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Public Comment on Voluntary Carbon Markets – Consultation Report

Submitted electronically

Dear Mr. Nathanail,

The Institute for Agriculture and Trade Policy (IATP)^[1] appreciates the opportunity to comment on the IOSCO VCM Consultation Report (“Consultation Report” or “CR”). IATP last wrote to IOSCO in February 2023 concerning its Discussion Paper on Voluntary Carbon Markets (“Discussion Paper”).^[2] In that letter we quoted from a CME Group response to the Commodity Futures Trading Commission (“CFTC”) Request for Information (“RFI”) about climate-related financial risk: “[t]he Climate RFI suggests a focus on the regulatory role for the Commission in the voluntary carbon markets. The voluntary carbon markets are still evolving and striving to reach a mature state. An overly proscriptive [*sic*] approach to the development of the voluntary carbon markets could have the effect of impeding the promise these markets offer to assist the larger community in reaching global emissions reduction targets.”^[3]

The CFTC did not heed all the CME Group’s warnings about proposing regulation of any kind for the “still evolving” voluntary carbon markets. The CFTC adapted the still evolving Integrity Council for the Voluntary Carbon Market’s (“ICVCM”) rulebook to fit its Core Principles regulatory structure in the CFTC’s voluntary guidance for Designated Contract Markets (“DCMs”) to list derivatives contracts with Voluntary Carbon Credits (“VCCs”) as their underlying assets. However, the proposed CFTC guidance also asked whether DCMs, intermediaries and market participants should perform due diligence about VCCs beyond what the ICVCM and other private standards organizations provided.^[4] In the following letter, some of our responses to Consultation Report questions are derived in part from our responses to CFTC guidance questions.^[5]

The overlap of financial market and environmental integrity: consequences for the Good Practices

One of the challenges that IOSCO faces in describing Good Practices for VCMs to the regulators of its 131 member governments is to maintain consistently a categorical distinction between financial market integrity and environmental integrity that is advised by the majority of the 52 respondents to the Discussion Paper:

One strong message from the feedback is that IOSCO should clearly define its role with respect to VCMs and should keep any further policy steps limited to that remit, and not address issues of environmental integrity, for example. Subsequent chapters will further discuss how IOSCO is taking forward the Key Considerations directly related to financial market integrity through a proposed set of Good Practices, and how others are being addressed by ongoing public and private sector initiatives whose objective is to raise the environmental integrity in the VCMs by focusing on the climate aspect of carbon credits. (CR, p. 44)

This “strong message” prevents IOSCO from advising on good practices on topics in which the overlap of financial market integrity and environmental integrity is clear. An example of this overlap occurs in a topic that is barely described in the “Consultation Report,” the legal and financial responsibilities and liabilities of crediting programs that maintain buffer accounts of carbon offset credits to compensate for emission reversals of projects whose VCCs have been issued. How will these liabilities affect the financial market integrity of DCMs, intermediaries and market participants who are trading VCC-backed derivatives under conditions of increasingly frequent and severe reversals?

Emissions reversals will almost certainly increase in scope and frequency, at least for nature-based emissions reduction activities, with the imminent arrival of more frequent extreme weather events driven by climate tipping points.^[6] The economic and legal consequences for the crediting programs’ buffer accounts of credits to compensate for such reversals cannot not be forecast with accuracy. However, we know that current reversals, e.g., recent California wildfires, have eliminated any temporary climate benefits from offset projects and are showing the buffer accounts to be vastly underfunded.^[7]

It is very likely that ICVCM will change its rules on emissions reversal and reversal risk management. For example, consider the next iteration of the Assessment Framework, regarding permanence: “The ICVCM will consider longer monitoring and compensation periods (e.g., one hundred years) and shifting the monitoring and compensation oversight to the carbon-crediting program or the jurisdiction aligned with existing and emerging best practice among carbon crediting programs.”^[8] The duration of permanence of CO₂ removals in the current ICVCM standard is “at least 40 years.”^[9] A climate science robust duration is much longer: e.g., According to a recent Carbon Market Watch analysis of academic literature, “CO₂ can be considered permanently stored only when it is put away as long as the significant percentages of CO₂ emissions

last in the atmosphere (up to 25%), that is up to 1,000 years. At the very minimum, the bar for storage with significant climate benefits is several centuries.”^[10]

