Trends in US and International Carbon Offset Markets

Corporate Carbon Neutrality & Nature-Based Solutions

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Executive Summary

In the face of growing public and scientific pressure to raise global climate ambition, more and more major corporations in the United States and elsewhere are adopting ambitious climate goals. This proliferation of climate commitments has fueled extraordinary growth in the voluntary market for carbon offsets, defined here as carbon credits that are used to compensate for emissions. This trend will likely continue for at least the next several years and possibly longer as corporations strive to meet new voluntary pledges to become carbon neutral.

With the potential to deliver several billion tons of emission reductions and carbon removals per year, the projects funded by corporate offset purchases could make a sizable contribution to the achievement of climate and sustainability goals, particularly those from forests and other nature-based solutions. At the same time, there is a real risk that the potential of the voluntary carbon market (VCM) will not be realized. Nations and climate change stakeholders have yet to reach a consensus on key norms and rules for offsets, creating uncertainty about the integrity of offsets and how to use them. Meanwhile, corporations are pursuing a variety of approaches, some more responsible than others. Under these circumstances, new corporate claims regarding the carbon neutrality of their firms or products threaten to spur a global backlash against offsets that would undermine any contribution they might make to the achievement of the temperature goals of the Paris Agreement, as well as broader development goals.

To avoid this, stakeholders across the spectrum will need to work to channel growing demand for offsets toward meaningful climate action and avoid various potential pitfalls. To prevent double counting and ensure environmental integrity, governments need to reach an agreement soon on the rulebook for the Paris Agreement, especially on Article 6. To provide clarity to offset purchasers about best practices, climate advocates and other stakeholders need to establish clearer norms about when and how companies should use offsets and make carbon neutrality claims. Finally, companies and governments will need to make sure that offset purchases genuinely contribute to sustainable development and climate action, since big offset announcements are likely to face enormous public scrutiny.

This report aims to clarify the role American companies can play in ensuring that the potential of offset purchases is realized. To do so, we explore some of the social, political, legal and market dynamics companies planning to buy offsets to achieve their climate goals will need to navigate, as well as the criticisms and reputational risks to which they thereby open themselves. We offer the following recommendations to companies trying to navigate this complex landscape.

- Companies that choose to buy offsets as part of their broader climate strategies should seek to ensure that those offsets are of high-integrity.
- Whether or not they choose to buy offsets, companies should work to ensure that their broader business model is aligned with their climate commitments, including internal protocols and incentives, as well as any political activity.
- Regardless of whether they buy offsets, companies should set ambitious, science-based targets for their own emissions, aiming to achieve net-zero by mid-century. Commitments should include interim abatement targets for 2030 and 2040 in line with that long-term goal and should encompass scope 1, 2, and 3 emissions.
Companies should bear in mind the mitigation hierarchy as outlined in the Oxford Principles for Net Zero Aligned Carbon Offsetting, prioritizing direct emissions reductions in their own operations and only buying offsets to cover those they have not (yet) been able to reduce.

In addition to offsetting, companies should consider other ways of contributing to the global climate effort, such as those discussed in the World Wildlife Fund’s (WWF) new corporate climate action blueprint.

Whether or not they choose to buy offsets to reduce their emissions, companies whose infrastructure causes localized harms (such as oil refineries and gas pipelines) should prioritize addressing the causes of those harms, even if reducing those harms does not directly lead to any emissions reductions.

Companies should monitor relevant policy developments both at the international and at the federal levels and shape their long-term climate strategies accordingly.

Companies should support legislative and regulatory efforts to promote ambitious climate action.

Introduction

In the face of growing public and scientific pressure to raise global climate ambition, more and more major corporations in the United States and elsewhere are adopting ambitious climate goals. This proliferation of climate commitments has fueled extraordinary growth in the voluntary market for carbon offsets, defined here as a carbon credit that is used to compensate for emissions. This trend will likely continue for at least the next several years and possibly longer as corporations strive to meet new voluntary pledges to become carbon neutral.

