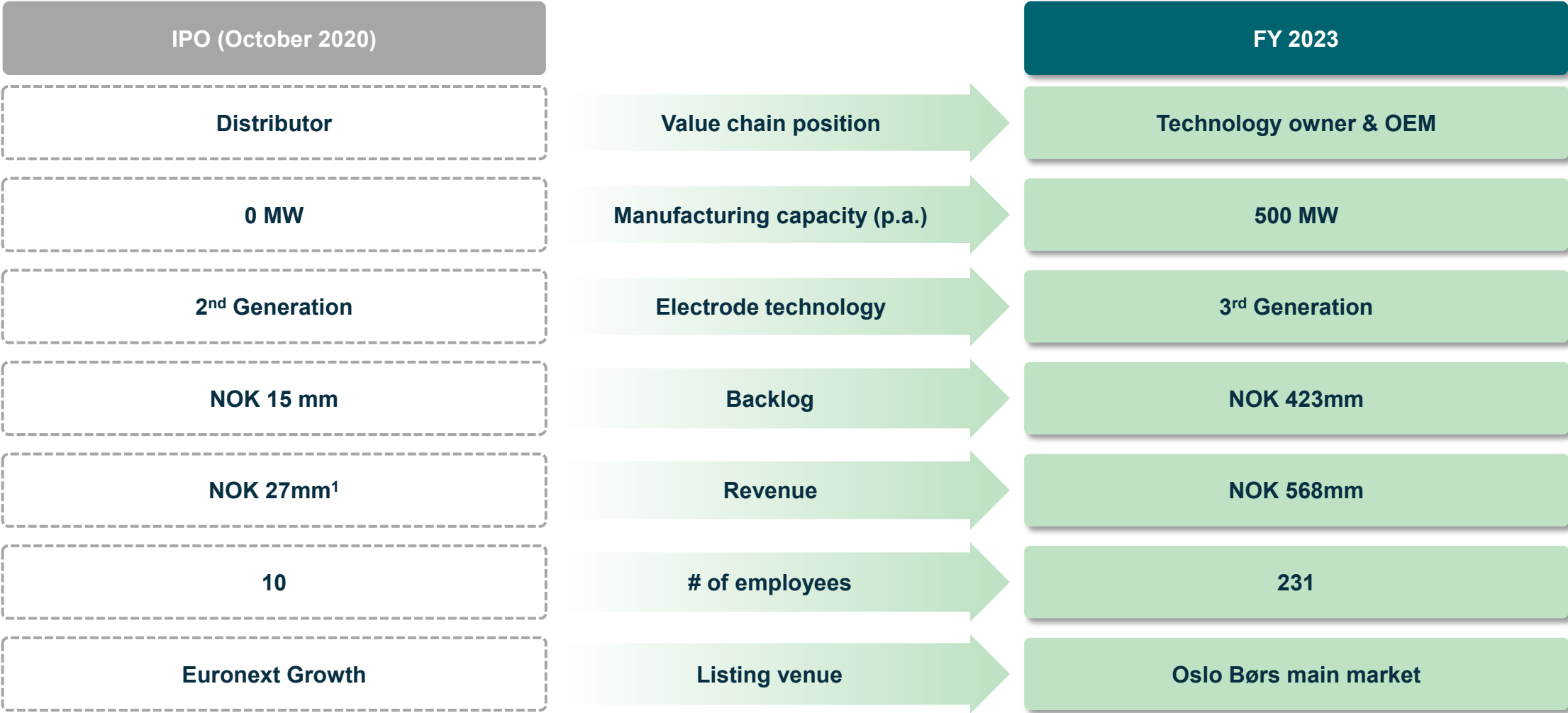
Balancing the grid

- Convert surplus energy into hydrogen and back into electricity when needed

Fertilizer / ammonia

- ~40% of Europe's hydrogen production is consumed for ammonia production, primarily as fertilizers