In the event of a ICVCM standard of a 100-year carbon storage permanence and crediting program buffer account failure, it is likely that developing country governments that host VCCs would have to assume the costs of monitoring and maintaining an adequately financed buffer account of high-quality credits to compensate for the reversals. In the event of “several centuries” standards, it is all but certain that developing country governments would have to assume the monitoring and compensation costs and liabilities. When United Nations agencies promote high integrity carbon markets as a reliable source of climate finance and a means to realize Nationally Determined Contributions to mitigation and Sustainable Development Goals,^[11] the costs of carbon market implementation are seldom mentioned. ICVCM estimates that “90% of all nature-based solutions,” i.e., land-based (and marine?) emissions offset projects, are in developing countries.^[12] The possible assumption of buffer account finance by their governments is never mentioned. If IOSCO does not view its remit to advise its member governments, particularly the developing country hosts of emissions reduction projects, of their potential assumption of crediting program buffer account liabilities and compensation, then IOSCO should at least advise its member government regulators of how buffer account failure could affect financial market integrity.

The legal and economic consequences of adopting a science-based duration for the monitoring of offset reductions and compensation for emissions reversals are staggering, and not just for the crediting programs and the “shift” to governments of the monitoring and emissions reversals responsibilities and liabilities. Most VCC-backed derivatives contracts will have a large percentage of component contracts that are at an increasing risk of reversals.

For example, the Nodal Exchange’s Global Emissions Reduction (GER) Futures contract description states: “Physically delivered offsets based on a basket of the following carbon offset subcontracts: Base Carbon Contract (BCC), Forestry Carbon Contract (FCC), Prime Carbon Contract (PCC), and Carbon Capture Contract (CCC), where weightings are calculated and determined by the GER Supervisory Committee (GERSC), in accordance with the GER Governance and Methodology Protocol posted at <http://www.nodalexchange.com>.”^[13] The FCC components account for 39% of the derivatives contract, while the CCC VCCs, the least subject to emissions reversals and buffer account compensation account for 1% of the contract. There is nothing in the GER® Governance and Methodology Protocol^[14] that discusses uncompensated reversals, their impact on VCC quality, VCC prices and VCC price volatility. If we assume that reversals will become more frequent and severe as climate tipping points drive more extreme weather events, trading platforms in IOSCO jurisdictions should begin to

account for the impact of reversals on VCC estimated deliverable supply and on the possibility of market disruption if uncompensated reversals become widespread.

Changes to the ICVCM rulebook, such as for emissions reversals, and an analysis of their economic impact should be reported promptly to exchanges, relevant regulators and authorities of IOSCO jurisdictions, under the terms of an information sharing agreement. The exchanges should be obliged to report these changes and their potential economic consequences promptly to intermediaries and market participants.

Responses to some individual questions

Question 1: Does the Consultation Report use the correct and commonly accepted terminology? Are terms defined appropriately in the report and its glossary? Does the Consultation Report acknowledge all instances of inconsistent and conflicting terminology used in the industry? Are there any terms that have not been defined but which should be defined or alternatively, that should not be defined by IOSCO?

There are several key and interrelated terms that IOSCO should explain to financial market regulators both because they are not defined in the ICVCM “Glossary of terms,”^[15] except indirectly in the case of “non-permanence,” and because the financial integrity of VCC contracts depends on there being a common understanding of the contract terms. A potential source of VCM financial instability and loss of environmental integrity in crediting programs is emissions reversals for which program buffer accounts cannot compensate with VCCs of equal or better quality. Crediting programs must be able to financially and legally sustain the buffer account of the projects for which the crediting programs issues VCCs.