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To avoid this, stakeholders across the spectrum will need to work to channel growing demand for offsets toward meaningful climate action and avoid various potential pitfalls. To prevent double counting and ensure environmental climate integrity, governments need to reach an agreement soon on the rulebook for the Paris Agreement, especially on Article 6. To provide clarity to offset purchasers about best practices, climate advocates and other stakeholders need to establish clearer norms about when and how companies should use offsets and make carbon neutrality claims. Finally, companies and governments will need to make sure that offset purchases genuinely
contribute to sustainable development and climate action, since big offset announcements are likely to face enormous public scrutiny.

This report aims to clarify the role American companies can play in ensuring that the potential of offset purchases is realized. We begin with a broad overview of relevant trends and go on to explore some of the social, political, legal and market dynamics companies planning to buy offsets to achieve their climate goals will need to navigate, as well as the criticisms and reputational risks to which they thereby open themselves. In particular, we consider the following topics (in order):

- How the voluntary offset market could be impacted by the outcome of ongoing negotiations regarding Article 6 of the Paris Agreement;
- Potential policy developments in the United States and their impacts on corporate offset purchases and related claims;
- Whether supply of high-integrity, nature-based offsets will be adequate to meet growing demand;
- Reputational risks for companies relying on offsets, including the potential of offset purchases to implicate companies in violations of forest-dependent peoples’ customary land rights and interference with their ways of life, charges of greenwashing, and the risk that companies will be charged with failing to take environmental justice concerns seriously; and
- Controversy surrounding the trend of offering so-called “carbon-neutral” products and services backed by offsets, especially oil and gas products.

The report concludes with several recommendations for companies considering relying on offsets to meet their climate targets.

Overview of Recent Trends
Voluntary corporate commitments to reduce greenhouse gas (GHG) emissions have multiplied in response to pressure from consumers, investors and broader stakeholders and as a result of a growing recognition by many firms that being proactive in their responses to climate change is likely to put them at a competitive advantage in the future. This is due to the expectations (i) that government policy and regulation are likely to become progressively more ambitious and/or restrictive, (ii) that exposure to climate risk will increasingly become part of lending and investment criteria and (iii) that consumer markets will increasingly expect “carbon neutral” or low carbon products (as well as ones that meet robust ESG criteria).

These voluntary commitments accelerated significantly in the United States and globally in the second half of the last decade. The number of companies with net-zero commitments has more than tripled since the publication of the most recent UN Emissions Gap Report in late 2019. According to a September 2020 study by the New Climate Institute and Data-Driven EnviroLab, net-zero commitments have been embraced by 1,541 companies with a combined revenue of

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more than $11.4 trillion. The report states that together these companies "account for 3.5 gigatonnes in GHG emissions, an amount greater than India’s annual emissions." If anything, this trend toward corporate carbon neutrality targets is likely to accelerate. Consequently, the most recent State of the Voluntary Market report finds that supply will need to increase 15-fold to meet expected demand.

The recent proliferation of commitments is the result of a number of factors. First, as it has become clear that existing government policies are insufficient on their own to meet the Paris Agreement goal of reaching net-zero emissions by mid-century, civil society actors, UN Agencies, and representatives of the private sector have ramped up efforts to mobilize businesses for climate action, including through the following initiatives:

- **Race to Zero**, a campaign led by UN high-level climate champions to urge companies, universities, investors, cities and regions to commit to reaching "(net)-zero in the 2040s or sooner, or by midcentury at the latest, in line with global efforts to limit warming to 1.5°C." Since the campaign was launched at the UNSG Summit in 2019, 1,391 businesses have joined.

- **The Climate Pledge**, an initiative started by Amazon in 2019 urging companies to target net-zero carbon emissions by 2040. The Pledge currently has 31 signatories.

- **Business Ambition for 1.5°C**, an effort by a coalition of UN agencies, NGOs and representatives of business and industry inviting companies to commit to an emissions trajectory consistent with a temperature rise of no more than 1.5°C. Over 400 companies have signed on.