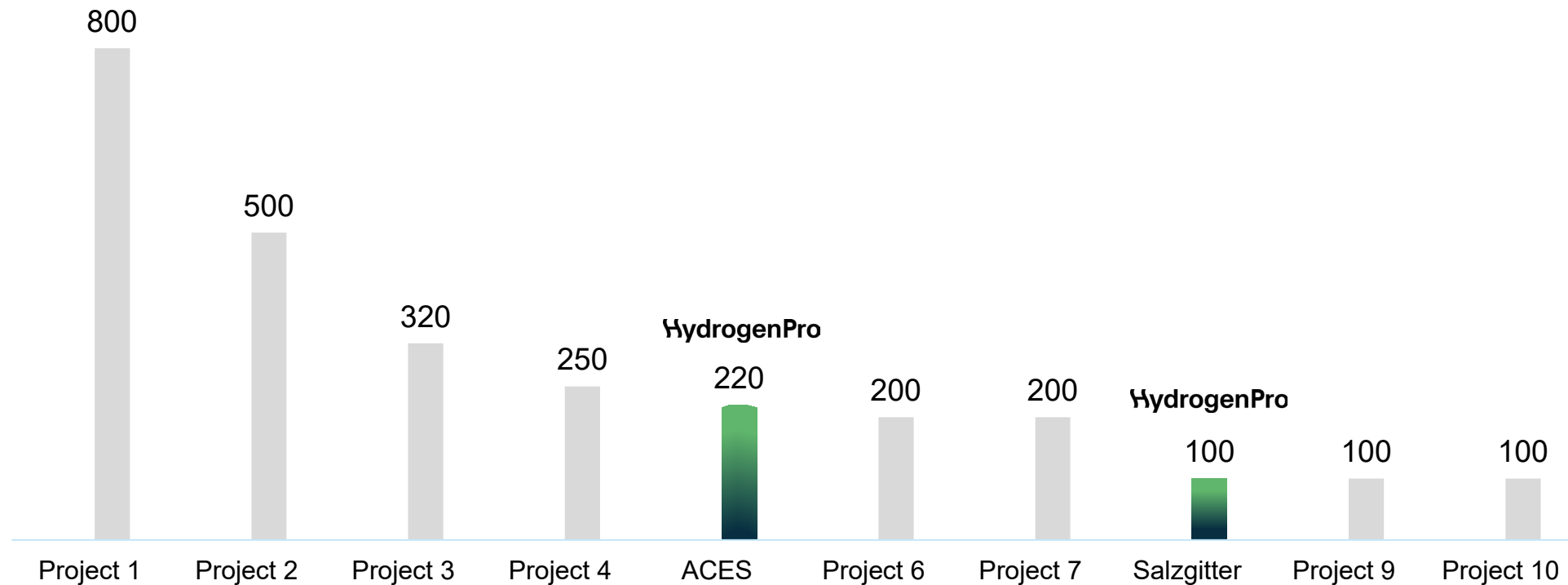
Transformational growth since IPO in October 2020



