



IATP responses to UNSG High Level Expert Group on net zero emissions for non-state entities

Standards and Definitions of Net Zero: 1.5 C degrees alignment

This is the first time that the Institute for Agriculture and Trade Policy has engaged with the Race to Zero process and objectives. As a result, we first outline what we understand to be the broader institutional context of the categories of information elicited in this survey. Then, we comment on issues concerning standards and definitions of net zero.

In mid-June, the U.N. Race to Zero campaign released revised [“starting line criteria”](#) and [“leadership practices”](#) for non-state members and partners. The revisions are too numerous for IATP to comment on individually and fit each comment within the categories of information outlined in the survey. In general, the revisions represent improvements to the previous criteria and leadership practices, both in their specificity and emissions mitigation ambition. For example, the revision to “Targets must cover all material greenhouse gas emissions” (p. 8) are welcome, except as noted below regarding the use of the term “material.”

An Expert Peer Review Group (EPRG) will assess whether campaign members and partners have followed these criteria by the mid-June 2023 deadline. The EPRG assessments are conducted according to an [“Interpretation Guide.”](#) For example, regarding Scope 3 (supply chain) emissions: “Net Zero targets should cover on average 90% of emissions including scope 3 upstream and downstream, or the equivalent territorial scope [for cities and regions], where they are material to total emissions and where data availability allows them to be measured sufficiently. This includes land use emissions.” As the High Level Expert Group (HLEG) reviews responses to its survey, it should consider that Race to Zero members and partners will have different interpretations of what is or is not “material to total emissions.”

In financial disclosure reporting, there are established categories of what costs and risks are “material” to the viability of companies. As [IATP wrote to the U.S. Securities and Exchange Commission](#), concerning its proposed rule on climate-related financial risk and opportunity disclosure, U.S. courts have ruled that in disputes about what is “material,” investors have the final say. However, the EPRG is not a regulator and the net-zero criteria do not constitute a rule. The HLEG should recommend a simple standard of relevance — not “materiality” — of Scope 3 emissions to the setting and realization of an interim net-zero target. For example, if 10% or more of a company’s total emissions are Scope 3, per the definitions and data collection and analysis methodology of the Greenhouse Gas Protocol, then a Race to Zero member or partner will report those emissions publicly as a condition of continued membership in the campaign.

The criteria include a commitment for Race to Zero campaign members to “phase down and out unabated fossil fuels” and to include Scope 3 emissions reductions in their net zero targets,

including for Race to Zero campaign members financed emissions. (We understand “unabated” to mean not abated by permanent removals.) As a result, according to the Financial Times, the criteria have been [opposed](#) by most members of the Glasgow Financial Alliance for Net Zero (GFANZ), which is accredited as a partner by the Race to Zero campaign. This opposition may be representative of opposition to some of the new criteria by other economic sectors as the Global Stocktake at the U.N. Framework Convention on Climate Change Conference of Parties (COP) 27 in November approaches. IATP agrees with [this statement by Nigel Topping](#), co-leader of both Race to Zero and GFANZ: “It’s insane to rely on underfunded NGOs to police capital markets . . . Governments have to step up.” And, we would add, the finance sector must cooperate with, rather than resist or evade, government oversight of corporate net-zero commitments.

According to [Net Zero Tracker](#), as of 2022, 136 countries, 116 regions, 239 cities and 750 of the largest by revenue 2,001 companies had pledged to compensate for their emissions with emissions reductions and/or through buying emissions offset credits. Most of the net-zero target years are set for 2050, with interim targets often set for 2030. Most of the net-zero targets are set in North America, Europe and Asia, in part because of the resources required to set the targets, much less to achieve them. More than a decade ago, developed country governments [pledged to donate by 2020 \\$100 billion annually](#) to enable climate action in low-income countries. However, this pledge has [fallen short by about at least \\$20 billion](#) annually, with private finance accounting for small fraction of the total. (The projected annual costs of global mitigation and adaptation are much higher, but not an issue that we engage in this short response.) [There is a lack of agreement](#) about how to define what aid counts towards those financial pledges and how to account for how that aid is spent. For countries, regions and cities without adequate and timely resources to realize net-zero targets, setting such targets may seem to be a futile use of existing resources.