- **The Science-Based Targets initiative (SBTi)**, a partnership between CDP, WWF, World Resources Institute (WRI) and the UN Global Compact. Companies signing up are required to adopt a voluntary emissions reduction target and defined pathway for achieving it that are in line with what the "latest science deems necessary to meet the goals of the Paris Agreement". Offsets are only considered to be an option for companies wanting to contribute to finance additional emission reductions beyond their science-based target (SBT) or net-zero target. Avoided emissions are also not counted towards SBTs.

- **The Taskforce on Scaling Voluntary Carbon Markets** was established by the Institute of International Finance in 2020 to assess how the VCM can be expanded by at least to 15

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3 Ibid.

4 Stephen Donofrio, et al., The Only Constant is Change, Ecosystem Marketplace, December 2020, https://share.hsforms.com/1FhYs1TapTE-g8xAxgy-jg1yp8f, p. 6.


times its current scale by 2030 and so contribute to faster global emission reductions.\textsuperscript{12} After several months of analysis, consultation and review, the Taskforce published its findings in January 2021, with 20 recommended actions aimed at increasing the attractiveness of the market to mainstream finance.

In addition, financial regulators have pressured financial institutions to disclose climate-related risks, leading to greater understanding of both the risks associated with inaction and the opportunities associated with innovation available in burgeoning, low-carbon markets. Finally, most major companies in the United States predicted that the rollback of climate policies under the Trump administration would be temporary and, therefore, continued with their own climate plans in anticipation of future regulation or market forces.

The merits of voluntary corporate commitments have been widely debated. On the positive side, the following considerations have been put forward:

- The Biden administration’s ambitious rhetoric and commitments notwithstanding, the United States government has yet to enact the policies needed to put the country on an emissions trajectory consistent with what the science suggests is needed to meet the Paris goals. American companies both can and should fill the gap by going beyond mandated targets.
- In addition to filling the gap, the setting of ambitious targets by corporates – and especially their achievement – can help to send powerful signals to federal, state and local governments that they should not be afraid to embrace more ambitious policies and measures.
- In cases where corporate commitments include carbon pricing or other internal targets and mechanisms, they are likely to drive innovation and adoption of new lower carbon techniques and technologies more quickly than would be the case with an approach based purely on compliance.
- Commitments by companies often include targets for their supply chains and consumption of their products and services (Scope 3) which are not covered by domestic policy and therefore drive greater understanding and investment in emission reductions than would otherwise be the case, especially in developing countries.
- Sector- or technology-specific targets such as the renewable power commitments made by the members of RE100 can accelerate the adoption and reduce the cost, of low-carbon solutions more quickly than would be the case with policy alone.
- Companies relying on offsets to achieve their climate goals can channel funds to mitigation and resilience-building in developing countries. Given that nature-based solutions represent up to one third of the near-term mitigation potential but currently receive less than 4% of mitigation funding, corporate investments can be an effective way to scale them up quickly.\textsuperscript{13}

\textsuperscript{12} “About Us,” Institute for International Finance, \url{https://www.iif.com/tsvcm}.
\textsuperscript{13} For the claim that nature-based represent up to one third of mitigation potential, see Griscom, et al., “Natural Climate Solutions,” \textit{PNAS} 114, no. 44 (October 2017): 11645-11650, \url{https://www.pnas.org/content/114/44/11645}. The claim that they receive less than 4% of mitigation funding is derived from figures presented at Buchner, et al., \textit{Global Landscape of Climate Finance 2019}, (London: Climate
The various considerations in their favor notwithstanding, voluntary commitments have also been criticized on multiple fronts. Some observers have viewed voluntary commitments as “letting governments off the hook,” since governments can point to the voluntary actions as evidence that tighter policy is unnecessary. Others have worried that, since corporates will only commit to targets that are relatively cheap and easy to achieve, voluntary commitments are just a façade companies use to distract from the fact that they are not making the transformational investments and changes in product and process needed to decarbonize. In cases where corporate commitments rely substantially on the use of offsets, it has also been argued that the relatively low prices of offsets (compared to internal investments) reduce the incentive for action at the source and strengthens a market perceived to reward low-integrity projects that generate non-additional credits and do little to support long-term climate action. Finally, many observers have raised concerns about the so-called “integrity” of the offsets on which many companies plan to rely. In this context, “integrity” encompasses the following considerations:

- **Additionality.** The extent to which each offset truly represents one ton of emission reduction or removal that would not have occurred without the project investment. In other words, does the project the offset purchase supports avoid or remove emissions that would have been emitted or remained in the atmosphere in the absence of the project?
- **Conservative baselines.** Calculating a project’s impact requires setting a baseline specifying the “business as usual” level of emissions. As the baseline is a counterfactual, it is important that it is set conservatively to ensure that credits are not issued to emission reductions and removals beyond those genuinely generated by the project.
- **Permanence.** How long will the project reduce or remove emissions? If it does so for only a short time, the project cannot credibly be claimed to offset emissions. This is particularly important for credits from avoided deforestation and reductions through reforestation and habitat restoration.
- **Leakage.** If a timber company is prevented from clear-cutting 10 ha of forest but can simply move over a few kilometers and cut down some other 10-ha patch of forest, the resulting emissions are said to “leak” from one area to another. In such cases, no emissions are avoided. High-integrity offsets are designed in such a way as to prevent leakage.
- **Co-benefits.** Does the activity generating the offset lead to ancillary social, economic and/or environmental benefits or damage?
- **Compatibility with needed broader changes.** Does the use of offsets slow the development and uptake of transformation solutions in the buying entities and their sectors/countries?14

Integrity-related concerns play a central role in our discussion.

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In the United States, the general public is neither aware of nor particularly interested in offsets. Nor has there yet been much interest in the voluntary market among policymakers, though we mention a handful of exceptions in section 3 below. While many environmental advocates and NGOs are skeptical of corporate reliance on offset purchases to meet climate targets, conservation-focused NGOs and those involved in the design of the voluntary carbon market are generally more supportive and emphasize its potential both to deliver high-integrity carbon offsets and to contribute to emerging national and international climate action and the goals of the Paris Agreement.15 Our view is that much depends on the kinds of commitments being made and, in particular, whether or not they increase global climate ambition. If based on a clear hierarchy of action with internal and supply chain transformation at the top, robust commitments that aim for net zero emissions before 2050 and use high quality offsets at a rapidly declining rate are likely to drive change and accelerate the shift to a net zero carbon world. However, commitments that are based largely or even exclusively on offset use, with little action at source and little or no attention to offset quality, are likely to do little at best and be counterproductive at worst, especially if they are coupled with advocacy against more ambitious policies.

Besides this broad question about whether or not they are liable to make a meaningful contribution to climate action, corporate strategies that rely on offset purchases are also subject to myriad uncertainties. In addition, these strategies open companies up to a variety of criticisms and reputational risks. We explore some of the most important of these uncertainties and hazards in sections 2 through 6 below.

Implications of International Negotiations for Firms using Offsets to Meet Voluntary Climate Commitments

Voluntary offset markets will be affected by international systems under the Paris Agreement, so it is important for buyers to understand the outstanding issues in negotiations and the consequences of their resolution. Particularly important are the rules for international accounting and transparency under the Paris Agreement, as they relate to international transfers of emissions credits, which have not yet been agreed to or implemented. This section explores the state of the negotiations, providing analysis on the outstanding issues, the United States’ position and potential impacts for companies buying offsets. Additional detail about other countries’ positions and about exogenous influences on the negotiations is included in an appendix at the end of the report.

Starting Point: What is Already Agreed

There is no direct link between voluntary carbon markets and the Paris Agreement, an agreement negotiated and ratified by national governments. Only the Parties to the Paris Agreement are directly accountable to the goals, rules and guidance that govern its implementation. However, there is a connection through the alignment of interests and goals, the underlying science and the

possibility that a government implements the rules domestically. Where the objectives of private sector actions – including through the use of VCMs – include contributing to national and global goals to combat climate change, the decisions adopted by the United Nations Framework Convention on Climate Change (UNFCCC) can have a strong, if indirect, impact on the VCM.

