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RE: Commission Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts, RIN 3038–AF40

These comments are in response to the CFTC's requests for public comment to their draft guidance:
https://www.federalregister.gov/documents/2023/12/27/2023-28532/commission-guidance-regarding-the-listing-of-voluntary-carbon-credit-derivative-contracts-request#print

Dear Secretary of the Commission,

Thank you for the attention you're devoting to ensuring that derivatives of voluntary carbon credits (VCCs) meet CFTC requirements for derivative contracts, and also for the chance to provide comments on the draft guidance.

I am the founding director of the Berkeley Carbon Trading Project at the Goldman School of Public Policy at the University of California, Berkeley. I have studied the carbon offset market for over two decades, with focus on the quality and integrity of the credits being traded and of the methodologies/programs generating them.

I very much agree with your characterization of the market and its quality challenges. I also fully agree with the need for specific guidance for this unusual "commodity" which is not physical, has had substantial, widespread, and persistent quality issues, for which both the buyer and the seller benefit financially from poor quality (credit generation in excess of actual emissions benefits), and for which quality involves complex interdisciplinary analysis and high levels of uncertainty.

I believe that VCCs are currently unable to meet CFTC requirements for derivative contracts.
1. Quality has been very poor (over-crediting of 900% or 1200% is not uncommon) across all major voluntary and compliance carbon offsetting programs, over the last two decades.
2. The reason for such extensive and substantial levels of over-crediting results from the fundamental structure of the voluntary carbon market, for which high uncertain and complex carbon calculations are deliberated by a set of market actors that *all* benefit from excess crediting. This fundamental structure also makes it challenging for the CFTC to prevent manipulation.

3. To date, no institution has arisen as a reliable and nimble discerner of quality that could be used as the basis for the CFTC to judge quality given the extent of the quality challenges on the market. The high-profile ICVCM aims to certify quality, but we do not yet know how successful they will be given the pressure they are under to certify substantial quantities of credits as quality. CORSIA has certified credits of many project types and methodologies researchers have found to be over-credited.
4. I offer several specific recommendations on the CFTC proposed guidance for assessing VCC programs.
5. I conclude that the VCC market is too immature to avoid manipulation and that quality needs to be demonstrated for a discernible portion of the market before VCC derivatives contracts should be traded.

Here I discuss each of these points in turn.

1. **Quality has been very poor across all major voluntary and compliance carbon offsetting programs since the first major carbon offset programs; to date no registry would meet the requirements laid out in CFTC's proposed guidance**

Poor quality has been widespread, across the most important project types, and all major voluntary and compliance carbon market programs.

Poor quality is deep. Each credit is valued at one metric ton of carbon dioxide equivalent reduced or removed from the atmosphere (1 tCO_2e). But published studies have found major offset programs to over-credit manyfold. One study published in Science found that a sample of avoided deforestation projects, which make up the largest share of voluntary carbon market credits of any single project type (24%; So et al., 2023) has resulted in over-crediting of 13 times just from baseline setting (West et al., 2023). In other words, each credit on average represents one-thirteenth of a tCO_2e when each credit is presented as representing one tonne. Another major study found additional over-crediting from exaggerated estimates of the amount of carbon per hectare of forest, underestimation of the risk of reversal from natural causes like wildfire, and underestimation of leakage (the displacement of deforestation to other lands due to the project activities) leading to even higher levels of over-crediting (Haya et al., 2023a).

Research on one of the fastest growing carbon market project types, efficient cookstoves, published earlier this year in Nature Sustainability, found that the average cookstove offset credit represents less than one tenth of a tonne (Gill-Wiehl et al., 2024; see this webpage for a discussion of findings and background material: https://gspp.berkeley.edu/research-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/cookstoves).

Grid-connected renewable energy and hydropower offset projects, that together make up close to 32% of the voluntary offset market, have been found to have questionable additionality (Cames et al., 2016; Haya, 2010; He & Morse, 2014).

