Hydrogen pro

# Q3 2022 presentation: Take-off for green hydrogen

Richard Espeseth, Interim CEO & Founder
Martin Thanem Holtet, CFO

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# Agenda

I. Highlights

II. Business update

III. Technology update

IV. Strategy

V. Summary

# I. Highlights

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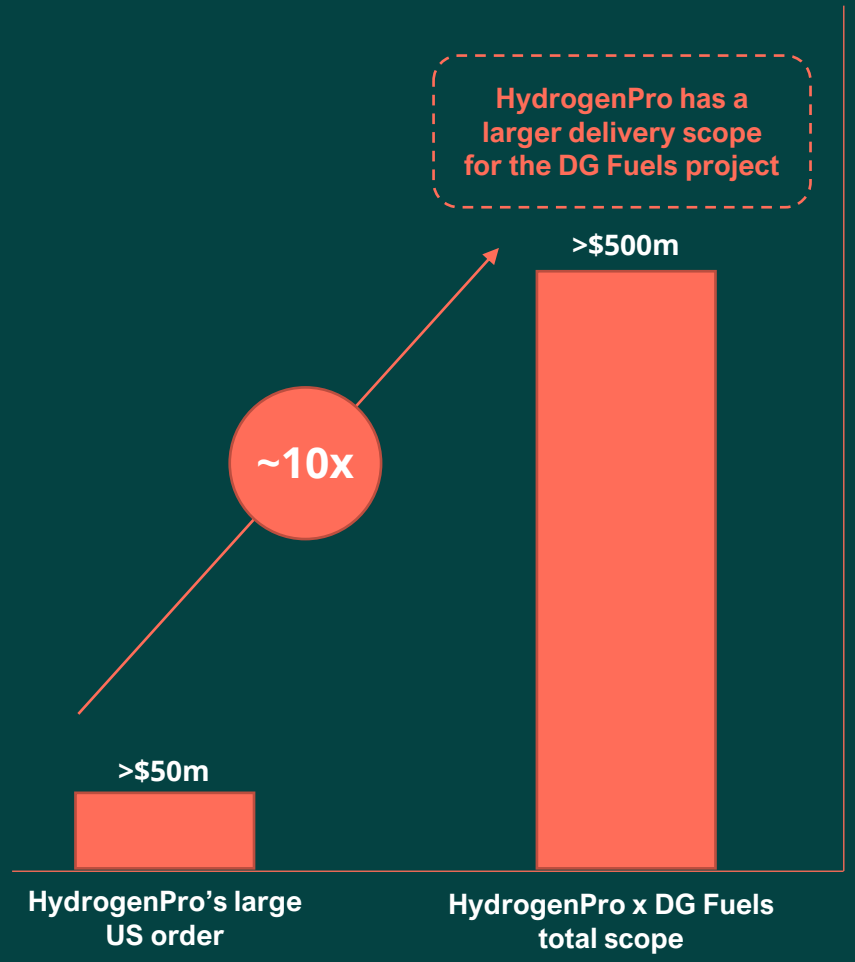
## Take-off for Sustainable Aviation Fuel:

# DG Fuels' project 10 times larger than any other confirmed green hydrogen project

- HydrogenPro is chosen as the supplier for alkaline high-pressure electrolysers for DG Fuels' plant in Louisiana.
- HydrogenPro's contract with DG Fuels is worth >USD 500 million, excluding life cycle services.
- Firm Offtake Agreements with Delta Airlines[1] and Air France-KLM[2], and Inflation Reduction Act are major triggers to secure the project.
- Final Investment Decision (FID) expected in 2023.




1) During Q3, Delta Airlines agreed an Offtake Agreement with DG Fuels where the former will supply 385 million gallons of sustainable aviation fuel.
2) 25th of October, Air France-KLM also announced an Offtake Agreement with DG Fuels, bringing the total offtake to 90% of total capacity



