

Some Thoughts on Carbon Offsets

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Brian McCartan, of the Sustainability Action Plan Executive Committee, proposed a decision matrix to guide our larger carbon offsets policy.

He identified three policy tools – the offset market, UW’s own offsets, and UW climate-friendly investments – and a set of questions to be asked of each of these three tools. Here are the questions:

How does it work?

How “pure” is the offset?

How is it best used? For what type of project?

What is the scale? How many emissions could be offset?

What is the time to develop/ execute?

What are examples, first up projects?

I believe all these questions are important. I want to look at the second question as applied to the offset market. (Some of the discussion may touch on other questions.) I shall rephrase the question as follows: Are carbon offsets, as made available on the offset market, genuine offsets? I believe that the answer is: generally no. Because of this, I believe that the University of Washington either should not use the offset market as part of its decarbonization strategy at all, or should use market offsets only subject to very stringent selection criteria. However, there may be practical obstacles to implementing selection criteria with the necessary degree of stringency. In that case, I believe we should avoid using market offsets, meaning that market offsets should not be used to lower the reported emissions reductions of the University of Washington, its units, or personnel. Instead, I believe UW should focus efforts on incentivizing and investing in efforts that directly reduce emissions.

I first discuss problems with the offsets market, and then look at two possible alternatives. One is to adopt a system of carbon fees and climate investments that are not used to offset the UW’s reported greenhouse gas emissions. Another is to develop UW-initiated offsets and/or develop a portfolio of market offsets selected by the UW according to strict criteria. This latter alternative is modeled on the [University of California’s carbon offsets policy](#).

The idea of carbon offsets (lowering one's net greenhouse gas emissions by paying others to reduce their actual emissions or to remove greenhouse gases from the atmosphere) has been around for a long time. The 1997 Kyoto Protocol incorporated offsets in the form of the Clean Development Mechanism. A voluntary market in carbon offsets has grown as companies and institutions try to demonstrate that they are lowering their net greenhouse gas emissions. They enter the market as buyers, typically in search of carbon offset projects at the lowest price, other things equal.

Offsets have never been free from controversy. But new information, including some major pieces of investigative journalism published earlier this year, has raised awareness of fundamental problems with carbon offsets.

Problems with offsets

The problem can be boiled down to this. Many carbon offsets are not genuine offsets – they do not achieve the claimed greenhouse gas reductions – and from the outside, it is difficult to distinguish “cheaters” from “innovators” (non-genuine from genuine offset projects). This benefits the “cheaters,” since they can dishonestly promise emission reductions at a lower price.

It is now generally understood that carbon offsets are susceptible to the following problems.

- **Impermanence:** Reductions are avoided only temporarily.
- **Delay:** Reductions take effect only gradually, while the emissions they “offset” are occurring right now.
- **Non-additionality:** The reductions would have occurred anyway; in other words, purchasing the offset did not alter behavior.
- **Inaccurate baseline:** Reductions are measured against an inflated baseline of emissions in the absence of the offset.
- **Leakage:** The emitting behavior is diverted elsewhere.
- **Perverse incentives:** The emitting behavior could and should be banned by laws or regulations, but an offsets market incentivizes influential actors to oppose the adoption of such laws or regulations.
- **Non-verification:** Factual claims made by carbon offset providers cannot be confirmed.

These are formidable problems, more difficult to solve than may appear. Carbon offset providers claim to address them. But research shows that they often fail to do so.

Several studies have appeared in peer-review scientific journals revealing the persistent unreliability of carbon offset projects. An example is Barbara Haya , Danny Cullenward , Aaron L. Strong , Emily Grubert , Robert Heilmayr , Deborah A. Sivas & Michael Wara, "Managing uncertainty in carbon offsets: insights from California's standardized approach, *Climate Policy* (2020)." The authors review California's attempt to implement a reliable offsets program and conclude that it fell short of success: "Relying on carbon offsets to lower compliance costs risks lessening total emission reductions and increases uncertainty in whether an emissions target has been met." Another example is Thales A.P. Westa, Jan Börner, Erin O. Sills, and Andreas Kontoleon, "Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon," *Proceedings of the National Academy of Sciences* 117 (2020). The authors find a systematic pattern of inflated emissions baselines in forest carbon offsets in the Brazilian Amazon. (Forest offsets are the largest category of carbon offsets.)

