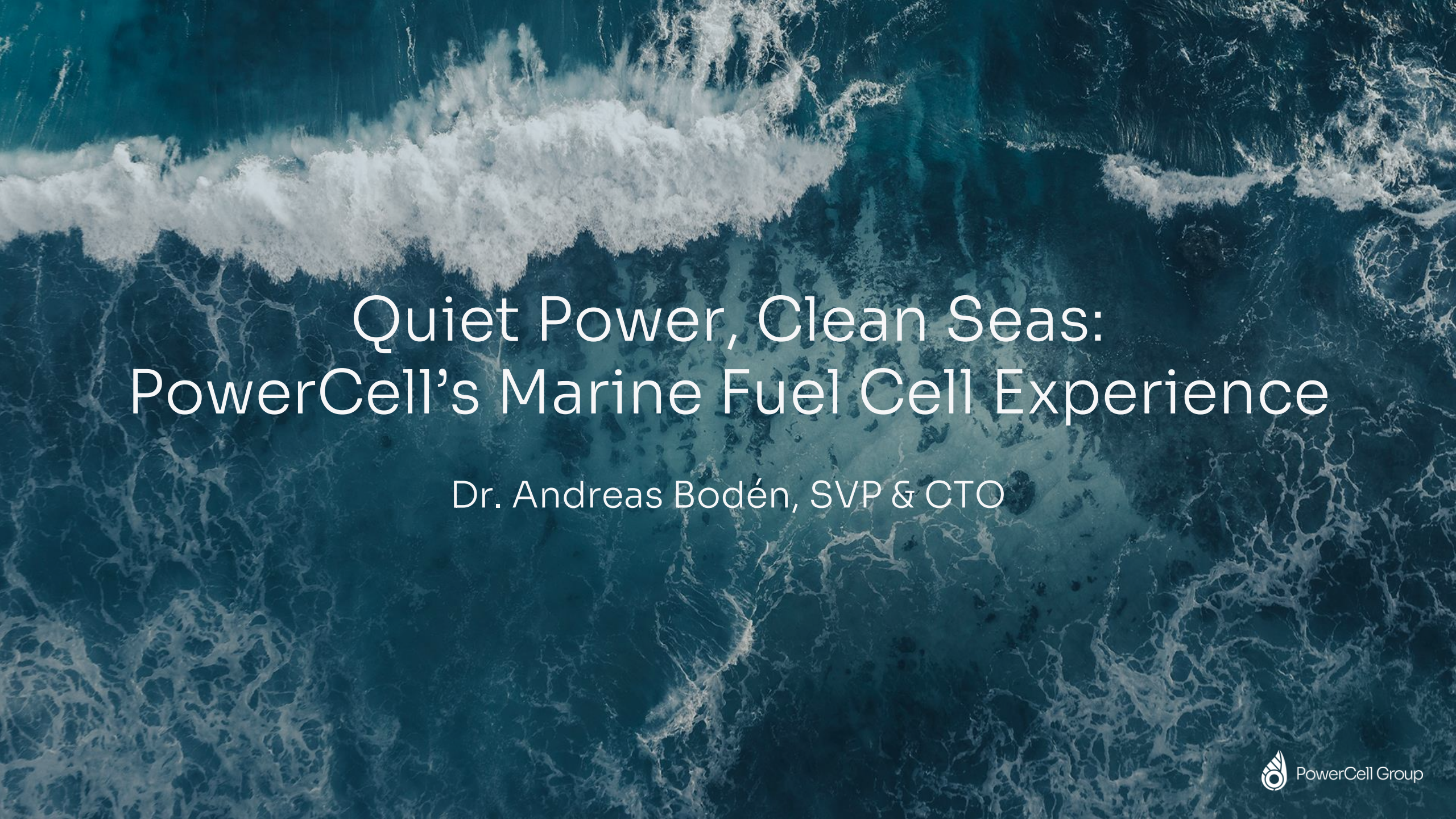


Quiet Power, Clean Seas: PowerCell's Marine Fuel Cell Experience

Dr. Andreas Bodén, SVP & CTO

PowerCell Group

Headquarters in Sweden. Global presence.