IOSCO should add to its glossary definitions for “buffer account,” “emissions reversal,” “emissions reversal event,” (to distinguish acute from gradual emissions reversals) and “reversal risk management.” (ICVCM is currently debating whether “avoidable” reversals should be compensated from the buffer account, implying that reversal risk management measures could have prevented or lessened the losses from reversals.^[16]) ICVCM alludes to these definitions in its definition of “non-permanence” as a “situation in which mitigation is subject to reversal.”

However, all nature-based emissions reduction projects are temporary relative to the persistence of greenhouse gas emissions in the free atmosphere and hence subject to some degree of reversal. “Although any form of carbon storage is potentially at risk of loss and re-emission to the atmosphere, carbon stored in biological systems is fundamentally transient in relation to carbon stored in or emitted from fossil fuels (Anderegg et al., 2020; Fankhauser et al., 2022).”^[17] The financial integrity of the contract whose underlying asset is VCCs depends in part on conveying accurate

information about how durable the emissions reduction or engineering-based removal is relative to that persistence. ICVCM does not define “emissions reduction or removal durability,” but IOSCO should.

Question 3: Is the description of secondary market trading of carbon credits accurate? Are all key market participants properly reflected?

The Consultation Report noted, “The example of CCMs [Compliance Carbon Markets] shows that derivatives can play an important role in the sound functioning of secondary markets and may support growth in on-venue trading thanks to standardization benefits. Nonetheless, it was noted in the feedback to the Discussion Paper that a significant portion of the market will likely remain OTC.” (CR, p. 23) IATP agrees that generally derivatives can and do support secondary market multilateral trading. We also agree with the respondent that the bilateral trading of VCCs will remain “significant” and even dominant relative to trading on regulated multi-lateral exchange.

An issue that IOSCO should emphasize in the final CR is that its regulatory frameworks Good Practices 1-3 (CR, pp. 61-62) would apply to VCC spot and derivatives trading on regulated exchanges, not to OTC trading. OTC traders of VCCs will benefit from standardized price, volume and position information published by spot and derivatives exchanges while supplying no verified and timely information to the market. This information asymmetry is unlikely to decrease in the short term, even if CCP-labeled VCCs grow in spots markets sufficiently to serve as reliable underlying assets for VCC derivatives contracts.

The CR suggests that government regulators consider adopting private standards, such as those of the ICVCM, to enable VCC trading to benefit from regulations developed to ensure market integrity, investor protections and other regulatory benefits. “The regulatory approach should seek to achieve regulatory outcomes for investor protection and market integrity that are the same as, or consistent with, those that are required in traditional financial markets.” (CR, p. 61) This objective, however, and the listing of market integrity characteristics (CR, P. 45 *et passim*) is achieved through regulated and registered exchanges, intermediaries and market participants, not through OTC trading. To IATP’s knowledge, there is no legislative or regulatory proposal to push OTC trading of VCCs onto regulated exchanges. OTC trading of VCCs may benefit from crediting program compliance with private standards, but those benefits will not be shared in terms of VCC pricing with entities trading VCCs on traditional exchanges.

Regarding “Good practice 3: Domestic and international cooperation and consistency,” IATP anticipates that current comparability determination agreements concerning cross-border trading, investigation and enforcement activities will have to be modified or perhaps negotiated separately for trading VCCs. These will not be rapid negotiations. For

example, China's emissions trading system does not allow financial speculators with no commercial interest in offsetting to trade offset credits.^[18] Other jurisdictions likewise may restrict trader eligibility to commercial hedgers whose businesses are subject to emissions caps or decarbonization requirements.

Question 9: Are existing disclosures, third-party standards, and/or industry best practices sufficient to ensure that investors are not misled as to the environmental or carbon emissions reductions benefits? Please identify specific regulations, standards, or practices and why they are sufficient.

