

COMPANY UPDATE - 24 AUGUST 2022



BERGEN
**CARBON
SOLUTIONS**



AGENDA



Q2 Summary



About BCS



Highlights



Emerging market: Batteries



Operational

Q2 SUMMARY

Management and Board changes

- **Finn Blydt-Svendsen** appointed interim CEO of BCS on 3 May 2022, following the resignation of Jan B. Sagmo.
- Blydt-Svendsen co-founded Bergen Carbon Solutions in 2016 and has served the company in a variety of roles.
- Blydt-Svendsen will serve as interim CEO while the Board identifies his successor.
- **Jon André Løkke** appointed Chairman of the Board on 20 May 2022, following the step down of Dag Skansen from Chairman to Member of the Board.
- Løkke is currently President at Hydrogen Europe, Board Member of NEL, and previously CEO of NEL.



Jon André Løkke was appointed Chairman of the Board on 20 May 2022.



Finn Blydt-Svendsen was appointed interim CEO on 3 May 2022.

Q2 SUMMARY

Financials (MNOK) H1 2022

Revenue MNOK	0.2
Operating profit MNOK	-28.2
Cash balance MNOK	319.7
Market cap MNOK	1.37BNOK
Number of shareholders	>4 400

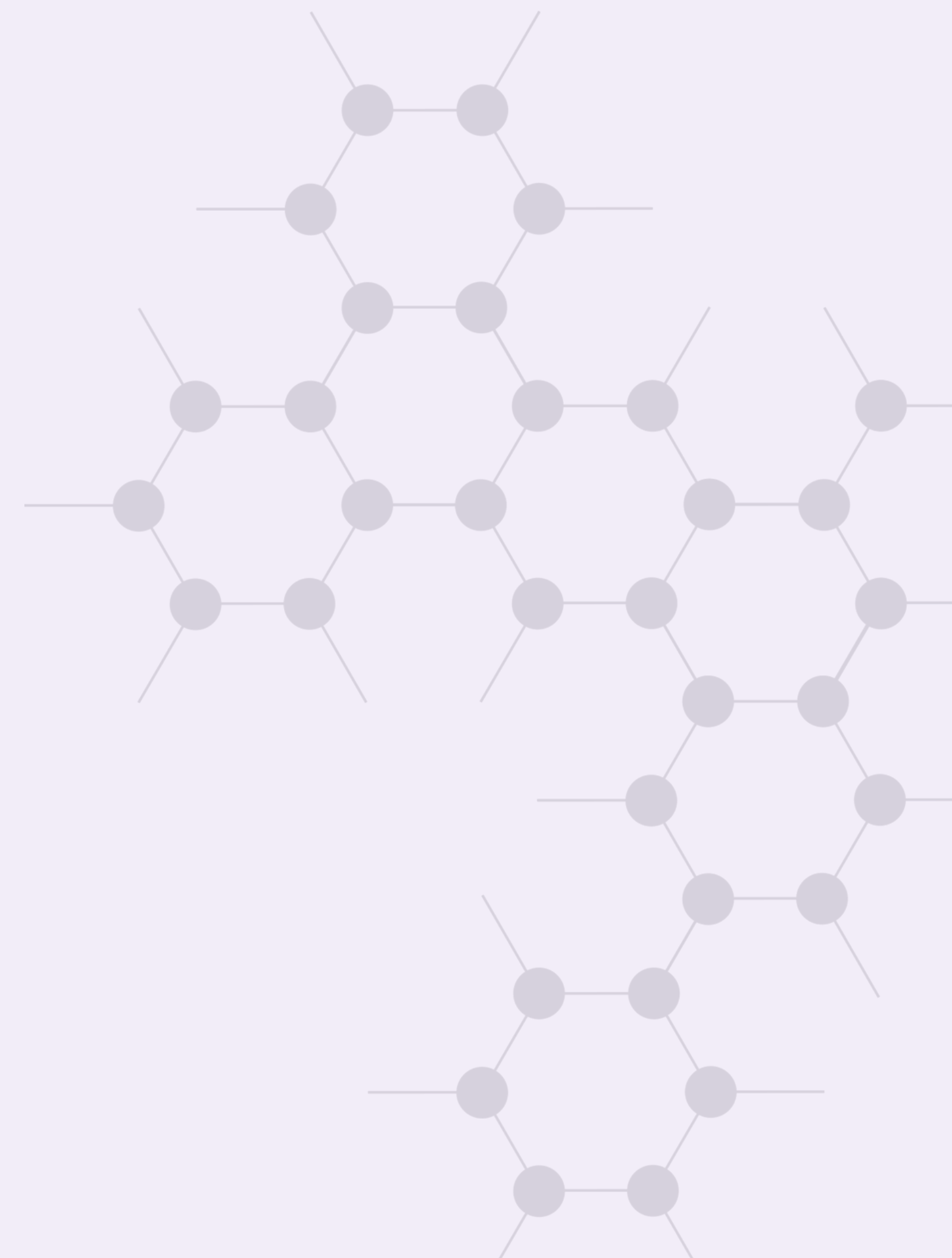
Operations

- **DIEGEL 2.0 installed and commissioned:** The two final DIEGEL 2.0 production units were commissioned at our test facility on Flesland, bringing the annual production capacity to 3 tons of CNF.
- **Test module delivered:** The test module for direct CO₂ capture was delivered to Bergensområdet's Interkommunale Renovasjonsselskap (BIR) energy recovery plant. The module has a theoretical production capacity of approximately 1.6 tons of CNF annually.

Highlights

- **Investment decision:** First full-scale production factory will be based in Høyanger, with annual production capacity of 160 tons. Equivalent to 20 % CAPEX reduction.
- **Increased product portfolio:** Multi-Walled Carbon Nanotubes added to product portfolio, after successful testing by independent third-party NORTEM. No need to modify technology to produce MWCNT. Conductive, thermal, and mechanical properties open new, potential market opportunities.
- **Interim CEO:** Finn Blydt-Svendsen was appointed interim CEO of BCS on 3 May, following the resignation of Jan B. Sagmo. Blydt-Svendsen co-founded the company in 2016 and will continue to lead the company, while the Board identifies a successor.

