Women Leading Sustainability in Cement, Concrete & Construction

NOW -
Network of Women

Heidelberg Materials

Thanks for attending the event at Heidelberg Materials evoHub

Any follow up question, comments or suggestions?

Interested in a session at our evoHub for your team and colleagues?

Want to join the cycling challenge?

Get in touch:

Name	Position	email
Laura Jarvis	National Commercial Manager	laura.jarvis@heidelbergmaterials.com
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Heidelberg Materials - 2030 Sustainability Commitments

Example Commitments

Net Zero

- Reduce specific net CO_2 emissions to 400 kg per tonne of cementitious material by 2030, equivalent to a ~47% reduction vs. 1990 levels

Safe & Inclusive

- 25% of leadership positions to be held by women by 2030

Circular & Resilient

- >50% of share of revenue from sustainable products

Nature Positive

- Achieve net positive impact on biodiversity at new and rehabilitated extraction sites

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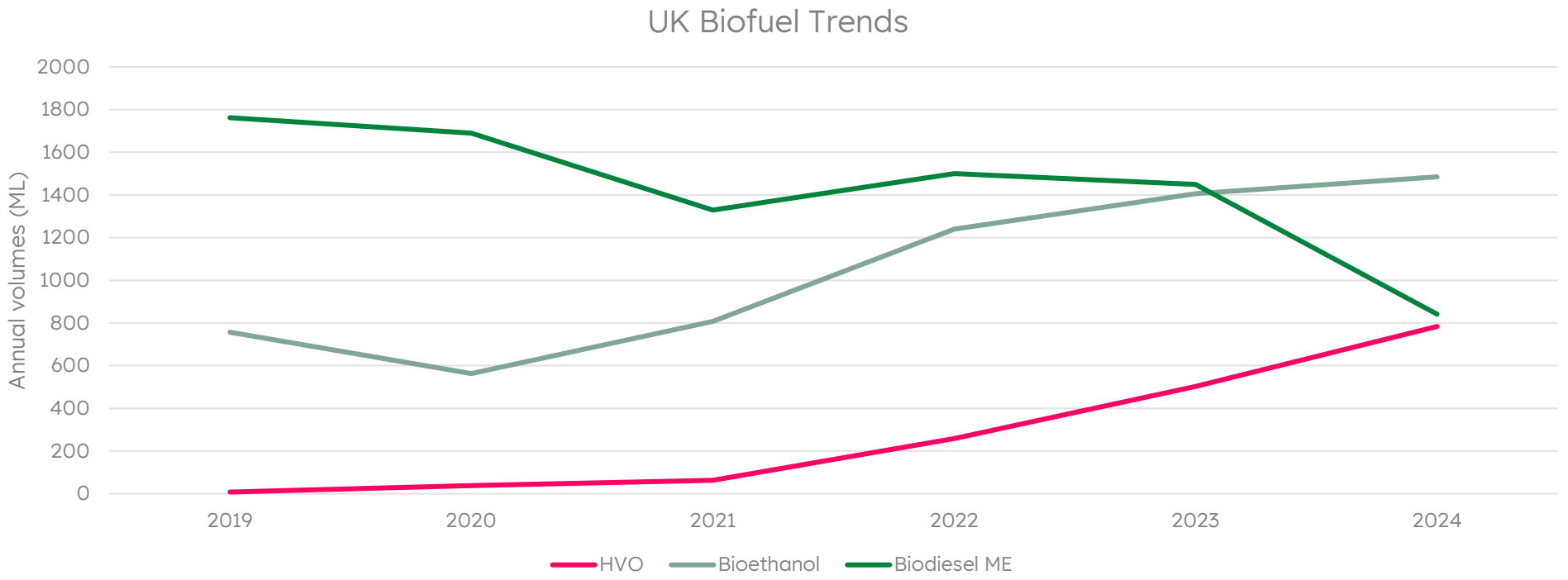
Can we trust HVO?

Rachel Morse
Net Zero Advisor

What is HVO?

- Hydrogenated Vegetable Oil (HVO) is a biofuel made from vegetable oils, waste oils and fats
- It is different to biodiesel blends found in forecourts (like B7, which is 7% biodiesel mixed with fossil diesel)
- Can often be used as 100% drop in replacement for fossil diesel
- Rapidly growing in popularity – 784 million litres in 2024



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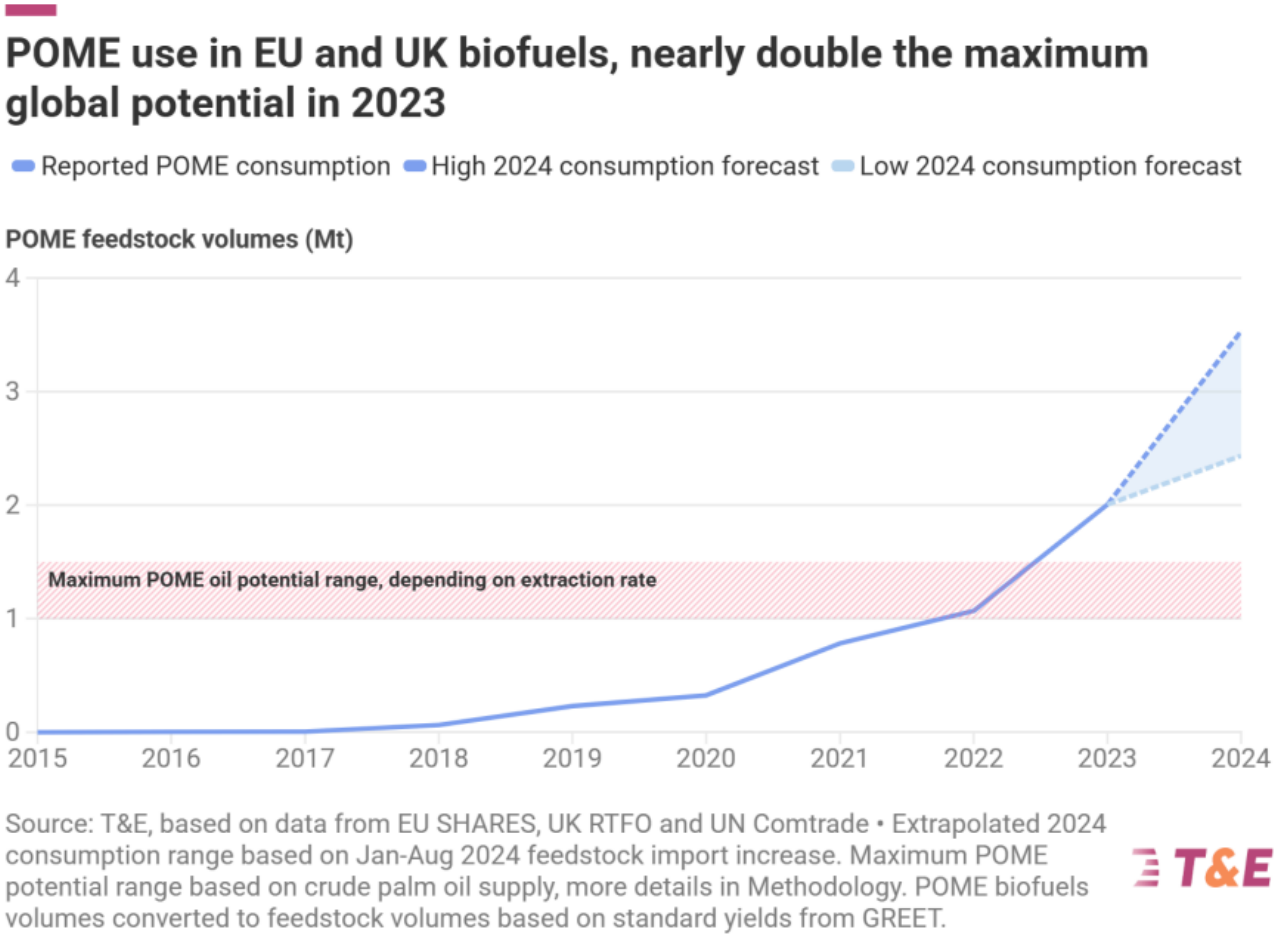
Research and statistics - GOV.UK