Several CR questions are formulated as "whether and to what extent." IATP will respond to this question in the "whether and to what extent" frame of mind, rather than presume that existing disclosures and private standards are sufficient to prevent investors from being misled about emissions reductions as presented in VCCs.

The foundation of the ICVCM Assessment Framework (AF) is the platform from which to build higher program and credit integrity. The ICVCM explains: "To minimise the burden on carbon-crediting programs operating in the VCM, the ICVCM has determined that programs already eligible under CORSIA [Carbon Offsetting and Reduction Scheme for International Aviation] are also eligible under this version of the Assessment Framework provided that they meet some additional requirements as set out in the Assessment Framework."^[19] If program credits are already CORSIA eligible, then they can be fast-tracked for CCP labeling. Reiterated through the AF is the phrase, "in addition to CORSIA requirements," e.g., "In addition to CORSIA requirements related to governance framework, the carbon-crediting program shall."^[20] Thereafter, follow governance requirements basic to good business conduct. It is surprising that crediting programs don't already have all these requirements: e.g., "follow practices consistent with robust anti-bribery and anti-corruption guidance and regulation."^[21] Nevertheless, ICVCM CORSIA plus requirements, particularly the governance requirements to qualify the VCCs of crediting programs for the CCP label, are credit quality improvements.

The choice to make CORSIA the platform for improving VCC standards is not because CORSIA is a well-regarded and robust climate science standard. One analysis of CORSIA states:

While CORSIA is the first international agreement to address emissions for a sector, it has also been heavily criticised for its shortcomings, including the lack of ambition of its goal of "carbon-neutral growth," the coverage of CO₂ emissions only, the limited [airline company] participation in the voluntary phase, the quality of the eligible carbon credits, and its weaknesses in terms of ensuring compliance and enforceability (ICF Consulting et al. 2020; Broekhoff et al. 2020; Siemons et al. 2021).^[22]

However, CORSIA is diplomatically robust. The CORSIA standard of eligibility for use of carbon offsets in international aviation was adopted in 2016 by the intergovernmental International Civil Aviation Organization (ICAO) of the United Nations.^[23] As a United Nations organization with a decision-making Assembly composed of representatives from 193 member states,^[24] ICAO could likely win any lawsuit challenging the integrity of its VCC eligibility standards because of the immunity that governments enjoy in many areas of international law.^[25] In the diplomatic sense, to the extent that crediting programs comply with the ICVCM CORSIA plus requirements, IOSCO member government regulators can be confident that ICVCM compliant crediting programs will be litigation resistant even if VCC investors are misled about the quantity and durability of certified emissions reductions. But ICVCM requirements do not suffice scientifically to prevent investors from being misled about emissions reductions claimed in ICVCM compliant VCCs.

According to Carbon Market Watch, “The ICVCM’s most obvious weakness lies in its treatment of activities that rely on the storage of carbon in non-permanent sinks, such as forests. The requirements for permanence are not in line with scientific evidence that carbon dioxide in biological systems and CO₂ released from the combustion of fossil fuels are not equivalent or interchangeable.”^[26] These permanence requirements derive from a scientifically false assumption that in terms of emissions impact a metric tonne of geological emissions is equal to a metric tonne of nature-based emissions reductions. For example, consider the apparently neutral ICVCM requirement (in addition to CORSIA requirements): “clearly define a carbon credit as one metric tonne of CO₂ equivalent of GHG emission reductions or removals.”^[27] This requirement does not make explicit that the relationship between greenhouse gases emitted and those reduced by non-permanent carbon sinks is wholly different than those between emissions and more durable emissions removals. In the plain-spoken language of science-based carbon accounting: “a tonne is not a tonne.”^[28]