1. 31 December 2020

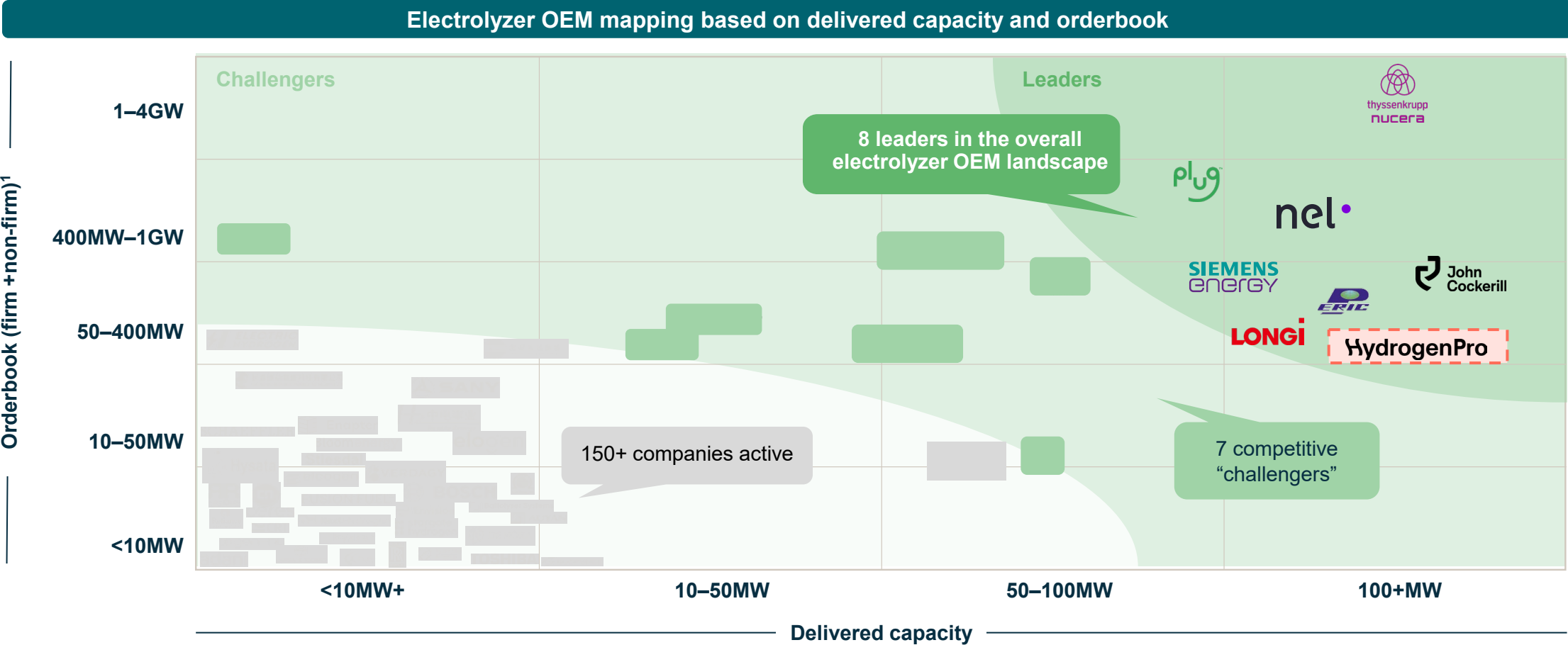
HydrogenPro delivers 2 of the 10 largest projects (excl. China) estimated to come online in 2025

(Electrolyser capacity MW p.a.)



