UMOE
ADVANCED COMPOSITES

Hydrogen transportation / storage

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UMOE Advanced Composites (UAC)

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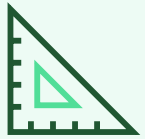
UAC at a glance

Global leader as supplier of unique, low-cost Type IV glass fibre pressure vessels[1] for H_2, CNG and Biogas

Cylinder pressure range

250, 300, 350 and 450 bar

Container measurements



20, 40, 45 ft

Cylinders sold used for H_2

65%

Global reach

Delivering to nearly 40 countries

1) Type IV glass fibre pressure vessels" is in the presentation referred to as "UAC's vessels"

UAC | Milestones

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2008: Delivered first Type IV Heave Compensation Active Pressure Vessel.

2014: Optimized pressure vessels to CNG/Hydrogen requirements and developed storage & transportation solutions.

2016: 20ft, 40ft and 45ft ISO/CSC container solutions

2022: Increased capacity additional production line

EST. 2007

HISTORY OF **INNOVATION**

2007: pressure vessels installed on drilling rigs, offshore heave compensated cranes and winches.

2010: +50% of floating drilling rigs worldwide have pressure vessels from UAC.

2017: 250, 300 & 350 BAR cylinders available

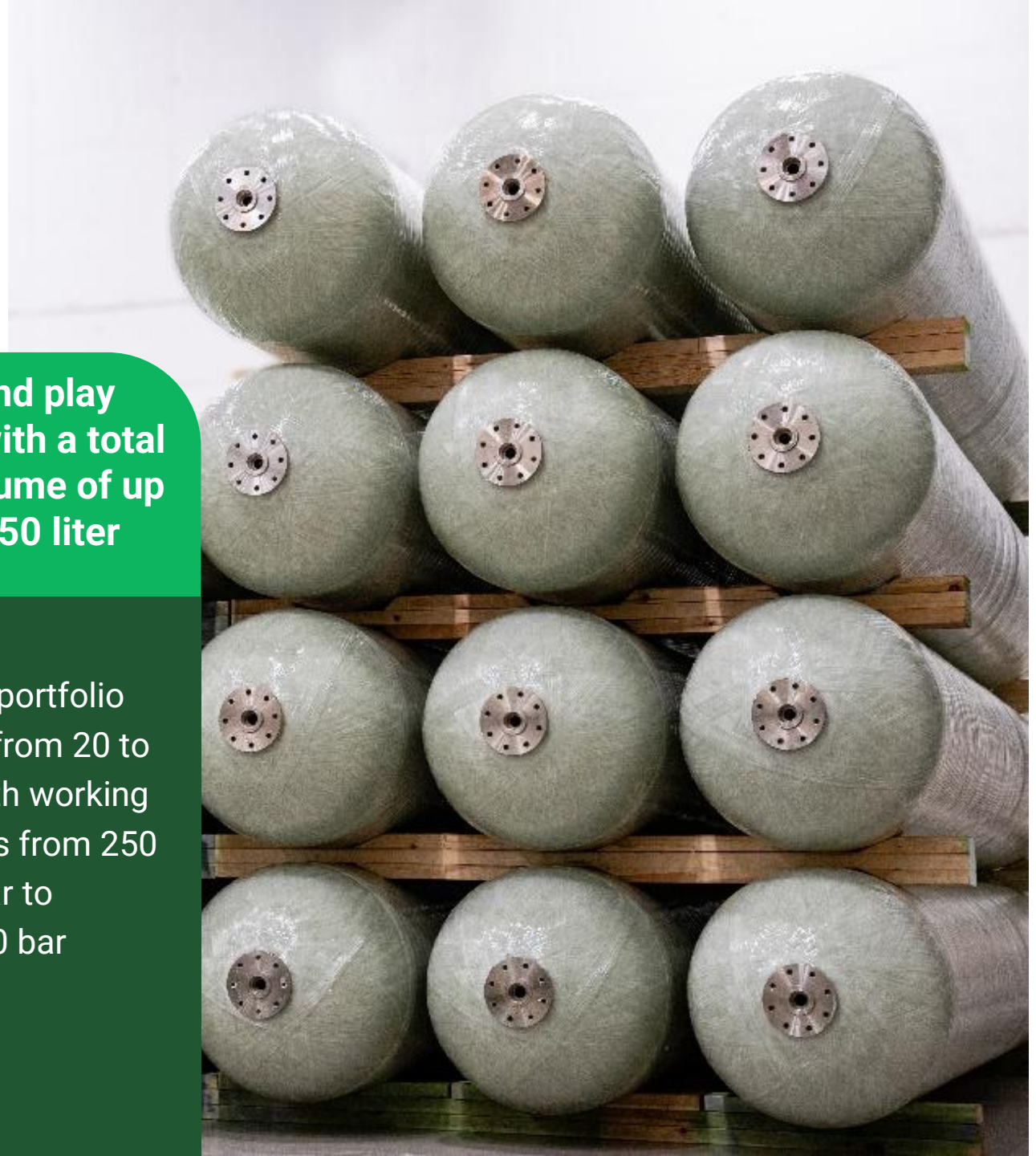
2026: T4 cylinder for 450 bar ADR/TPED/PED

