



CARBON
DIRECT

(carbon)plan

Berkeley Carbon Trading Project

January 5, 2021

RE: Comments on the Initial Recommendations of the Taskforce on Scaling Voluntary Carbon Markets (TSVCM)

Dear Taskforce members and funders,

Carbon Direct and CarbonPlan are new organizations dedicated to scaling the deployment of high-quality removal and safe storage of carbon. At the core of both organizations are teams of scientists with expertise in both natural and engineered carbon removal solutions, carbon accounting, and carbon markets, working to ground-truth the effectiveness of carbon removal projects and the quality of carbon offset projects. Carbon Direct is a for-profit organization that also brings deep experience in commodity market investments, structuring commodity derivatives, and establishing new versions of commodity products; CarbonPlan is a non-profit organization focused on scientific integrity and transparency in climate solutions. Both organizations were founded to address the urgency of scaling effective carbon removal, with the belief that voluntary payments can meaningfully support that expansion, yet concerned that the poor quality of offset credits available today undermines these goals and climate action more generally. The Berkeley Carbon Trading Project at the University of California, Berkeley's Goldman School of Public Policy is dedicated to researching the quality of carbon offset projects, protocols, and programs, and to supporting high-quality offset programs.

We support the goals of the TSVCM in addressing the identified “pain points,” which limit the voluntary carbon market's support for effective climate change mitigation. We reviewed the Taskforce blueprint carefully and offer one core suggestion for redirecting the Taskforce's efforts so that its outcomes support, rather than undermine, our shared goals: **We strongly recommend that the Taskforce shift its focus to improving the quality of traded credits, and only take action to scale voluntary carbon markets after quality has improved substantially.**

Below, we explain why offset quality problems have persisted, are challenging to address, and must be addressed as a prerequisite to scaling the voluntary carbon market, drawing on our combined experience with carbon markets and commodity markets. We then offer specific recommendations for actions the Taskforce can take to build a voluntary offset market that supports climate change mitigation with credits representing high-certainty carbon benefits.

Offsets quality on today's market is poor

It is clear to us that the biggest obstacle to scaling effective carbon markets is poor offset quality. Quality is central because conventional carbon offsets are designed to *trade*, rather than increase, climate benefits. When offset credits are purchased to meet emissions targets, to offset lifestyle

decisions, or in lieu of supporting other climate efforts, credits that represent less than their claimed climate benefits can reduce climate action relative to what would have happened without the offset program. For this reason, quality matters tremendously.

The following quality factors have led to systematic over-crediting. By quality, we focus here on whether the traded credits reflect additional, verified, long-lived reduction or removal of CO₂-equivalent with a high degree of certainty. Assurance that carbon projects do not harm local communities or ecosystems is equally important, but we focus our discussion on the primary claim of climate benefits.

- **Additionality/Baselines** - Non-additionality is perhaps the most pervasive cause of low-quality offsets. Offset credits, to be valid, must be generated by reductions that are *in addition* to what would have happened without the offset program. Analysis of the world's first major offset program, the Kyoto Protocol's Clean Development Mechanism (CDM), finds that 85% of credits are unlikely to be additional.¹ Other studies on the CDM also find high rates of non-additional crediting.² Additionality remains a persistent challenge for second generation offset protocols³ and for new policies and programs meant to support climate change mitigation through offsets.⁴
- **Leakage** - Leakage occurs when an offset project shifts emissions elsewhere. This can happen, for example, when a project reduces timber harvesting, which leads to increased (leaked) timber production elsewhere to meet demand. Leakage assessments have proven to involve high levels of uncertainty. Protocols use coarse assumptions to attempt to account for this leakage that have led to systematic over-crediting. In the United States, improved forest management projects have generated approximately half of total compliance and voluntary offset credits, but

¹ Martin Cames et al., "How Additional Is the Clean Development Mechanism?" (Berlin, 2016), https://ec.europa.eu/clima/sites/clima/files/ets/docs/clean_dev_mechanism_en.pdf.