Source: IEA "Hydrogen production projects" database

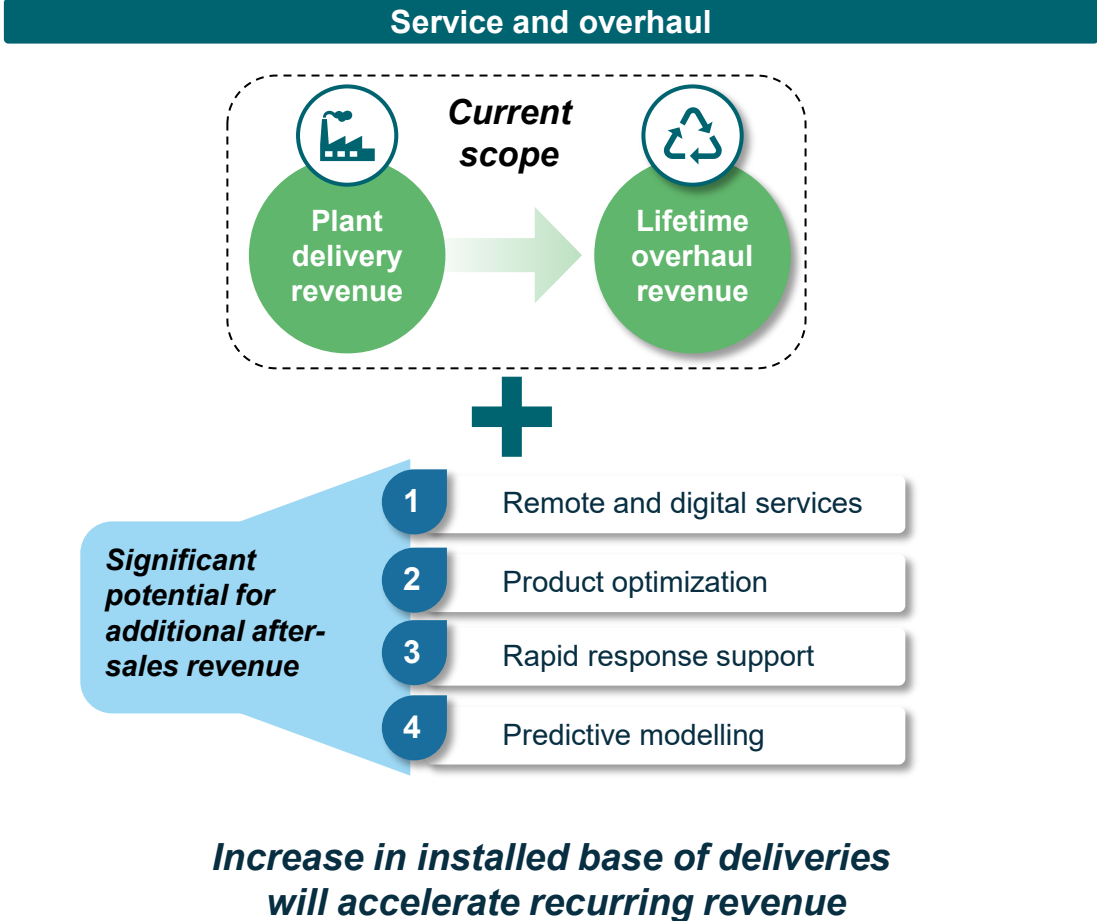
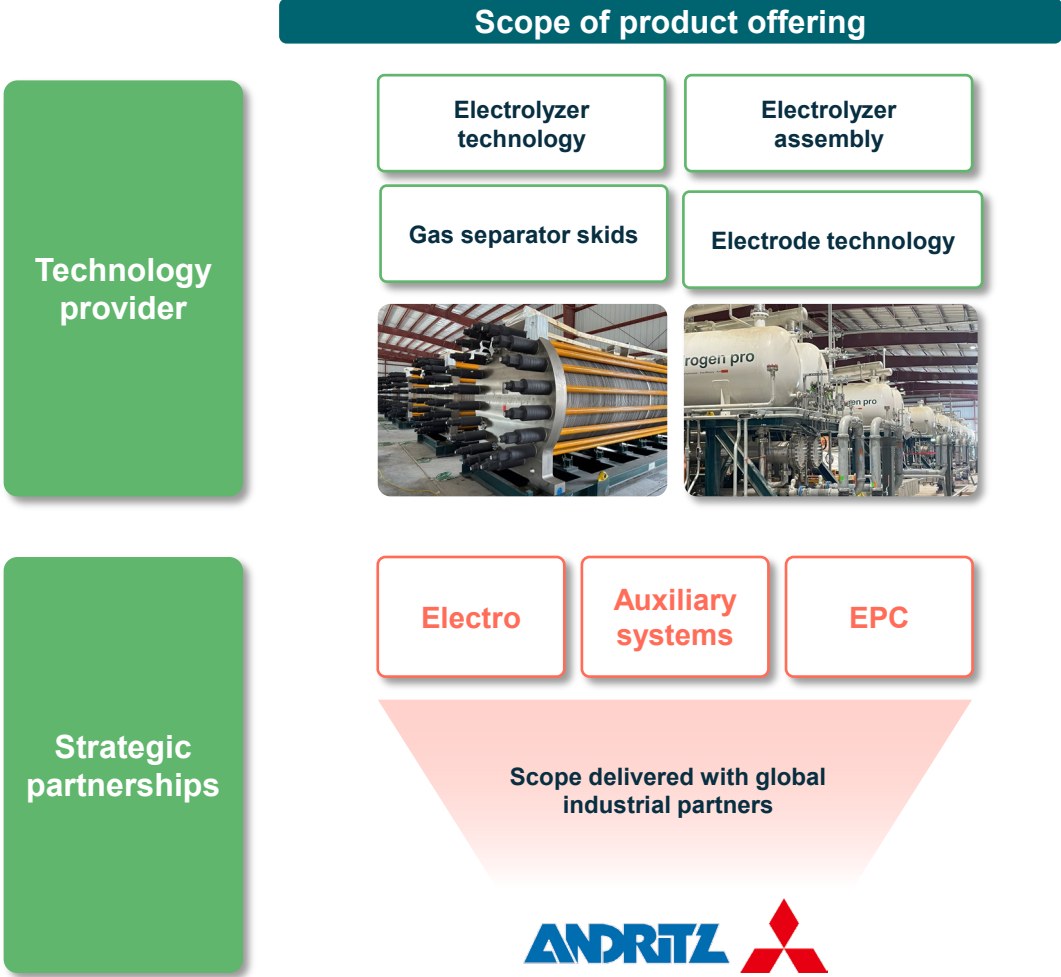
HydrogenPro – among top industry leaders