ABOUT BCS

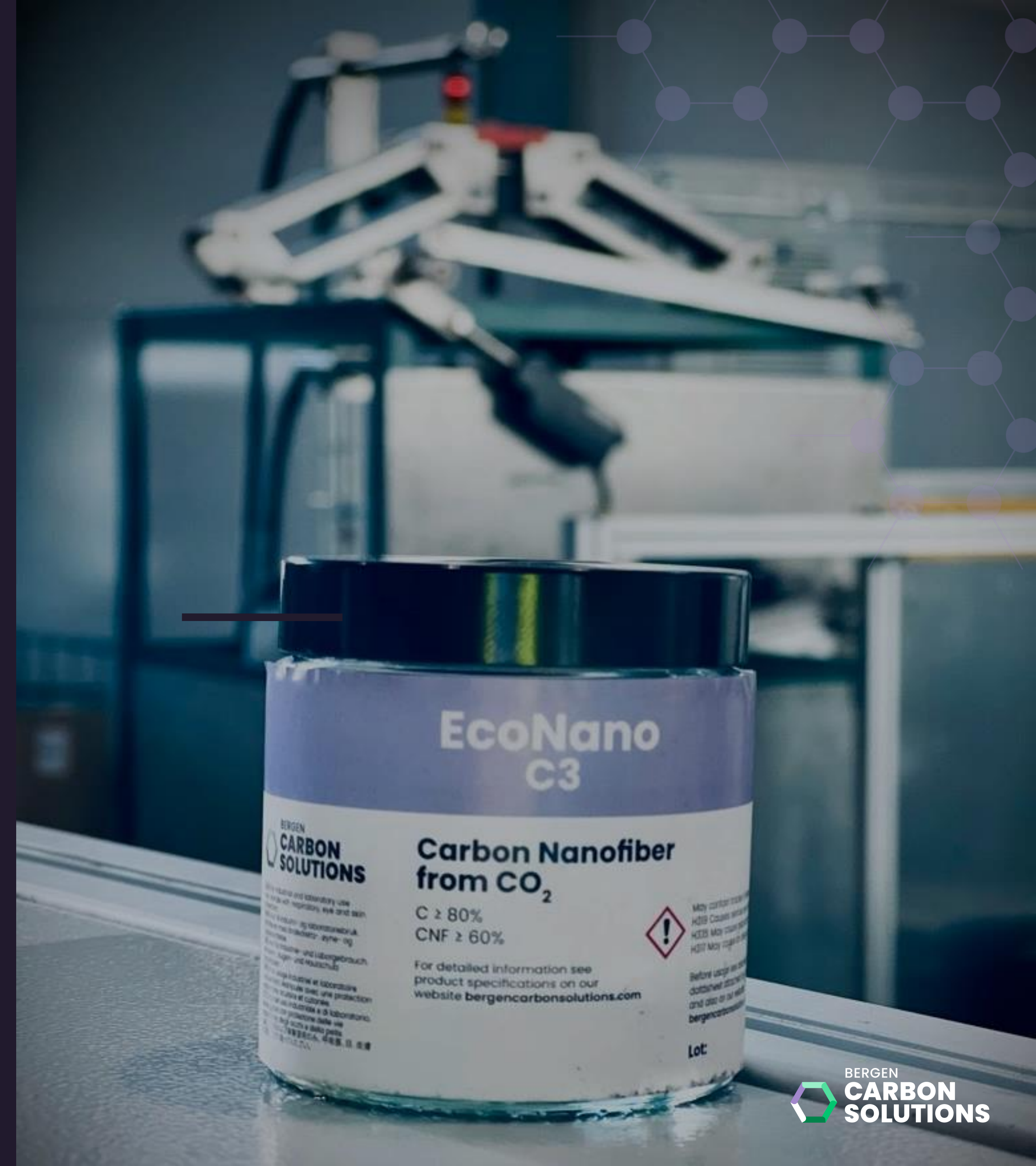


ABOUT BERGEN CARBON SOLUTIONS

Bergen Carbon Solutions at a glance

KEY FACTS

-  Founded in 2016
-  Producer of carbon nanofibers
-  Headquarter in Bergen, Norway
-  Competent team of engineers and PhDs
-  Unique and green technology
-  Acquired commercial production sites
-  40 full time employees
-  Listed on Euronext Growth Oslo (Ticker: BCS)



ABOUT BERGEN CARBON SOLUTIONS



Lighter
than plastic

Stronger
than steel

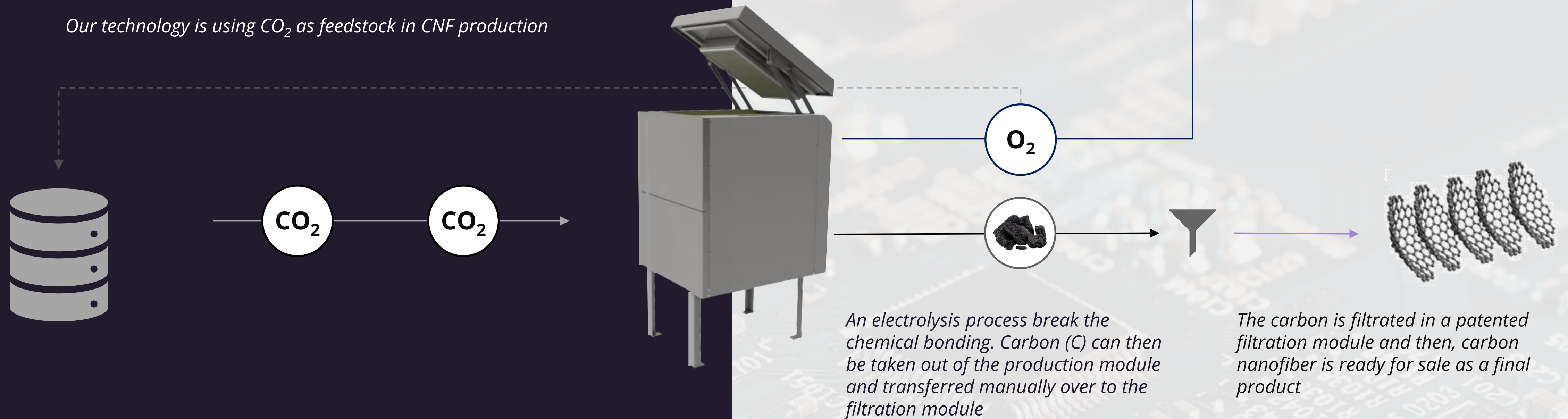
Leads electricity
better than copper

WE USE CO₂ TO CREATE CARBON NANOFIBERS AND NANOTUBES

- Lighter than plastic, stronger than steel, with exceptional thermal and electrical conductivity, properties that **can be transferred when combined with other materials**.
- **Estimated CAGR of 25-27% towards 2024^{1,2}**, covering a wide range of industrial and technological applications.
- Market price of CNF between **NOK 5 000 per kg** and **NOK 27 000 per kg** depending on quality¹.
- Our products cover the whole range of qualities, meeting different customer needs.

Production method

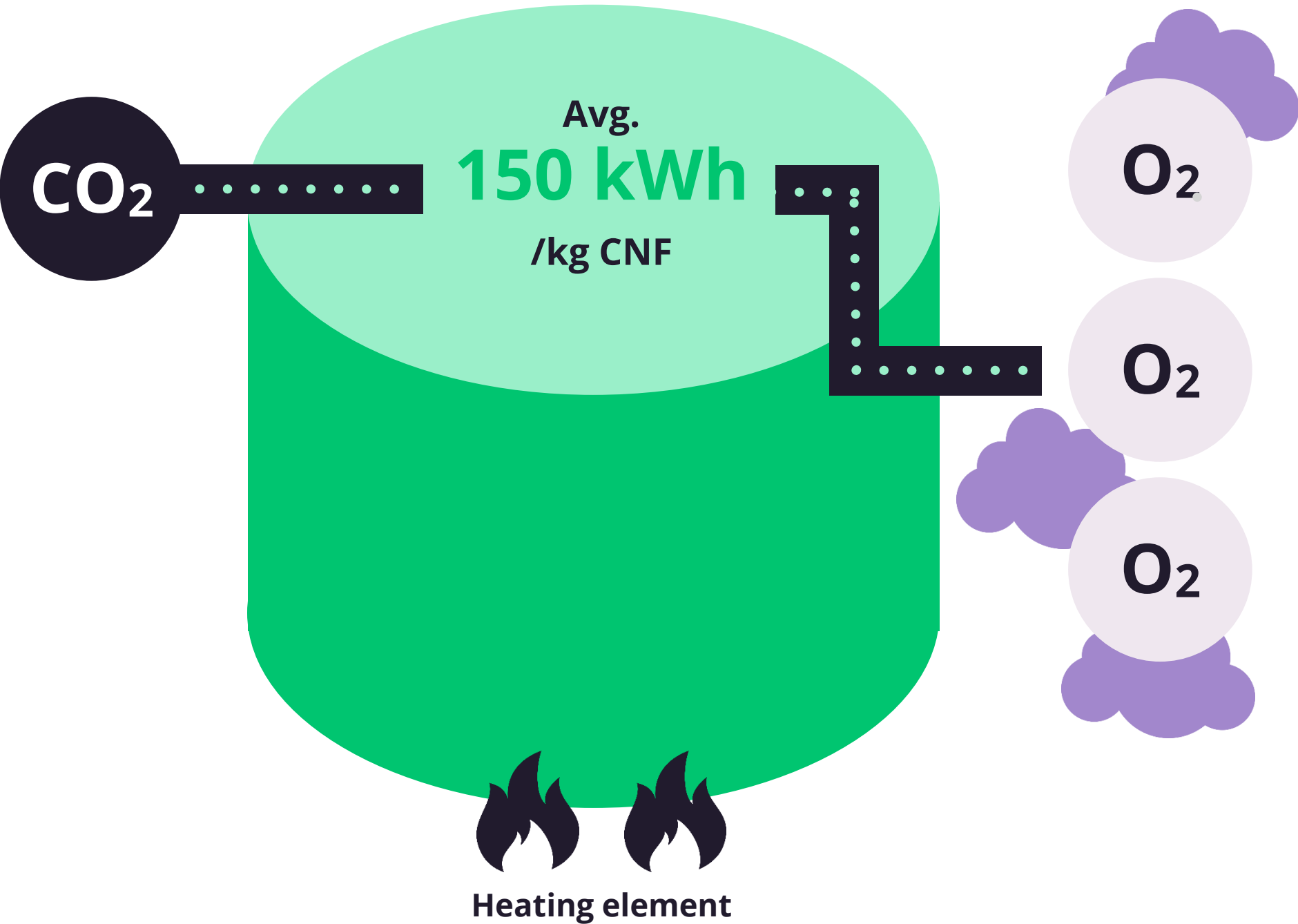
Our technology is using CO₂ as feedstock in CNF production