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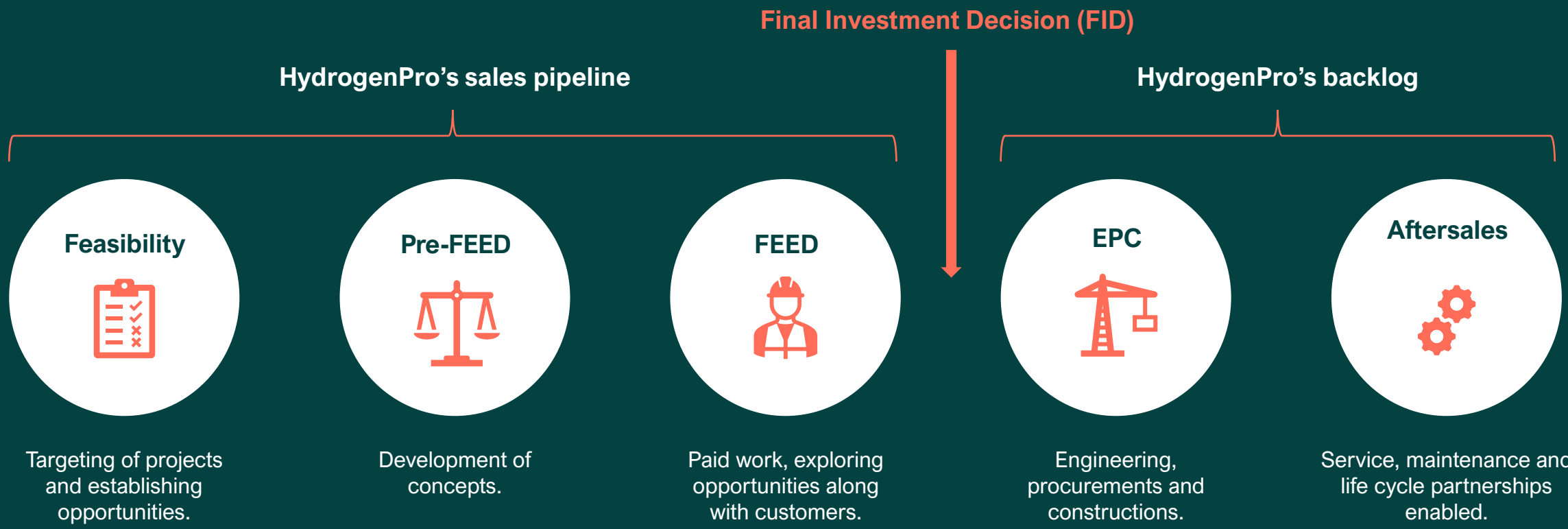
# DG Fuels project to be included in order backlog after FID



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# Status: Validation of the world's largest electrolyser

- Production, installation and commissioning at Herøya expected to be completed on 9th of November 2022.
- Power supply to the electrolyser is turned on and we are now producing gas.
- So far everything is as expected.
- Validation will run to year end 2022 and final details will be reviewed.

**HQ and test center at Herøya, Porsgrunn**



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# Testing of 3rd Gen electrolyser technology

- HydrogenPro's advanced electrode technology (3rd Gen) has been tested for the first 1000 hour run.
- First results show significant efficiency improvements.
- Details to be given in technology update.

**Electrode testing at Herøya test facility**



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# New office in Boston, USA

- Established new office in Prudential Tower.
- In line with strategy on global footprint.
- Important milestone in our US expansion together with large US order of 40 electrolyser systems and DG Fuels projects.

800 Boylston street, Boston, MA

# II. Business update

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# Highlights

- Signing of Offtake Agreements making up *90% of total capacity* at DG Fuels' production plant in Louisiana.
- *Validation* of the world's largest electrolyser expected commissioned on 9th of November 2022.
- Q3 2022 financials – *revenues up 87%* vs. Q2 2022.
- Backlog of *NOK 849 million and a*ctive sales pipeline of *17 GW* / 115 projects.
- Trading on the *main list on Oslo Stock Exchange* from 3rd of October 2022.
- Tianjin manufacturing facility *further upgraded*.
- HydrogenPro to start *recognizing revenue* from Mitsubishi Power contract in Q4 2022.