From the viewpoint of climate science, most, if not all, the certification and contractual language of land based VCCs misrepresent their emissions impacts, even when they are well designed, well managed, not reversed and not fraudulent. ICVCM intends to develop its standards with “the best science and expertise available.”^[29] As IATP informed IOSCO in our comments on the Discussion Paper, according to the “medium consensus” of the 6th Assessment report of Intergovernmental Panel on Climate Change (Chapter 5.6.2.1)^[30] and to IPCC scientists in independent computer modeling studies, biogenic offsets cannot compensate for fossil fuel generated greenhouse gases on a 1:1 ratio: “Results indicate that a CO₂ emission into the atmosphere is more effective at raising atmospheric CO₂ than an equivalent CO₂ removal is at lowering it, with the **asymmetry increasing with the magnitude of the emission/removal.**”^[31] (IATP bolded emphasis.) The greater the quantity of CO₂ released, the greater the disparity between

emissions and removals. More simply put, it is physically impossible for short cycle biological carbon to offset long cycle geological carbon emissions.

If VCCs trade OTC and exchanges offer VCC spot and derivatives contracts derived from “a tonne is a tonne” emissions accounting and crediting assumptions, investors will likely be misled about the emissions impact of their VCC trading strategy. If they make “carbon neutral” or offsetting claims based on “a tonne is a tonne” carbon accounting and crediting methodologies, they may suffer litigation or at least reputational risk.^[32] IOSCO should advise its members to perform due diligence on carbon accounting methods and advise multilateral trading platforms in their jurisdiction to not use the “one tonne is one tonne” derived definition in VCC derivatives “terms and conditions” nor in marketing literature for the contract. There is academic literature on science-based carbon accounting and crediting that can assist IOSCO members’ due diligence and their advice to the trading platforms in VCC contract design.^[33]

Question 14: To address risks that low-quality projects could result in voluntary carbon credits that do not represent their promised carbon emissions reductions benefits, are disclosure-based standards sufficient to mitigate against misleading investors? Are there cases where even robust disclosure as to the underlying project quality, and therefore the quality of the carbon credits based on such project, would be insufficient to protect investors?

Crediting programs already provide advice to prospective investors on avoiding low quality VCCs.^[34] For example, “One option is to engage the services of consultants or trusted retailers to examine projects, navigate different options, and put together a portfolio of offset credits that meet a buyer’s goals (with respect to location, project type, offset quality, and co-benefits, for example). It is often a good idea to work with someone who has a detailed understanding of the sectors or project types being considered, which in some cases could involve enlisting multiple experts.”^[35] Consultants or trusted retail brokers obtain information on site or documented evidence to reduce the likelihood that the VCC investor is misled. However, this advice does not include disclosure standards nor a method for estimating the financial material risk of trading VCCs.

ICVCM’s Assessment Framework and Assessment Procedure anticipates the possibility that robust disclosure of the underlying offset project and the credits issued from that project still might not protect the investor. The ICVCM rulebook explains how crediting programs are to document compliance with “beyond CORSIA” requirements. In effect, the programs are “disclosing” how they operate according to ICVCM standards when they apply to have their VCCs receive the CCP label.

ICVCM does not verify independently the integrity of individual offset projects or credits deriving from them.^[36] (There are organizations, such as Calyx Global, which review individual projects to rate in aggregate the integrity of project type credits, e.g., reforestation-based credits, for prospective investors.^[37]) However, the Integrity Council will conduct “spot checks and sample based auditing of CCP eligible programs and credits” as part of its performance monitoring to provide integrity assurance to credit buyers.^[38] Crediting programs are required to have a third-party validation of offset project design documents and verification of project developer reporting, “including systematic review of validation and verification activities, reports and remedial measures to address performance issues.”^[39] If the certification program fails to resolve problems with third party validation and verification, ICVCM can suspend or terminate the program from having its credits tagged with the CCP label.^[40] Such a suspension or termination of a crediting program would have legal, reputational and market impacts beyond those of the crediting program, so IATP believes it unlikely that the ICVCM would take such enforcement actions unless compelled to.