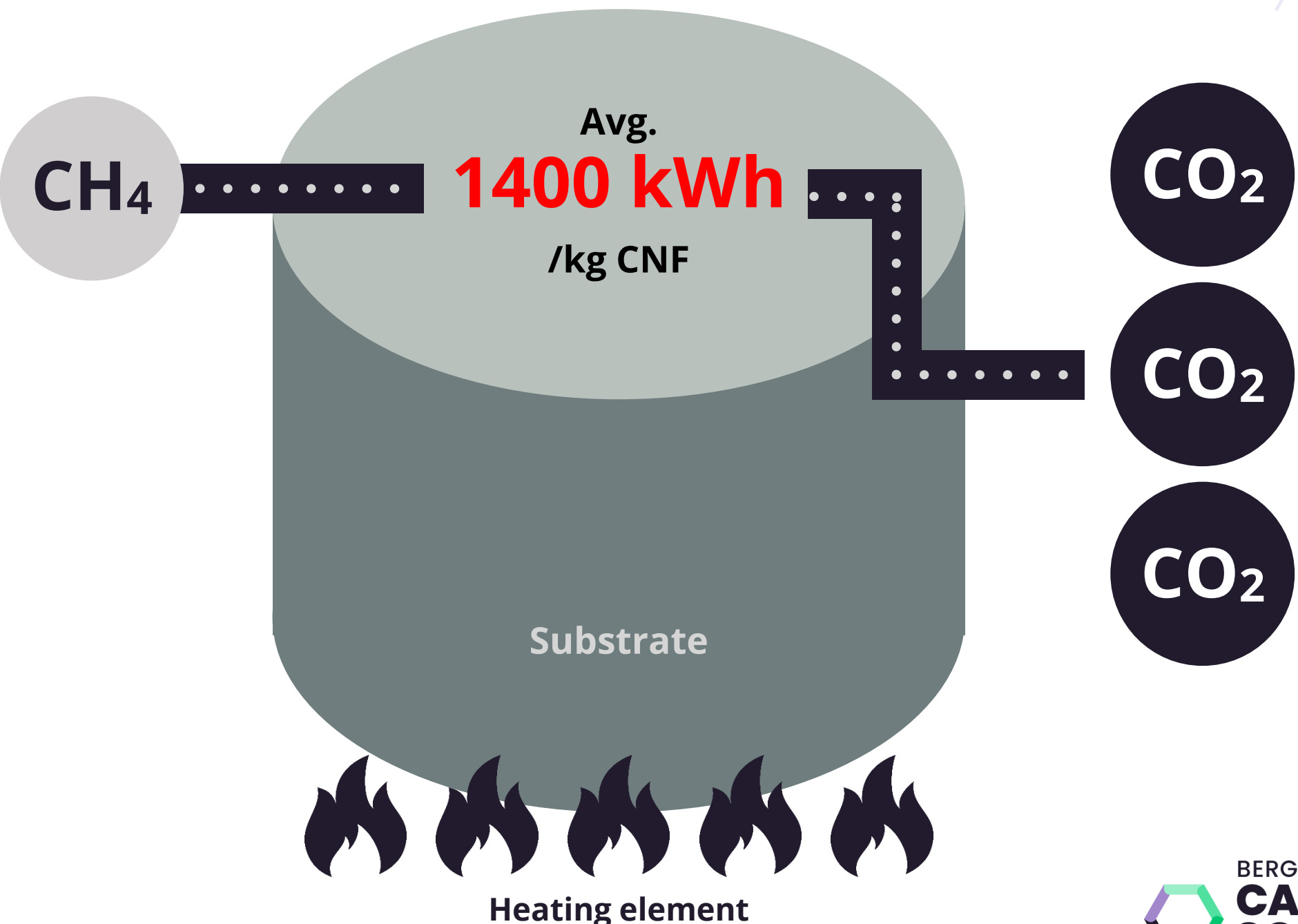
ABOUT BERGEN CARBON SOLUTIONS

Our technology is climate positive and uses significantly less energy than conventional methods