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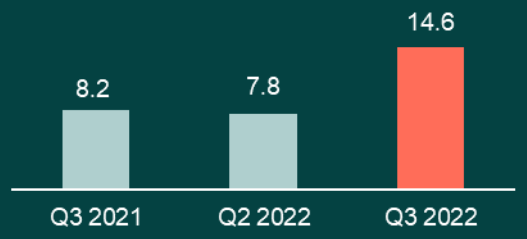
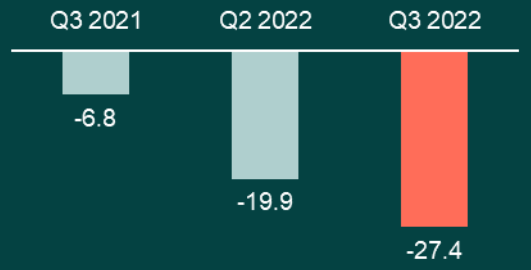
# Q3 2022 financials

*(NOK mill)*

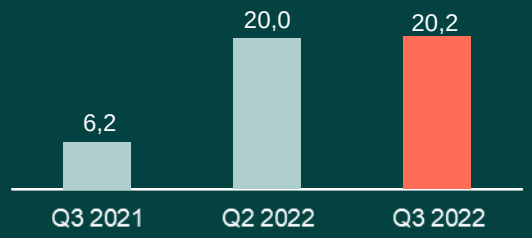
## Revenues[1]



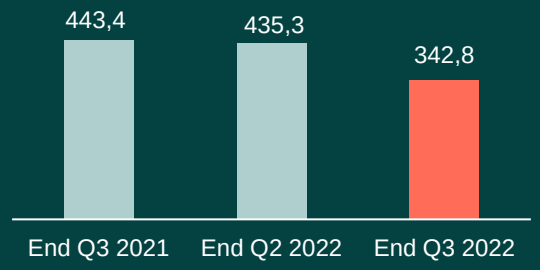

## Adj. EBITDA[2]



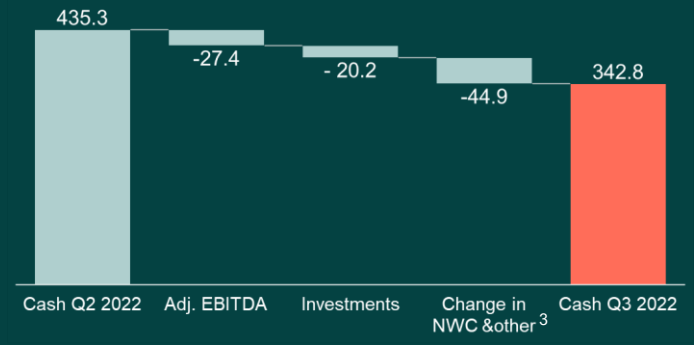

## Net investments



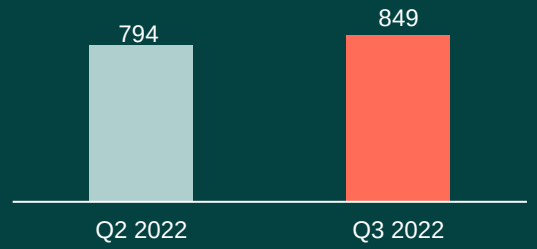

## Cash balance




## Change in cash balance




## Backlog[4]




1) Revenue recognition Mitsubishi Power contract starting in Q4 .
2) Excl. non-cash impact of incentive program.
3) Change in NWC/Other: change in acc receivables (NOK -13.8m), increase in inventory in subsidiary (NOK -7.0m), prepayment of steel (NOK -24.9m), other (NOK 0.8m).
4) The increase in the backlog is due to an order intake of NOK 3 million, currency exchange fluctuations of NOK 66 million and recognized revenues of NOK 14 million.

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# Tianjin manufacturing facility

- Factory has been upgraded and is now producing another 5.5 MW electrolyser to be shipped to Japan.
- Manufacturing on-going with increased activity level.
- In total NOK 17 million invested in the manufacturing facility in Q3 2022.

## Tianjin manufacturing facility


Tianjin factory

300 MW

Annual capacity

# Revenue recognition and Q4 2022 capital spend

- Revenue recognition of the >USD 50 mill. contract with Mitsubishi Power starts in Q4 2022.
- From Q1 2023, HydrogenPro will recognize higher revenues as manufacturing process runs at full capacity.
- HydrogenPro expect to deliver close to 90% of the scope within the agreed >50 USD mill. contract with Mitsubishi Power by the end of 2023.

**Main capital uses in Q4 2022:**

- NOK 20-30 million remaining of upgrades in Tianjin factory.
- Building up systems and organisation for delivery on purchase orders.
- Validation of world's largest electrolyser
- Establishing new offices in Germany and Boston, USA.

