

NEWS RELEASE

1 March 2024
Nippon Sheet Glass Co., Ltd.

Successful Start to Europe's First Carbon Capture Trial in Flat Glass Industry

NSG Group is pleased to announce that Europe's first carbon capture trial on a flat glass manufacturing plant has successfully started in the business' UK Group, as part of a national project led by C-Capture.

The trial forms part of the 'XLR8 CCS – Accelerating the Deployment of a Low-Cost Carbon Capture Solution for Hard-to-Abate Industries' project. Led by C-Capture, developers of next generation technology for CO₂ removal, XLR8 CCS aims to demonstrate that a low-cost carbon capture solution is a reality for difficult-to-decarbonize industries in the race to net zero.

XLR8 CCS is funded by the UK Government's Department of Energy Security and Net Zero with £1.7 million of funding secured from their £1 billion [Net Zero Innovation Portfolio](#). The funding is part of the £20 million Carbon Capture, Usage and Storage (CCUS) Innovation 2.0 programme, aimed at accelerating the deployment of next-generation CCUS technology in the UK. Additional private sector contributions support a £2.7 million total for this multi-industry project.

One of C-Capture's carbon capture solvent compatibility units (CCSCUs) has now been deployed at Pilkington UK's float furnace at the Greengate glass manufacturing site in St Helens, part of NSG Group. Following pre-installation commissioning at C-Capture, the unit was connected at the base of UK5 furnace chimney. The CCSCU is now successfully separating CO₂ from the waste flue gas.

The trial at the Greengate site will continue for several months to assess the compatibility of C-Capture's proprietary solvent-based technology with real-world flue gases from an industrial glass making furnace. A further five carbon capture trials will take place across the UK as part of the XLR8 CCS project at industrial sites owned by project partners Glass Futures, Heidelberg Materials and Energy Works Hull – in conjunction with leading consulting and engineering company, Wood. Carbon capture solvent compatibility units (CCSCUs) designed and built by C-Capture and Wood will be installed and operated on partners' sites. Wood have also completed a feasibility study into 100 tonnes a day application of C-Capture's technology at the Greengate site.

Project success will see C-Capture and its project partners well placed for deployment of commercial-scale carbon capture facilities across the three industries by 2030 which could capture millions of tonnes of CO₂ per year.

NSG Group regards sustainability engagement as an important activity to resolve environmental and social issues with consistent business development simultaneously and aims to grow together with society through sustainability activities.

Among those, the Group has positioned efforts to address climate change and other environmental issues as one of its top priorities and is actively working to reduce CO₂ emissions from its manufacturing processes and shift to renewable energy. NSG Group's greenhouse gas emission reduction targets are the first in Japan's glass manufacturing industry to be recognized as "science-based targets" by the SBT Initiative (*1).

NSG Group is actively working on environmental issues and successful of manufacturing experiment by using hydrogen energy and 100% biofuel.



Photo: XLR8CCS Project Partners, including R&D Project Manager Caio Mendonca in the center

Paul Skinner, Global R&D Portfolio Manager at NSG Group, said: "To have demonstrated at our Pilkington UK operation that carbon capture is indeed possible is a very exciting development and a key milestone in our decarbonisation technology journey, aiming towards our target of carbon neutral glass manufacture. It's been great to collaborate with the C-Capture and Glass Futures team in getting to this point, and we look forward to the further valuable learning we will gain from the rest of the XLR8 CCS project."

Tom White, CEO, C-Capture, said: "We are proud to announce a significant step on the path to net zero with the successful start of our carbon capture trial in the glass manufacturing industry. Carbon capture is an essential part of the raft of solutions that are urgently needed to tackle climate change. Currently though, barriers such as cost, technology maturity and compatibility within multiple industries, are preventing the widespread adoption of carbon capture.

"Based on a fundamentally different chemistry to other commercially available approaches, our next generation technology is an innovation in the carbon capture sector. It is lower cost and environmentally benign as it does not rely on the use of amines. It is also extremely robust and suitable for use in industries such as glass and cement which are essential to the economy but difficult to decarbonise, due to the high level of impurities in their flue gases. The advantages of C-Capture's approach mean it has the potential to break through the barriers that are currently preventing the widespread adoption of carbon capture and storage technology – and make a globally significant contribution to tackling climate change. The project is a huge step forward for these industries and a critical part of the route to net zero."