Source: VNZ Insights, Company websites, reports and press releases.

1. Firm orderbook includes projects which have reached FID or where purchase order has been given while Non-firm orderbook includes pipeline in advanced FEED stages or where project has received funding increasing probability of realisation. Orderbook does not includes Framework Agreements & MoU; Credit to the players for the logos.

A scalable and flexible business model with recurring revenues



Global presence with expansion opportunities

Pillars of HydrogenPro's global fabrication strategy

Develop organizational flexibility to serve each individual region

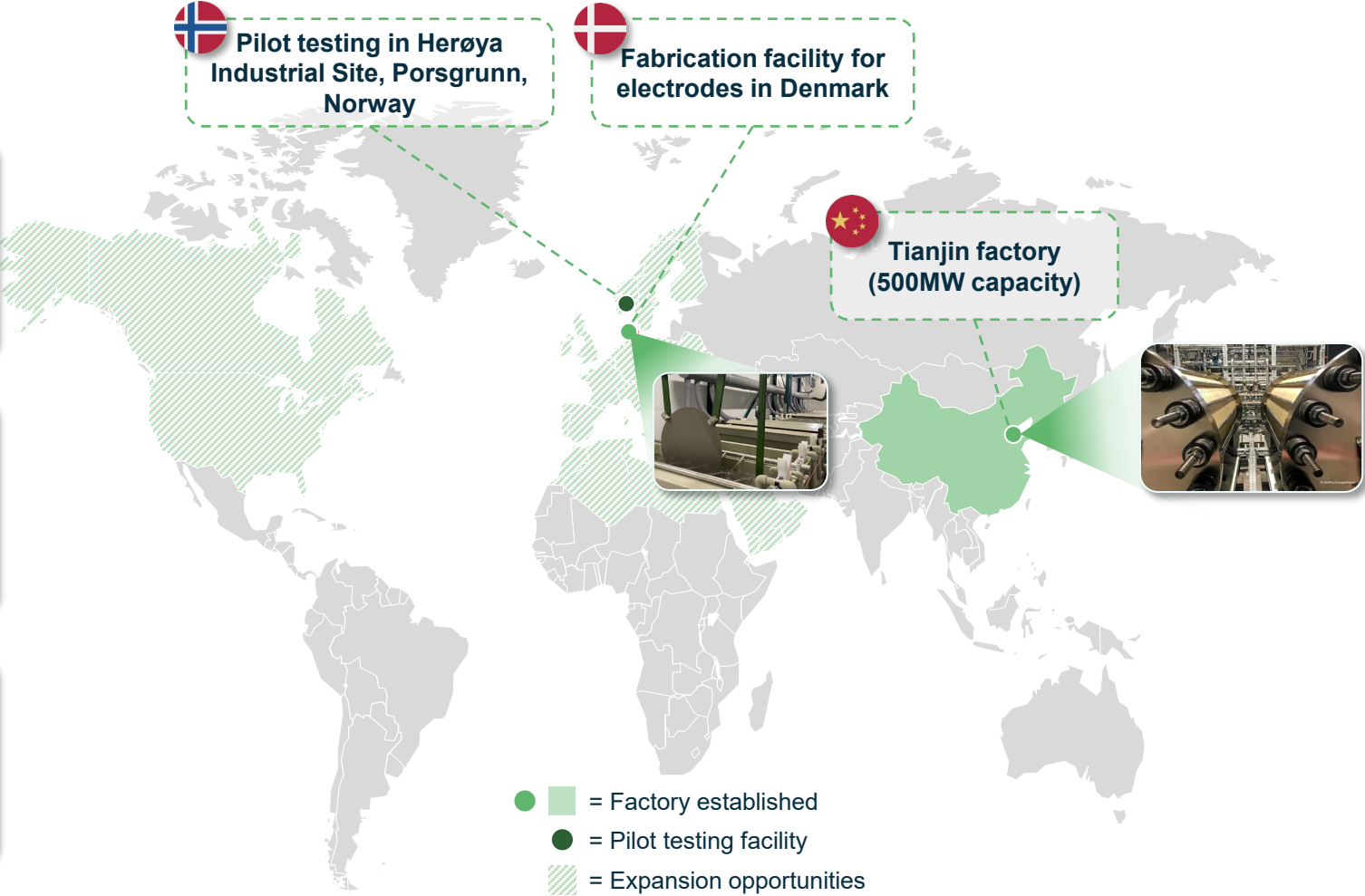
- Through HydrogenPro's own manufacturing sites and sales offices, joint ventures, licensing agreements as well as through other partnership structures