² Barbara Haya, "Carbon Offsetting: An Efficient Way to Reduce Emissions or to Avoid Reducing Emissions? An Investigation and Analysis of Offsetting Design and Practice in India and China" (Berkeley, (Doctoral dissertation) Energy & Resources Group, University of California, 2010), <https://escholarship.org/content/qt7jk7v95t/qt7jk7v95t.pdf>; Gang He and Richard Morse, "Addressing Carbon Offsetters' Paradox: Lessons from Chinese Wind CDM," *Energy Policy* 63 (2014): 1051–55, <https://doi.org/10.1016/j.enpol.2013.09.021>.

³ Barbara Haya et al., "Managing Uncertainty in Carbon Offsets: Insights from California's Standardized Approach," *Climate Policy*, June 29, 2020, 1–15, <https://doi.org/10.1080/14693062.2020.1781035>; Ben Elgin, "These Trees Are Not What They Seem: How the Nature Conservancy, the World's Biggest Environmental Group, Became a Dealer of Meaningless Carbon Offsets," *Bloomberg Green*, December 9, 2020, <https://www.bloomberg.com/features/2020-nature-conservancy-carbon-offsets-trees/>; Ben Elgin and Zachary Mider, "The Real Trees Delivering Fake Corporate Climate Progress: GreenTrees Says It's Fighting Climate Change by Reforesting Thousands of Acres. But It's Taking Credit for Other People's Trees.," *Bloomberg Green*, December 17, 2020, <https://www.bloomberg.com/news/features/2020-12-17/the-real-trees-delivering-fake-climate-progress-for-corporate-america>; Joshua Emerson Smith, "California's carbon-credit market often pays for greenhouse gas reductions that would've happened anyways," *The San Diego Tribune*, October 7, 2018, <https://www.sandiegouniontribune.com/news/environment/sd-me-carbon-credits-20180917-story.html>.

⁴ Carsten Warnecke et al., "Robust Eligibility Criteria Essential for New Global Scheme to Offset Aviation Emissions," *Nature Climate Change* 9, no. 3 (March 1, 2019): 218–21, <https://doi.org/10.1038/s41558-019-0415-y>.

35-82% of credits generated by these projects are understood to be in excess of the projects' actual effect on emissions due to lenient leakage accounting methods.⁵

- **Durability/Permanence** - The character and durable nature of carbon storage is of particular importance because many offsets trade one form of carbon (fossil fuels, whose stability if unburned is guaranteed and whose carbon content is certain) into other, less stable forms (often aboveground biological stocks including forests, where physical reversal risk from natural or anthropogenic disturbances can be high or unknown). Estimating and accounting for the risk of reversal involves substantial uncertainties, especially when the effects of climate change itself are considered.⁶
- **Increases in Emissions** - Offset program incentives can inadvertently increase emissions. These “perverse” incentives or outcomes have to be carefully monitored and avoided. For example, Coal Mine Methane offset projects in the United States have created a number of incentives that inadvertently increase emissions. Perhaps most consequentially, the protocol created a disincentive for the US federal government to directly regulate coal mine methane on federally owned lands.⁷ As a second example, significant uncertainty remains as to the degree to which cooling benefits of sequestered carbon in biological carbon stocks are partially or fully eroded by a combination of changes to landscape albedo and emissions of non-CO₂ warming substances.⁸ These effects are not accounted for by current offset protocols. Concerted effort is needed to avoid or account for such effects in offset protocols.

The project type with the largest share of offset credits on the market to date is Reducing Emissions from Deforestation and forest Degradation (REDD+). Studies on the outcomes of REDD+ projects document little actual climate benefit, concerns which have not been addressed by a shift to jurisdictional approaches.⁹ Reasons for poor quality offset credits include most of the factors described above—additionality, baselines, leakage, and durability/permanence.¹⁰ REDD+ projects, whether project-based or jurisdictional, also involve a relatively high risk of harm to forest communities largely

⁵ Barbara Haya, “The California Air Resources Board’s U.S. Forest Offset Protocol Underestimates Leakage” (University of California, Berkeley, 2019), https://gspp.berkeley.edu/assets/uploads/research/pdf/Policy_Brief-US_Forest_Projects-Leakage-Haya_4.pdf.

⁶ William R.L. Anderegg et al., “Climate-driven risks to the climate mitigation potential of forests,” *Science*, 368, eaaz7005 (2020), <http://doi.org/10.1126/science.aaz7005>.