Leading fuel cell technology built on 25 years of R&D & IP

Spin-out from the Volvo Group in 2009

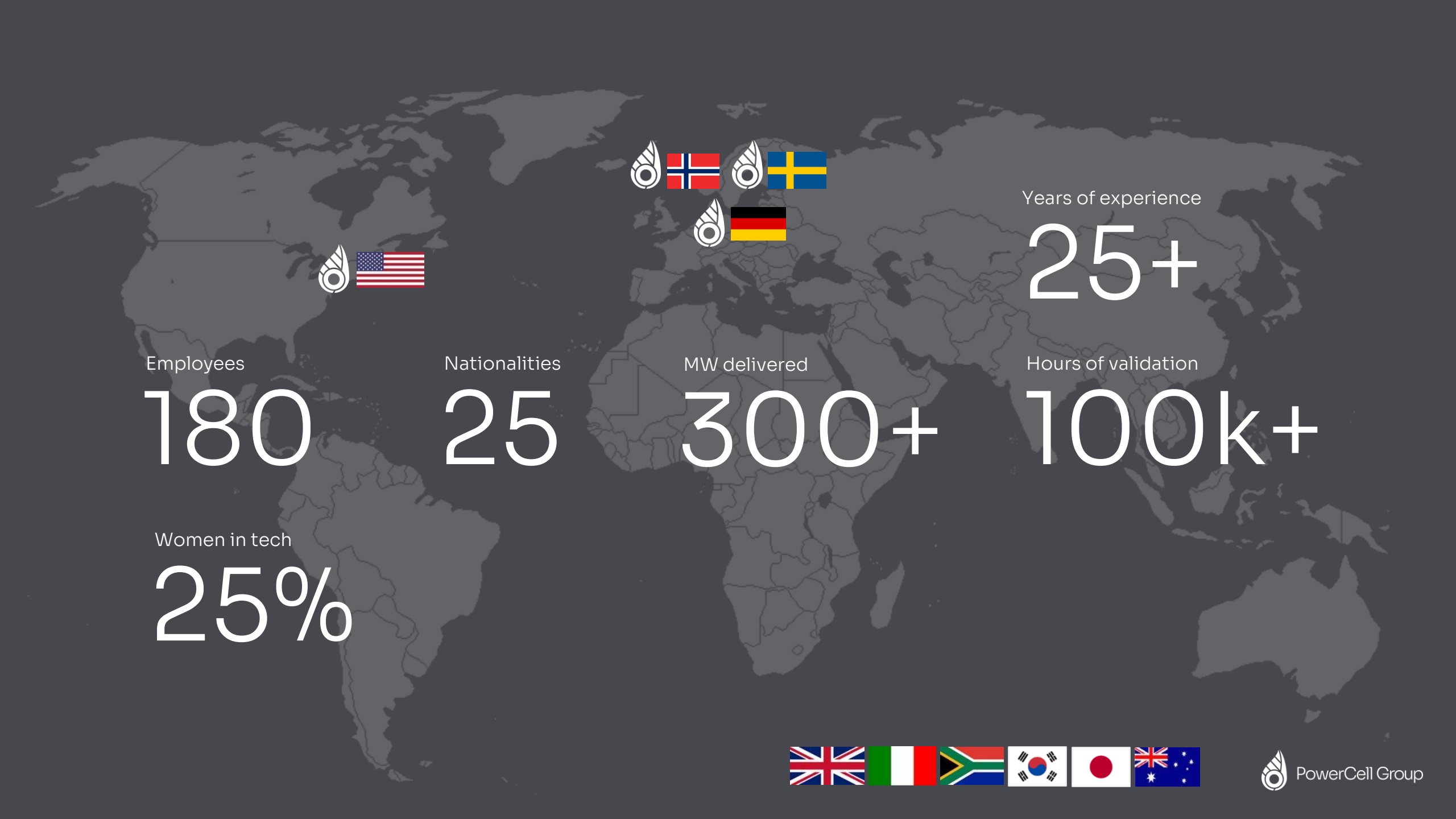
Listed on NASDAQ since 2014

Driving business with strategic partners

Development & production according to industry standards

DNV Lloyd's Register ISO 14001 ISO 9001

PowerCell Group



Years of experience

25+

Employees

180

Nationalities

25

MW delivered

300+

Hours of validation

100k+

Women in tech

25%