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# HydrogenPro grows

| | IPO (October 2020) | Q3 2022 |
|---|---|---|
| Value chain position | Distributor | Technology owner & OEM[1] |
| Manufacturing capacity (p.a.) | 0 MW | 300 MW |
| Backlog | NOK 15 mill | NOK 849m |
| Active sales pipeline | 1.5 GW | 17 GW |
| # of employees | 10 | 100[2] |
| Listing venue | Euronext Growth | Uplisted to the Oslo Stock Exchange main list[3] |

1) Original Equipment Manufacturer.
2) As of 1 November 2022.
3) First day of trading 3 October 2022.



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# III. Technology update

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# The history of alkaline electrolysers

**1st generation**

Atmospheric pressure electrolysers developed in the 1920s.

**2nd generation**

High-pressure alkaline systems developed in China in the 1960s.

**3rd Gen**

**HydrogenPro high-pressure alkaline system based on next-generation electrode technology.**

# Main components in a hydrogen factory

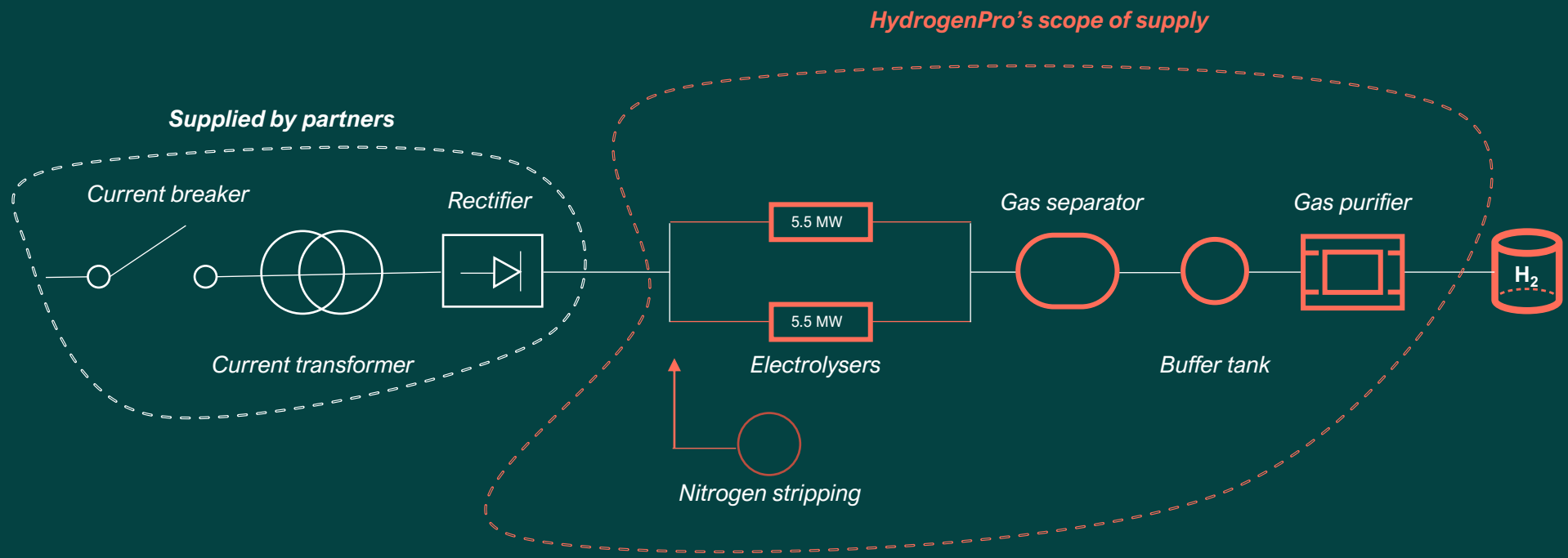


***Illustration of electrolyser system for green hydrogen production***



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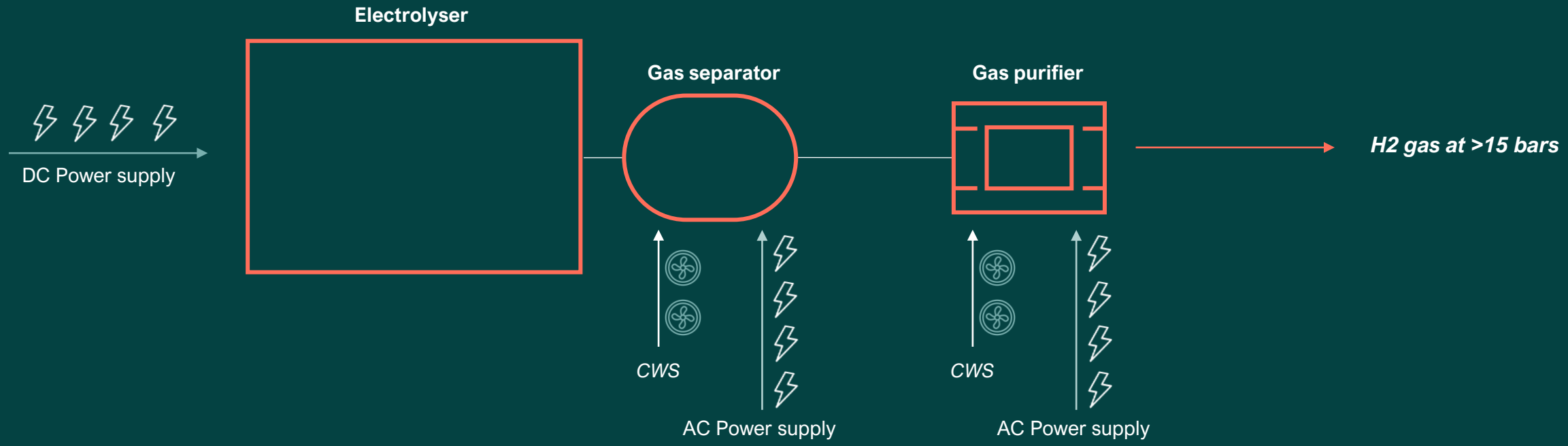
# 3rd Gen product technology and plant improvements

*HydrogenPro's R&D focus areas*



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# The HydrogenPro way to improve total efficiency

| Production element | WHY | EFFECTS |
|---|---|---|
| **New hydrogen gas purifying unit** (*2,200 $m^3$ gas/hr, 30 bar*) | *The high pressure and flow will be customized for our existing system.*<br>*Full independence between modules, lowering downtime for total installation.* | *Proprietary technology customized to our system enables increased efficiency, more hydrogen produced per unit of input and zero losses of gas.* |