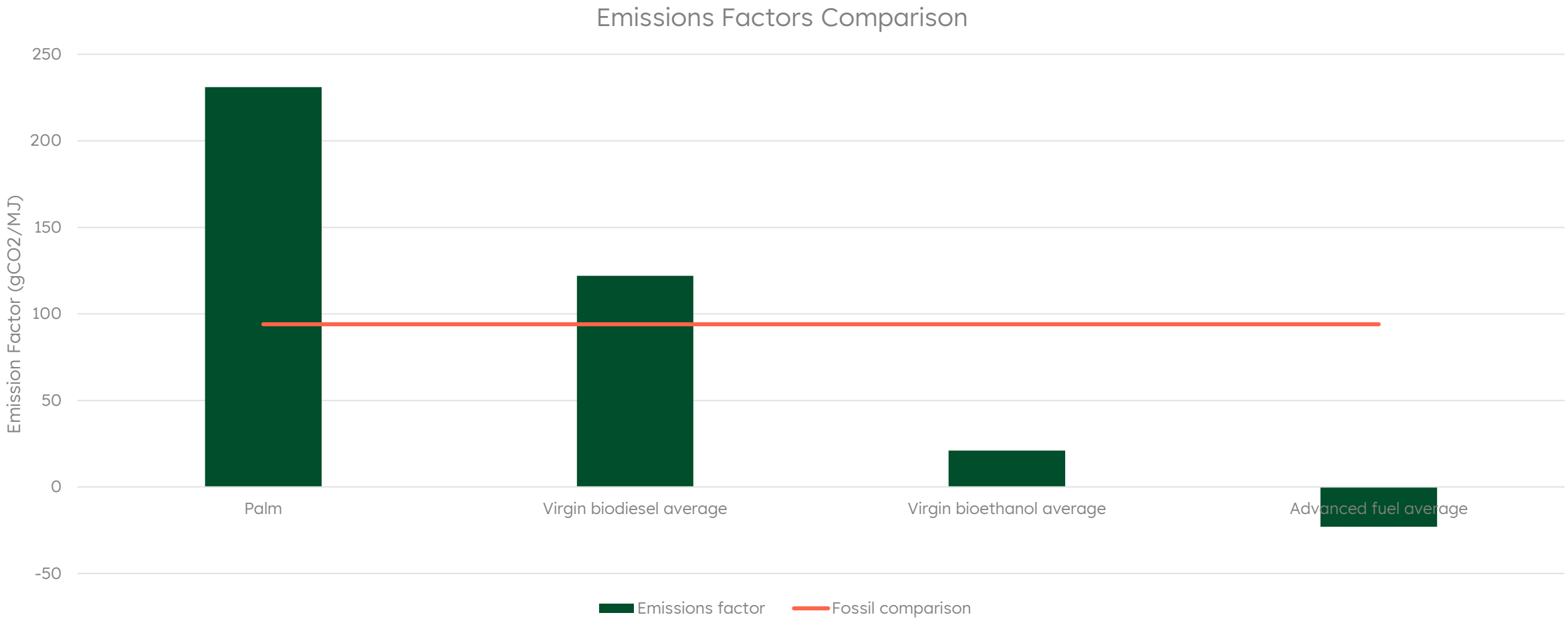
The Story

- EU and UK claimed to use ~2 million tonnes of palm oil waste based HVO in 2023.
- However analysis of worldwide palm oil production showed it was only possible to make ~1 million tonnes of palm oil based HVO in 2023.
    - This is likely to be even lower as some countries use palm oil waste themselves to generate biofuels.



202503_POME_fraud_report

Why is this a problem?



As well as deforestation issues, palm has a higher carbon footprint than fossil diesel

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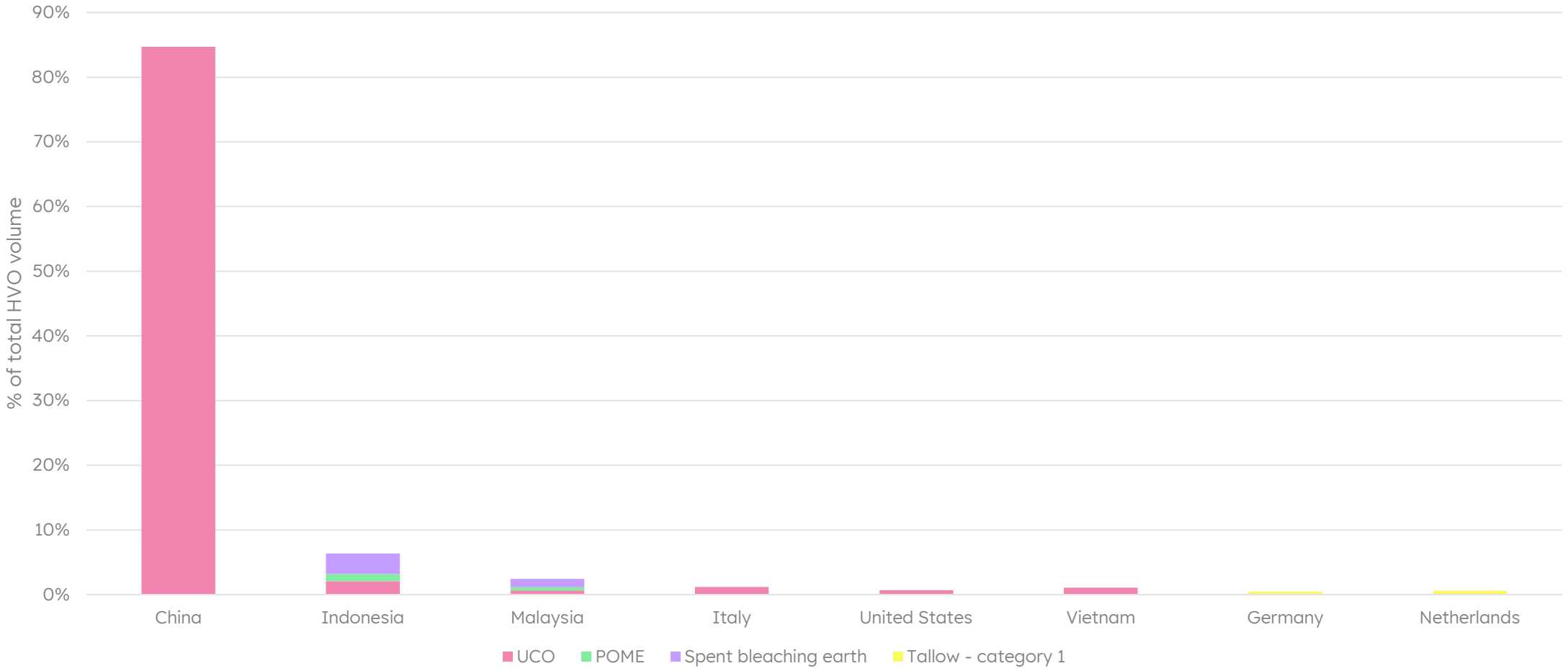
The land use change impact of biofuels consumed in the EU – Energy 2016_04_TE_Globiom_paper_FINAL_0.pdf

UK HVO Feedstock Sourcing



In the UK, POME does not contribute significant quantities to HVO volumes, in the EU ¼ of HVO comes from POME