PowerCell Group

Core


Industrialized
product
portfolio


Leading R&D
and testing
capabilities


MW
production
capacity

Services

PowerCell Group

Marine

- Passenger Vessels
- Fast Ferries
- Cargo Vessels
- Large Yachts

Power Generation

- Prime Power
- Back-up Power
- Peak Shaving
- Shore Power

Off-Road Rail

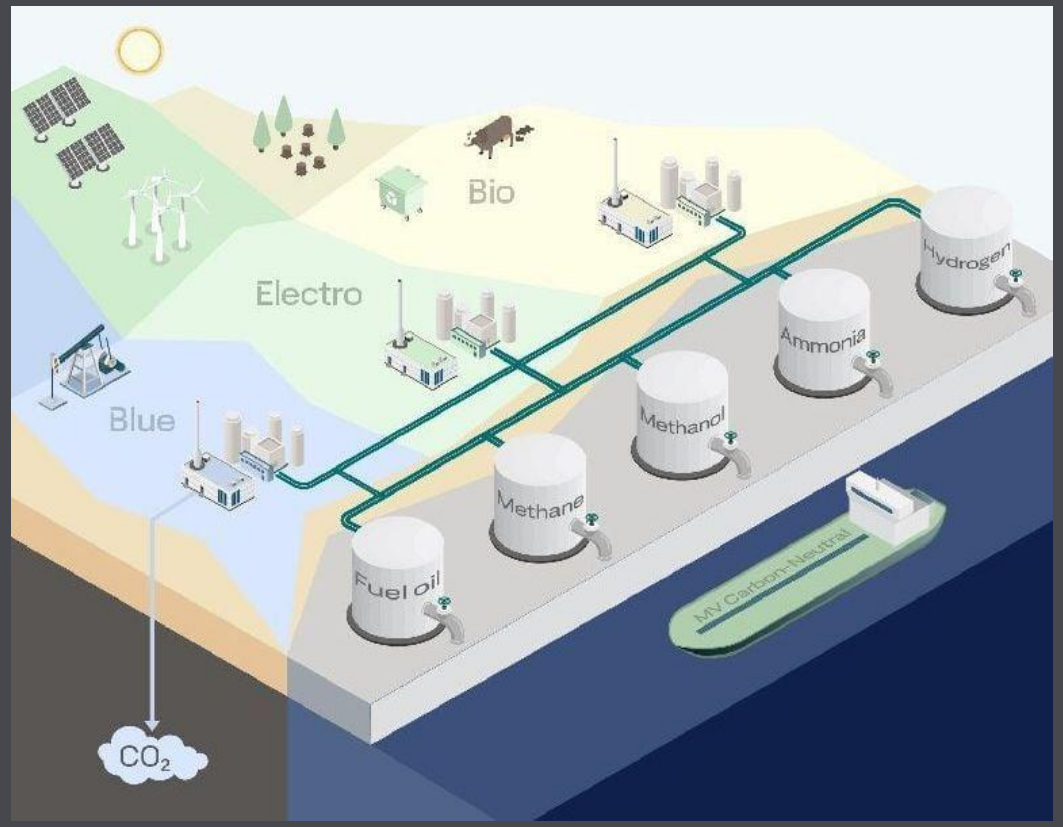
- Material Handling
- Mining Equipment
- Agricultural Machinery
- Heavy Equipment
- Rail & Locomotive