Dynamic, flexible supply chain and logistics

- Current manufacturing and production strategy enables development of local supply chains, secure service and aftersales, reduced shipping cost, tolls and fees, as well as securing national political support

Substantial expansion possibilities across the globe

- Planning to expand European footprint through partnership agreements



Manufacturing capacity of 3rd generation technology increased to **350 MW p.a.** – operational in Q1 2025



- › Optimization work conducted
 - ✓ Increase number of flight bars
 - ✓ Increase drying positions evt. Baths
 - ✓ Evaluate the process time in each bath
 - ✓ Evaluate the use of the control system
- › Annual capacity increased to approx. **350 MW**
- › No extra investment beyond total capex of NOK 70 million
- › On-going work for even further capacity expansions
- › Operational in Q1 2025



500 MW manufacturing site – Tianjin



Key facility facts



Modern electrolyzer manufacturing facility in Tianjin
Established in 2021. Specializes in manufacturing and assembly of hydrogen systems, including steel systems structures and high-pressure piping



Substantial value-add to the Group
Tianjin facility brings significant system assembly capacity and valuable industry know-how, complementing the existing capabilities, improving control of the value chain and accelerating time to market



Positioning HydrogenPro to meet growing demand
500 MW manufacturing capacity with flexibility to adapt to increasing production demand and dynamic needs



Proven track record of facility scalability
Tianjin facility has demonstrated ability to scale up production from 300 MW to 500 MW



Market-leading capex per MW
Cost-efficient production of key components throughout the value chain enables HydrogenPro to increase output levels and scale production while maintaining sustainable margins



Production Data System
Full traceability of all aspects of components, processes and products, by use of QR / bar-codes and scanners, real-time insight into quality and production parameters, paper-less production, cloud-based database (Amazon), flexible and scalable system



