What Are "Carbon Markets?" And Do They Work?

The logic behind carbon payments seems simple at first – pay farmers to adopt practices that sequester carbon by generating and selling credits representing that carbon to corporate buyers. But the reality is much more complicated when it's not clear if credits represent the pollution reductions that they claim to and corporations are able to corner credit sales.

Many major corporations have made pledges to reduce their net climate footprint. Where businesses cannot (or do not want to) change their practices to reduce their pollution, they can pay to reduce pollution elsewhere by buying carbon-offset credits. This "market-based" pollution-trading concept shares ideological roots with the regulatory cap-and-trade scheme, in which governments set a pollution limit (the cap) and issue pollution allowances that entities can use, sell, or buy (trade). The theory goes, trading in pollution credits can allocate scarce resources for more efficient environmental clean-up – it may cost less for a big polluter to pay someone else to reduce pollution elsewhere.

But unlike cap-and-trade and other regulatory carbon markets, which require corporations to comply with a shrinking pollution limit, so-called "voluntary" or private carbon-offset sales are not made to comply with regulation. Nor do offsets represent a scarce pollution allowance. Offsets can be generated from new projects claiming to reduce or remove pollution. There is no central commodities exchange for trading carbon offsets. Corporations voluntarily buy these offsets through a variety of exchanges and certification programs to make green marketing claims and meet internal climate goals of their choosing.

For now, most U.S. agricultural carbon offsets are sold through private exchanges and programs to corporate buyers. In some cases, agribusiness corporations recruit and pay farmers directly for adopting carbon-sequestering practices without going through any sort of exchange.

The generally regulation-averse agriculture industry has rallied behind the idea of paying farmers to help the planet by generating carbon offsets for corporate buyers. More than 175 organizations and companies endorsed legislation aimed at directing farmers toward the carbon-offset "green rush," called the Growing Climate Solutions Act. Legislators included a watered-down version of the bill in the 2023 Fiscal Year Omnibus Appropriations Bill. USDA has also invested in growing agriculture carbon-offset programs through its Climate Smart Commodities grants.

Proponents of agricultural carbon offsets extol the notion that they're harnessing the power of markets to match demand for pollution reduction with farmers that can be incentivized to sequester carbon for the right price. But upon closer inspection, these transactions lack many basic market mechanisms and can be cornered by corporate buyers.

For one, some of the carbon-offset programs run by the largest agribusiness corporations exist outside any kind of carbon-offset exchange where buyers bid for credits. Bayer and Cargill both unilaterally set the price they'll pay farmers for adopting no-till or cover crops and claim any generated credits, which they can then sell to other buyers or keep to meet their corporate emissions reduction goals. This gives Bayer and Cargill power to determine how much they want to pay for greenwashing marketing claims and denies farmers any semblance of a fair price for their offsets determined through supply and demand.

But even when farmers do sell their offsets on more competitive and open exchanges, the product that they're selling doesn't meet the standards for a tradable commodity. Carbon offsets are anything but standard and fungible like a bushel of corn or barrel of oil. Their value and price rely entirely on the offset's perceived (not actual) integrity: does the buyer believe that this credit *actually* represents the total tons of carbon that it claims to? Offset integrity is challenging to ascertain and depends on the measurement and verification standards of the project and certification that generated the credit.

The sheer number of certifiers and lack of strict standards amid scientific uncertainty allows for many phony or imprecise credits to enter the market. A University of California Berkeley research fellow, Barbara Haya, told *Grist* that it is "mind-bogglingly difficult to find high-quality offsets."[32] An independent review of more than 100 projects globally found that 90 percent of the projects failed to offset as much as they claimed, were not permanent, or came with damaging side effects for local communities or ecosystems.[33] A 2017 report by the European Commission estimated that 75% of the carbon credits in the EU's carbon trading system had a low likelihood of reducing emissions.[34] In California, exploitable carbon-credit protocols have actually led to an increase in carbon emissions.[35]

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Because of these validity concerns, U.S. agriculture carbon-offset sales have struggled to take off in the past. Most notably, in 2012 the U.S.'s predominant voluntary carbon-credit exchange, the Chicago Climate Exchange (CCX), collapsed due to insufficient demand for credits and credibility concerns. Without standardized measurement or verification methods, traders on the CCX were able to claim bogus carbon credits. The value of carbon credits became unclear, the intangible commodity became meaningless, and the price plummeted.

Today, there is much more demand for carbon credits. McKinsey estimates that demand for carbon offsets will increase fifteenfold over the next decade and the market for carbon credits could reach more than $50 billion.[36] However, while proponents argue that standards are much stronger than in 2012 or when the European Commission studied offsets in 2017, significant credibility issues remain. A 2021 study by the Environmental Defense Fund and Woodwell Climate Research Center of 12 protocols for measuring

and evaluating soil organic carbon found such wide variation between protocols that it "run[s] the risk of creating credits that are not equivalent or even comparable."[37] Without basic market mechanisms for price discovery and transparent, agreed-upon value, carbon offsets remain rife for speculation and volatility.

The Growing Climate Solutions Act, or "Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Program," will attempt to increase confidence in companies working to facilitate farmer participation in carbon markets by listing protocols for measuring carbon sequestration and companies with whom farmers or forest owners can work to generate and sell carbon credits on USDA's website. This might sound like a regulation, but it's not. To be listed on USDA's website, businesses need to share some basic information about how they measure and certify credits and "maintain expertise" in carbon-verification protocols. But they do not need to comply with any set measurement techniques or carbon modeling.

At the same time, Congress also included the SUSTAINS Act in the 2023 Fiscal Year Omnibus Appropriations Bill. This bill will allow USDA to accept "contributions of private funds for the purpose of addressing the changing climate, sequestering carbon, improving wildlife habitat, protecting sources of drinking water, and addressing other natural resource priorities identified by the secretary."[38] Most relevant to soil carbon markets, the bill also specifies that a corporation contributing to USDA may specify which practices to fund and prescribe the terms for ownership of the corporation's share of environmental service credits resulting from practices the corporation paid for. In other words, corporate sponsors get a cut of any carbon credits generated with the help of their donations.

The bill opens the door for private carbon market schemes to rope farmers and foresters into restrictive contracts under the banner of NRCS Conservation programs. USDA will even be tasked with advertising such opportunities. While the version of the Growing Climate Solutions Act included in the Omnibus may have removed explicit USDA-certification of private carbon schemes, the SUSTAINS Act goes a step in the opposite direction. Private carbon schemes will essentially, through a grant to USDA, be considered government programs themselves.

Lending such legitimacy to fledgling soil carbon-offset schemes could influence their value in voluntary exchanges and potentially prime agricultural offsets for use in regulatory compliance markets, like California's cap-and-trade exchange, where the stakes are higher. All told, legislative provisions that will boost agricultural carbon markets do not police existing markets and transactions and would fan the flames of a speculative industry that stands to divert resources from effective pollution reduction and regulation.

Ultimately, carbon market evangelists claim they've found a win-win solution to allocate scarce resources towards the most cost-effective pollution reductions. In reality, voluntary carbon trading diverts resources into speculative offsets with no standard value that, on the whole, overpromise and under-deliver. Absent regulations, polluters can buy cheap cover to keep polluting while emissions may not decrease at all.

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Promoting voluntary carbon markets also lets private entities define what qualifies as "climate-smart" agriculture. As more dominant seed and agrichemical companies get into the business of paying farmers for carbon sequestration these harmful actors will devise carbon payment programs that put their profits above the public interest. The extensive surveillance and data collection required to verify carbon credits paired with long-term contracts also introduce new avenues for corporations to entrench power and corner markets.