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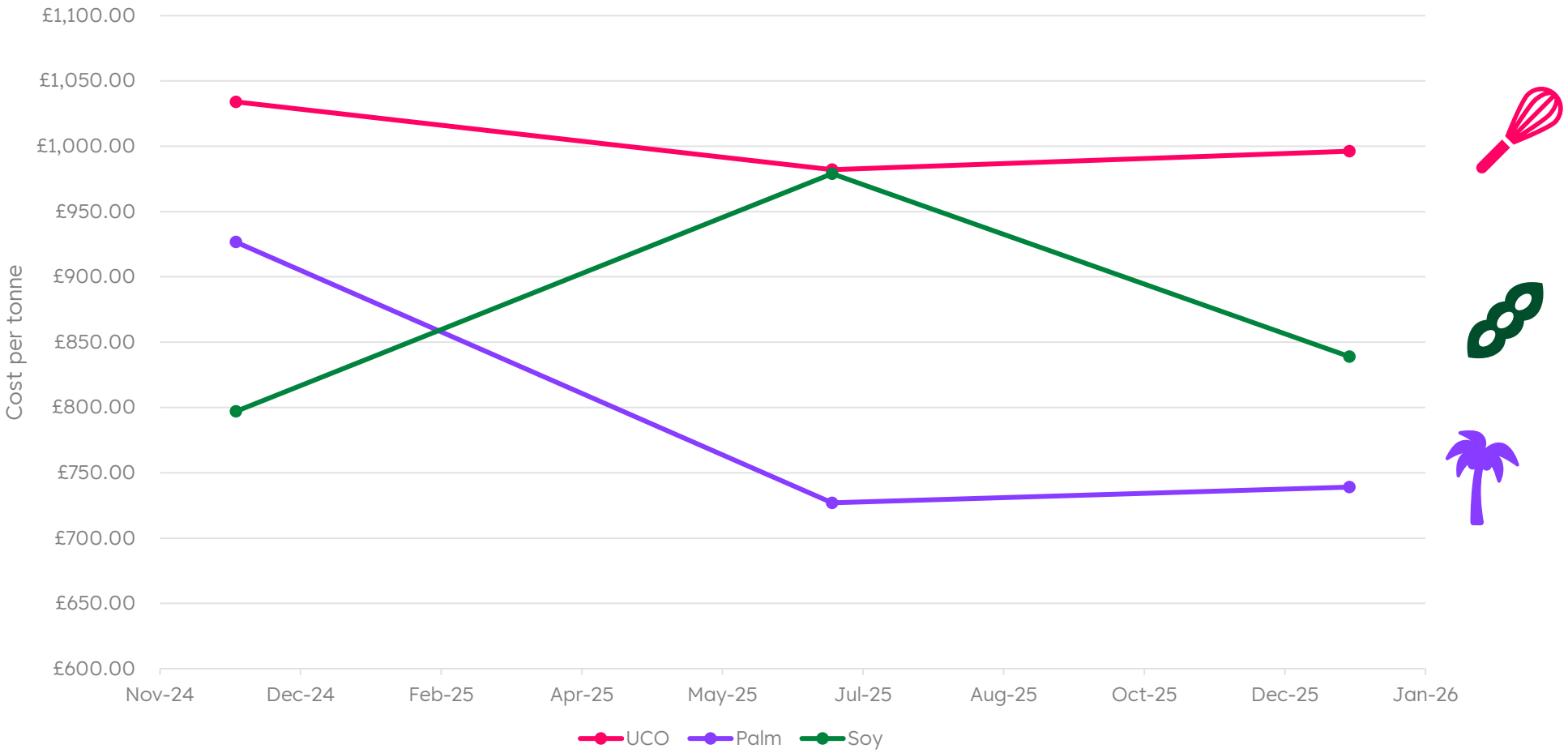
Research and statistics - GOV.UK

Used Cooking Oil (UCO)

- UCO has 2 common legal uses aside from a fuel:
    - Feedstock of the oleochemical industry to make non-food products such as soap and biodegradable polymers
    - Used as animal feed (occurs in South East Asia but banned in Europe)
- This means that as more UCO is used for HVO, virgin oils are used to make up the supply for where UCO was used previously.
- UCO also can be collected earlier than necessary – a grey area of fraud
- Within the EU, some experts believe that ~1/3 of UCO is fake

Used Cooking Oil: The Certified Unknown | T&E
EU Scrutinizes Fraud in Certification of Biofuels

Economic Incentives for Fraud



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UCO prices reach two-year high in 2024, increases to continue in 2025 amid demand – Fastmarkets
Soybean Oil Price (Any Origin) Monthly Trends: Commodity Markets Review | Ycharts
Palm Oil - Price - Chart - Historical Data - News

Investigations into Certifications

ISCC responds to potential EU suspension of its certification

by The Editorial Team — March 31, 2025 · Fuels

EU Scrutinizes Fraud in Certification of Biofuels

Palm plantations and forest in Sentabai Village, West Kalimantan, 2017 (Nanang Sujana/CIFOR / CC BY NC ND 2.0)

PUBLISHED MAR 30, 2025 3:41 PM BY **THE MARITIME EXECUTIVE**

Germany triggers EU investigation into Chinese biofuels

By **Noah Browning** and **Philip Blenkinsop**

June 7, 2023 2:56 PM GMT+1 · Updated June 7, 2023

European flags fly outside the European Commission headquarters in Brussels, Belgium March 13, 2023. REUTERS/Yves Herman/File Photo

Purchase Licensing Rights

Future for biofuels in UK

- Increased mandates for low carbon fuels will put more pressure on the supply chain for waste feedstocks.
    - This could drive improvements in traceability
    - Or it could increase fraudulent declarations
- Aviation
    - Sustainable Aviation Fuel Mandate started in 2025 at 2% of total UK jet fuel demand
    - Increasing to 10% by 2030
    - Increasing to 22% by 2040
- Road
    - Under RTFO large suppliers of fuel must submit a number of Renewable Fuel Certificates.
    - This was 9.6% in 2021, increasing to 14.6% by 2032
    - There is a cap on virgin crop fuels – 4% in 2018, decreasing to 2% by 2032

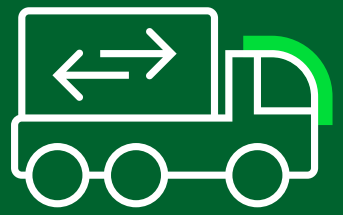
Sustainable Aviation Fuel (SAF) Mandate - GOV.UK
RTFO statutory review and the future of the scheme: summary of responses and policy update

The Balance

All decarbonisation technologies have challenges

Important to keep:

Asking questions outside of direct influence



Working with proven strategies such as energy efficiency

Being innovative and open to new solutions

Decarbonisation is not about one technology, it is about the right solution(s) for the right challenge

NOW

EDI Networks – Sharing Best Practice

EDI Networks

Network of Women (NOW)

A community **championing gender equality**, empowerment, and growth. Through workshops, panel discussions, and mentoring, it offers a platform for women and allies to connect, learn, and lead together.

Neurodiversity network

A community **helping foster understanding and support for neurodiversity**. A safe, welcoming space for neurodivergent colleagues and allies to connect, learn, and share experiences. From webinars to personal storytelling.

Armed forces network

A dedicated group **promoting engagement and awareness of the armed forces community**. Activities include commemorations, mentoring, and career development support.

Allyship network

A group **supporting colleagues from underrepresented or marginalised communities**. A welcoming space for everyone to learn, grow and act as allies. Activities include allyship training and campaigns to foster a more inclusive workplace.

LGBT+ network

A visible and **supportive space for LGBTQ+ colleagues and allies** to share experiences, learn, and celebrate identity. Activities include Pride events, awareness campaigns, and safe spaces for discussion and education.

FAIR and Wellbeing Calendar

January FAIR
Back to work
05 January

Wellbeing challenge — Wellbeing
Begins 07 January

February Wellbeing
Wellbeing challenge
Ends 05 February

March FAIR
International Women's Day
08 March

The Big Sleep — Wellbeing

April FAIR
Neurodiversity month

May FAIR
Birmingham Pride
23 - 24 May

Mental Health Awareness month — Wellbeing

June Wellbeing
Volunteer Week
01 - 07 June

Pride month — FAIR
Armed Forces Day
27 June

September FAIR
Inclusion Week
14 - 20 September

October Wellbeing
World Menopause Day
18 October

November FAIR
Armistice Day
11 November

Movember — Wellbeing

December FAIR
International Day of Persons with Disabilities
03 December

Allyship = Action & Not just attitude

What does it mean?

Supporting people treated unfairly even when you're not part of that group

What it means to me?

I honestly don't differentiate between male or female colleagues, nor do I differentiate between colleagues from groups that I'm not part of.

I actively support my female colleagues as I do male, however I try to showcase our success to help change perceptions and mindset.

But I need to do more; remove barriers, be more observant & actively challenge behaviour

Challenges for our industry

Sexism hasn't gone away – shocked but regretfully not surprised by examples at NOW event

Low number of females in industry – Female presence drives positive behaviour, but recruitment should always be merit-based

Retention – especially with early talent, they challenge the norm and bring fresh thinking. We need that change.

NOW - Network of Women

Supporting Each Other, Championing Progress, Creating a Safe Space & Having Fun

Internal Engagement & Development Initiatives

Connection & Culture

- Annual in-person event
- Book Club
- Race for Life - fit, fun, and charity
- Lean In Circle – Engaging the North

Wellbeing & Personal Development

- Drop-in sessions on
  - Imposter Syndrome
  - Juggling summer holidays
  - Returning to work after time off
- Improved uniform options

External Engagement & Development Initiatives

Health, Fitness & Community

- Cycling challenge

Sustainability

- EvoHub sustainability events

Visibility, Influence & Industry

- IWD video releases and podcasts
- Awards participation
- Engaging conversations & networking at exhibitions
- MPA Lunch

CYCLING ADVENTURE CHALLENGE

Interested in joining us next year?