| **New electrolyser body** | *Eliminate efficiency loss through shunt current. (V = 0.41 x number of cells x number of kiloamps (DC) kA x Z)* | *Eliminates shunt current, widens operating range and increases hydrogen gas output.*<br>*Target is to have Z = 1* |
| **3rd Gen electrode** | *The 2nd generation electrode is 25 years old and there are thus many areas of improvement, especially with regards to energy efficiency.* | *Reduces the energy needed to produce gas and reduced need for cooling water.* |
| **New cooling system** | *The new 3rd Gen electrode will have much higher efficiency, resulting in less heat generation.* | *Allows higher temperature on CWS and can reduce the use of water.* |



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# Testing of 3rd Gen electrolyser technology

- HydrogenPro's advanced electrode technology (3rd Gen) has been tested for the first 1000 hour run.
- First results show significant efficiency improvements.
- First test run was completed with double current density and result shows a better efficiency at double current density compared to 2nd generation (commercial technology with 25 years history) electrodes at normal current density.
- Next step: Repeat same procedure for normal current density.

Small-scale test at technology center, Herøya



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# IV. Strategy

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# HydrogenPro to become #1 large-scale provider of green hydrogen production plants

**Technology Leader**

- High-pressure alkaline electrolysers.
- Next-generation electrode technology.

**Global Footprint**

- >1GW global production capacity in 2023.
- Partnerships & JVs.

**Scalability**

- Standardised and modular design.
- Capital light partnership model.

**Life Cycle Partner**

- Plant management and services.
- Recurring revenues on installed base.