What we offer today

Safe and cost-effective virtual pipeline systems (Multi Element Gas Containers) for transport and storage of compressed gas, in particular Hydrogen, Compressed Natural Gas (CNG) and Biogas based on large size type 4 composite tanks.

Plug and play MEGC's with a total water volume of up to 43,250 liter

MEGC portfolio ranging from 20 to 45 ft. with working pressures from 250 bar to 450 bar



Our Competitive Advantage

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Low-cost type IV

No corrosion

Composite material

Ultimate safety

Product life

Leading technology

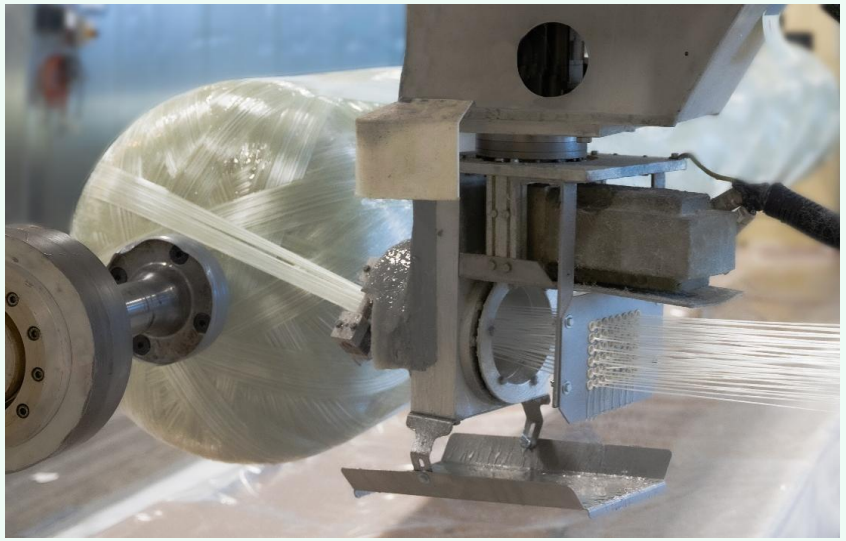
The UMOE pressure vessels – Type IV

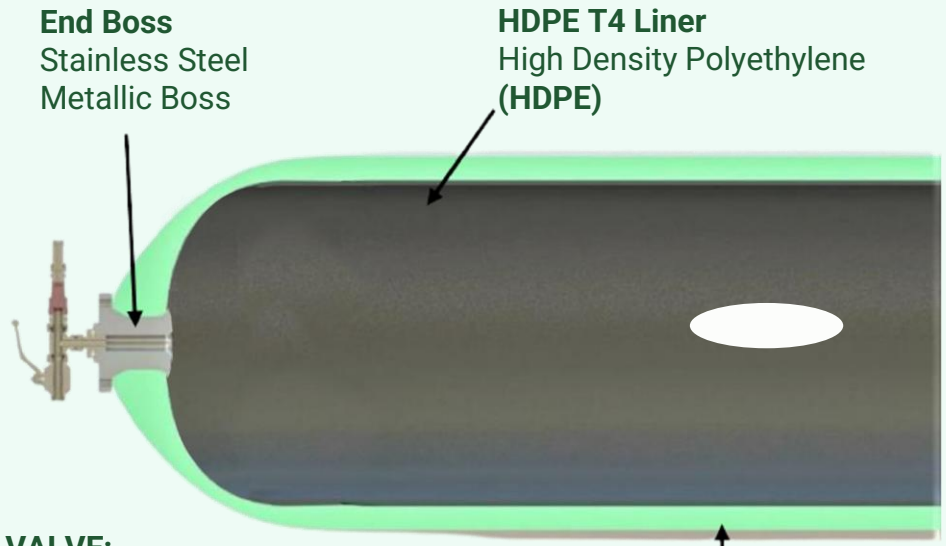
High Density Polyethylene (HDPE) inner tube (Gas barrier, protected and heavily reinforced).