IATP’s understanding about material risk disclosures for derivatives is limited to those of the Commodity Futures Trading Commission. The rule covering risk disclosures by Futures Commission Merchants (FCMs) to their prospective and existing customers was published in 1978 and does not contain enumerated risks for specific asset classes or contracts.^[41] In 1991, the CFTC published quantitative and qualitative disclosure requirements for registered market participants that have been updated as recently as 2011.^[42] Registered market participants must report their risk disclosures for the preceding fiscal year. One of three methods for doing so is: “Tabular presentation of information related to market risk sensitive instruments; such information shall include fair values of the market risk sensitive instruments and contract terms sufficient to determine future cash flows from those instruments, categorized by expected maturity dates.”^[43] An appendix to this rule illustrates how the material financial risk exposure of trading corn futures for a fiscal year would be presented in tabular form. The CFTC could use this tabular format to illustrate the material financial risks of trading VCC derivatives if these derivatives were subject to regulation. IOSCO member government regulators should consider applying this tabular format for reporting the material financial risk trading VCCs in their respective jurisdictions.

CFTC Commission Kristin Johnson proposed that the Commission consider developing voluntary guidance for registered market participants on how to report their material financial risk for trading VCC derivatives:

The CEA [Commodity Exchange Act] and CFTC regulations impose material risk disclosure requirements on registered market participants in connection with their communications, solicitations, and negotiations of transactions and material contractual terms. . . The Commission may not need to prescribe the

precise language of the disclosures. The material risk disclosure rule is principles-based. Instead, the Commission may identify factors that a market participant must consider in a risk disclosure, including all the factors that could lead to significant losses. Information about a carbon credit, including information about the environmental project and market structure, is material because there is a substantial likelihood that a reasonable counterparty would consider it important in making a trading decision.^[44]

IATP supported Commissioner Johnson’s proposal, albeit advocating for more precise language on disclosures. The econometrically projected growth of VCC trading advises a need for more precise language.

According to a Bloomberg NEF study, with the “right rules,” the annual notional value of VCC trading could scale to \$1 trillion by 2037,^[45] i.e., 500% over reported value in 2022.^[46] Such an optimistic econometric outlook includes, of course, a large portion of loss-making trades. IOSCO should in its Good Practices recommend that government regulators provide guidelines to retail and institutional investors on material risk disclosures of trading and holding VCC positions, including factors that could result in significant losses. (a brief response to Question 16)

Conclusion

IATP thanks IOSCO for the opportunity to submit these comments, which we hope will help IOSCO to finalize these Good Practices. We look forward to learning how IOSCO is using these Good Practices in its workshops for IOSCO member government regulators.

Respectfully submitted,

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Endnotes:

^[1] IATP is a U.S. nonprofit, 501(c)(3) nongovernmental organization, headquartered in Minneapolis, Minnesota (U.S.A.), with offices in Washington, DC and Berlin, Germany. IATP has participated in the nearly weekly meetings of the Derivatives Task Force of Americans for Financial Reform since 2010. IATP has submitted more than 50 comments on U.S. Commodity Futures Trading Commission rulemaking, and on consultation papers of the Task Force for Scaling Voluntary Carbon Markets, International Organization of Securities Commissions, Financial Stability Board, the European Securities and Markets Authority, and the European Commission’s Directorate General for Internal Markets. We have participated in UN Framework Convention on Climate Change meetings since 2008 and filed submissions in response to UNFCCC Secretariat decision making documents, including on the Article 6.4 market mechanism Supervisory Body recommendations. The UNFCCC part of our climate change work is represented at <https://www.iatp.org/unfccc-cops>

^[2] <https://www.iatp.org/iatp-comment-iosco-vcn>

^[3] Ibid., p. 2 citing from

<https://comments.cftc.gov/PublicComments/ViewComment.aspx?id=70809&SearchText=>, pp. 2-3

^[4] “Commission Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts; Request for Comment,” <https://www.cftc.gov/sites/default/files/2023/12/2023-28532a.pdf> Appendix 4—Statement of Commissioner Christy Goldsmith Romero, Federal Register p. 89427.