Bergen Carbon Solutions
Positive CO₂ impact



Traditional Method
Negative CO₂ impact

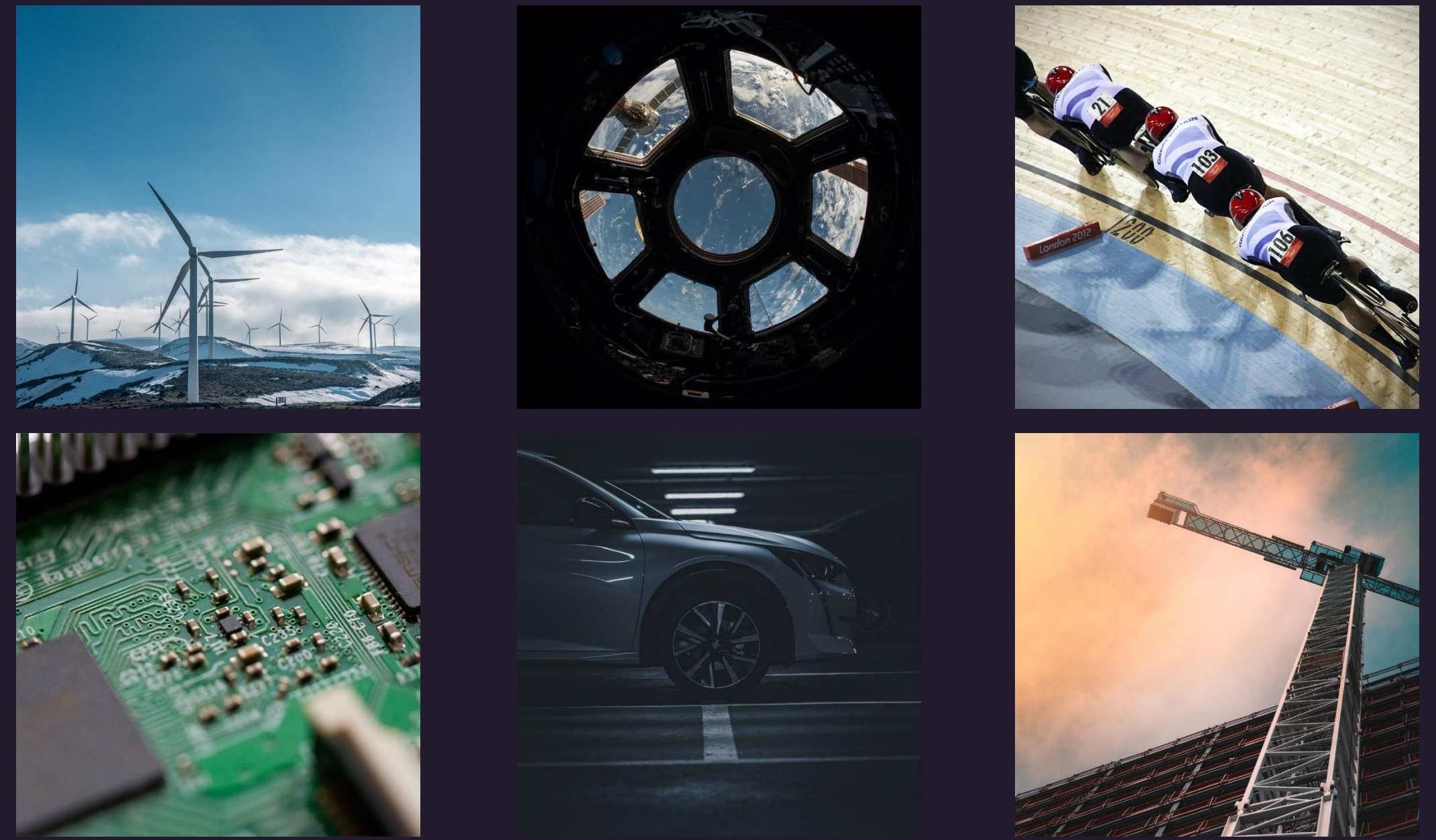


ABOUT BERGEN CARBON SOLUTIONS

CNF and MWCNT

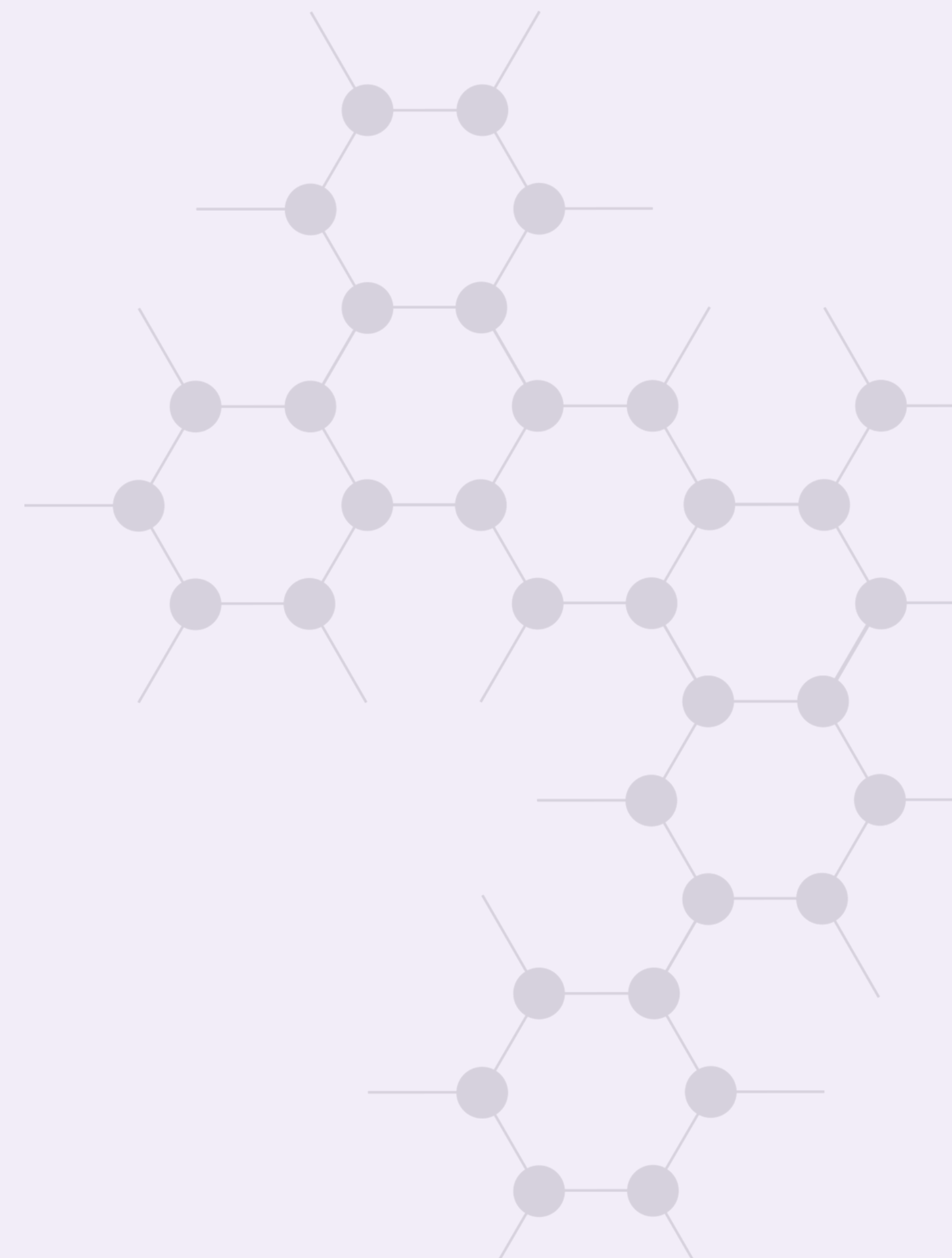
- CNF and CNT are carbon fibers and tubes at the nanometer scale, consisting of several graphene flakes.
- Emerging material that has a unique combination of strength, durability and conductivity.
- Wide range of applications. We have conducted a preliminary study to show the potential CO₂ reduction effects of CNF in batteries, plastics and concrete¹.

Selected application areas



CNF and MWCNT has a variety of applications such as additive to composite, lithium-based batteries, supercapacitors and solar desalinations with environmentally positive impact

HIGHLIGHTS Q2



INVESTMENT DECISION

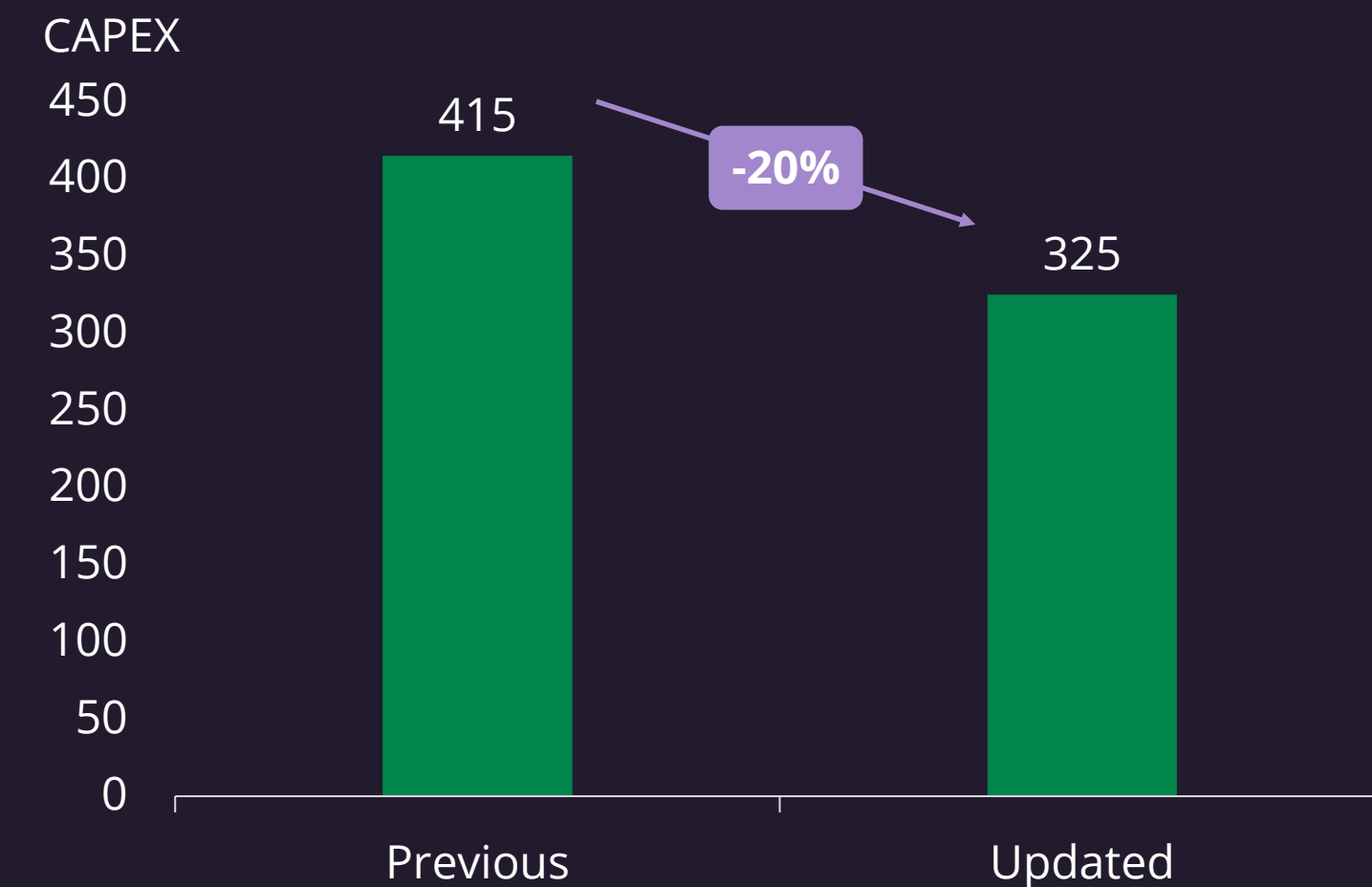
First full-scale production factory in Høyanger