⁷ Barbara Haya et al., “Managing Uncertainty in Carbon Offsets: Insights from California’s Standardized Approach,” *Climate Policy*, June 29, 2020, 1–15, <https://doi.org/10.1080/14693062.2020.1781035>.

⁸ Gabriel Popkin, “How much can forests fight climate change?,” *Nature*, January 15, 2019, <https://www.nature.com/articles/d41586-019-00122-z>

⁹ Christopher Martius et al., “Chapter 2. Pathway to Impact: Is REDD+ a Viable Theory of Change?,” in *Transforming REDD+: Lessons and New Directions*, ed. A. Angelsen et al. (Center for International Forestry Research (CIFOR), Bogor, Indonesia, 2018), 17–28, <https://doi.org/10.17528/cifor/007045>; Lisa Song, “An Even More Inconvenient Truth: Why Carbon Credits for Forest Preservation May Be Worse Than Nothing,” *ProPublica*, May 22, 2019, <https://features.propublica.org/brazil-carbon-offsets/inconvenient-truth-carbon-credits-dont-work-deforestation-redd-acre-cambodia/>; Norwegian Office of the Auditor General, “Study of Norway’s International and Forestry Initiatives” (Oslo, Norway: Norwegian Office of the Auditor General, May 15, 2018), <https://www.riksrevisjonen.no/globalassets/rappporter/no-2017-2018/klimaskogsatsing.pdf>.

¹⁰ Thales A.P. West et al., “Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon,” *Proceedings of the National Academy of Sciences*, 117, 24188-94 (2020), <http://doi.org/10.1073/pnas.2004334117>.

because of ways that new forms of funding play out in the context of large disparities in power and wealth and competing interests in the use of forest lands.¹¹

Improving offset quality is challenging

Solving the quality challenge is not easy. Significant uncertainty is inherent to estimating emissions reduced or removed by many types of carbon projects because emissions reductions and removals must be estimated against a counterfactual scenario that never happened. For example, forest offset projects need to be able to convincingly answer the following questions:

- Does the offset program actually change the way forests are managed (*additionality*)?
- How would the forest have been managed without the financial incentive from offsets (*baselines*)?
- What would have happened with timber production at other forests in the absence of this project (*leakage*)?

The challenge is that none of these questions can be answered by directly observed evidence; they can only be estimated and inferred, often alongside complex uncertainties about the durability of biological carbon storage and effects outside of project boundaries.

Uncertainty in all of these factors—additionality, baselines, leakage, durability, and effects outside of project accounting boundaries—poses technical and political challenges that offset program administrators have not overcome over twenty years of carbon offsetting.¹² Several factors work together to translate uncertainty into poor quality offset programs. High levels of uncertainty mean that any set of eligibility criteria or emissions reduction methods leads to large quantities of false positives (worthwhile projects unable to participate) and/or large quantities of false negatives (over-crediting). Administrators make decisions about project eligibility and carbon accounting approaches under political pressure by both buyers and sellers of offsets that benefit from lenient rules and more trading. In voluntary markets, registries writing offset protocols benefit financially from larger but lower-quality markets, as do many of the experts who participate in protocol development stakeholder workgroups.

Uncertainty also leads to moral hazard. Even when baselines and eligibility are conservative, those participants that need to make the fewest changes—or no changes at all (a scenario that generates non-additional credits)—are the first to participate because they gain the most from participation. For example, even if baseline carbon stocks are set conservatively for improved forest management

¹¹ Adeniyi P. Asiyani, “A Political Ecology of REDD+: Property Rights, Militarised Protectionism, and Carbonised Exclusion in Cross River,” *Geoforum* 77 (December 2016): 146–56, <https://doi.org/10.1016/j.geoforum.2016.10.016>; A. Larson and Jesse Ribot, “The Poverty of Forestry Policy: Double Standards on an Uneven Playing Field,” *Sustainability Science* 2, no. 2 (2007): 189–204, <https://link.springer.com/article/10.1007%2Fs11625-007-0030-0>; Betsy A. Beymer-Farris and Thomas J. Bassett, “The REDD Menace: Resurgent Protectionism in Tanzania’s Mangrove Forests,” *Global Environmental Change* 22, no. 2 (2012): 332–41, <https://doi.org/10.1016/j.gloenvcha.2011.11.006>.