Get in touch:

nina.cardinal@heidelbergmaterials.com

The Role of hydrogen in cement & asphalt

Marian Garfield
Sustainability Director

The Hydrogen Rainbow

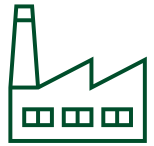
$CH_4 + H_2O \rightarrow 3H_2 + CO$

$2H_2O \rightarrow 2H_2 + O_2$

Natural Gas

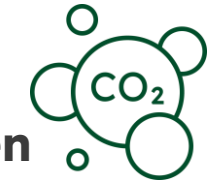
H_2

Grey Hydrogen

\+ 

Plus Carbon Capture

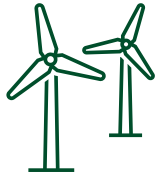
Low Carbon Hydrogen



H_2

Blue Hydrogen

Green Energy



Electricity

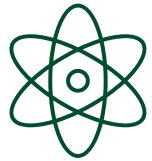
\+ 

Plus Water

H_2

Green Hydrogen

Nuclear Energy



Electricity

\+ 

Plus Water

Electrolytic hydrogen

H_2

Pink Hydrogen

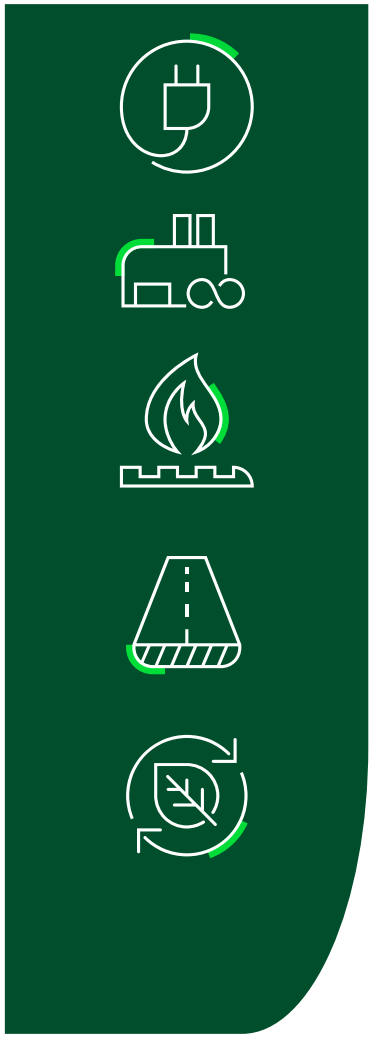
Why Hydrogen & not electrification or alternative products?

Electrification

- Cement kilns require **a lot of heat** energy – around 100 Megawatt (1 megawatt powers 200 homes)
- Continuous operation causes issues with grid at high/full capacity, **expensive and significant upgrades** are required
- Asphalt plants can have burners sized to **over 20 MW**
- They run intermittently to make product, local **grid connection upgrades** also needed to cope with large, sudden **fluctuations in demand**.
- Infrastructure work required to electrify cement and asphalt, to reach net zero by 2050, is difficult to achieve based on **current grid constraints**.

Alternative Products

- We are **leaders in lower carbon cementious materials** such as GGBS, however they cannot be used as a 100% replacement. **Cement is still required** to make concrete - concrete has been used since 6500 BC
- Asphalt – focus on **lower carbon binders**. **Heat** is required to make a **workable material** for application.



Heidelberg Materials experience of Hydrogen !

Hydrogen is a low/zero carbon fuel offering potential for big reductions in carbon emissions. Hydrogen projects carried out include:

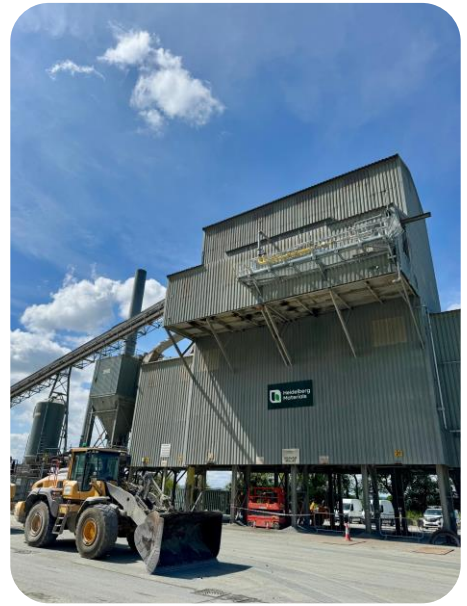
- **2019-2021: World's first** cement kiln operated on a net zero fuel mix (including 30% hydrogen)
- **2022:** Small scale on-site generation at Ribblesdale and Ketton
- **2019-2023:** Small scale Green hydrogen production at Port Talbot
- **2023:** Feasibility study completed for Asphalt – Bay Hydrogen Hub
- **2024:** Innovative Green Ammonia Feasibility Study in Cement
- **2024-2025:** UK's first hydrogen asphalt plant
- **2026**: HAR3 submission and further development of HMUK Hydrogen strategy

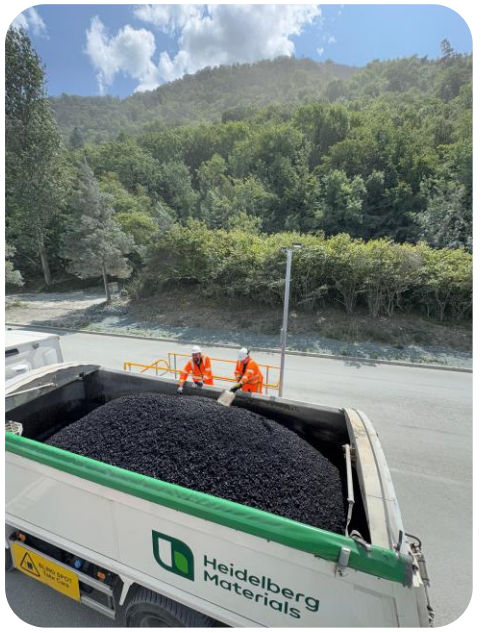
3rd July 2025: The UKs first 20t asphalt made using hydrogen

THE UK'S FIRST

Key Findings:

- Safety considerations & control systems are very new for our industry!
- First production run was very successful; devil is in the detail
- UK owned blueprint for Aspahlt plant conversions
- LPG system commissioned & installed for fuel blending
- **4,522** kg of hydrogen consumed, **1,303t** of material supplied, **364** batches produced, **26** different products tested
- **22** customers served with **zero** quality complaints
- **76%*** reduction in scope 1 emissions, **23%** reduction in Asphalt carbon footprint**; 25,105*** kg of CO2 saved
- Hydrogen breakeven cost: **£1.50**/kg; trial **£28**/kg

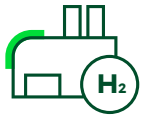




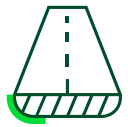
*Data based on analysis of top 20 products during trial

We have a range of opportunities for Hydrogen use and displacement of fossil fuels within the Heidelberg Materials UK business

Single Use applications

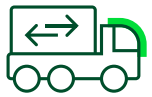


Cement: fuel enhancer



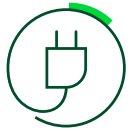
Asphalt: fuel replacement

Aggregates: HME



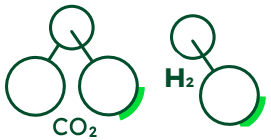
HGV: fleet conversion

Wider opportunities

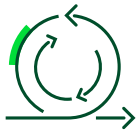


Onsite generation & renewables

Develop hydrogen hubs for fleet



Explore options for CCU & e-fuels

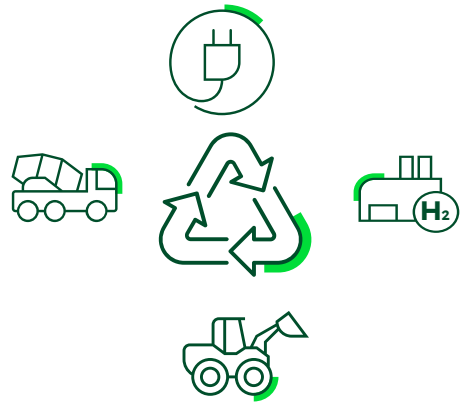


Connection to the UK NG network

Hydrogen Vision

Integrated sites

- Renewables & water harvesting
- On-site electrolyser
- Asphalt production
- Aggregate mobile plant
- HGV re-fuelling