- **The decision will reduce risk** related to construction, timing and financing, as Høyanger has existing facilities, modern infrastructure, access to skilled industrial labor, sufficient licensing hydropower and potential long-term power supply agreement.
- Production set-up will be based in an existing production hall, hence reducing CAPEX with NOK 90m or 20% compared to the greenfield project in Mosjøen.
- The full-scale production factory has a CAPEX of NOK 325m at 160 tons.
- Production is targeted to commence mid-2023. The ramp-up period is estimated to be 9-12 months.

Risk and capital needs both reduced



NOK 90m CAPEX reduction by choosing Høyanger



Further development at Mosjøen

- Carbon Development Solutions (CDS), which will be a hub for nano material research, is already established in Mosjøen and the first material tests have already been requested.
- CDS will continue with full force at Mosjøen independent of the location of the first BCS factory.
- Mosjøen continues to be an attractive location for our next full-scale factory.



CARBON
DEVELOPMENT
SOLUTIONS

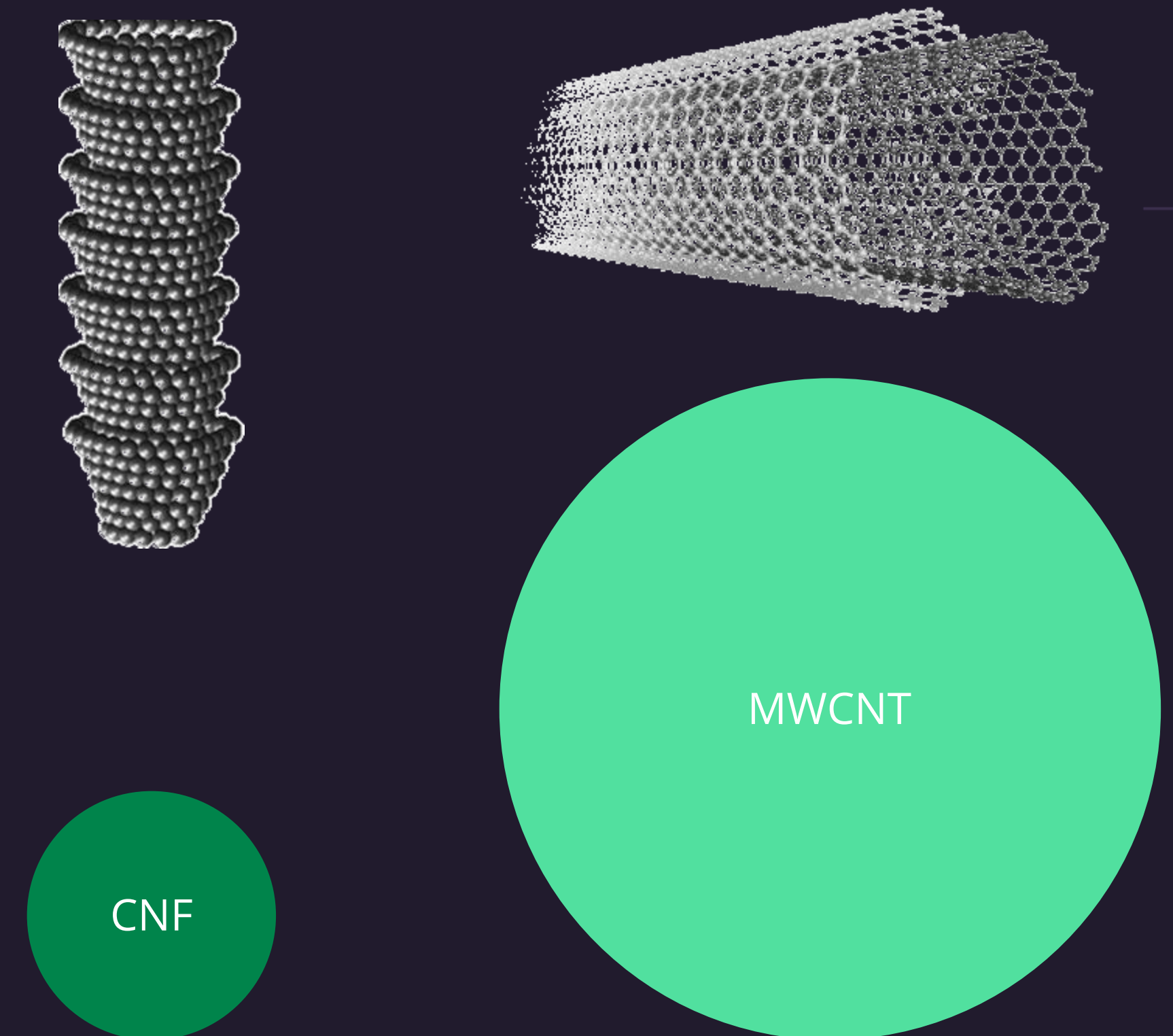
Developing the future CCU-materials
A Bergen Carbon Solution Venture