^[5] <https://comments.cftc.gov/PublicComments/CommentList.aspx?id=7463>

^[6] Courtney Lindvall, “Climate Tipping Points Are Closer Than We Once Thought,” Natural Resources Defense Council, November 15, 2022. <https://www.nrdc.org/stories/climate-tipping-points-are-closer-once-thought>

^[7] Badgley G, Chay F, Chegwiddden OS, Hamman JJ, Freeman J and Cullenward D, (2022) California’s forest carbon offsets buffer pool is severely undercapitalized. *Front. For. Glob. Change* 5:930426. doi: 10.3389/ffgc.2022.930426 and Gilles Dufrasne, “Up in smoke: California fires highlight once again dangers of forest offsets,” Carbon Market Watch, October 22, 2020.

<https://carbonmarketwatch.org/2020/10/22/up-in-smoke-california-fires-once-again-highlight-dangers-of-forest-offsets-2/>

^[8] Assessment Framework, Table 4, p. 85.

^[9] a) “The carbon-crediting program shall in relation to Categories listed in criterion 9.1 b) 1) above: 1) require a monitoring and compensation period for such mitigation activities of at least forty years from the start of the first crediting period or to at least the end of the crediting period, whichever is the later,” Assessment Framework, Table 9.3, “Monitoring and compensation period,” p. 83.

^[10] Fabiola De Simone and Wijnand Stoefs, “The bare necessities: Essential principles to design sensible carbon removal policies,” Carbon Market Watch, November 2023, p. 7.

<https://docs.google.com/viewerng/viewer?url=https://carbonmarketwatch.org/wp-content/uploads/2023/12/The-bare-necessities-essential-principles-to-design-sensible-carbon-removal-policies-1.pdf>

^[11] E.g., “UNDP’s High Integrity Carbon Markets Initiative,” United Nations Development Program, December 2023. https://climatepromise.undp.org/sites/default/files/research_report_document/High-Integrity%20Carbon%20Markets%20Initiative%20-%20Final.pdf

^[12] “Foreword,” ICVCM, p. 6. <https://icvcm.org/wp-content/uploads/2023/03/CCP-Foreword-FINAL-28Mar23.pdf>

^[13] Ibid.

^[14] <https://www.cftc.gov/sites/default/files/filings/ptc/22/06/ptc061522nodaldcm004.pdf>

^[15] <https://icvcm.org/wp-content/uploads/2022/07/ICVCM-Public-Consultation-FINAL-Part-5.pdf>

^[16] Assessment Framework, Criteria 9.3 Monitoring and Compensation, paragraph a)2, p. 83.

^[17] Danny Cullenward, “A framework for assessing the climate value of temporary carbon storage,” Carbon Market Watch, September 2023, p. 3. <https://carbonmarketwatch.org/wp-content/uploads/2023/09/FINAL-CMW-version-of-temporary-storage-paper.pdf>

^[18] Simon Mundy and Aiden Reiter, “Carbon markets are not for the faint of heart,” *Financial Times*, March 1, 2024. <https://www.ft.com/content/b2ac25f4-1366-4904-9366-81d9c5b06d4b>

^[19] Ibid., p. 26.

^[20] Assessment Framework, op. cit., p. 54.

^[21] Ibid.

^[22] Schneider, Lambert; Wissner, Nora (2022): Fit for purpose? Key issues for the review of CORISA[sic]. Oeko-Institut, 5. <https://www.oeko.de/fileadmin/oekodoc/Key-issues-for-first-review-of-CORISA.pdf>

^[23] Ibid.