Future Opportunities

- Co-location of sites

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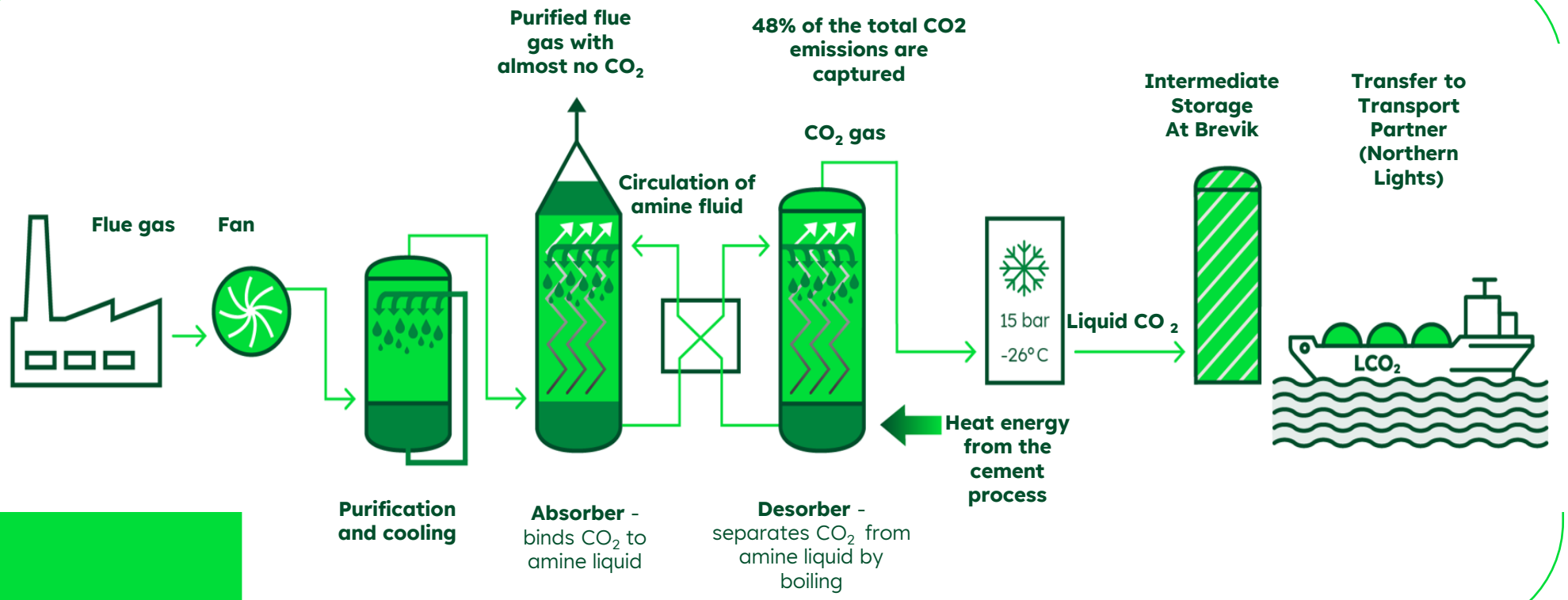
Carbon Capture and Accounting for evoZero Cement

Nina Cardinal

CO_2 is captured at our Brevik site through the use of amine CC technology

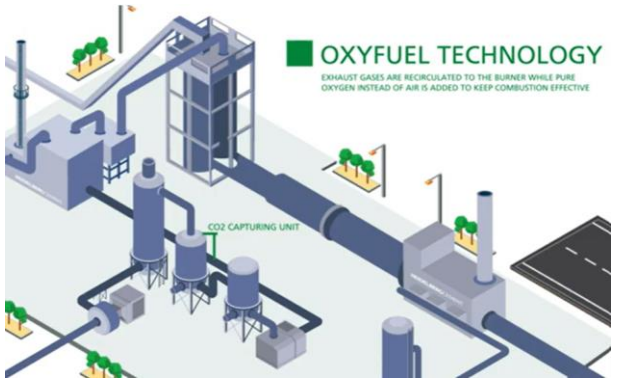
CCS plant designed to maximazine volume of captured CO_2 with available heat from cement kiln

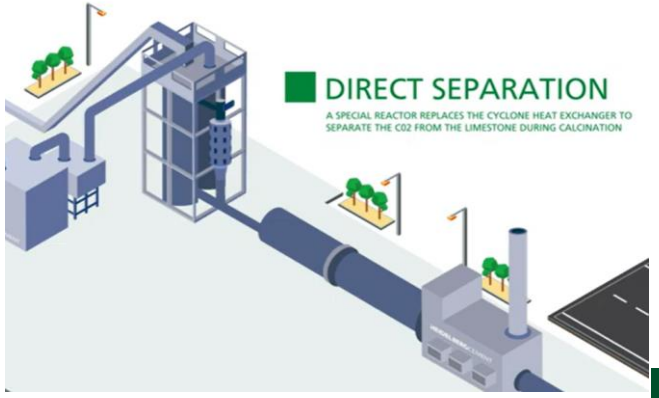
Overall capture rate of ~48%



Other Carbon Capture Technologies

- **Other solvent technologies**
  - e.g. C-Capture
- **Oxyfuel**
  - Oxygen instead of air for combustion
- **Direct Separation**
  - Process CO_2 kept apart from combustion exhaust gas
- **MOFs**
  - Traps CO_2 in porous, solid atomic cages





Is Carbon Capture and Storage proven technology?

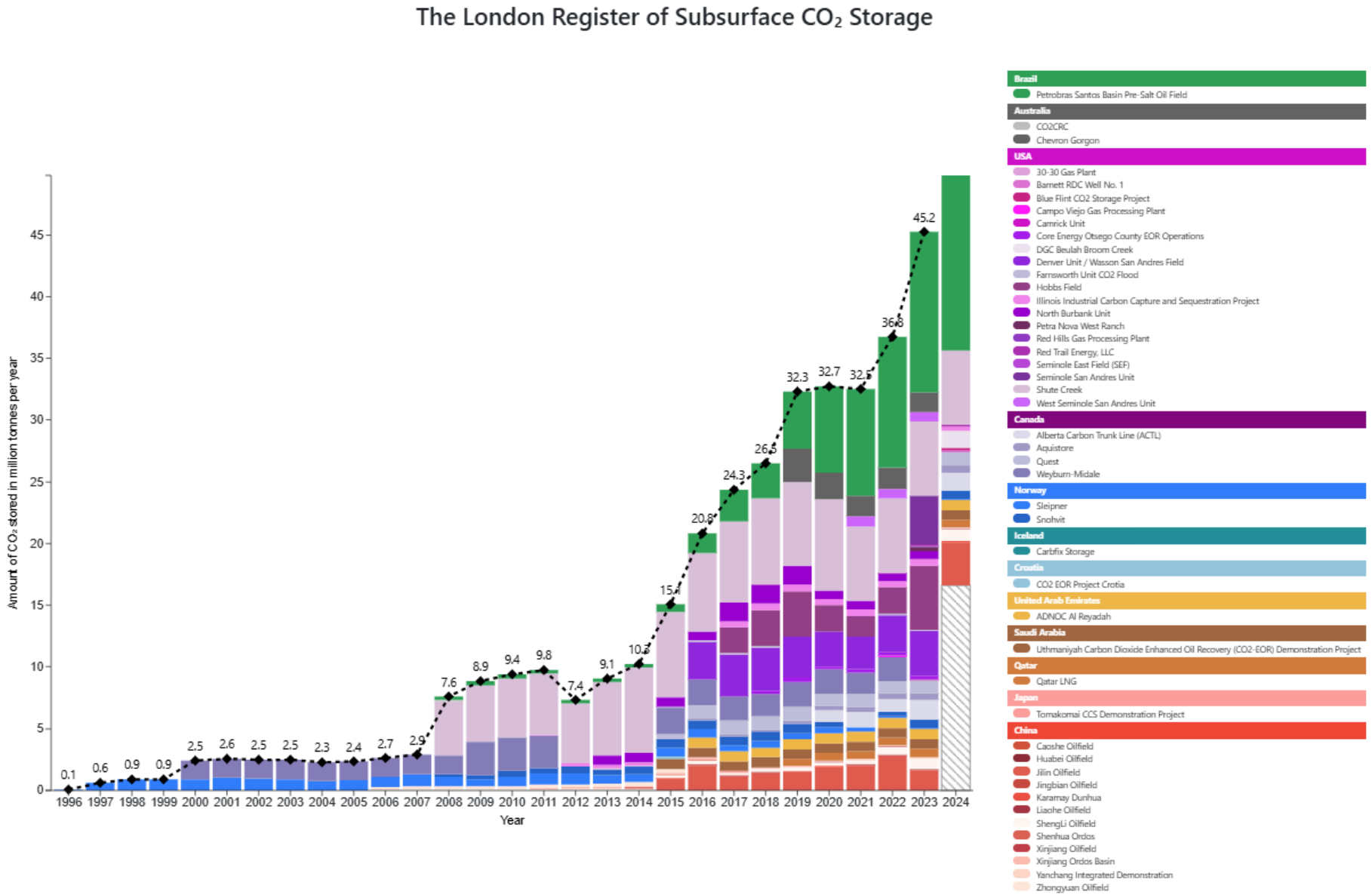


Figure 1: Annual amounts of CO_2 stored by project (Update Date: 12-Nov-25)