HydrogenPro

Tianjin

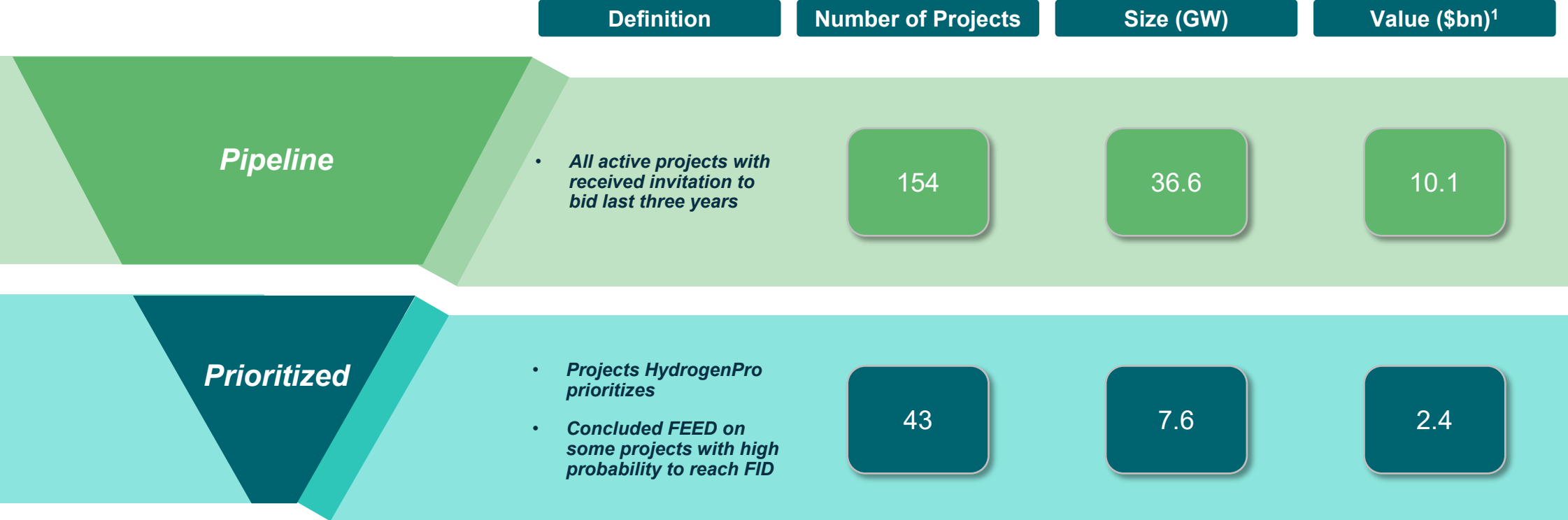


Winning the publicly funded Salzgitter project proves the strength in our business model

SALZGITTER PROJECT








SIZE & USE	<ul style="list-style-type: none">• 100 MW• Green steel production
PUBLIC FUNDING	<ul style="list-style-type: none">• The first development stage of SALCOS receives around € 700 million in federal funding and € 300 million from the state government. Approved by the EU Commission in accordance with the subsidy regulations.
SCOPE	<ul style="list-style-type: none">• Electrolyser stacks• Partly 3rd generation technology
DELIVERY MODEL	<ul style="list-style-type: none">• Design and engineering by HydrogenPro in Norway• Electrodes manufactured at HydrogenPro's facility in Aarhus, Denmark• Manufacturing of cell stack components at HydrogenPro's facility in Tianjin, China• Assembly and stacking in Erfurt, Germany• Installation and commissioning at Salzgitter's project site in Germany
NEXT STEPS	<ul style="list-style-type: none">• Manufacturing to be completed in Sep/Oct 2024• Installation and commissioning in 2025

Large global sales pipeline



Note: All numbers exclude DG Fuels
 1. Value is equivalent to €9.9bn and €2.2bn.