A major challenge for the HLEG is whether to develop net-zero standards and definitions that align with Race to Zero revised criteria or to develop standards that more closely align with industry-lead standards, such as those of the Science Based Targets Initiative (SBTi) Corporate Net Zero Standard and corresponding sectoral standards. The corporate sector does have the resources to set targets and realize net-zero commitments, at least within the operational limits of their facilities and supply chains. For example, Standard and Poor’s 500 indexed companies alone [spent \\$5.3 trillion on equity share buybacks from 2010 to 2019](#) to boost company share prices that benefited, above all, corporate officers and shareholder insiders. The HLEG could, of course, try to construct standards criteria that would be a combination of SBTi like and Race to Zero like criteria. No matter what the HLEG recommends on net-zero standards for Race to Zero members and partners, the standards’ realization is very unlikely to occur absent a much larger and sustained contribution of climate finance by the private sector, including beyond their value chains to the communities and countries within which they operate.

Many companies still do not report emissions with common rules and metrics to claim transparent and credible progress towards net-zero achievement or even to reduce any emissions. [According to a 2021 survey](#) of 1,290 companies with 1,000 or more employees, “only 11% have cut their emissions in line with their ambitions over the past five years.” The poor rate of corporate emissions reductions reported in this survey and elsewhere has been an impetus for corporations to cooperate with SBTi, the Greenhouse Gas Protocol and other standard setting organizations to contractually commit to net-zero emissions targets and related reporting standards. However, SBTi had only 10 validators in 2021 to review and verify the compliance of more than 1,000 companies committed to the SBTi Corporate Net Zero standard. As a result, companies pledging net zero by a specific target date have thus far promised too much and performed too little, according to a [recent review](#) of 25 multinational companies: “Net zero targets commit to reduce the analysed companies’ aggregate emissions by only 40% on average, not 100% as suggested by the term ‘net zero.’” (p. 5)

Whatever the HLEG recommends concerning net-zero standards and definitions, it should not risk the credibility of the U.N. Secretary General and the Intergovernmental Panel on Climate Change by developing a standard or definitions that ensure low cost and easy compliance by corporations and other non-state entities. In [IATP comments](#) (p. 5) on SBTi’s draft net-zero standard for Forestry, Land and Agriculture Group (FLAG) of companies, we agreed with SBTi that net-zero commitments should be realized through direct mitigation investments in corporate operations, supply chains and the communities in which the corporations operated, rather than rely on offset trading and purchasing to achieve net-zero targets. We urge the HLEG to follow this SBTi recommendation to use offsets, if at all, only after companies document that all other means to achieve the targets have been exhausted.

IATP agrees with SBTi that use of avoided emissions offset credits must not be counted towards complying with a corporate net-zero commitment, even though avoided deforestation credits [account for 32% of all offset credit types](#) (Figure 2). There is far too much uncertainty and potential for accounting arbitrage in the establishment of emissions baselines and jurisdictional level crediting for avoided emissions credits to be considered science-aligned, much less “science-based.” Because use of avoidance credits is prevalent among companies that claimed their [hydrocarbon cargos to be “carbon neutral,”](#) the HLEG and the Secretary General’s office will be under pressure to include avoided emissions credits in the Race to Zero net-zero standard and definitions. Both should resist that pressure.