- High strength glass fibers
- Epoxy resin

Stainless Steel (SS316) leak proof endbosses

- Safety factor of 3 (working pressure vs burst pressure)
- «Leak before burst» design – safety





UAC | MEGC – H2

Configuration examples

20ft ISO STD or HC

40ft and 45ft ISO STD or HC

Pressure range: 250, 300, 350 and 450 bar

	CAPACITY H2 AT 350 BAR
20ft: 9 or 11 (ea1666 l) Cylinder capacity	440 KG
40ft: 18 to 22 (ea1666L) Cylinder capacity	880 KG
45t: 18 to 22 (ea1925 L) Cylinder capacity	1016 KG

Key attributes

- Highly Customized manifold solutions
- Minimized potential leak point design
- Leak before burst design
- 20+ years design life
- No corrosion
- Class leading Safety properties (Impact, Collision & Fire)
- Premium product performance during operation

ADR-TPED/
PED/DOT
Certified

UAC's Hydrogen transportation portfolio

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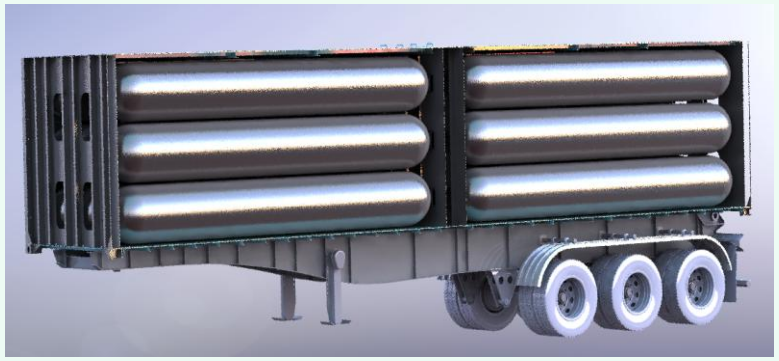
Container size	Unit	20 ISO STD	20 ISO HC	40 ISO STD	40 ISO HC	45 ISO HC
Number of Cylinders	#	9	11	18	22	22
Cylinder volume	L	1,666	1,666	1,666	1,666	1,925
Total storage volume (wc)	L	15,000	18,333	30,000	36,666	42,350
Storage capacity (Wp 300 bar)	Kg	317	388	634	775	896
Total weight of MEGC incl H_2 @300 bar	Kg	14,100	17,100	28,000	33,900	39,000
Storage capacity (Wp 350 bar)	Kg	360	440	720	880	1,016
Total weight of MEGC incl H2 @350 bar	Kg	14,300	17,500	28,000	34,400	39,600
Height	mm	2,590	2,894	2,590	2,894	2,894

Gas Containment Modules for Transport and Static Storage of compressed gas



T4 Composite Cylinders: Approved according to European Union TPED/ADR/PED and US DOT

Instrumentation/Piping: All Piping of Stainless Steel 316L, Isolation Valves, TPRD's, Manifolds.

ISO Container Chassis: Regular Steel and High Strength Steel

Trailer Chassis : Typically not a part of UAC delivery

UAC Value Proposition

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- Cost effective, light-weight composite solutions
- **Higher payloads – more gas transported!**
- 20+ years design life
- **No corrosion and no galvanic corrosion**
- Class leading safety properties (Impact, Collision & Fire).
- Premium product performance during operation.
- Reduced fuel consumption on **existing machine** park!
- **Large savings on maintenance and low OPEX**