Aviation

- Passenger planes
- Drones
- eVTOL

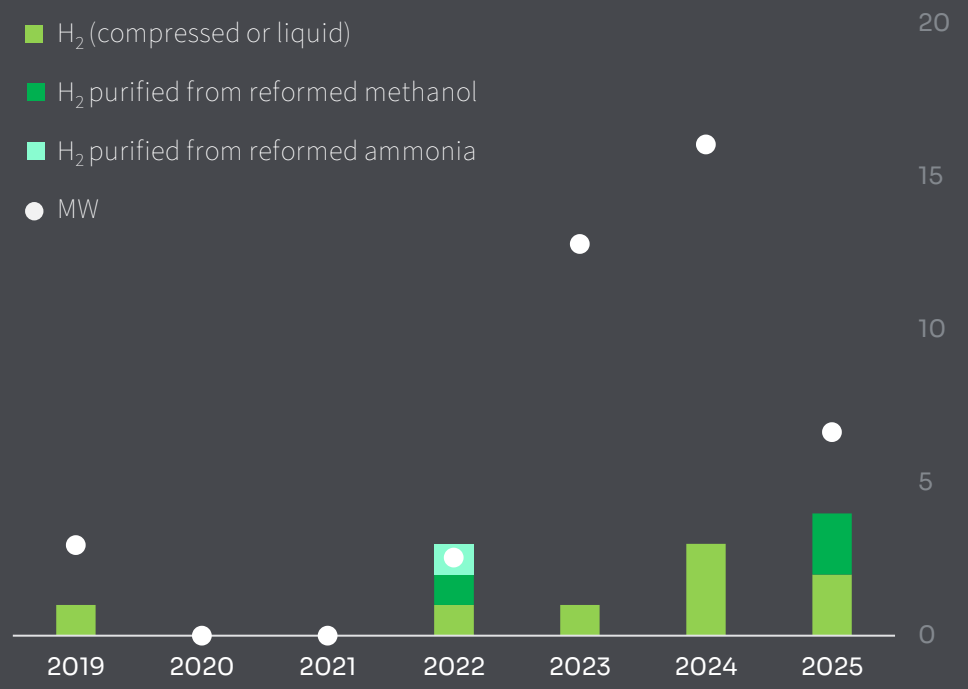
PowerCell Group

Proven for the future fuels



https://www.dnv.com/maritime/hub/decarbonize-shipping/fuels/future-fuels/

PowerCell fuel cell systems are flexible to handle:



PowerCell Group

Marine vessels

PowerCell Group

Marine System 225

- Our 3rd generation marine fuel cell system
- Ready for integration with e-fuel
- Type Approval by LR & ship specific installation approval

Net Power Output	225 kW
Efficiency	56-44 % Net LHV
Size	1.25 m x 0.9 m x 2.0 m
Weight	~1 145 kg

Marine type approved, MW scale systems with integration depth

- **Marine-proven at MW scale serial production**
  → De-risked supplier.
- **Designed for serviceability, uptime & lifecycle**
  → Fewer off-hire days.
- **Modular, type approved marine systems (MS225)**
  → Predictable footprint, redundancy.
- **Integration competence (battery/PMS/DC link)**
  → Shorter commissioning, lower yard risk.
- **90 – 85 % reduced WtW CO2 footprint according to LCA**
  → Futureproof
- **Fuel flexibility (H_2 or methanol)**
  → Supply-chain resilience.

PowerCell Group

M2Power 250

- Single-unit solution that combines a methanol reformer and fuel cells.
- Cutting-edge generator produces zero NOx, zero SOx, and no particulate matter (PM) emissions.
- AiP from DNV GL.

APPROVAL IN PRINCIPLE
DNV·GL

Net Power Output	250 kW
Net Efficiency ii	40-45%
Size (W x D x H)	2.3 m x 2.5 m x 2.35-2.5 m
Weight	~ 6,000 kg (13,000 lbs)