Prior to proposing net-zero standards and definitions, the HLEG should first acknowledge that biogenic offsets cannot compensate for fossil fuel generated greenhouse gases on a 1:1 ratio, according to the 6th Intergovernmental Panel on Climate Change (IPCC) Assessment report (Chapter 5) and [peer reviewed literature](#). More simply put, it is physically impossible for short cycle biological carbon to offset long cycle geological carbon emissions. Because of this impossibility, the Task Force on Scaling Voluntary Carbon Markets [assumed tacitly in 2021](#) that

after 2025 offset credits will largely be derived from emissions removal technologies, such as Carbon Capture and Storage (CCS). (p. 32)

However, the most recent report of the IPCC [advised governments and non-state entities](#) that technology-based GHG removals cannot substitute for massive cuts in emissions. To rely on GHG removals to compensate for the current emissions pathway to overshoot the 1.5°C Paris Agreement target is to court catastrophe. The IPCC report describes a very, very limited role for removal technologies compared to the scale of emissions cuts required. Because of the huge costs and massive government subsidies to build and operate removal technology facilities to scale, founders of the first CCS company [recently argued](#) that it is a far better return on investment to take taxpayer funds for building CCS facilities and invest them in renewable energy generation and distribution. In sum, the HLEG should follow the IPCC's advice and proscribe a very, very limited investment (if any) in and use of removal technologies to achieve non-state entity net-zero targets. The HLEG should recommend, regarding land-based emissions, that Race to Zero members prioritize expedited reduction of methane, because it [reached a record high level in 2022](#), because it accounts for [about 25% of global warming](#), and because it persists in the atmosphere for just 12 years, much less than other greenhouse gases.

Credibility Criteria: Short-term interim targets, transition plans, measurement and reporting

IATP [strongly supported the SBTi FLAG requirement](#) that companies must set interim net-zero targets of no more than 10 years of duration to begin, preferably by 2025 but no later than 2030. (p. 7) Non-state entities may need to set medium-term targets for investments such as new facilities construction, replacement of fossil fuel vehicles with electric vehicles or long-term investments in renewable energy generation and distribution. Regarding reduction of greenhouse gases generated by agriculture, IATP has advocated for a just transition target by non-state entities that adopt [agroecological practices](#) to reduce industrial agriculture's huge dependence on fossil fuels and inputs derived from fossil fuels. [IATP recently wrote](#), "A true climate solution contributes to an integrated effort to reduce total GHG emissions and restore eroded agricultural systems while protecting the planet's adaptive capacity to cope with the changes caused by climate change that is already in progress. True solutions that combine sufficient food production with climate ambition exist. Rapid cuts to GHGs from agriculture are possible and necessary, as the three reports published by different IPCC working groups in the past year have made clear."

In our view, short-term interim targets for non-state entities are the most realistic framework for credible plans to manage transition risks effectively for three main reasons: 1) above all, because more rapid than anticipated impacts from [climate tipping points](#) could accelerate both physical damages to non-state entities and transition risks and increase the scale of those damages, and risks and the difficulty and costs of managing them; 2) changes in non-state entity personnel and management priorities can disrupt the best designed transition plans and investments made to realize those plans; 3) changes in governments can have similar disruptive effects that cascade through non-state entities, e.g., policies to favor carbon intensive

industries with government contracts, taxpayer subsidies, removal of regulation and/or of enforcement of regulation, etc.

Measuring and reporting Scope 1, 2 and 3 emission estimates will become easier for well-resourced non-state entities when the revised [Greenhouse Gas Protocol](#), co-developed and used by many companies is published at the end of 2022 or beginning of 2023. Nevertheless, non-state entities may lack the resources to use this Protocol and other standardized protocols, for example, the [Global Livestock Environmental Assessment Model](#) (scheduled for an update this fall) that IATP used in our [Emissions Impossible](#) reports. If resources are lacking, non-state entities will have to seek funding and possibly trained personnel seconded from governments to make effective use of the emissions measurement methodologies.

The [extreme and sustained underfunding of the Green Climate Fund](#) makes it an unlikely source of funding to improve GHG emissions measuring and reporting. Wealthy non-state entities with subsidiaries in many countries, including low-income countries, should see it in their fiduciary self-interest to fund improvements in measuring and reporting emissions beyond their value chains in the countries in which they operate. Measurement and reporting are first mitigation steps to plan corporate and community resilience to climate change impacts in low-income countries. (Adaptation to climate change is more important in low-income countries but is generally not a part of the net-zero mitigation focus.) As we indicated above, private sector funding is still a small fraction of global climate finance. Private sector companies have a fiduciary interest in achieving net-zero emissions targets not only in their operations and value chains, but also beyond the value chains to communities that provide workers, consumers and public services without which those companies could not prosper. The HLEG should not hesitate to outline in their report the risks of natural resource conflict, political upheavals and climate-related migration resulting from lack of project and program funding for mitigation and adaptation, particularly in low-income countries.