Glass Fiber – Full Composite

Safety and compliance

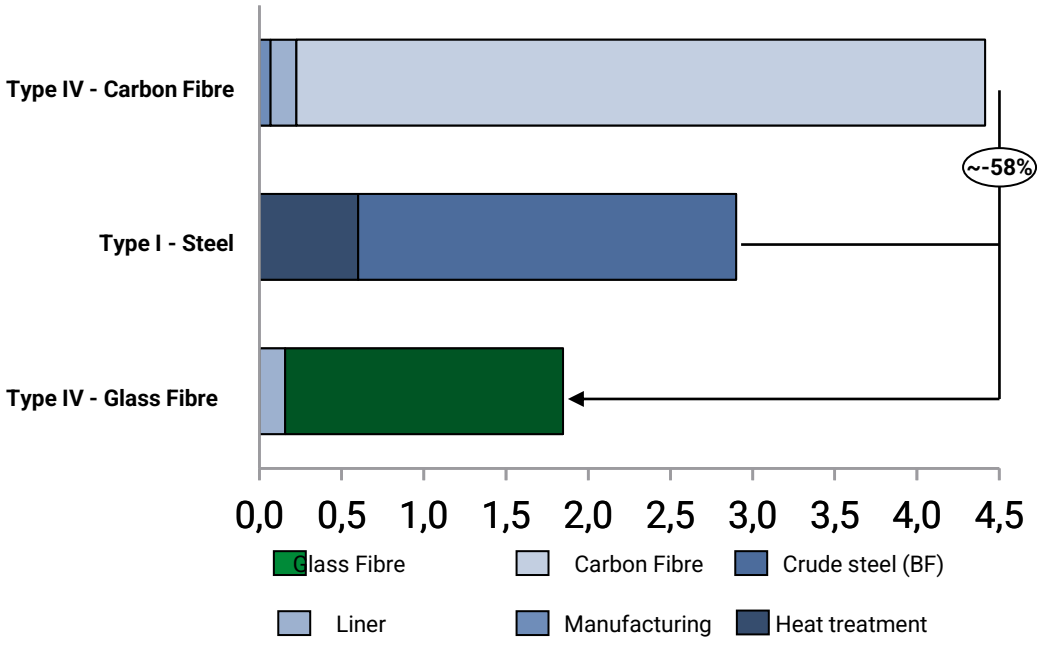
ADVANCED COMPOSITES

Safety is at the core of our engineering. Decades in demanding offshore and energy sectors have shaped our uncompromising commitment to operational safety.

UAC cylinders are designed to meet stringent safety and regulatory requirements, offering:

- ✓ Best in class fire performance
- ✓ Impact resistance comparable to steel
- ✓ Exceptional durability and long-term reliability
- ✓ Leak-before-burst safety philosophy
- ✓ Zero corrosion risk

Reducing emissions across the lifecycle



UAC's glass fibre Type IV composite cylinders deliver a lower lifecycle carbon footprint than both steel Type I and carbon fibre Type IV alternatives.

- ✓ 50-85% lower energy use in manufacturing compared to steel or carbon fibre cylinders
- ✓ Lightweight, high-pressure design reduces emissions during transport by lowering the number of required journeys

UAC's innovative solutions support customers' objective to develop environmentally friendly projects all along the value chain

UAC I Handling (Safety and mobility)

20ft ISO

Existing lifting Equipment

Safe Certified lifting and handling (ISO)

Reliable global delivery through dual-site, industrial-scale production

Manufacturing site in Kristiansand, Norway

- #FTEs: ~70
- Secure test facilities
- Highly competent team with deep expertise, delivering significant Technological value
- Rapid capacity expansion
- Full-scale testing of pressure vessels
- Strong cost position

Reliable global delivery through dual-site, industrial-scale production

Manufacturing site in Jiaxing, China

- Synergetic opportunities with Norwegian operations
- Strong cost position
- Enables entry into New significant markets
- Potential capacity of 20,000 vessels/year
- Enables substantial Upscaled production

Customer case: Hydrospider

HYDROSPIDER

Enabling the ecosystem for supplying H_2 to heavy duty FCEVs in Switzerland

UAC's role to Hydrospider

- ✓ **Efficient hydrogen storage and transport:** UAC provides high-pressure composite MEGCs for storage and transport
- ✓ **Scalable hydrogen distribution**
- ✓ **Carbon reduction and support for green growth:** UAC's lightweight composites reduce fuel consumptions and carbon emissions, supporting Hydrospider's H_2 economy

Customer case: Torghatten & GreenH

TORGHATTEN GREENH

The world's two largest hydrogen fueled ships to be built in Norway, sailing across Vestfjorden between Bodø and Lofoten

UAC's role to Torghatten

- ✓ **Fixed FuelTanks:** UAC has been awarded a significant contract to deliver high-capacity H_2 storage solutions on the vessel roof, with delivery scheduled for 2026
- ✓ UAC's hydrogen tanks play a crucial role in ensuring efficient fuel storage and transfer
- ✓ **Light-weight storage:** UAC's low-weight storage solutions extends operational runtime and reduces energy consumption on the hydrogen-powered vessels
- ✓ 20 containers allocated for vessel integration and 22 for stationary onshore storage