EXPANDED PRODUCT PORTFOLIO

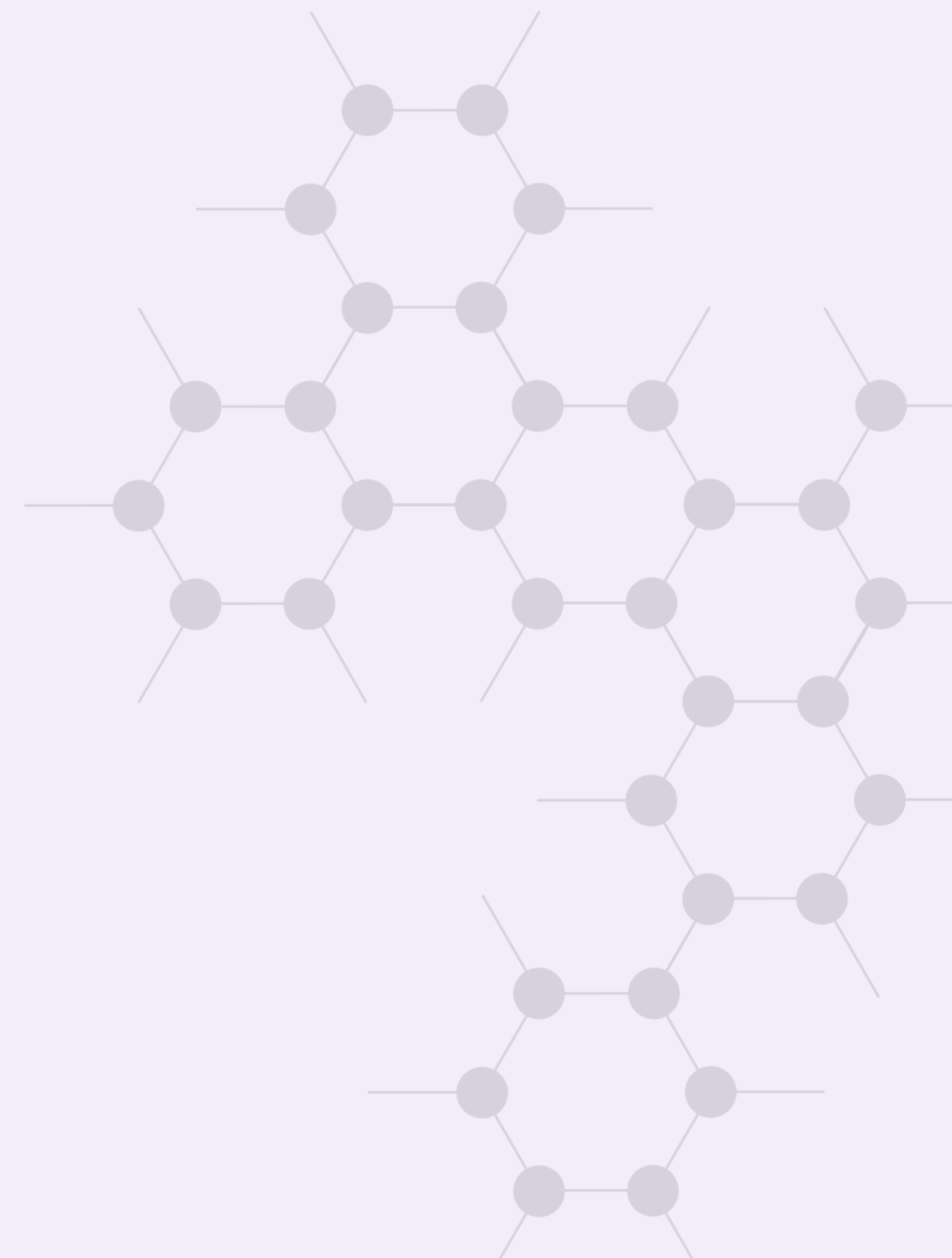
MWCNT added to product portfolio

- BCS introduced MWCNT (Multi-Walled Carbon Nanotubes) after successful independent third-party testing, undertaken by NORTEM (a joint venture of SINTEF, NTNU and UiO).
- MWCNTs have better conductive, thermal, and mechanical properties than CNFs and this breakthrough will open new, potential market opportunities for BCS in nano materials, **particularly in the battery industry.**
- Initial testing suggests limited modification requirement on the currently designed process for CNF to produce MWCNT.

MWCNT market size is estimated to be 7x larger than CNF



EMERGING MARKET: BATTERIES

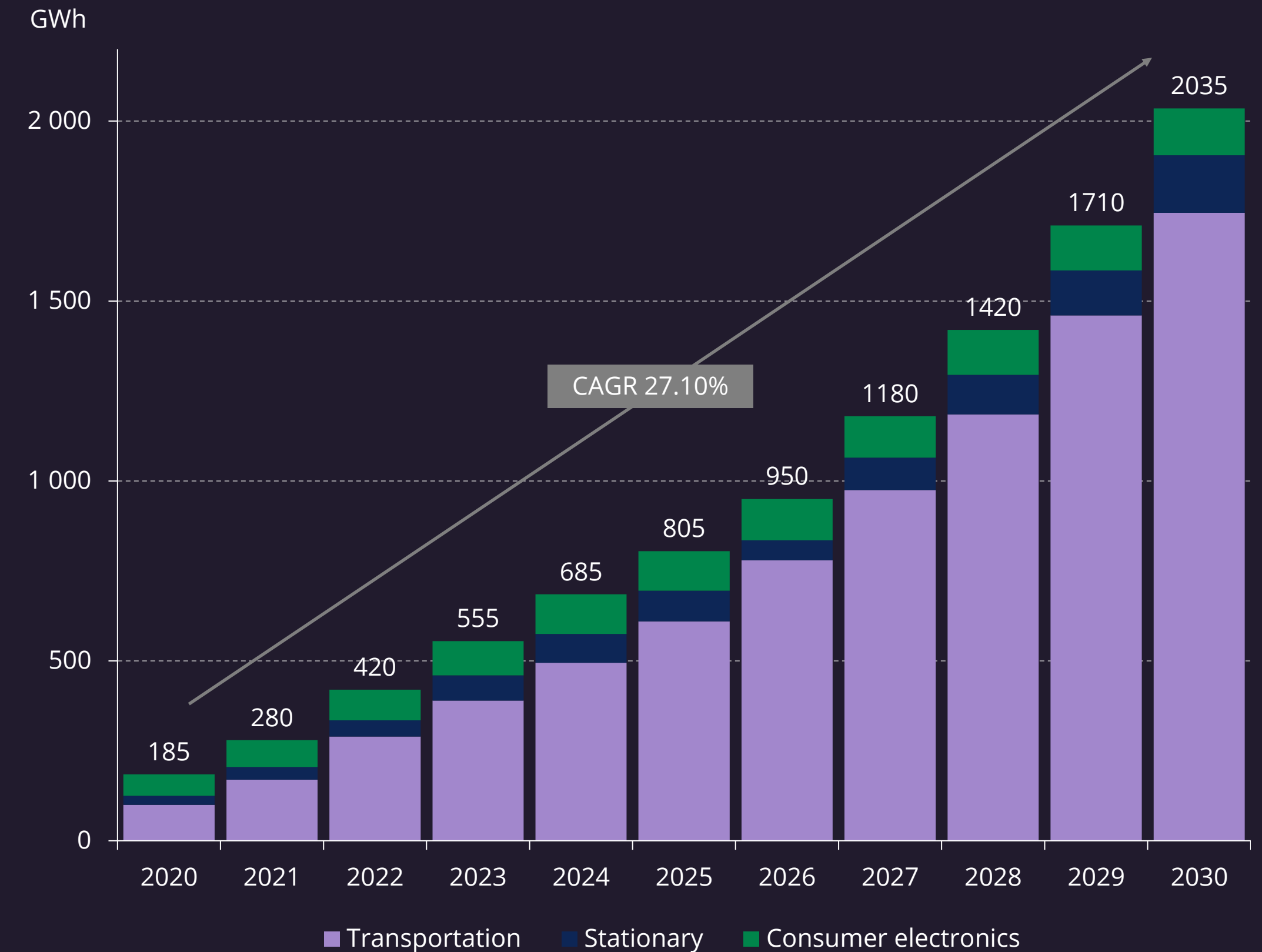


EMERGING MARKET: BATTERIES

Soaring global demand for lithium-ion batteries

- Batteries are generally valued by four axioms¹:
 1. Energy storage.
 2. Energy efficiency.
 3. Charging and discharging.
 4. #Cycles without deterioration.
- CNF/CNT enhances these four battery properties through combining silicon and carbon for lighter and more resilient anodes².
- The global demand for lithium-ion batteries is driven by e-mobility trends, in turn creating a potential demand surge for CNF/CNT in the future.

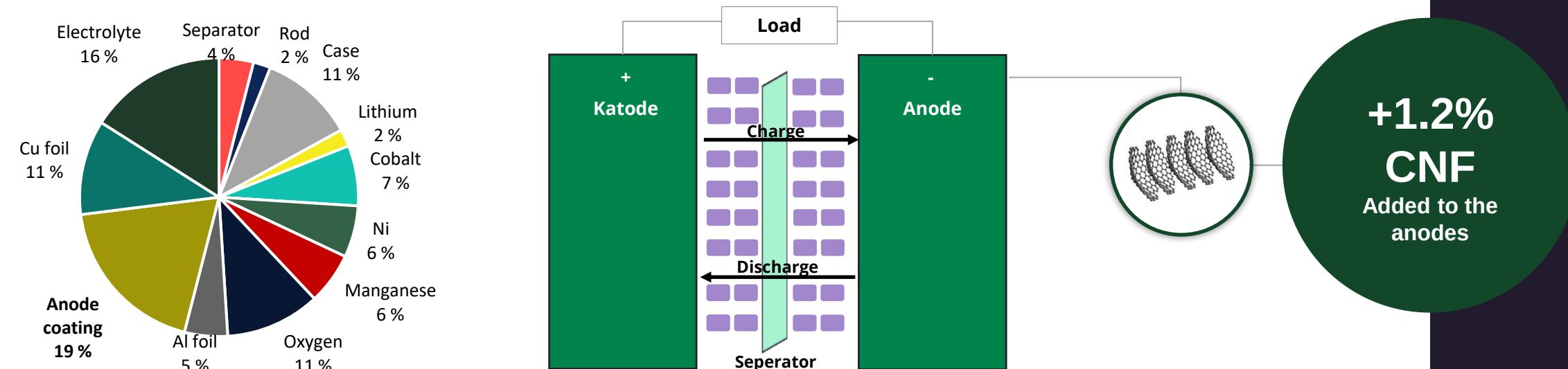
Projected global battery demand³ in GWh by application