Investigative reporting has revealed a systematic pattern of fictional, inflated, or questionable carbon offset projects. Several reports have been published over the years, including some major pieces last spring and summer.

In May 2021, Lisa Song and James Temple published a [deeply researched article](#) in *ProPublica* and the *MIT Technology Review*. The article's opening example is a payment of \$6 million by the state of California to the Massachusetts Audubon Society in exchange for a promise not to cut down forest land it presumably didn't intend to cut down anyway. The offset purchase allowed California to claim a fictional reduction of 600,000 tons of carbon dioxide emissions. The article links this example to a broader pattern of dubious transactions in the offsets market.

Also in May 2021, Patrick Greenfield [published an article](#) in *The Guardian* based on a joint investigation by *The Guardian* and Greenpeace showing a systematic pattern of inflated greenhouse gas reductions associated with forest offset projects purchased by major airlines and verified by the world's leading carbon credit standard, Verified Carbon Standard.

In July 2021, James Temple published a [subsequent article](#) in the *MIT Technology Review* with additional information about the problem of unreliable or inflated carbon offset projects.

CarbonPlan is a non-profit climate research group that has spent years studying carbon offset projects. Its findings provided some of the material for the Song and Temple article mentioned above. It undertook a [comprehensive investigation](#) of California's forest carbon offsets programs and found a systematic problem of inflated credits: "Our analysis of crediting errors demonstrates that a large fraction of the credits in the program do not reflect real climate benefits. The scale of the problem is enormous: 29% of the offsets we analyzed are over-credited, totaling 30 million tCO_{2e} [carbon tons] worth approximately \$410 million."

A deeply researched written by Lisa Song with Paula Moura for ProPublica in May 2019 provides [substantial additional evidence](#) that carbon offsets do not live up to their promises.

A [February 2020 essay](#) by Tufts University economist Parke Wilde summarizes several difficulties with carbon offsets.

For an even more critical perspective, see this [April 2012 essay](#) by climate scholar Kevin Anderson, published in *Nature*.

In recent years, many acres of forest land supposedly preserved through carbon offset purchases have been destroyed by fire. [As reported by the New York Times](#) in August 2021, "An estimated 153,000 acres of forests that are part of California's carbon-offset project have burned so far this summer, according to CarbonPlan, a nonprofit climate-research organization." The fires are in most cases caused by climate change, and in turn contribute to it. They negate the greenhouse reductions promised in the carbon offset programs.

There is no practice of retroactively correcting recorded greenhouse reductions when offset projects prove ineffective because of forest fires or for other reasons.

Alternatives to carbon offsets offered on the voluntary market

One policy could be to apply a tax or fee to the UW's greenhouse gas generating activity, and then use the revenues to support investments that benefit the climate, whether through mitigation, adaptation, or compensation to victims of climate

change. The fee could be set to the [social cost of carbon](#), or at a lower or higher level. The UW could implement a variable fee, or institute voluntary fees, in at least some cases.

This approach is similar (if not identical) to an “expenditure model,” which was recommended to us in our conversations with Danny Cullenward, policy director for CarbonPlan.

Reasons in favor of this approach: A fee or tax can act as a disincentive to greenhouse gas-emitting behavior. It can raise awareness of the climate costs of such behavior. This approach frees up the UW to invest money in what it considers the best way to combat climate change or alleviate the harms of climate change without the need to estimate actual greenhouse gas reductions. It avoids the temptation to game the system by means of inflated or speculative estimates of greenhouse gas reductions. It maintains the pressure on the UW to reduce its own (more directly measurable) greenhouse gas emissions.

