Carbon credits are often generated on the basis that they contribute to climate change mitigation, such as stopping deforestation. Photograph: Mauro Pimentel/AFP/Getty Images

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Carbon offsetting

Carbon credit speculators could lose billions as offsets deemed ‘worthless’

Many credits in the voluntary market going unused, with study finding some offsetting could make global heating worse

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About this content

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Carbon credit speculators could lose billions as scientific evidence shows many offsets they have bought have no environmental worth and have become stranded assets.

Amid growing evidence that huge numbers of carbon credits do nothing to mitigate global heating and can sometimes be linked to alleged human rights concerns, there is a growing pile of carbon credits equivalent to the annual emissions of Japan, the world's fifth largest polluter, that are unused in the unregulated voluntary market, according to market analysis.

From Apple to Disney, Gucci to Shell, many of the largest companies in the world have used carbon credits for their sustainability efforts from the unregulated voluntary market, which grew to $2bn (£1.6bn) in size in 2021 and saw prices for many carbon credits rise above $20 per offset.

The credits are often generated on the basis they are contributing to climate change, mitigation such as stopping tropical deforestation, tree planting and creating renewable energy projects in developing countries. Proponents say they need to massively increase in size and scale to help meet the Paris agreement to limit global heating.

A Shell petroleum refinery off Bukom island in Singapore. Photograph: Roslan Rahman/AFP/ Getty Images

But repeated scandals about their true impact and a crackdown from regulators on claims of "carbon neutrality" have meant that demand and prices for offsetting have slumped, with signs that some carbon credit traders are writing off investments that would have been worth hundreds of millions of dollars as recently as last year.

In the US, the derivatives market regulator has issued a whistleblower alert relating to fraud and misconduct in carbon markets and has created a new environmental fraud taskforce.

"It's currently a buyer's market and buyers are, rightly, prioritising quality. There are over a billion tonnes of issued but not retired credits in the market – this suggests lots of credits can be written off, and there will remain a large supply for buyers to tap into," said Anton Root, head of research at AlliedOffsets, who said buyers were waiting for the final results of initiatives to improve carbon credit quality.

"A correction like that could help to orient the market toward fundamental supply-demand dynamics, which we don't currently tend to see, and drive up the price for credits that are deemed to be above the quality threshold," he added.

Hannah Hauman, a former oil trader who is now global head of carbon trading at Trafigura, the world's largest trader of carbon removal credits, said the current uncertainty was inherent in carbon markets.

"Coming from oil trading, it is strange to see units in carbon markets become invalid overnight. But I think it is in their nature to be constantly evolving with science. It is inherent in the asset class. As much as commodity traders want static, consistent policies for the long term, it is not what the energy transition actually requires. The carbon market needs to be progressive and contracts need to anticipate that," she said.

A new study in the journal Science has found that millions of forest carbon credits approved by Verra, the world's leading certifier, are largely worthless and could make global heating worse if used for offsetting.

An aerial view of a burning area of Amazon rainforest reserve in 2020. Photograph: Carl de Souza/AFP/Getty Images

The research by scientists and economists at the University of Cambridge and VU Amsterdam was one of the three studies used in a January investigation into rainforest offsets by the Guardian, Diet Zeit and Source Material. The Science study was used in a pre-print form while awaiting peer review, which it has since passed.

The analysis, published on Thursday, found that 18 big forest offsetting projects had produced millions of carbon credits based on calculations that greatly inflated their conservation impact. The schemes, which generate credits by avoiding hypothetical deforestation, were found not to reduce forest loss or to reduce it by only small amounts, far less than the huge areas they were claiming to protect, rendering the credits largely hot air.

The findings follow a 2020 study of 12 projects in the Brazilian Amazon by the same group, which found they had a negligible impact on stopping deforestation despite generating credits on the basis they were preventing large areas from being destroyed. A 2022 study of 40 Verra-approved projects led by University of Cambridge researchers found that while some projects did stop deforestation, most stopped none or small amounts.

Verra has strongly disputed the new study's findings but said it welcomed input from the scientific community and recognised there were areas for improvement in the current system. It was in the process of replacing its methodologies for generating credits, which should be released later this year.

Icebergs near Ilulissat. Climate change is having a profound effect in Greenland with glaciers and the ice cap retreating. Photograph: Ulrik Pedersen/NurPhoto/REX/Shutterstock

“This information is not new. We provided detailed feedback to the pre-publication version of this paper in a January 2023 technical review after it was covered by the media. Our initial analysis of this version indicates that, despite some minor changes, the overall methodology, results, and conclusions are the same – and, therefore, the significant concerns we flagged earlier this year still hold,” the group said.

In May, Verra’s longtime CEO stood down after concerns about the carbon credits.

The voluntary carbon market had already been experiencing falling prices. Hauman said that if governments could decide what counted as a Paris-compliant credits, that would provide greater certainty.

“The biggest question I get from customers is: where does this uncertainty end? They say they cannot meet their net zero commitment within their own decarbonisation path without carbon credits. One of the things that is going to give us much greater certainty is article 6 of the Paris agreement, which will define Paris-compliant carbon credits for the private sector alongside sovereign actors. We want to see the onus to be on the seller to deliver the agreed quality and that should help buyer confidence a lot," she said.