Selected client studies (V/V)

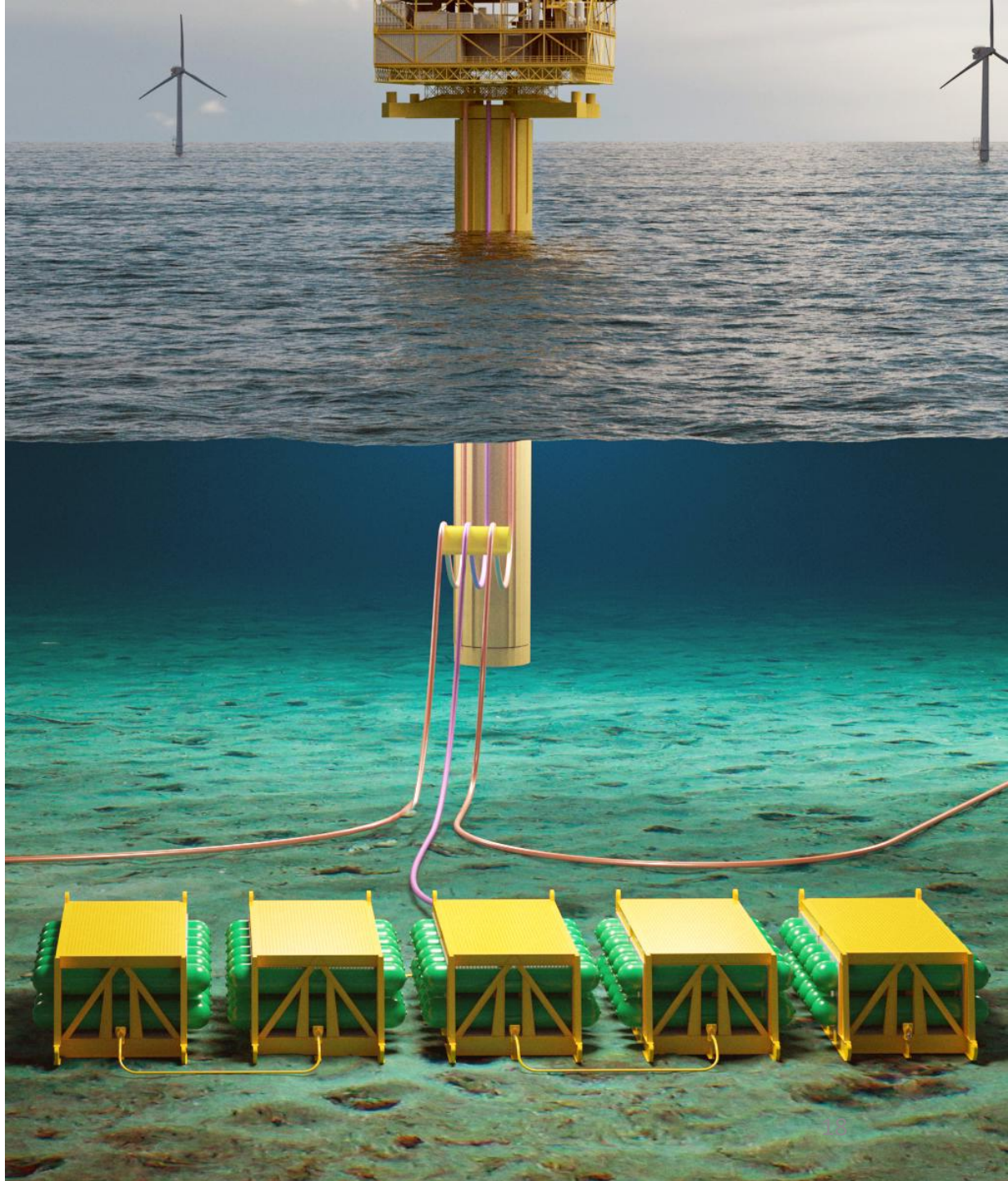
Deep Purple™

H_2 subsea storage project

TechnipFMC Kongsberg Innovation Wilhelmsen Statkraft

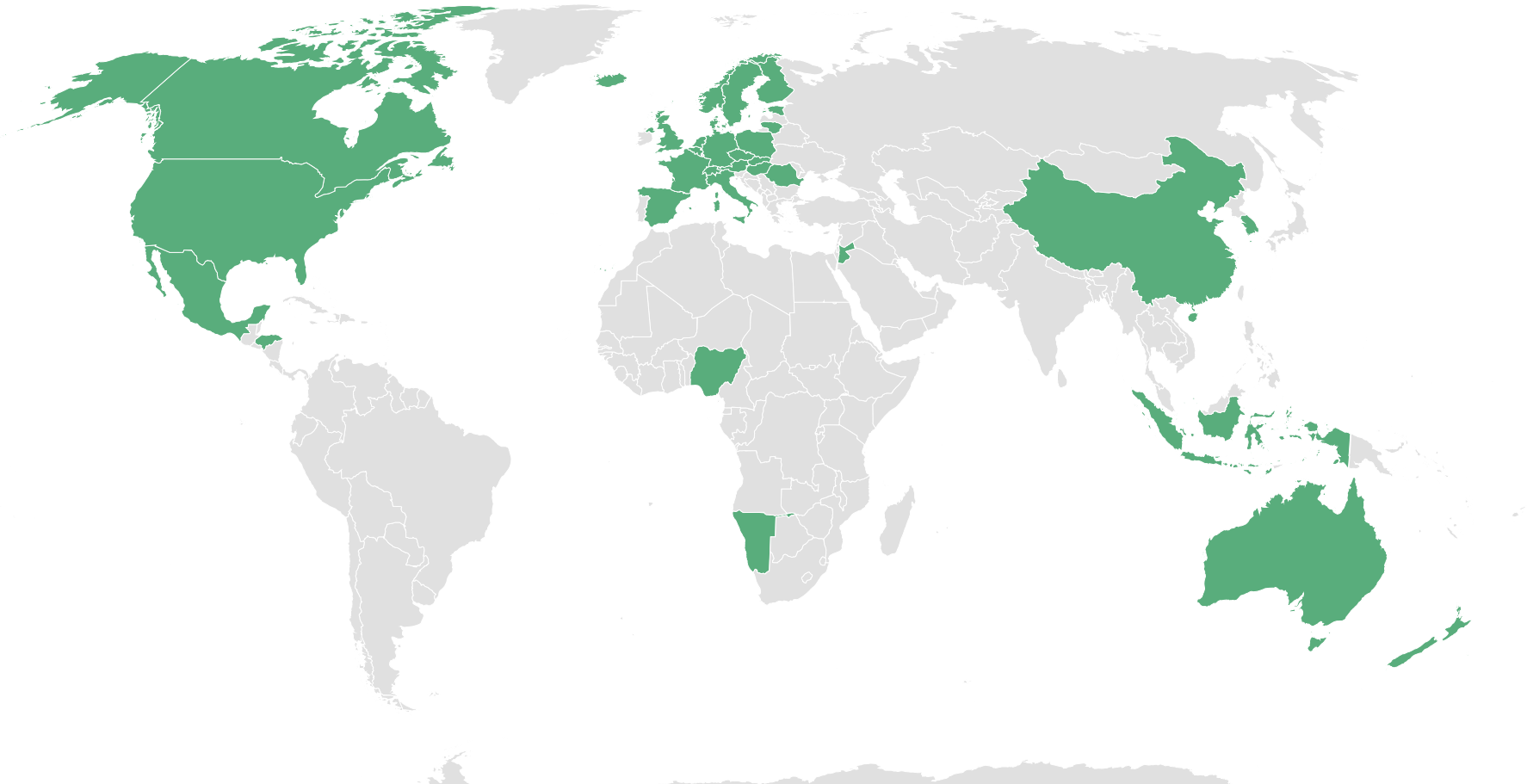
UAC's role to Deep Purple

- ✓ **Subsea storage:** Develop and provide subsea hydrogen storage cylinders delivering H_2 to hard to abate industries
- ✓ The cylinders will be 2.5m in diameter, 40,000L and 350 bar – similar to the size of a 40 ft
- ✓ UAC's storage systems will be optimized for offshore use, enabling large-scale energy storage from wind-generated H_2



Trusted by customers globally

UAC provides storage and transportation worldwide



Customers from nearly 40 countries (and growing)

Over 90% of orders (2018 - today) are from customers outside Norway

Worldwide Partners and Customers, H2

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Thank you!

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