Recent studies on improved forest management methodologies (11% of credits on the VCC market) have found little to no evidence of additionality to date from the California Air Resources Board's methodology that has generated most credits of this type to date (Coffield et al, 2023; Stapp et al., 2023). These findings come after other analyses that find that if a project were additional and its baseline accurate, the California methodology would still over-credit through its methods of

assessing leakage (Haya, 2019), and estimating the deductions into the buffer pool to insure against risk of carbon loss such as through fire (Badgley et al., 2022). Another study found that many of these sources of over-crediting are also present in other improve forest management methodologies (Haya et al., 2023b)

Together these project types cover around two-thirds of the VCC market. There has been less study of other project types, but some other studies also find quality issues related to the additionality of US-based livestock manure digester projects (Pierce & Strong, 2023) and over-estimate of reductions by a water filter project (Pickering, 2017).

High levels of over-crediting have been documented by all major carbon offset registries (the organizations that create the carbon credit market and issue credits). The first major carbon offset program was a part of the UN's Kyoto Protocol. Studies of the quality of the UN's Clean Development Mechanism (CDM) credits have found that most credits do not represent their claimed emissions reductions. One study found that the large majority of credits are most likely non-additional (Haya, 2010), while another estimated that only 2% of projects have a high likelihood of being additional and not over-credited (Cames et al., 2016). Both studies find that the methods used by the CDM to assess additionality were not effective. California's offset program is mostly improved forest management projects (81%), and as discussed above, the methodology dramatically over-credits the impact of the program to date. Both the CDM and the California methodologies are used on the voluntary carbon market.

All four major carbon credit registries on the voluntary market have been found to have over-credited, including Verra's avoided deforestation (REDD+) projects (Haya et al., 2023a; West et al., 2023), Gold Standard's cookstoves methodologies (Gill-Wiehl et al., 2024; Bailis et al., 2017). The Climate Action Reserve's and American Carbon Registry's improved forest management methodologies (Haya et al, 2023b). All four registries say that they intend to improve their approaches, but all also continue to generate credits from their existing methodologies and the changes are underway.

Poor quality has led to market volatility; prices have fallen following releases of published studies or investigative news stories.

2. **The reason for such extensive and substantial levels of over-crediting results from the fundamental structure of the voluntary carbon market. This fundamental structure also makes it challenging for the CFTC to prevent manipulation.**

I very much agree with your description of the challenges related to ensuring the quality of VCC credits (pp. 6-7 in the draft guidance for public comment). The reasons for such broad, deep, and persistent quality challenges are fundamental to the incentive structure of offset markets: the carbon market trades in a non-physical product whose creation involves high levels of uncertainty and complexity, assessed by a set of market actors with aligned financial interests – all benefit from excess crediting.

Estimates of the outcomes of VCC programs are inherently and often largely uncertain because the effects of mitigation projects must be measured against a counterfactual scenario that never happened. Establishing that counterfactual baseline scenario and whether each specific project is additional to what would have happened without the financial incentives from the offset project has

been shown to involve high levels of uncertainty, and to be an important source of over-crediting by VCC programs (e.g., Cames et al., 2026; Haya, 2010).

Importantly, assessing the robustness of a methodology and the GHG benefits from individual projects often involves significant and interdisciplinary scientific understanding, often including modeling, carbon cycling, lifecycle analysis, and understanding of behavior change dynamics.

Methodologies are drafted and deliberated, and credits bought and sold, but a set of market actors that all benefit from more credits. The buyer seeks abundant low cost credits; the project developer wants to earn more credits for less cost; the third party verifier is hired directly by the developer and has an incentive to judge leniently to be hired again; and the registries adopting the standards and methodologies compete for market share and are paid per credit issued, activated, and/or retired.

That all credits are treated as equivalent, but are created under conditions of significant uncertainty and complexity by a set of market actors that all benefit from more credits creates a difficult set of conditions for creating a quality market or portion of the market. These conditions also make it difficult to assess credit quality and regulate the market.