Verification and Transparency: Governance of targets

Governance of net-zero targets and the realization of net-zero commitments are of two types: 1) governance within the net-zero committing non-state entity to achieve the interim net-zero target, and 2) governance of the net-zero standards organization, most prominently SBTi. [SBTi](#) has begun to reorganize, and it is too soon to know whether reorganization will satisfy both its civil society critics and industry critics, particularly in the fossil fuels sector. It is clear that SBTi and related standards organization will need more financial and staff resources to verify corporate compliance with the terms of their net-zero compliance. SBTi and other standard setters should not rely for their budgets on fees from the corporations whose compliance they are validating. SBTi should develop a conflict-of-interest policy to prevent SBTi staff and contractors from working as consultants for the companies that have committed to SBTi corporate and/or sector specific net-zero standards. There is no surer way to undermine SBTi's reputation and the integrity of its standards than to allow conflicts of interest to persist with no policy to prevent their proliferation. and it is too soon to know whether reorganization will

satisfy both its civil society critics and industry critics, particularly in the fossil fuels sector. SBTi and related standards organizations will need more financial and staff resources to verify corporate compliance with the terms of their net-zero compliance. SBTi and other standard setters should not rely for their budgets on fees from the corporations whose compliance they are validating. SBTi should develop a conflict-of-interest policy to prevent SBTi staff and contractors from working as consultants for the companies that have committed to SBTi corporate and/or sector specific net-zero standards. There is no surer way to undermine SBTi's reputation and the integrity of its standards than to allow conflicts of interest to persist with no policy to prevent their proliferation.

Less clear is whether corporate boards and compliance officers will have the decision-making authority and resources to ensure that corporate policies, operations and investments change sufficiently to realize the company's interim net-zero commitment, particularly when realization brings financial pain. A tempting and, in the short term, cheaper alternative to operational policy and investment change is to purchase emissions offset credits and offset futures contracts, rather than directly reducing corporate emissions.

As we have responded to the "Standards and Definitions" topic of this consultation, SBTi sets stringent limits on the use of emissions offset trading to achieve net-zero targets and does not allow avoidance offsets to be used at all towards target realization. However, because the global purpose of net-zero target setting and realization is to achieve the 1.5°C target of the Paris Agreement, we address here verification and transparency of the offset trading that can and will be used outside the SBTi standards and definitions. (Although [academics have begun](#) to compare SBTi with other net-zero standards methodologies, it is beyond our capacity to evaluate them.)

The verification of emissions avoided, reduced or removed continues to be both a technological and methodological challenge to the environmental, social and financial integrity of offset trading, and none more so than regarding land-based sequestration projects. The [second consultation document](#) of the Task Force on Scaling Voluntary Carbon Markets (TSVCM) reports that 45% of emissions offset buyers responding to a TSVCM phase I survey, as of October 2020, were concerned about a "lack of environmental and social integrity of certain projects" (slide 50) from which offset and avoidance credits would be derived. Forty-one percent of buyer respondents were concerned about the double-counting of emissions reductions, avoidance and/or removals by the projects' home country (mostly a TSVCM identified dozen or so developing countries with the greatest "bio-potential" for offsetting) and the buyers' home country (mostly corporations and financial firms in North America and Europe) in reporting Nationally Determined Contributions to mitigation. (slide 50)

(The TSVCM plan to publish "key trading terms" by the end of 2021 for integration into the contract templates of the International Emissions Trading Associations and other similar associations, to scale up VCM trading volume 15-fold by 2030, has been postponed. The

TSVCM's successor, the Integrity Council for Voluntary Carbon Markets (IC-VCM), is [attempting to convince market participants](#) that better governance of offsetting MRV will ensure the integrity of globally tradable and fungible offset credits in cash, futures and swaps (Over the Counter) trading.)