ELECTRIC VEHICLE EXAMPLE

CNF's effect on EV-batteries

Composition and structure of a conventional rechargeable battery (LIB)¹



Example: Tesla with a 100kWh battery – Battery weight 625kg



13,700 USD	730 USD	24 kg	Performance
Estimated cost per battery	Estimated savings from reduced anode needs	Weight reduction	Faster charging times and better cyclability

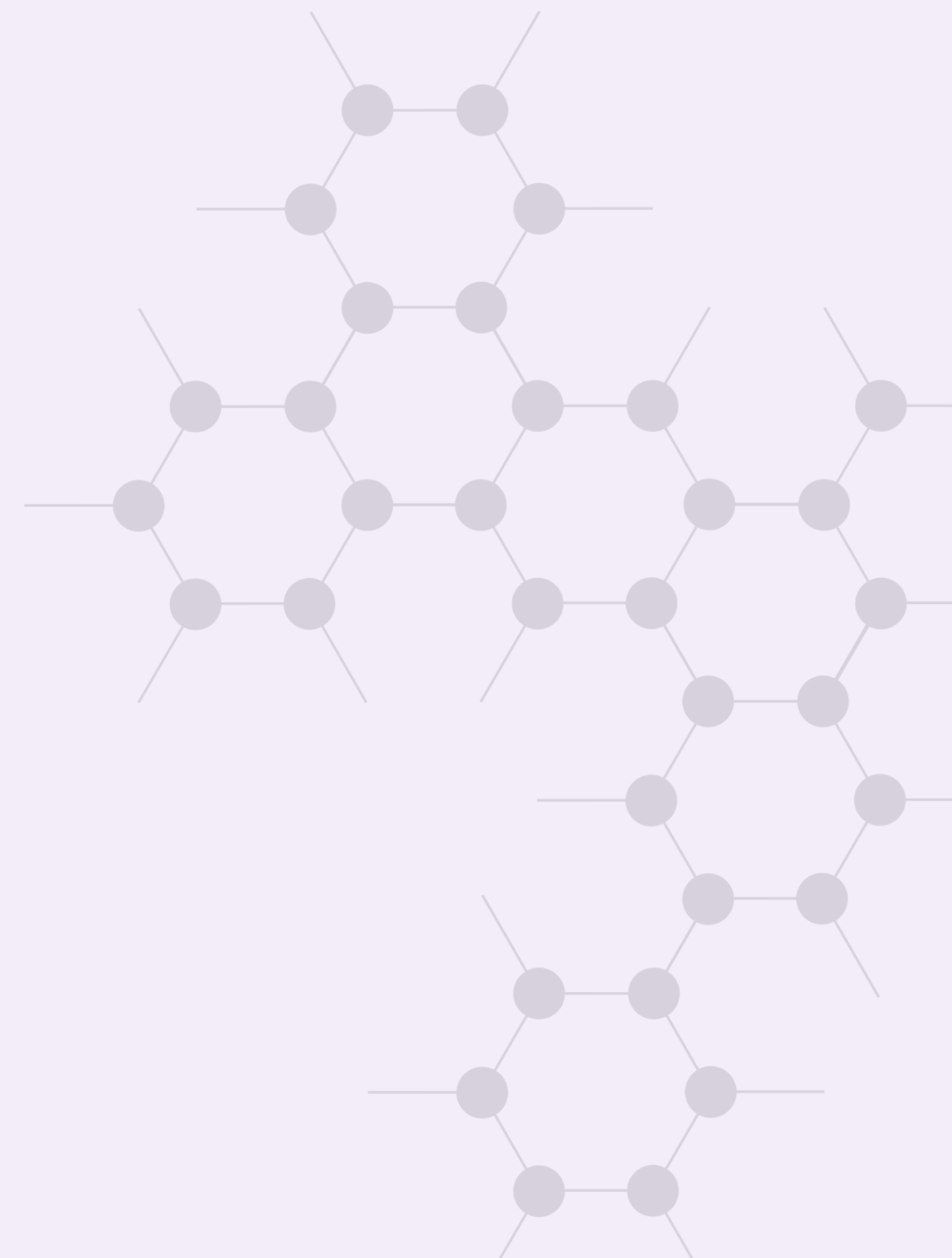
Reduced CO2-footprint



The direct cost savings from adding CNF is within our guided price-range, even before the value of faster charging times and better cyclability is counted for.

Notes: 1) Comprehensive Review of the Advancement in Recycling the Anode and Electrolyte from Spent Lithium-Ion Batteries (Arshad, Faiza et al.);
2) Park et. al, Cameán et. al, Wang et. al

OPERATIONAL Q2



TEST CENTER FLESLAND

Diegel 2.0 installed and commissioned at Flesland on schedule

- The two final Diegel 2.0 installed and commissioned on guided schedule: 4 in total. Diegel 2.0 has 8x higher production capacity than its predecessor.
- The annual production capacity at our test-center is now 3 tons and serves as an important R&D facility for BCS both within the development of CNF and MWCNT.
- The commissioning of the two last diegels at Flesland takes us one step closer to full-scale industrialization.

