The Crypto Industry Was On Its Way to Changing the Carbon-Credit Market, Until It Hit a Major Roadblock

Reforestation at Yellowstone National Park. Getty Images

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Last year, the startup Toucan launched with a bold vision: it was going to use the blockchain to upend the entire carbon credits system. The traditional voluntary carbon market—in which polluting companies can pay for credits that fund emission-reducing efforts—was disorganized, archaic, and lacked incentives, Toucan's founders argued. By pushing carbon markets onto the blockchain—a public and decentralized database—they felt they could turbocharge the climate fight with crypto economics, provide a global

infrastructure data layer, and force polluting companies to either pay higher prices for carbon credits or seek more environmentally friendly approaches to their businesses.

And upend the system they did—though not necessarily in the ways that they hoped. Toucan's aim was to create infrastructure to facilitate the buying of carbon credits, which would be retired and then placed on-chain in the form of a new token. From there, the tokens would be stored publicly and safely, and could then be bought and traded like any other crypto asset, with the hopes of enticing prospective buyers who previously had no interest in the carbon credit world. And in October, millions of carbon credits started arriving on chain thanks to a campaign from another crypto environmental group called KlimaDAO. But many of them were attached to low-quality, long-dormant projects that didn't actually improve the environment, according to some scientists and watchdogs. Market prices swung wildly, causing mild panic among traditional carbon-credit issuers and buyers.

Now, after several months of deliberation, Verra, the primary carbon credits issuer and a standard-bearer for the industry, has taken a stand against Toucan's activity. On May 25, Verra announced it would ban the conversion of retired Verra credits into crypto tokens, which is Toucan's central mechanism. After just seven months, the first phase of the crypto's supposed carbon-credit revolution is over.

Verra did open the door for a potential new chapter of collaboration, in which only live Verra credits could be tokenized. This would give Verra greater control and oversight over the flow of credits throughout these new markets. But Robin Rix, the chief legal, policy, and markets officer at Verra, told TIME that while his organization definitely wants to scale up the carbon-credit market, it is now leaning towards trying to do so through bank-led initiatives, like Carbonplace, as opposed to crypto ones.

The decision will force Toucan and others to make a hard pivot in their operational models. Toucan's initial response about Verra's news was cautiously optimistic: it believes that Verra's actions show Toucan's outsize impact, and that despite Verra's rhetoric about preferring banks, Toucan will nonetheless somehow play a role in this next stage of innovation. Carbon credit

insiders, for their part, believe that while crypto carries long-term potential in the fight against climate change, many difficulties and obstacles stand in the way in the creation of a streamlined system that all parties are happy with.

“Both crypto and carbon are pretty complex and difficult—And when you put them together, it’s like difficulty squared,” says Ollie Gough, strategy lead for the carbon-rating startup Sylvera. “Mistakes have been made—and we’re waiting to see how it pans out.”

Streamlining a messy market

The voluntary carbon market was developed in the ‘90s as a means by which companies in industries ranging from air travel to banking to oil could, in theory, track and offset their CO2 emissions. The idea was to ascribe a specific cost of the environmental damage of CO2 emissions, and then enable companies to purchase carbon offsets, which were similarly cost-assessed based on their ability to reduce environmental damage. Those credits might be tied to a forestation project, say, or a new wind farm.

But three decades later, the carbon market is still largely unregulated and fragmented, with interested parties squabbling over criteria for inclusion and decision-making processes. Several studies have shown that the system has overvalued projects that have had little-to-no positive impact on the environment. One study from last year, for example, found that many forest-growing carbon-reduction projects in California systemically over-exaggerated their climate benefits. “I am continually underwhelmed by the quality we’re seeing,” Grayson Badgley, a co-author of that study and a research scientist at the climate nonprofit CarbonPlan, says. “I think there are a lot of low-quality carbon-offset projects that are out there, and I think their usefulness has been exaggerated.”

Crypto proponents believe the blockchain could be wielded to keep a streamlined public record of the whole system. The blockchain, for example, could help solve the problem of “double counting,” in which two parties claim credit for the same emission-reducing action.