[IATP described](#) a fundamental technological challenge to ensuring environmental integrity in our comments to the second TSVCM consultation paper. The TSVCM counts on terrestrial data sensors linked to remote sensing drones or even satellites to greatly increase the accuracy of avoided or reduced emissions monitoring, reporting and verification (MRV) in land based offset projects. We outlined our concerns about the “physical robustness and accuracy of sensors in different soil types, depths and topographiesⁱ and the reliability of their digital signals transmitting GHG information to satellites for subsequent downloading and data aggregation.” (p. 3)ⁱⁱ Furthermore, the MRV protocols that TSVCM and now the IC-VCM plans to certify for use in its Core Carbon Principle credit have themselves been subject to criticism for near total reliance on computer modeling of offsetting with a dearth of physical testing of soil types and soil depths. For example, [CarbonPlan recently determined](#) that based on a review of 33 protocol attributes according to four metrics, 14 verification protocols for soil carbon based Verified Carbon Units were of “poor quality.” Only three of the 14 protocols required direct sampling of soil before issuing VCUs based on soil sequestration. CarbonPlan [published a subsequent study showing](#) that the soil depth of direct samples used in offset projects verified by protocols was not deep enough to set emissions sequestration baselines.

Failings in MRV environmental integrity compromise the use of offset credits for achieving net-zero emissions and hence third-party validation of net-zero emissions claims. Compounding the difficulty of using offsets for setting net-zero targets or realizing net-zero commitments are the accounting and financial integrity problems of VCM trading. [Carbon Market Watch recently described](#) the difficulty of determining whether an offset credit has been retired: “In many cases, it is impossible today to verify that companies have retired the carbon credits they claim to have retired. It also cannot be fully ruled out that brokers are selling the same carbon credit to multiple companies.” The proposed Carbon Market Watch solution to this verification problem may or may not be adopted by the UNFCCC governments to which it is directed. However, VCM offset trading, like the implementation of the Paris Agreement Article 6 outlined market mechanism for Internationally Transferred Mitigation Outcomes, must resolve double counting and other accounting verification problems to be able to contribute to achieving the 1.5°C target.

A TSVCM leader, Annette Nazareth, has written that the use of Digital Ledger Technology (DLT) will enhance the accounting integrity of offsets in DLT enabled “smart contracts” to greatly reduce the possibility of fraud or misrepresentation of the quantity of emissions offset or avoided by the developers’ projects. IATP agrees that the use of DLT, with its immutable recordkeeping, can increase the accounting integrity of offset, avoidance and removal

contracts. However, [she writes](#), “The step of transferring information from humans to the digital DLT may be susceptible to fraud.” Furthermore, we would argue, the general Know Your Customer and Anti-Money Laundering requirements of trading are not resolved by use of DLT systems in the design and trading of “smart” emissions offset contracts.

The social integrity problems of emissions trading are major impediments to the use of emissions trading for a just transition to net-zero emissions and the 1.5°C target. Offset project developers have a [long history of human rights violations](#) and destruction of local economies to seize land for offset projects. The TSVCM would create and curate a Core Carbon Principle-based contract for offset trading that could be customized to include MRV for the Environmental Social Governance co-benefits of offset projects, including the protection of human rights land rights violated by offset project developers. CCP based contracts could also include, as an option (!), corresponding adjustments to prevent double counting of credits (Slide 28). IATP does not agree that corresponding adjustments or guaranteed protection of human rights, land rights and Indigenous rights should be reduced to an optional attribute of the Core Carbon Principle based contract. If emissions offset contracts do not include a guarantee of those rights and exchanges and market participants are not subject to penalties for purchasing and trading such contracts, the contract must not be allowed to trade either in voluntary or compliance markets.