Climate investments could include the already existing UW’s Green Revolving Fund or projects that directly reduce UW’s use of fossil fuel, such as installation of solar panels across campuses.

An attraction of an investment model is the fact that there are many outstanding climate projects throughout the world. Study of carbon offsets shows that many (if not all) of the projects supported via offset purchases are genuinely good projects, even if they do not deliver the promised reduction in greenhouse gases. This double lesson emerges vividly in [a lengthy article](#) written by Stephen Stapczynski, Akshat Rathi, and Godfrey Mawarawanyika for *Bloomberg* in August 2021 with the title “How to Sell ‘Carbon Neutral’ Fossil Fuel That Doesn’t Exist.”

Another alternative is to develop UW-initiated offsets and/or develop a portfolio of market offsets selected by the UW according to strict criteria.

The University of California has adopted a carbon offsets policy [along these lines](#). It is not clear to me that the UW has the personnel and resources to adopt such a policy. At least, mounting such an effort will require a lot of effort and time before we can get started. One possibility is for us to hitch our policy to that of another university (such as the University of California) or a university consortium, if we have reason to trust the rigor of their carbon offsets program.

One question is whether we should consider purchasing market offsets at all, even when rigorously screened. The two climate scholars we spoke to, Danny Cullenward, policy director at CarbonPlan, and Barbara Haya, a research fellow at UC Berkeley, divided on this question. In our July 30 meeting, Cullenward stated his view that there is an extremely short supply of high-quality verifiable carbon offset projects, certainly at a price that most institutions consider reasonable. In our August 10 meeting, Haya said that the jury may still be out on this question and that there is value in undertaking the work to rigorously measure the effectiveness of actual offsets programs, so that the public has a clearer picture of the facts and is deterred from abusing the concept of carbon offsets.

One terminological note. The term “high quality offsets” is often used in these discussions. As an alternative, we might consider the term “genuine offsets” or “verifiably genuine offsets” as a way to commit ourselves to stricter selection criteria and thereby ensure that we do not publish inflated net emission reduction figures that deceive the public and ourselves. But this might depend on the details of our offsets policy.

Safeguards

If we decide to use offsets, whether UW-initiated or rigorously screened market offsets, we might consider some additional safeguards.

One safeguard might be that when we purchase rigorously screened market offsets, we purchase them at a 1.5/1 or 2/1 ratio as a safety buffer.

Another safeguard would be to check up on previously purchased offset projects, and adjust our reported net emissions reductions if events diverge from predicted greenhouse gas reductions – for example if a carbon offset forest is destroyed by fire. (Conceivably, we could increase our reported emissions reductions if offsets prove more successful than predicted.)

If the UW decides to use offsets, it should adhere to the following values.

Design and oversight by qualified experts. Those in charge of designing, overseeing, and evaluating a carbon offsets policy should have the education, expertise, and technical preparation needed for this task. At the least, they should take the necessary time to thoroughly educate themselves about the complexities of carbon offsets.

Transparency. The University of Washington should be maximally transparent about its carbon offsets policy. It should publish full and detailed information about its general policy and the particular offsets it has purchased. It should respond promptly and fully to questions from the public. If it doesn't know the answers to certain questions, it should say so.

Continuing Evaluation. There should be a policy to continually monitor the performance of the UW carbon offsets policy, including the performance of specific offset programs. There should be a formal re-evaluation policy, rigorously carried out at frequent intervals.

Flexibility. The University of Washington should be prepared to change its policy quickly in light of new information revealing problems with existing policies and purchased offsets or superior alternatives. This is an area where we are all learning fast, so we should be ready to adapt quickly. Necessary changes should not be delayed but carried out promptly.

Non-defensiveness. The University of Washington should not make it a goal to justify past choices, but should acknowledge and correct mistakes as often as needed.