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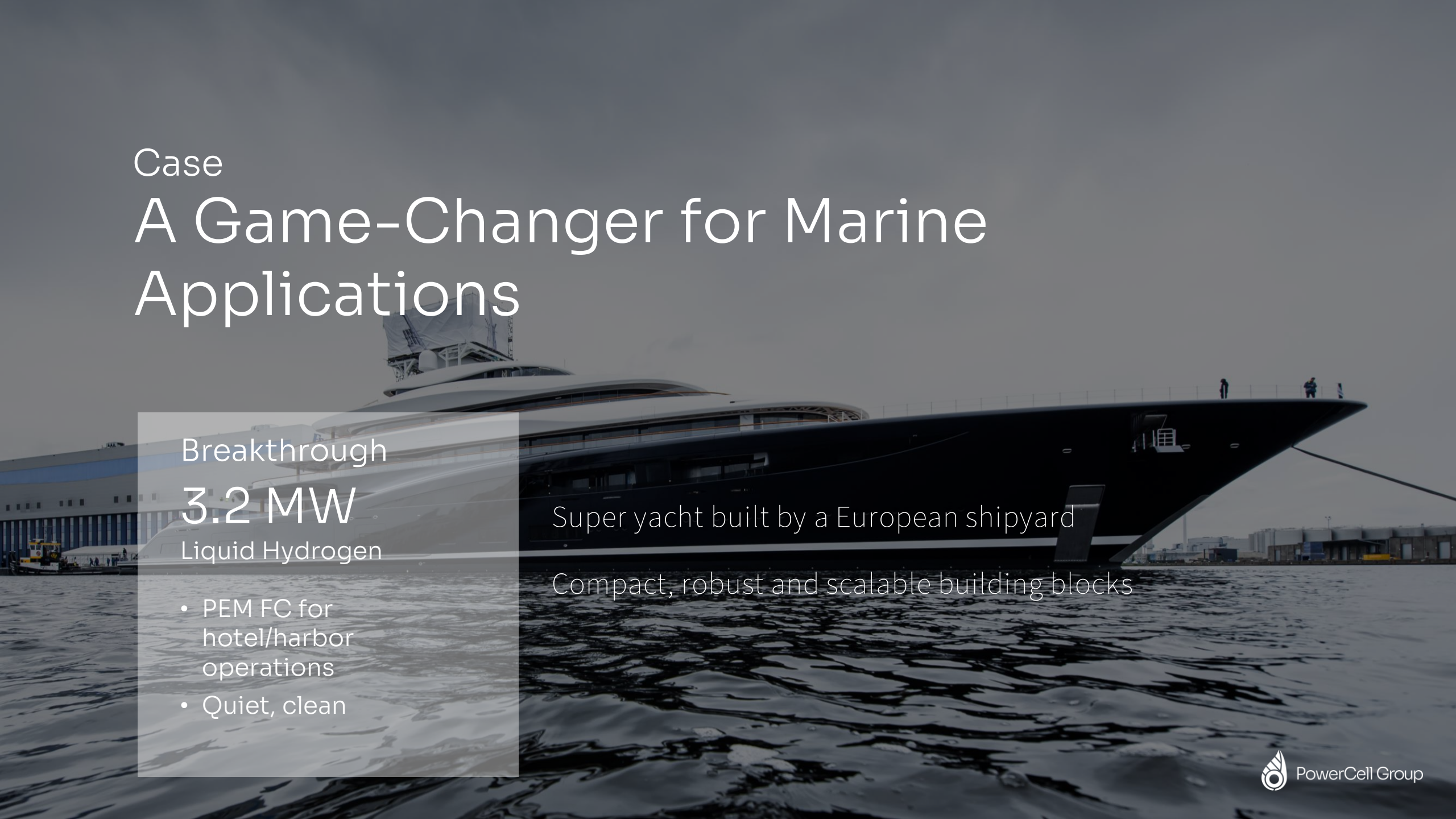
Case