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# HydrogenPro's high pressure alkaline technology has several advantages

Technology Leader

| | PEM | Alkaline | Alkaline | Hydrogen pro |
|---|---|---|---|---|
| | *High pressure* | *Atmospheric pressure* | *High pressure* | *Alkaline high pressure* |
| Plant efficiency | Low | Medium | Medium | High |
| Suitable for renewable energy input | Yes | No | Yes | Yes |
| Cooling need | High | Medium | Medium | Low |
| Overhaul Opex | High | High | Medium | Low |
| Use of noble materials | Yes | No | No | No |
| High pressure on $O_2$ | Medium | No | Yes | Yes |



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# Building a global footprint to become #1 provider


- Worldwide production/assembly facilities:
  - Reduce cost from shipping, tolls and fees.
  - Local presence to secure service and aftersales.
  - Secure national political support.
  - Develop local supply chains.

- Partnering reduces upfront costs compared to wholly-owned fabrication sites.

- Industrial competence engineering capacity through partnerships with world-class fabrication and construction companies.

**Reducing the CO2 footprint and being close to our customers is important.**

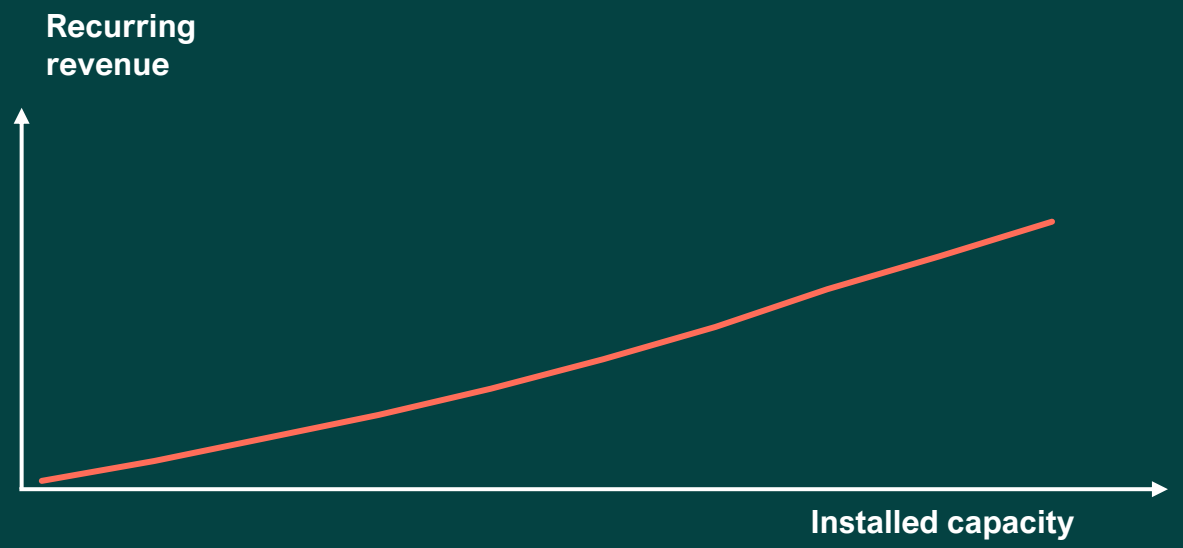
# Life cycle model increases recurring revenues

Life Cycle Partner

**Life cycle services include:**

- Rapid response support.
- Service and overhaul.
- Production optimization.
- Remote and digital services.
- Predictive modelling.

**Increase in installed base of plant deliveries will accumulate recurring revenues**




**HydrogenPro's technology lays the foundation for rapid scale up of both partnerships and products**



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# Green hydrogen enables renewable energy

Renewables

Hydro

Solar

Wind

Water

$H_2O$

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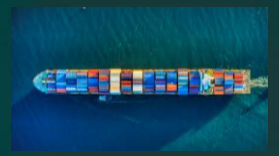
$H_2$

- Sustainable Aviation fuel
- Refinery/ Decarbonization
- Power-To-Gas
- Balancing the grid
- Steel Production
- Fertilizer/ Ammonia
- Shipping



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# Sustainable Aviation Fuel (SAF) ready for takeoff


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# V. Summary

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# Executive summary

Offtake agreements signed by DG Fuels make up the largest green hydrogen project globally. Estimated value is >USD 500 million.

Backlog of NOK 849 mill & active sales pipeline of 17 GW.

First test phase of advanced electrode technology completed – significant improvements. Validation of the world's largest electrolyser expected commissioned on 9th of November 2022, and the electrolyser is producing gas.

Global expansion on track.

Revenue recognition on large US contract starting in Q4 2022.

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Pure Performance | Pure Efficiency | Pure Power