Heic


Brevik carbon capture and storage (CCS)
THE WORLD'S FIRST
Commercially carbon captured cement
Heidelberg Materials

From capture to storage

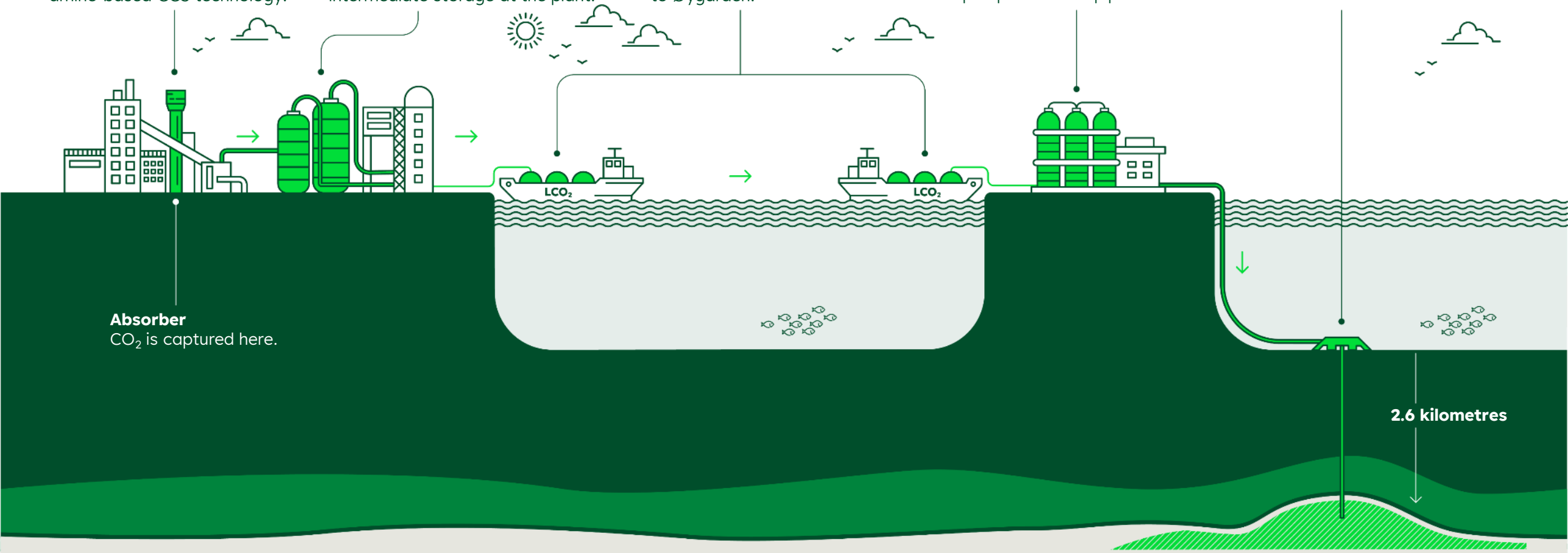
Cement production and carbon capture
CO_2 is captured via amine-based CCS technology.

Preparation for transport
Conversion of CO_2 to liquid form and intermediate storage at the plant.

Carbon dioxide transport by ship
Custom-built vessel that carries liquid CO_2 at -26 °C to Øygården.

Reception terminal
When the CO_2 reaches Øygården it is further compressed and pumped down a pipe.

Permanent CO_2 storage
Storage of CO_2 via 110 km pipeline, 2.6 km below the the bottom of the North Sea.



Absorber
CO_2 is captured here.

Brevik Project – Current Position

- Carbon capture plant, transport, pipeline and storage fully commissioned
- All processes are assured by DNV
- 23,000 t of CO_2 permanently stored, assured by DNV, and credited in HM's carbon bank

Home - Accounting and assurance

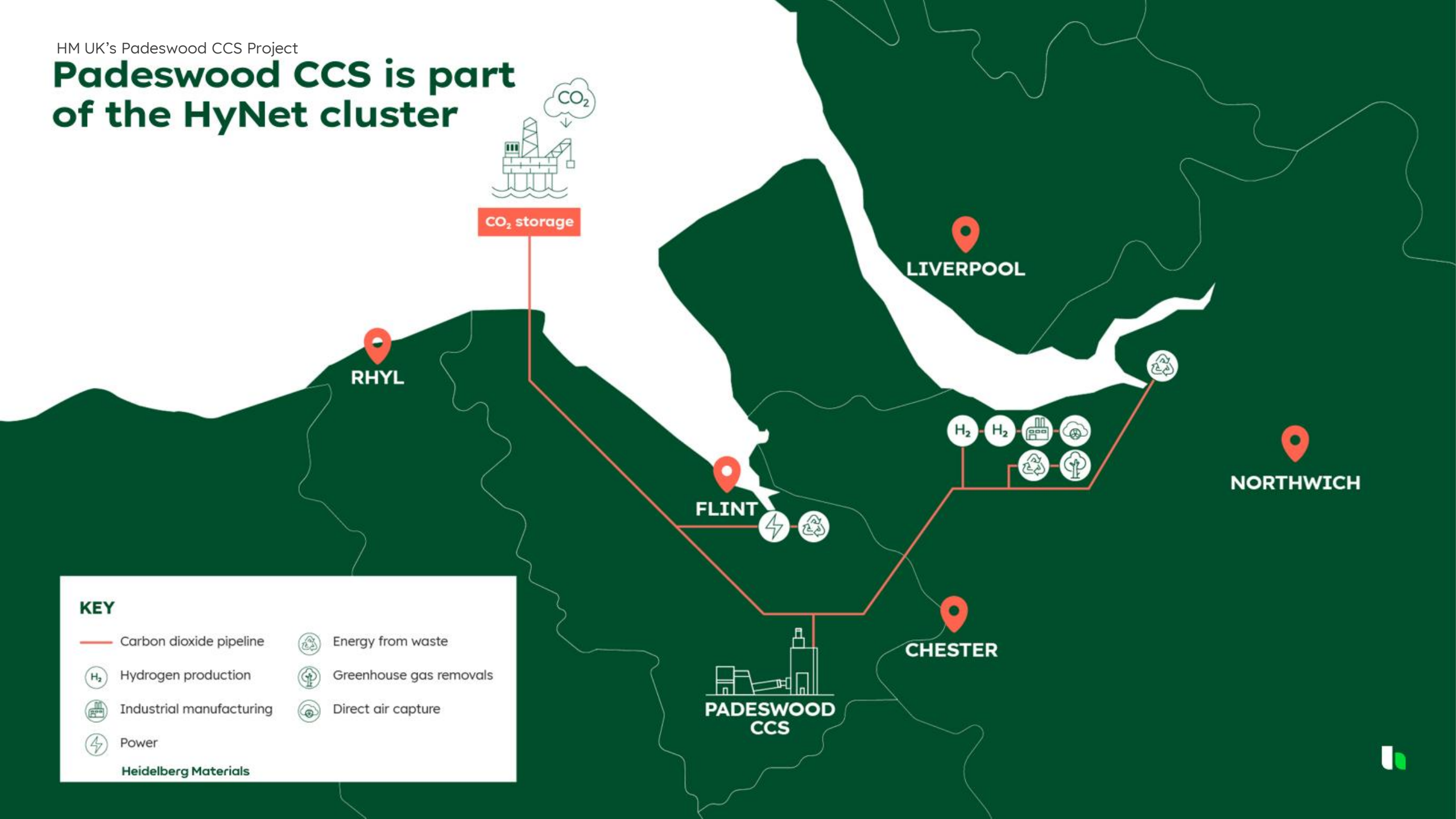
DNV assurance statements

Assurance serial number	Date issued	Tons of CO_2 assured
DNV-2025-EVO-752831 286.01 KB	2025-10-16	2,389.099
DNV-2025-NEB-752831 315.11 KB	2025-11-27	4,936.879
DNV-2025-DED-752831 291.93 KB	2026-01-13	1,734.864
DNV-2025-DEE-752831 284.3 KB	2026-01-13	1,887.134
DNV-2025-DEC-752831 293.48 KB	2026-01-13	5,078.922
DNV-2025-DEF-752831 283.18 KB	2026-01-13	6,983.608