Many members of the traditional carbon world were immediately intrigued. "It's important to understand how untransparent the markets are," Gough says. "This was really the first time ever you had some sort of indices roughly tracking the price at which the market was paying for carbon in a very public format."

Sweeping the floor

Toucan hoped that other crypto projects would build on top of its infrastructure. In October, an organization called KlimaDAO did just that, creating its own token, Klima, that could be acquired with Toucan's token, BCT, with the hopes of turning carbon credits into an in-demand market commodity. If crypto traders got involved and started investing in these tokens, KlimaDAO's team argued, they might drive the price of the credits up, forcing polluting companies to either pay for higher-priced, higher-quality carbon credits or find more energy-efficient production methods.

KlimaDAO's first approach was what they called "sweeping the floor," or rallying crypto enthusiasts to buy the cheapest carbon credits available via Toucan. (Cheaper credits are often attached to projects that the market has determined are of dubious environmental value, like Chinese hydropower dams.) The idea was to take all of the bad credits out of commission, so that only the better and more expensive ones remained. And crypto traders eagerly jumped in: in Toucan's first six months, more than a quarter of all carbon credits bought on Verra were done so via Toucan and transferred on-chain.

But there was one problem: most of these bad credits hadn't been in circulation for years, because established carbon credit buyers already understood their lack of worth. Because of their age, many of these credits weren't even eligible to be sold on some established trading markets. So instead, KlimaDAO's tokens created fake value for worthless carbon-credits, worsening the situation. Suddenly, dozens of old projects that were once deemed unsellable began to reemerge, taking advantage of a gold rush and offering themselves up to this new clientele.

"We aren't convinced that 'sweeping the floor' is doing anything but increasing churn in a market that needs fundamental reform, not new software platforms,"

Badgley and Danny Cullenward, policy director of Carbonplan, wrote on the non-profit's website in April.

The Toucan team, first excited by KlimaDAO's entrance, now watched with alarm as scientists and carbon credit issuers like Verra began to criticize or distance themselves from crypto carbon projects. "I do think that hype ultimately wasn't beneficial for everyone. It pushed expectations and prices into areas that made zero sense," Raphaël Haupt, co-founder of Toucan, says. "And it's really hard for an infrastructure provider like Toucan to suddenly have to play the police."

For months, the Toucan team debated on the best way to excise these bad credits from the system. In May, they finally changed their criteria to ban old, low-integrity credits. But the gaffe made clear the perils of a brash approach to a complicated problem.

Haupt argues that Toucan had no choice but to take an imperfect approach—and that by doing so, they were able to both galvanize the crypto world's interest while forcing issuers like Verra to adapt to their methods. "We don't see retirement as the right way of doing things, but it was the lack of a clear system that forced us to take this route," he said. "It was the first little door we could open to match the demand that exists right now."

Bigger problems with carbon credits

Toucan's efforts exposed some of the baseline flaws of the carbon market: the lack of a single standard of quality, and the likelihood that many sub-optimal projects end up being valued even if they aren't helping the environment. In 2020, Greenpeace even went as far as calling the entire system "a distraction from the real solutions to climate change," like actually reducing the emissions from fossil-fuel energy generation.

Gough, at Sylvera, says it's extremely difficult to establish a simple set of criteria for valuating carbon-offset projects because of all of the different factors in play. "You can try and do it by registry, age, or project type, but it doesn't work: You will let some things in of low quality, and you will cut out actually high quality stuff," he says.

This year, a carbon-offset task force of hundreds of companies and sustainability experts were forced to scale back their efforts because they couldn't agree on how to define a high-quality project.

Meanwhile, many carbon-reducing programs already set in motion have also raised questions about viability. A recent study by Kyla Mandel in TIME found that current reforestation plans would require nearly 1.4 million square miles to meet their goals, which is nearly half of the continental United States. Even if all those trees get planted, there's no guarantee of their long-term impact. "Trees can die, burn, or get chopped down," says Badgley, all of which immediately negate any CO2 offsetting they'd offered.