A Game-Changer for Marine Applications



Breakthrough

3.2 MW

Liquid Hydrogen

- PEM FC for hotel/harbor operations
- Quiet, clean

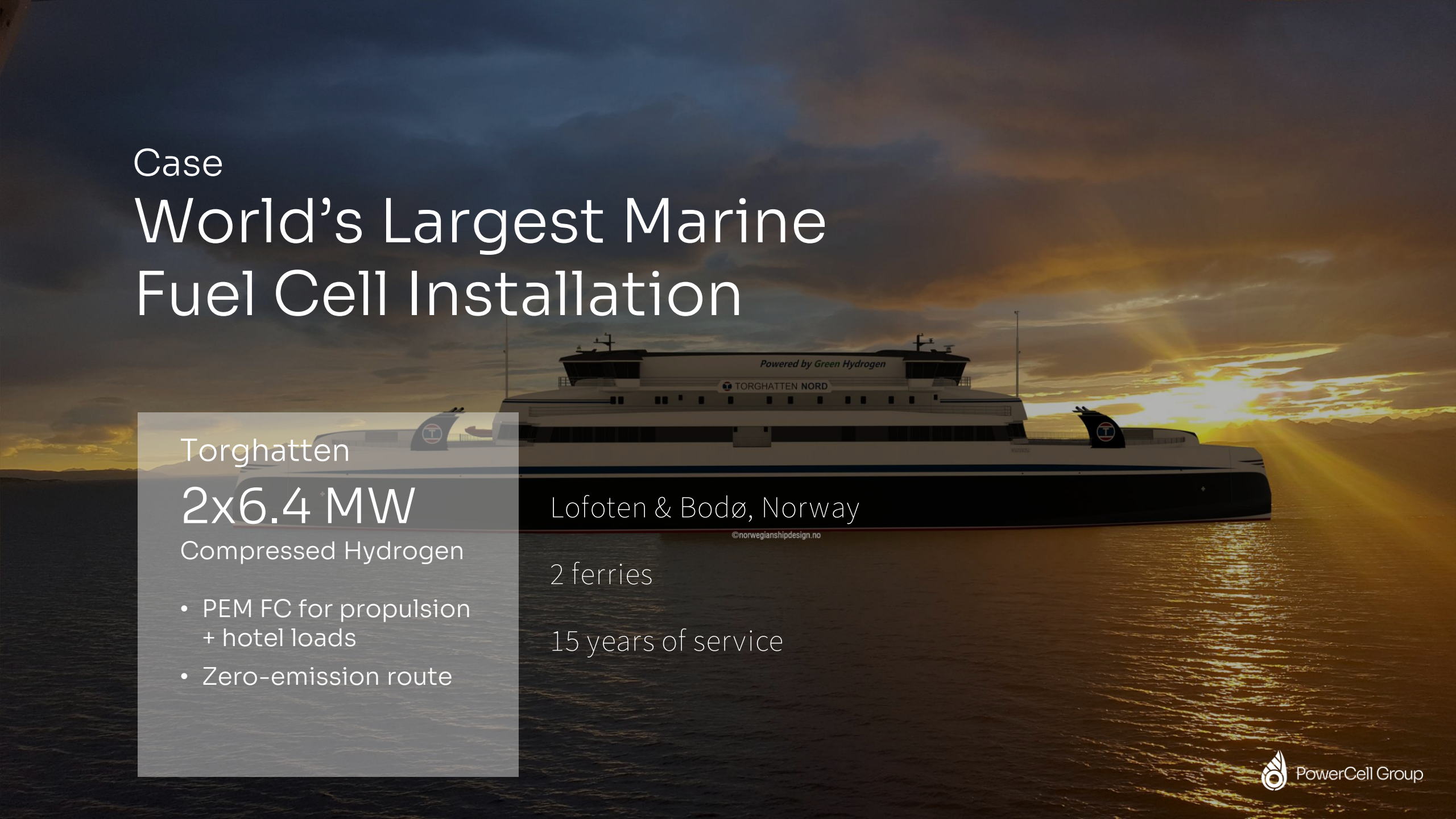
Super yacht built by a European shipyard

Compact, robust and scalable building blocks

PowerCell Group

Case

World’s Largest Marine Fuel Cell Installation



Torghatten

2x6.4 MW

Compressed Hydrogen

- PEM FC for propulsion + hotel loads
- Zero-emission route

Lofoten & Bodø, Norway

2 ferries

15 years of service

PowerCell Group

Case

Maritime's First Methanol-to-Fuel Cell Power

Hydrogen One

1.8 MW

Reformed Methanol

- PEM FC for propulsion
- Methanol Reformer

Push barge built by Maritime Partners

Benefits from existing infrastructure

PowerCell Group

Case

Isotta Fraschini Motori

Cruise AUX

4x3.2 MW

Liquid Hydrogen

- PEM FC for hotel/harbor operations
- Scalable across fleet

PowerCell Group

One Power System integrator

Have one party responsible for the complete system.
That's how reliability is built.