3. **To date, no institution serves as a reliable and nimble discerner of quality that could be used as the basis for the CFTC to judge quality given the extent of the quality challenges on the market.**

The two initiatives you mention, ICVCM and CORSIA, have not yet been proven.

ICVCM: The high-profile ICVCM aims to certify quality, but we do not yet know how successful it will be given the pressure it is under to certify substantial quantities of credits as quality. The ICVCM is still developing it first phase of quality assessments. We will see if their assessments draw on and align with findings from the peer reviewed literature across project types.

CORSIA: CORSIA has certified credits[1] of many project types and methodologies discussed above as over-crediting. For example, it allows for almost all CDM credits that started their first crediting period during 2016 to 2020.

I suggest drawing on two sets of methods for assessing offset quality:

Two sets of methods robustly assess credit quality. Here are very short description, and I suggest consulting the full methods.

The Berkeley Carbon Trading Project released a detailed framework for comprehensively assessing offset quality (Haya, 2023c). Key elements of this assessment method include:
- *Comprehensive over/under-crediting analysis*, estimating all elements of the quantification methods in a comprehensive quantitative assessment (Gill-Wiehl et al., 2023 is the first implementation of this method.)
- *Review of published literature,* with additional analysis as needed and possible to fill in gaps in the literature.

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[1] https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/CORSIA%20Eligible%20Emissions%20Units_Nov2023.pdf

- *Interdisciplinary analysis* by an assessment team with interdisciplinary expertise needed to assess all elements of the quantification methods.
- *Independence*: studies should be performed and peer reviewed by individuals without major interest in the outcomes.
- *Conservativeness*: when there is uncertainty, quantification methods should be more likely to under-credit than to over-credit; high levels of uncertainty should be countered with higher levels of conservativeness.

Carbon Credit Quality Initiative (CCQI): developed a systematic method for assessing carbon credit quality. Assessments should be performed and peer reviewed by individuals with no or little interest in the outcome and with the necessary disciplinary, sectoral, and scientific expertise.

4. **Specific suggestions on the CFTC draft**

I agree with the quality characteristics defined in the draft ruling. Here I provide a few specific comments on the draft guidance.

Transparency:
For the program generating the credits, see the text of California Assembly Bill 1305,[2] which requires, for all VCCs marketed, sold, purchased, or used in the state, the public disclosure of "[t]he pertinent data and calculation methods needed to independently reproduce and verify the number of emissions reduction or removal credits issued using the protocol" along with information needed to identify the project.

Additionality:
Two methods are used by most VCC methodologies: (1) project-by-project, used by the CDM and also specific methodologies by ACR, Verra, and Gold Standard. Project-by-project additionality assessments have not been effective in many cases (Cames et al., 2016; Haya 2010). (2) A standardized approach is used by the California Air Resources Board and some VCC methodology. These methodologies also have been found to allow in non-additional projects without compensating with the over-crediting with counterbalancing under-crediting.

I suggest integrating additionality assessments into over/under-crediting analyses at the project type level, recognizing that it is inevitable that some credits will be non-additional, and what matters, and what is more realistic, is avoiding over-crediting programmatically. Additionality assessments can still be challenging, but we discuss this in our detailed methods document (Haya, 2023c).

Additionality is well-defined by the draft guidance and I strong suggest keeping the current definition in the draft guidance. Fundamentally, credits should represent the impact of the incentive created by the carbon crediting program on emissions. This is an important definition, because any credits associated with reductions that would have happened anyway, should not be considered as offsets, or equivalent to direct emissions reductions by the user.

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[2] https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240AB1305

5. Summary conclusions

Currently, the four largest voluntary carbon market registries are generating credits that published studies have shown to represent far less than their true emissions benefits. None yet have had the governance structure to address this over-crediting.

I believe that the market in VCCs is not ready to trade in derivative contracts that reasonably avoid manipulation. Before such trades are approved, quality on the market should be improved, and there should be a proven, practical, and successful method for ensuring the underlying credit quality.

Most sincerely,
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