Padeswood carbon capture and storage (CCS)
THE WORLD'S FIRST
The world's first fully decarbonised cement production process
Heidelberg Materials

HM UK's Padeswood CCS Project

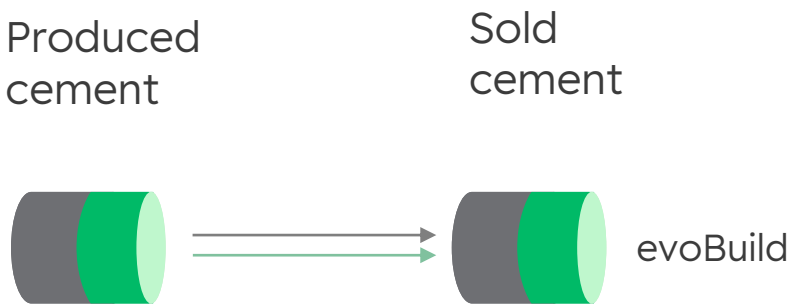
Padeswood CCS is part of the HyNet cluster



Two principal product ranges based on CCS in Brevik

evoBUILD

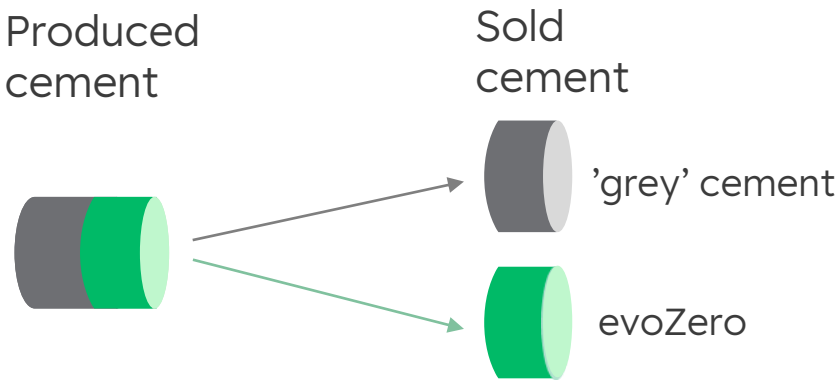
CO_2 reduction from CCS is attributed proportionally to the cement produced in Brevik.



evozero

CO_2 reductions is attributed specifically to one product range according to free-attribution mass balance principle.

Mass balancing will be certified by DNV, who will also audit the accounting of the CO_2.



evozero

Industry leaders in Europe have access to two products

1

evozero

Carbon captured Brevik

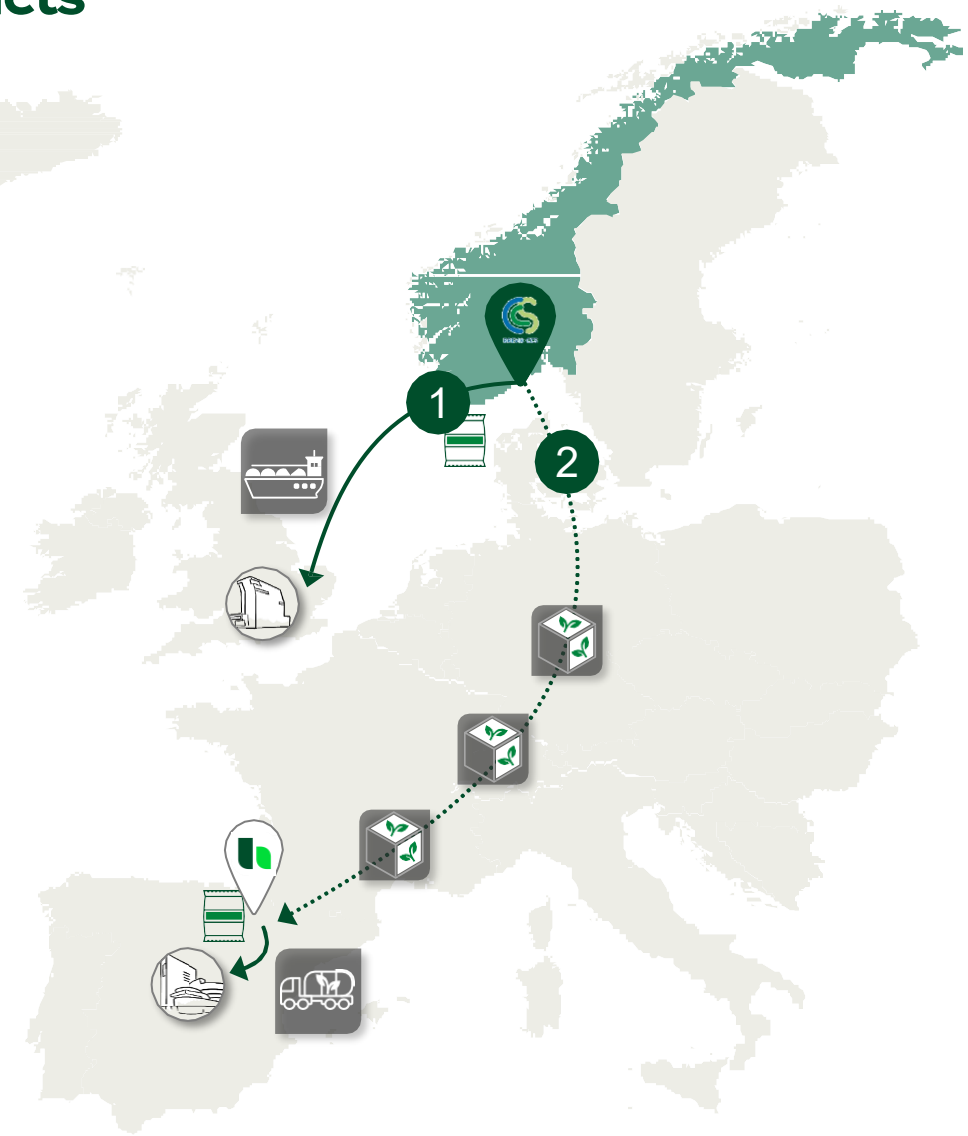
The ‘traditional way’: net-zero carbon cement **delivered directly from the Brevik plant** to the site of the project or production.

2

evozero

Carbon captured

For projects far away, CO_2 savings can be transferred and attributed **leveraging the local availability of Heidelberg Materials’ products in every given country**