Test-center fully operational on guided timeline



**Before:
2 units**



**Now:
4 units**

1,625 tons



100%
capacity
increase

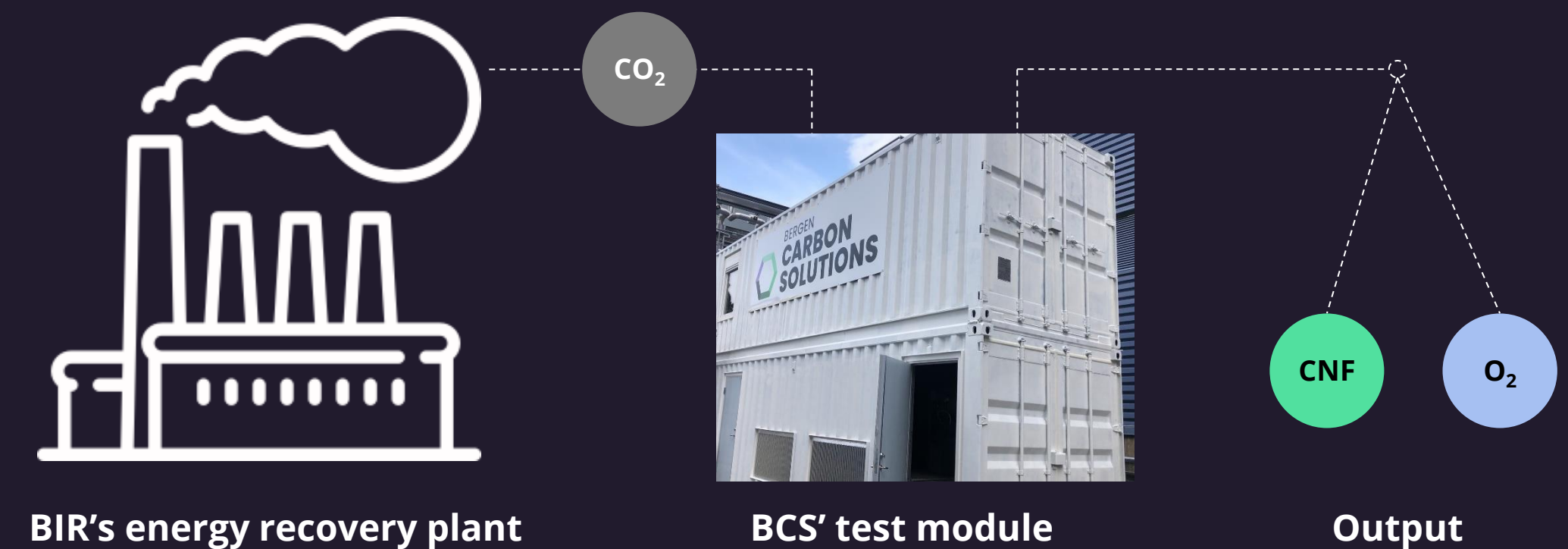
3,250 tons



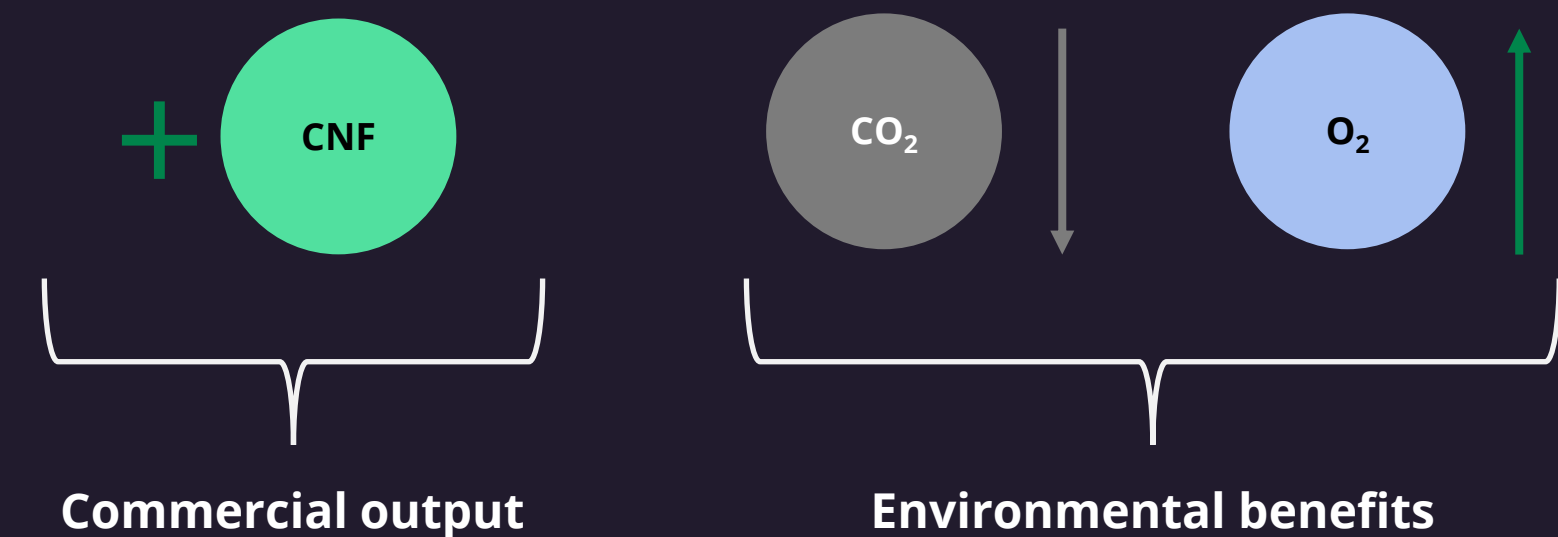
TEST MODULE DELIVERED

CO₂ capture module successfully delivered to BIR

- On June 30th, the test module for direct CO₂ capture was delivered to Bergensområdet Interkommunale Renovasjonsselskap (BIR) energy recovery plant, providing a theoretical annual capacity of ~1.6 tons CNF.
- The project started in 2018 with funding from Enova with the aim of utilizing CO₂ directly from BIR's energy recovery plant to create a value product.
- The many years of R&D put into this project has also enabled Bergen Carbon Solutions to develop a full-scale factory production concept.



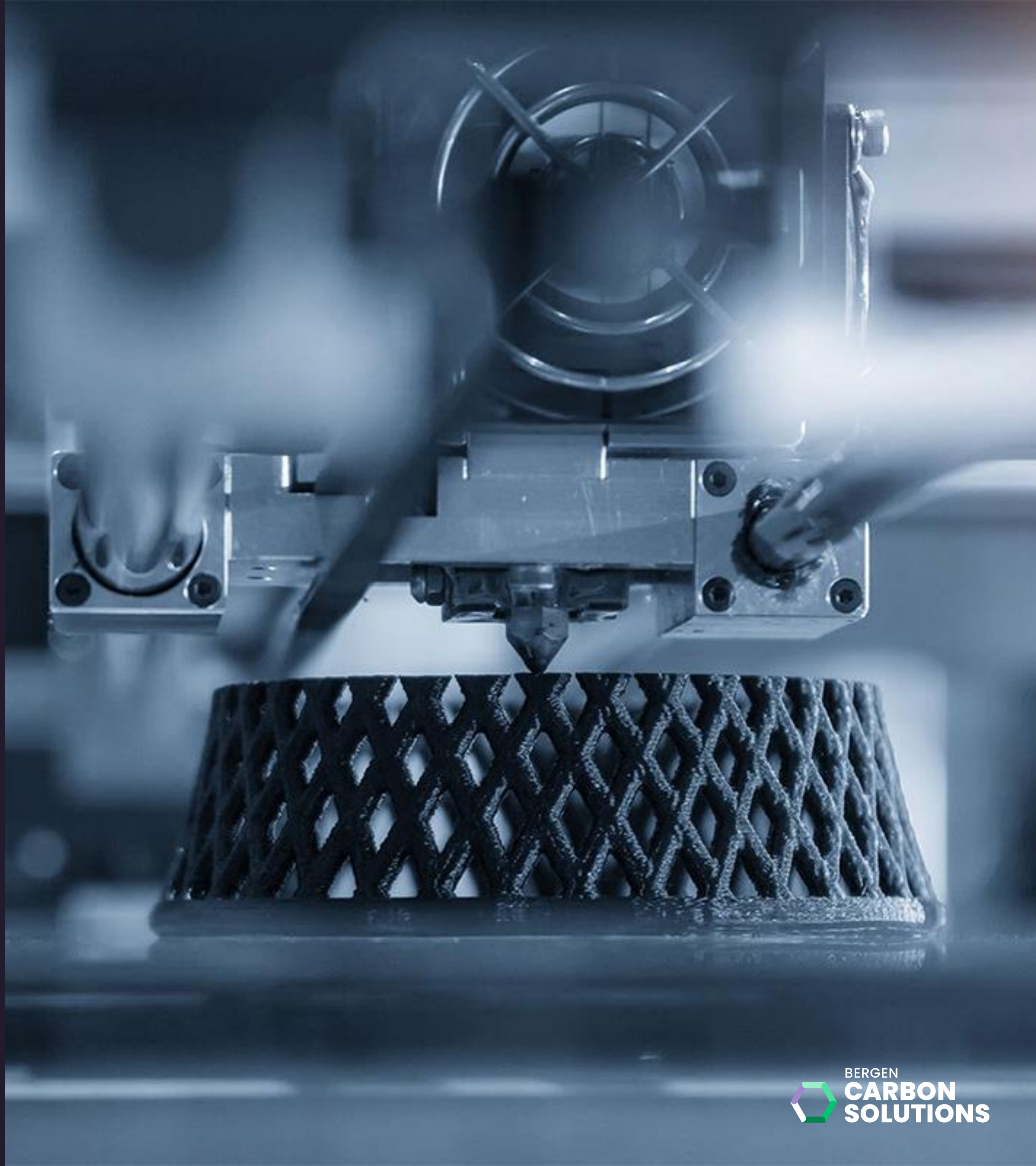
Production of carbon nanofibers replaces CO₂ with O₂



OUTLOOK

Operational plans, priorities and decisions ahead

- The number one priority is to implement the full-scale factory at an industrial scale in Høyanger.
- Continue collaboration with industry players to blend CNF/MWCNT in batteries, composites and advanced polymeric materials.
- BCS will continue to expand the range of utilization for CNF and MWCNT.





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