¹² See Chapter 5 in Danny Cullenward and David G. Victor, [Making Climate Policy Work](#) (Polity Press, 2020).

projects, those landowners that already hold carbon stocks greater than the baseline will have the least to lose and the most to gain from participating.

Uncertainty, and the complex and interdisciplinary nature of performing quality assessments of offset protocols, mean that surprisingly few studies have been published assessing offset quality given the importance of the market. They also mean that findings depend heavily on assumptions about the future and definitions of quality.

This combined set of challenges has resulted in offset protocols that lean towards inclusiveness and generate many more credits than they do actual reductions and removals. We believe that it is important for the Taskforce to be aware of this set of challenges and take conscious steps to overcome them in their work program, such as by implementing the recommendations we list in the last section of this comment letter.

Offset credits are differentiated products, not ready to be traded as commodities

Other commodity markets identified by the Taskforce (e.g., corn, oil) have only superficial similarities to the voluntary carbon market developments described. In these conventional commodity markets, trading is effective because the commodities are fungible and are bound by both geographic and temporal arbitrage. Crude oil delivered in the United States over time is connected to crude oil in Europe and Asia by the cost of freight and logistics as well as the cost of storage. While certain refiners are geared towards processing specific grades of crude, the interchangeable nature of the commodity allows for a well functioning global market.

We fail to see the comparison to today's voluntary carbon market since quality varies tremendously across protocols and projects. Offset credits are highly differentiated products in terms of the benefits they provide and the certainty of those benefits. Developing the standards and processes that will improve quality substantially will take effort and time. Therefore, the voluntary offset market does not yet lend itself to commodification as envisioned by the Taskforce.

Market integrity in commodities markets is maintained by regulatory bodies. Penalties for market manipulation and false trading signals are punishable by fine, exclusion from the ability to trade the market, and even criminal penalties. Even if voluntary markets were to have such a referee as the Taskforce envisions, subjecting a commodified carbon credit's claim of "one ton of CO₂-equivalent reduced or removed" to the same degree of scrutiny that is applied to typical commodities would be extremely difficult, and likely eliminate the majority of credits.

Treating carbon offsets as a commodity too soon will weaken the market, leading to less, not more, climate change mitigation. Given the wide range of offset quality today, buyers concerned about quality have no choice but to identify high-quality offset credits themselves. They can do this by conducting

their own due diligence on individual projects, identifying organizations they trust, or participating in new project development. Each of these approaches is time- and resource-intensive; the fact that buyers that care about quality have to pursue them is a reflection of a market failure. A market approach that strips away project details and trades offsets as a commodity with categorized attributes discourages the careful vetting and relationship-building that, although bespoke and expensive, is a critical driver of higher quality offsets on today's voluntary market. Treating offsets as a commodity means that the floor level of quality defacto becomes the ceiling for each exchange subcategory since most quality information is obscured and credits are treated as the same.

Over time, we do see opportunities for offset markets to learn from commodity markets, but only after a significant reevaluation of offset quality and standards. Developing a market trading mechanism in advance of appropriate safeguards for quality would cripple this important effort.

Recommendations for the Taskforce

Recognizing the urgency and importance of substantially improving the quality of voluntary market offset credits and the formidable challenges to doing so, we offer the following recommendations for redirecting the Taskforce's approach.

Focus first on quality

A small but growing body of literature has developed methods for assessing carbon offset quality. The body tasked with assessing protocols against the Core Carbon Principles (CCPs) should base their assessments on the latest science. Quality assessments at a protocol level involve analysis of over- and under-crediting such as described in Haya et al. 2020 and Bento, Kanbur, and Leard 2016.¹³ This analysis should assess protocol methods for addressing additionality, baselines, leakage, full carbon accounting, durability, and other effects outside of project boundaries including perverse incentives. Protocols would only be accepted if the credits each generates do not exceed its actual additional climate benefit across the full portfolio of participating projects with a high degree of confidence given uncertainties. Under this approach, any over-crediting—such as due to the participation of non-additional projects, the application of a standardized baseline to individual projects, or the effects of perverse incentives—should clearly and explicitly be counterbalanced by sources of under-crediting, such as beneficial emissions impacts that are not accounted for under the protocol. These reviews and quality assessments should be revised periodically, drawing from the latest published research, and adapting to market, technology, and industry changes.