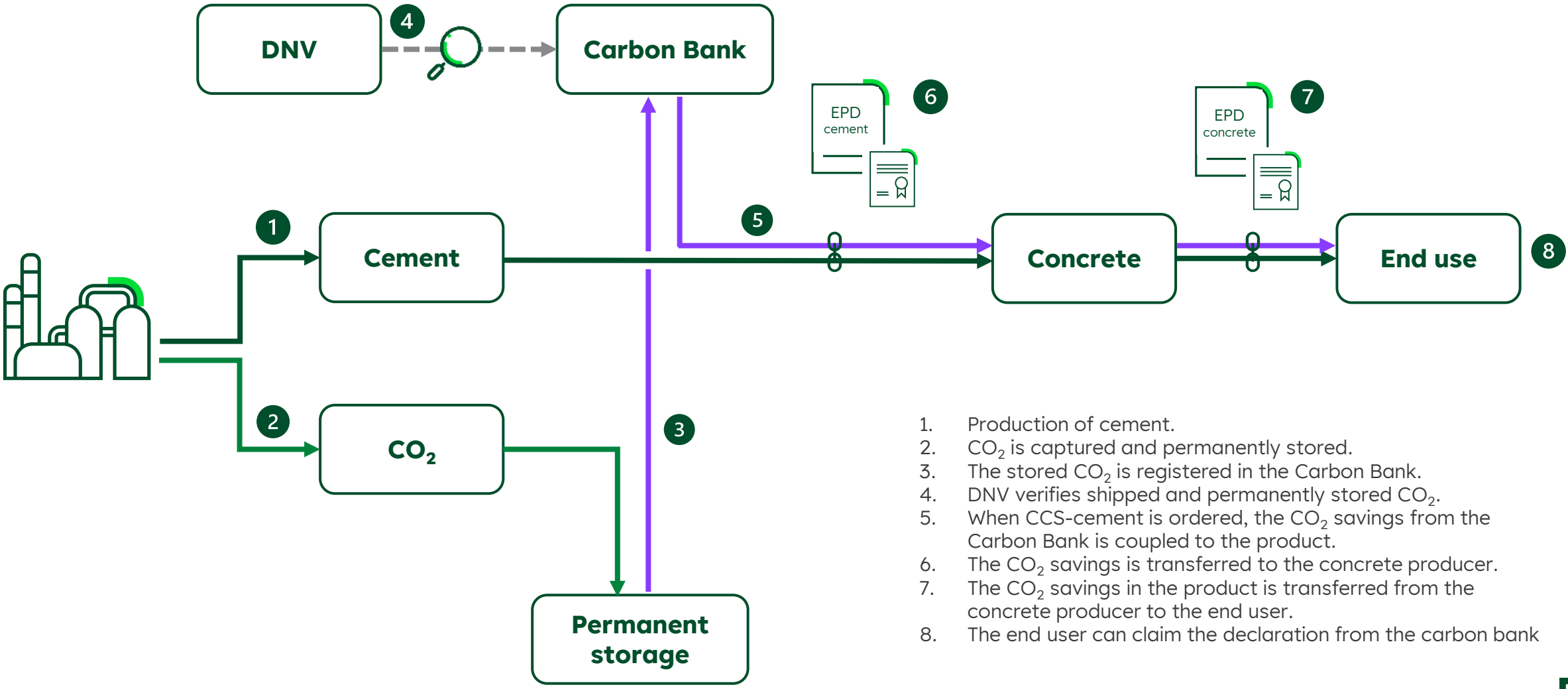


Third-party approved process

Transparent allocation

EPD based claims

The Carbon bank – keep track of the savings

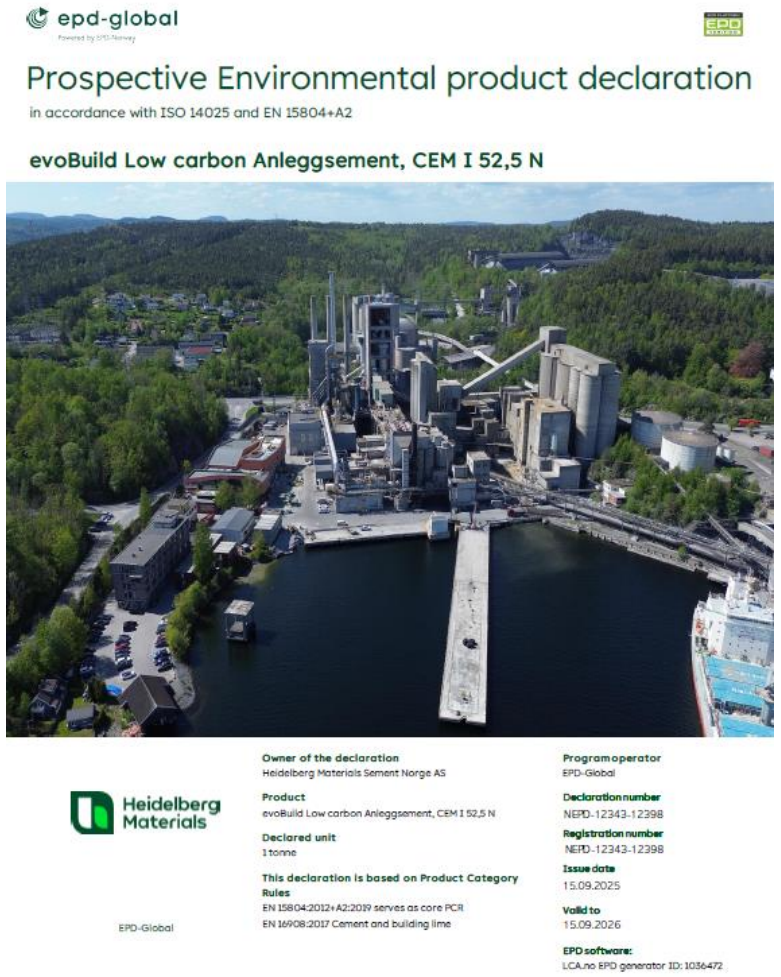


1. Production of cement.
2. CO_2 is captured and permanently stored.
3. The stored CO_2 is registered in the Carbon Bank.
4. DNV verifies shipped and permanently stored CO_2.
5. When CCS-cement is ordered, the CO_2 savings from the Carbon Bank is coupled to the product.
6. The CO_2 savings is transferred to the concrete producer.
7. The CO_2 savings in the product is transferred from the concrete producer to the end user.
8. The end user can claim the declaration from the carbon bank

EPD for evoZero – Global Warming Potential (GWP)

GWP kg CO_2/t, gross

	Grey	evoBuild/ evoZero	Documentation
evoBuild	693	**416 + 10**	P-EPD
evoZero Carbon Captured Brevik	693	**41 + 10**	P-EPD + Declaration
evoZero Carbon Captured	804	**0**	Declaration


epd-global

Prospective Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

evoBuild Low carbon Anleggsement, CEM I 52,5 N

Heidelberg Materials

Owner of the declaration
Heidelberg Materials Sement Norge AS

Product
evoBuild Low carbon Anleggsement, CEM I 52,5 N

Declared unit
1 tonne

This declaration is based on Product Category Rules
EN 15804:2012+A2:2019 serves as core PCR
EN 16908:2017 Cement and building lime

EPD-Global

Program operator
EPD-Global

Declaration number
NEPD-12343-12398

Registration number
NEPD-12343-12398

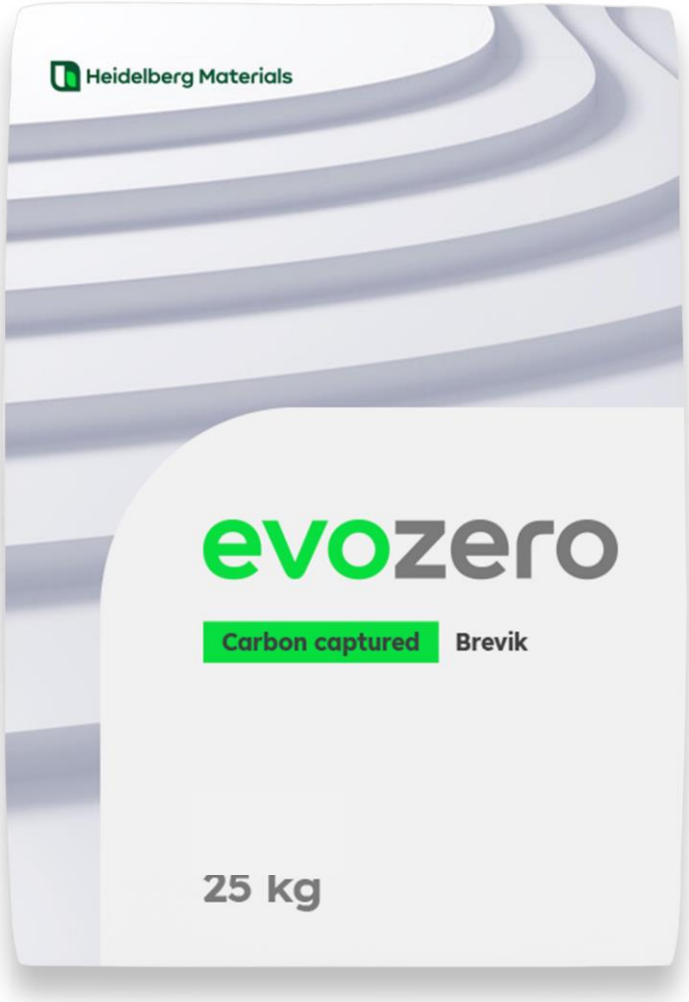
Issue data
15.09.2025

Valid to
15.09.2026

EPD software:
LCA.no EPD generator ID: 1036472

evoZero a pathway to decarbonising concrete

- Cement is a hard-to-abate industry
- evoZero is the first carbon captured cement globally
- No change to the cement: CEM I 52,5N
- Current carbon capture technology uses amines as solvent
- Other carbon capture technologies under development
- CO_2 storage is permanent
- Externally audited carbon bank assures no double counting
- Product Category Rules (EN 19804) do not yet allow for free attribution mass balancing



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Thank you for joining us