Regarding the question of the relationship of the Race to Zero campaign to [the sources of input](#) for the UNFCCC Global Stocktake, IATP believes that reports from SBTi, emissions reporting standard setting organizations and emissions offset trading organizations should not be included among the “Submissions from non-Party stakeholders and UNFCCC observer organizations” (p. 58). Interim net-zero corporate commitments have not been realized. SBTi’s reorganization has not yet taken effect. SBTi has not validated the reports of SBTi net-zero committed companies. Environmental, social, accounting and financial integrity problems with offset projects, offset credits, offsets trading and offsets regulation persist.

Pathway to Regulation: Standards and Criteria in the context of a Just Transition

The quantification of mitigation ambition in standards enforced by a regulation applying to all sectoral Partners and member organization of Partners would seem to offer the surest way to net-zero achievement. Quantification allows for comparison of achievement by non-state entities.

However, the revised criteria present to non-state entities challenges in leadership that do not readily admit of uniform regulation but are nevertheless powerful tools to which Race to Zero partners and members can be held accountable, e.g., “Support a just transition. Explain how you will support communities affected by both climate impacts and the climate transition, and strengthen their participation in achieving the global goal of halving emissions by 2030, seeking

to address injustices and build towards a more equitable future.” (p. 12) The “leadership practice” is nested within the following revised minimum criteria for all Race to Zero partners and members: “Within 12 months of joining, publicly disclose a Transition Plan, City Plan, or equivalent which outlines how all other Race to Zero criteria will be met, including what actions will be taken within the next 12 months, within 2-3 years, and by 2030.” (p. 12) The Expert Peer Review Group analysis of plans submitted and leadership practices demonstrated could result in revocation of Race to Zero membership, if the plans submitted and leadership practices fail to meet the revised minimum criteria. The possibility of revocation is a reputational risk that will help drive robust and compliant planning and leadership practices.

The Race to Zero leadership is to be congratulated for reporting not only expert group consensus, but also lack of consensus about how to best achieve Race to Zero objectives, both regarding achieving absolute zero emissions and net-zero emissions objectives. Effective regulation relies on cooperation by and among the regulated entities. Regulation should not stifle dissent or criticism. In the absence of regulation, the Race to Zero should continue to report consensus, lack of consensus and issues under continued discussion among HLEG members and other expert groups advising Race to Zero.

Whether companies are committed to complying with the SBTi Net Zero Corporate Standard and/or to SBTi net-zero sectoral standards, there is ample room outside compliance with the standard to trade emissions offset derivatives to the extent profitable, rather than invest directly in reducing absolute emissions throughout corporate value chains. Corporations may experience reputational pressure for relying unduly on offset trading to achieve net-zero commitments and to manage transition risks. Their equity share prices may decrease if institutional investors are convinced that corporate transition plans lack credibility and major investment groups divest from such companies.

Advocates of voluntary carbon markets sometimes refer to trading emissions offset credits as a secondary but important means to manage climate-related financial risks. Instead, corporate lobbies should urge their members to invest directly in programs, programs and new products and services to reduce climate related financial risks and damages. For example, according to a 2022 [Conference Board study](#), “A corporate net-zero commitment seeks to reduce emissions as far as possible as the primary strategy. Offsets are only considered once strategies to avoid, reduce, and substitute have been implemented.” (The Conference Board is a global corporate research and lobby organization.) However, there are currently no legal means to limit a registrant’s use of cash market offsets and offset derivatives. Indeed, commodity exchanges, as for-profit entities on which offset contracts trade, have a fiduciary duty to maximize transactions, trading and clearing fees, and future new products, such as emissions removal offset derivatives contracts. The realization of this duty is limited only by the exchanges own trade limiting tools ([“kill switches”, price up down limits](#)) and rules and by government regulation.

There are no binding intergovernmental rules for exchange trading of any asset class, including emissions offset contracts. The International Organization of Securities Commissions (IOSCO) [announced in March](#) that it has “committed to an in-depth review of carbon markets to identify the vulnerabilities in nascent voluntary carbon markets, as well as the transparency and integrity in the functioning of carbon markets from the perspective of financial regulation.” The IOSCO review is unlikely to include an analysis of the role of emissions trading in managing corporate transition risk, much less a just transition. The review is likely to result in voluntary recommendations to its members to harmonize governments’ high-level principles, regulations or voluntary guidance relevant to emissions offset trading.