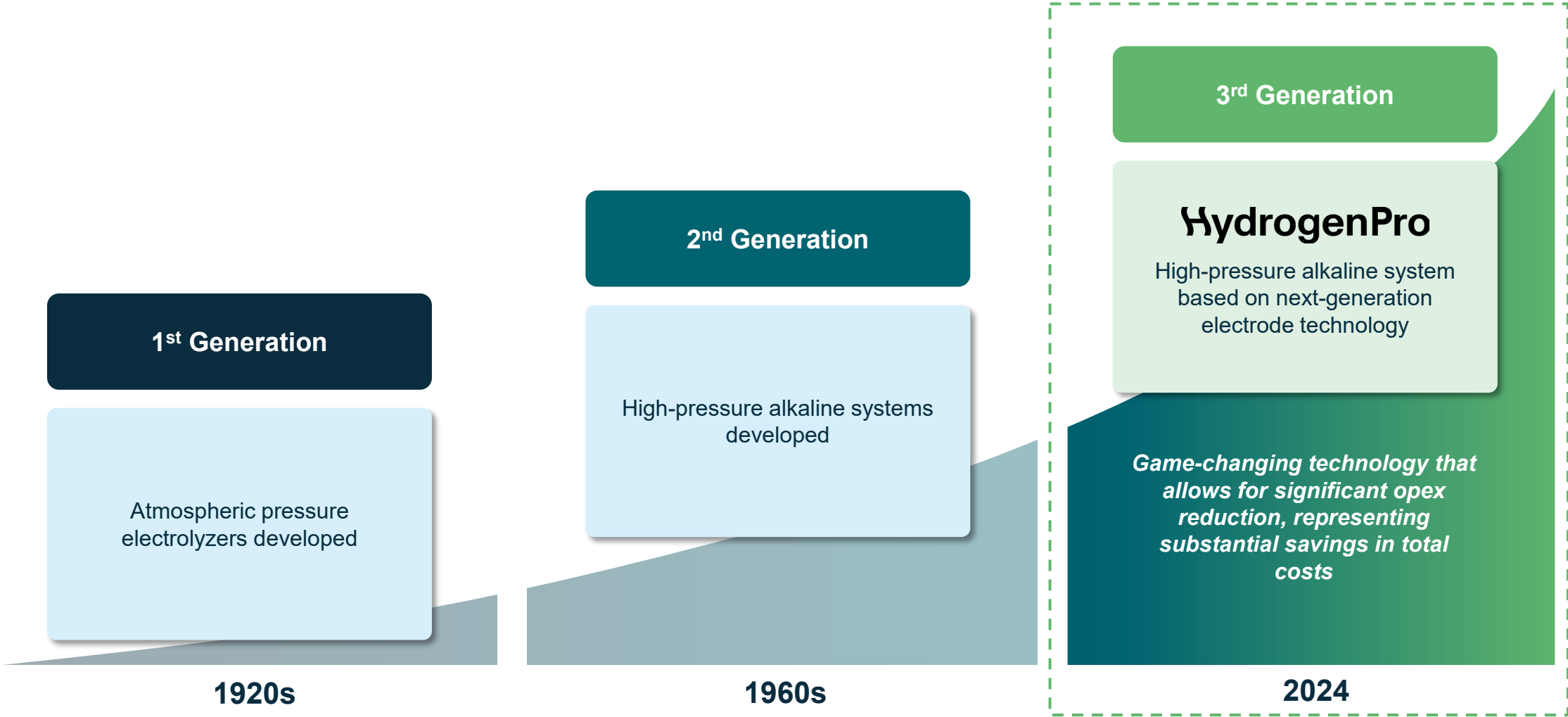
HydrogenPro's superior positioning vs. other technologies

		PEM		Alkaline			HydrogenPro 3 rd Gen
		High pressure	Atmospheric pressure	High pressure	High pressure		
	Plant efficiency	✗	✓	✓		✓	✓
	Low cooling need	✗	✓	✓		✓	✓
	No noble materials	✗	✓	✓		✓	✓
	Suitable for renewable energy	✓	✗	✓		✓	✓
	High pressure on O ₂	✓	✗	✓		✓	✓
	Suitable for P2X ¹ plants	✓	✗	✓		✓	✓
	Proven for large-scale plants	✗	✓	✓		✓	✓

Legend: ✓ Best capability ✓ Average capability ✗ No/limited capability

1. P2X = Power-to-X

HydrogenPro is trailblazing the electrolyzer technology revolution



Key investment highlights



Vast TAM and massive growth potential for green H₂ underpinned by secular tailwinds
Favorable government policies provide critical support; new end markets unlock a bigger TAM for green H₂



HydrogenPro's 3rd-generation technology drives significant LCOH reductions
Technology developed for 10+ years with extensive R&D efforts



Substantial commercial traction with ACES hub and ANDRITZ contracts
Manufacturing for 220MW ACES project completed; 100MW ANDRITZ project in progress



Manufacturing capacity in place to service demand today with plans to expand globally
Existing 500MW capacity in China; investing in electrode capacity in Denmark



Scalable business model positioned to grow
Recurring revenue and optimized production systems



World-class leadership team with deep industry knowledge
Management team brings valuable insights and execution capabilities in the hydrogen sector



HydrogenPro

Market leading global
provider of large-scale
green hydrogen
technology & systems

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