Minister for Energy Efficiency, Lord Callanan, said: "Carbon capture will play an essential role to decarbonise heavy industries and deliver on our ambitious climate goals.

"We've already invested nearly £350 million in the technology, including for this first ever carbon capture trial in the flat glass industry in Europe.

"This revolutionary test could transform carbon capture technology across polluting industries – representing a significant step in our transition to Net Zero."

Dr Masimba Toperesu, R&D Projects Lead at Glass Futures, said: "This European first for the glass industry is a monumental step toward implementing technology that will help the glass industry and our partners in other sectors to better understand CCUS. Through demonstrations on working industrial sites such as this, we will ultimately decarbonise these essential industries."

Azad Hessamodini, Executive President of Consulting at Wood, said: "Carbon capture plays a critical role in accelerating our journey towards net zero and we are focused on working with technology partners and clients to advance this journey at pace by creating solutions that are scalable, investable and deliverable. It has been incredibly rewarding for the team at Wood to apply our

decarbonisation expertise to bring a competitive carbon capture solution to reduce emissions in heavy and hard-to-abate industries. Together with the Department of Energy Security and Net Zero, C-Capture and the XLR8 CCS project partners, we share immense pride in what we've accomplished with the rollout of C-Capture's carbon capture technology and commencement of the first on-site trial."

Simon Willis, CEO of Heidelberg Materials UK, said: "Carbon capture is the only way to decarbonise cement production and essential if we are to reach net zero carbon by 2050. "Our Padeswood cement works in north Wales is already part of the HyNet North West carbon capture and storage project and our involvement with the XLR8 CCS project at our Ketton works is another example of our commitment to developing new technologies. "We will be following the Pilkington trial closely and look forward to starting our own in 2024 which, if successful, has the potential to be rolled-out at other sites across the Heidelberg Materials Group."

Ends

(*1) SBT Initiative (Science Based Targets Initiative):

A joint initiative of the CDP (formerly the Carbon Disclosure Project), the United Nations Global Compact, the World Resources Institute (WRI), and the Worldwide Fund for Nature (WWF), which encourages companies to set greenhouse gas reduction targets consistent with scientific findings in order to reduce climate change risks.

Sustainability Targets of NSG Group

NSG Group is committed to achieving carbon neutrality by 2050 after the revision of the SBT certification obtained in 2019 with the goal of CO₂ emission reduction by 2030, which was reviewed in 2021 and increased to 30% compared to 2018 and is working to achieve this goal. This new goal was certified by SBTi in May 2022, and we are promoting various activities to achieve a sustainable society and carbon neutrality in the future. About Sustainability Initiatives:

<https://www.nsg.com/en/sustainability>

About NSG Group (Nippon Sheet Glass Co., Ltd. and its group companies)

NSG Group is the world's leading supplier of glass and glazing systems in the business areas of Architectural, Automotive and Creative Technology. Architectural manufactures and supplies architectural glass as well as glass for the solar energy and other sectors. Automotive serves the original equipment (OE) and aftermarket replacement (AGR) glazing markets. Creative Technology comprises several discrete businesses, including lenses and light guides for printers and scanners, and specialty glass fiber products such as glass cord for timing belts and glass flake, and Fine Glass products. <https://www.nsg.com>

About C-Capture

- C-Capture develops next generation carbon capture technology to mitigate the impacts of climate change.
- Based on fundamentally different chemistry to current commercially available approaches, C-Capture's solution does not rely on the use of amines, offering a safer and less expensive alternative. It is extremely robust – with a high tolerance to impurities in industrial flue gases, including O₂, SO_x and NO_x. C-Capture's carbon capture technology is suitable for a wide range of applications - even challenging, hard-to-abate industries.
- The advantages of C-Capture's solution mean it has the potential to break through the barriers that are currently preventing the widespread adoption of carbon capture and storage technology – and make a globally significant contribution to tackling climate change.
- C-Capture was founded in 2009 as a spin-out from the Department of Chemistry at the University of Leeds. Investors include IP Group, Drax, BP Ventures and Northern Gritstone.
- Read more about C-Capture at www.c-capture.co.uk

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