Market discipline to voluntarily limit the use of emissions trading to achieve net-zero targets is greatly challenged by the economic incentives for exchanges and market participants to transact offsets as much as is profitable until a sustained price bust tempers carbon market fever. [Similar price boom and bust trading](#) occurs where the tradable assets are the easier to standardize carbon allowance credits. As a result, building a bridge from voluntary carbon markets and self-imposed limits on the use of emissions offset trading to achieve net-zero commitments under a regulatory regime is difficult to imagine.

The authors of a [2011 U.S. federal interagency study](#) note, “No set of laws currently exist that apply a comprehensive regulatory regime – such as that which exists for derivatives – specifically to secondary market trading of carbon allowances and offsets. Thus, for the most part, absent specific action by Congress, a secondary market for carbon allowances and offsets may operate outside the routine oversight of any market regulator.” (p. 42) Currently, there is no specific U.S. statutory authority for the regulation of offset derivatives trading and market participants. It is extremely unlikely that U.S. Congress will provide such authority, given the U.S. laws and judicial orders that facilitate minority rule. Although there is government regulation of compliance credit and renewable energy certificate trading, IATP is unaware of binding regulations anywhere that specifically govern offset trading.

To reiterate, whether market participants are committed to complying with the SBTi Net Zero Corporate Standard and/or to SBTi net zero sectoral standards, there is ample room outside compliance with the standards for corporations to trade emissions offset credits and offset credit derivatives to the extent possible, rather than invest directly in reducing absolute emissions throughout corporate value chains. Despite a lot of work to improve the procedural integrity of the governance of voluntary MRV protocol, the extent of environmental, social and accounting integrity problems with VCMs do not make emissions offset trading fit for purpose to realize net-zero commitments, much less the 1.5°C target.

There is an opportunity cost to diverting corporate capital to financing offset projects and offset trading, rather than prioritizing mitigation investments whose return on investment may be more difficult to estimate and communicate to shareholders. Corporate transition risk scenario

analysis must include [basic opportunity cost analysis](#), however more complex for climate change related financial risk.

Other

Additional relevant resources from the Institute for Agriculture and Trade Policy

<https://www.iatp.org/new-research-chemical-fertilisers>

<https://www.iatp.org/documents/behind-curtain-jbs-net-zero-pledge>

<https://www.iatp.org/documents/net-zero-greenwash-global-meat-and-dairy-companies>

<https://www.iatp.org/documents/international-emissions-trading-association-and-net-zero>

<https://www.iatp.org/blog/202012/making-carbon-trading-globally-legitimate-road-show-has-begun>

<https://www.iatp.org/will-cftc-greenlight-carbon-emissions-offset-market-boom-and-bust>

<https://www.iatp.org/documents/regulate-global-meat-and-dairy-companies-cut-methane-and-avoid-climate-breakdown>

<https://www.iatp.org/milking-planet>

<https://www.iatp.org/questions-answers-milking-planet>

<https://www.iatp.org/emissions-impossible-europe>

ⁱ “NNI Sensor Integration, Fabrication and Commercialization Workshop Proceedings: September 11-12, 2014, National Nanotechnology Initiative, 2015, at 5.

https://www.nano.gov/sites/default/files/pub_resource/nnisensorsworkshopreport.pdf

ⁱⁱ For example, the authors of the following remote sensing study report “significant uncertainty” in aggregating data on agricultural land use/land cover at a national scale. The topography of the land studied is flat, unimpeded by the digital signal disruptive forest canopies of many emissions’ avoidance projects. Tyler J. Lark, Ian H. Schelly and Holly K. Gibbs, “Accuracy, Bias and Improvement in Mapping Crops and Cropland across the United States Using USDA Cropland Layer Data,” *Remote Sensing*, March 4, 2021. <https://www.mdpi.com/2072-4292/13/5/968>