¹³ Barbara Haya et al., "Managing Uncertainty in Carbon Offsets: Insights from California's Standardized Approach," *Climate Policy*, June 29, 2020, 1–15, <https://doi.org/10.1080/14693062.2020.1781035>; Antonio Bento et al., "On the importance of baseline setting in carbon offsets markets." *Climatic Change*, (2016) 137(3), 625–637. <https://doi.org/10.1007/s10584-016-1685-2>.

Using this approach, protocols would be considered high quality if they credit project types that (1) are not going forward on their own, such as most direct air capture, or (2) are already occurring to a small extent, but offset income is expected to make a significant change in new project development and sources of under-crediting under the protocol clearly outweigh possible non-additional crediting.

Who assesses carbon offset quality matters. Offset experts have different perspectives on what makes a successful offset project. Some define success as increasing funding for climate mitigation activities and/or achieving various non-carbon co-benefits. But generating funds for climate mitigation does not necessarily mean that the offset credits issued represent the quantity of carbon benefits claimed.

For offset credits to be considered high quality and net zero-aligned—that is, permissible for use in delivering a claim of net zero emissions—each credit must represent at least one ton CO₂-equivalent and it must be clear whether these claimed benefits come from avoided emissions or carbon removal. It will be essential for those leading assessments of whether protocols meet the CCP standards to define offset quality according to the certainty of the carbon benefits delivered, rather than by the success in generating funds for mitigation. It will be important for those leading the assessments to be without financial interest in assessment outcomes. Assessments of offset quality are interdisciplinary, requiring knowledge of the specific sectors and technologies, project finance, carbon accounting/cycling, and other knowledge-sets as necessary. Thus the assessment leads should engage the needed expertise.

Precisely because quality issues must be central, we recommend the Taskforce eliminate reference to CORSIA as a positive example for offset quality assessment. CORSIA allows credits from all major voluntary market offset registries globally, including the Clean Development Mechanism and other offset protocols understood to generate credits of poor quality. It is an example of a market that explicitly is not engaged in quality control.

Ensure transparency

- To support public confidence in offset credit markets, we strongly recommend requiring the public release of project information needed to understand the project and reproduce the credit calculations, including project design documents, monitoring reports, verification reports, and calculations of baselines and emissions reductions. This requires disclosure of all assumptions and calculation worksheets, as well as shapefiles for land-based projects. The fact that some projects might have confidential information should not be a barrier to clear disclosure; or, to the extent confidential information makes public disclosure of any of these key features impossible, that outcome should be clear to buyers.
- We strongly recommend inviting public comment on the establishment of the Core Carbon Principles, and on the evaluation of each offset protocol. We also recommend actively reaching out to researchers with expertise in an assessed protocol area to contribute to or comment on protocol assessments.

- We recommend adding to the section, *Consensus on the Legitimacy of Offsetting*, that companies, when reporting their greenhouse gas emissions, be required to report on their direct emissions and offset purchases separately, rather than as a single net figure.
- Best practices for corporate disclosure should be adopted including the required disclosure of the specific projects from which carbon offsets are purchased, as well as the mix of carbon offset types used according to a transparent taxonomy that distinguishes between avoided emissions and different types of carbon removal.¹⁴

We share the Taskforce’s goal of scaling climate mitigation, and contend that only a high quality market will survive and scale in the long run. Today’s market does not meet that standard and requires reform. As the offsets market grows in size and importance, researchers and investigative journalists will continue to shine light on what is really happening on the ground. If quality does not improve substantially, this increased scrutiny will continue to undermine not just trust in specific protocols but in the voluntary offset market as a whole.

We are deeply concerned that the Taskforce will take action to scale up the current offset market without first putting in place standards that are sufficient to ensure credit quality, given the challenges described above. Doing this could be harmful rather than helpful to climate change mitigation.

We look forward to the Taskforce’s revisions and final report, and welcome any opportunity to discuss and provide further input.

Sincerely,

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¹⁴ Myles Allen et al., “The Oxford Principles for Net Zero Aligned Carbon Offsetting,” *University of Oxford*, September 2020, <https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf>.