^[24] <https://www.icao.int/about-icao/Pages/member-states.aspx>

^[25] Kristina Daugirdas, “What Comes Next After Supreme Court Reduced Obstacles to Suing International Organizations?” Just Security, March 18, 2019. <https://www.justsecurity.org/63216/supreme-court-reduces-obstacles-suing-international-organizations/>

^[26] Gavin Mair, “Integrity Council’s rulebook sets low threshold instead of high bar for carbon markets,” Carbon Market Watch, July 27, 2023. <https://carbonmarketwatch.org/2023/07/27/integrity-councils-rulebook-sets-minimum-threshold-instead-of-high-bar-for-carbon-markets/>

^[27] Assessment Framework, July 2023, p. 60.

^[28] Freya Chay, Grayson Badgely, Kata Martin, Jeremy Freeman, Joe Hamman and Danny Cullenward, “Unpacking tonne-year accounting,” (Carbon)Plan, January 31, 2022. <https://carbonplan.org/research/ton-year-explainer>

^[29] “Introduction,” ICVMC, p. 3. <https://icvcm.org/wp-content/uploads/2023/03/CCP-Section-1-FINAL-27Mar23.pdf>

^[30] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2391 pp. doi:10.1017/9781009157896.

^[31] Zickfeld, K., Azevedo, D., Mathesius, S. *et al.* Asymmetry in the climate–carbon cycle response to positive and negative CO₂ emissions. *Nat. Clim. Chang.* **11**, 613–617 (2021). <https://doi.org/10.1038/s41558-021-01061-2>

^[32] E.g., Karin Rives, “Companies face ‘Massive growth’ in litigation over climate claims,” S&P Global Market Intelligence, July 6, 2023. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/companies-face-massive-growth-in-litigation-over-climate-claims-76429935> and “The Legal Risk of Advertising Carbon Offsets,” Client Earth, October 3, 2022. <https://www.clientearth.org/latest/latest-updates/stories/the-legal-risk-of-advertising-carbon-offsets/>

^[33] Some of this academic literature is summarized in Stoefs, “Respecting the laws of physics,” *Op. cit.*

^[34] E.g., “Strategies for avoiding lower quality offset credits,” American Carbon Registry. <https://www.offsetguide.org/avoiding-low-quality-offsets/>

^[35] <https://www.offsetguide.org/avoiding-low-quality-offsets/vetting-offset-projects/>

^[36] “Assessment Framework,” p. 69.

^[37] “Calyx Ratings Explained,” Calyx Global, <https://calyxglobal.com/reportviewer.php?q=TlpEdzk2aWJpRIJ2ZTVTaVhmQVZoZz09&t=r>

^[38] “Assessment Procedure,” ICVMC, p. 88. <https://icvcm.org/wp-content/uploads/2023/03/CCP-Section-6-FINAL-27Mar23.pdf>

^[39] “Assessment Framework,” p. 44.

^[40] “Assessment Procedure,” ICVMC, pp. 88-93. <https://icvcm.org/wp-content/uploads/2022/07/ICVMC-Public-Consultation-FINAL-Part-6.pdf>

^[41] 17 CFR § 229.305 <https://www.law.cornell.edu/cfr/text/17/1.55>

^[42] <https://www.law.cornell.edu/cfr/text/17/229.305>

^[43] *Ibid.*, a) Quantitative information about risk, (A) (1)

^[44] Appendix 3: Statement of Commissioner Kristin Johnson,” Federal Register, pp. 89425-89426. <https://www.cftc.gov/sites/default/files/2023/12/2023-28532a.pdf>

^[45] “Carbon Offset Market Could Reach \$1 Trillion With Right Rules,” Bloomberg NEF, January 23, 2023. <https://about.bnef.com/blog/carbon-offset-market-could-reach-1-trillion-with-right-rules/>

^[46] “Paying for Quality: State of the Voluntary Carbon Markets 2023,” Ecosystem Marketplace, November 28, 2023. https://3298623.fs1.hubspotusercontent-na1.net/hubfs/3298623/SOVCM%202023/2023-EcoMarketplace_SOVCM-Nov28_FINALrev-1.pdf