More crypto confusion

Environmentalists and carbon market experts are also concerned by the volatility crypto introduces into their efforts. So much of crypto markets is currently fueled by speculation: the desire for traders to make money fast on tokens that swing wildly in value. "If [carbon-offset] prices keep fluctuating as widely as some of the crypto assets have been fluctuating, that makes it difficult...to plan and develop" carbon-reduction projects, says Ben Rattenbury, vice president of policy at Sylvera.

In recent weeks, values have been depressed across the crypto world, and carbon crypto projects are no exception: As of writing, Toucan's BCT token is less than half of what it was in February, and KlimaDAO's token is a third of what it was in March. The number of credits coming on chain through those two projects has essentially grinded to a halt; with prices so low, there's very little incentive for people to enter the market. Haupt, at Toucan, says he's fine with this slowdown. "We're in the consolidation phase. We came out guns blasting more than we thought," he says. "We're building this long-term, and it's cool to have the opportunity to speak with different people on how they see the world and make sure we build a functioning system."

Toucan is far from the only player in this space. Since its launch last year, venture capital money has flooded into the space and a slew of new crypto carbon projects have been launched, each one jockeying for attention with what they argue is a unique twist or perspective. There's Chia, an independent

blockchain that's forged a partnership with the World Bank's Climate Warehouse; Flow Carbon, which is backed by WeWork founder Adam Neumann and just raised $70 million; Open Forest Protocol, Moss, and many more.

Some of the projects collaborate and are interoperable; others are not. Many players in the space expect that some sort of consolidation will happen, although there is little agreement on exactly how that might come to pass. "Now we have like a trillion carbon projects that all want to bring carbon to web 3 that all use their own tokens and are not compatible with each other," Haupt says.

And then there's the question of the climate harm of these blockchain projects themselves. In March, President Biden signed an executive order requesting research on the potential climate impact of digital assets, given the high energy costs of crypto mining. A letter written in response, penned by a climate-focused blockchain committee that included members of Toucan, conceded that "currently, Blockchains do have an energy problem," before pledging to make the entire crypto industry net-zero in terms of greenhouse gas emissions by 2040, in part by switching completely to renewable sources of energy. (Some critics are skeptical that this is an achievable goal.)

Verra halts Toucan's activity

Verra's decision to stop the tokenization of retired credits means Toucan's main activity will halt for the foreseeable future. Meanwhile, it's unclear what will happen to 22 million retired credits that have already been placed on chain, and whether they will be worth anything going forward. Both the Toucan and Klima tokens dropped severely in price following Verra's decision. The Twitter user who goes by Rez and is the head of protocol for the climate-crypto community Solid World DAO wrote on Twitter that Verra's announcement sent the climate-crypto markets "into a sort of existential limbo."

Crypto carbon proponents hope they will be able to help Verra build a new system of tokenizing "live" credits as opposed to retired ones. But Verra's legal officer Rix told TIME that Verra is leaning toward working with a project like Carbonplace, which was created by a consortium of banks including CIBC and UBS. Carbonplace has many similar aims to Toucan, including to scale and

organize carbon markets. But crucially, it operates on a closed, proprietary system, as opposed to the blockchain, which theoretically allows anyone to see its code, contribute to its governance processes, and build on top of it. Verra choosing a more centralized project like Carbonplace would also allow greater control over who buys credits; Rix expressed concern over crypto tokens being used for shady purposes like laundering money.

"Banks have sophisticated KYC [know-your-customer] processes in place. They're regulated entities," Rix says. "That strikes us as a very good model to follow and a way to work with credible leading financial institutions."

When asked if crypto projects could play a role in this next stage of development, Rix didn't rule it out, and said Verra would begin a public consultation process. "It doesn't have to be banks. It could be any entity that has sophisticated KYC checks and the infrastructure to be able to do this," he said. "But [banks] are probably the direction things are going."

Haupt, in an interview on Wednesday morning, held out hope that Toucan and other crypto entities would be involved moving forward. "Given the point we are in this climate crisis, I don't think restricting the amount of innovation you can have around this is the right way to go," he says. "I personally think this is unstoppable: I don't see a world in which only banks will have the monopoly over carbon."