A vessel is an ecosystem, the fuel cell is only one part. Pre-test the full power system early: fuel cell, DC/DC, isolation, batteries, mechanical interface, load balance.

Think Repeatability, Not Prototypes

Each ship may be one of a kind,
but the technology must not be.

Choose standardized proven building blocks that are easy to install and service. That can be replicated and scaled across projects. That's how we move from innovation to industrial reliability at sea.

Safety – From Theory to Practice

Certification is the baseline;
experience is the safeguard.

Type-approved solutions are available,! Do not settle for theoretical safety. True safety comes from deployed systems at sea, in real operations, learning from them and knowledge sharing.

Every Ship is Unique

Engage expertise before steel is cut,
it will optimize both safety and investment.

Each vessel has its own constraints and opportunities. Invite seasoned players early into design, HAZID, and HAZOP to avoid costly redesigns later.

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Next generation marine fuel cell stack

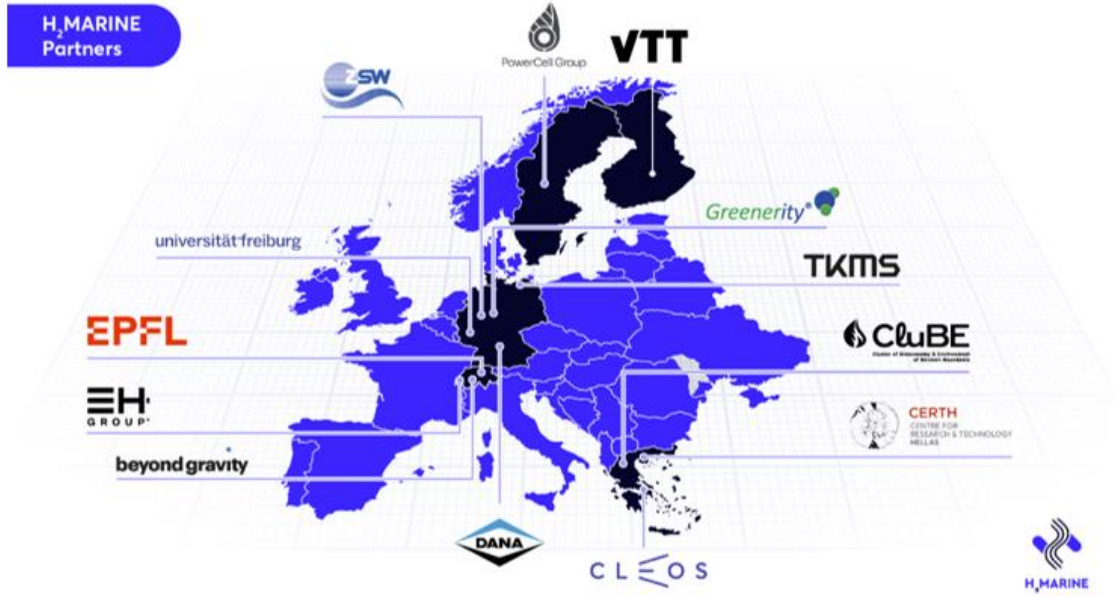
H_2MARINE

Co-funded by the European Union

Clean Hydrogen Partnership

Spearheading the development of next generation marine fuel cell stack, enabling.

- More power
- Increased stack lifetime



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Summary

- #1 in marine fuel cell systems:
  global leader in zero-emission power at sea
- Type-approved and in serial production:
  proven, certified, and deployed
- Flexible across hydrogen carriers:
  compatible with compressed, liquid, and reformate
- Collaboration drives success:
  integration from design to operation is key
- Next generation in development:
  higher performance, lower cost, scalable system

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