In this context, the most direct link to the Paris Agreement is Article 6, which establishes a broad framework for voluntary cooperation among Parties in implementing their Nationally Determined Contributions (NDCs) to allow for higher ambition in their mitigation and adaptation activities and to promote sustainable development and environmental integrity.\textsuperscript{16} It describes three approaches through which Parties may interact: 1) Article 6.2 — bilateral or plurilateral cooperative approaches via internationally transferred mitigation outcomes (ITMOs); 2) Article 6.4 — a centrally-governed UNFCCC mechanism to contribute to mitigation and support sustainable development; and 3) Article 6.8 — non-market approaches.\textsuperscript{17} While the Paris Agreement set the context for the use of such voluntary cooperation — “to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity” — and the requirement to avoid double counting of emissions reductions, the Parties have yet to adopt rules and guidance needed to operationalize the three approaches. The analysis in this paper is based on the draft text as of the close of the Subsidiary Body for Scientific and Technological Advice (SBSTA) 51, at the Conference of Parties (COP) 25 in December 2019\textsuperscript{18} and personal communications with several negotiators (‘off the record’) and non-governmental experts.

### The Process & Impact of Delayed Resolution of Article 6 Negotiations

The COVID-19 pandemic has delayed formal negotiations but virtual, ad-hoc meetings among Parties have been occurring in the interest of accelerating progress in the formal negotiations when they resume, which may not happen until COP 26 in November 2021. Article 6 remains the only un-finished element of the Paris Agreement ‘Rulebook’ adopted by COP 24 in Katowice, Poland, in 2018. The UK COP 26 Presidency has recognized the importance of reaching agreement on this item and has been facilitating and encouraging various international dialogues, among governments and private sector stakeholders, to increase the likelihood of a positive outcome at COP.

Further delay in reaching a COP decision is unlikely to slow the growth in the voluntary carbon market but will contribute to prolonging some uncertainty in what constitutes a ‘Paris-compliant’ market-based approach.

### Outstanding issues under negotiation by UNFCCC bodies

This section provides an overview of the most significant issues still being negotiated by UNFCC bodies.


\textsuperscript{17} Paris Agreement, Article 6, Paragraphs 2, 4 and 8, respectively.

\textsuperscript{18} See “Matters relating to Article 6 of the Paris Agreement” at https://unfccc.int/event/cma-2#eq-9.
Issue: Applying Corresponding Adjustments

The requirement to make a corresponding adjustment to a Party’s NDC for every credit (emission reduction/removal/avoidance) transferred beyond its national borders is key to avoiding double counting and thereby ensuring the environmental integrity of any transfers recognized under Article 6. In the absence of a corresponding adjustment, it is possible that a credit is used by both a company towards its net zero carbon (or carbon-neutral) goal and by the host country towards its NDC.19

As agreed at COP 24, Paragraph 77(d) of the Enhanced Transparency Framework (ETF) applies high-level reporting requirements for internationally transferred mitigation outcomes used toward an NDC or used for international mitigation purposes other than achievement of its NDC, which would include transfers to international airlines under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).20 This language in Paragraph 77(d) is an important foundation for ensuring no double counting. However, Parties have yet to affirm and strengthen this provision in the more detailed Article 6 guidance. The vast majority of Parties agree and insist on mandatory corresponding adjustment as a critical means of avoiding double counting of emissions reductions. Brazil, however, has resisted this requirement; for details, see the appendix.

As companies’ commitments come under greater and greater scrutiny and NGOs and media observers become more familiar with the complexities of GHG accounting, companies may be pressed to buy emissions reduction credits originating only from countries that make corresponding adjustments to their NDC to account for the transfers. As a result, demand for such emissions reduction credits may grow in the future. At present, however, the market is not so sophisticated, and demand for corresponding adjustments for credit transactions in the voluntary market is low. Nevertheless, anticipating that corresponding adjustments will ultimately be required in the Article 6 guidance (for national governments), some carbon credit standards setting bodies have already developed accounting standards that require corresponding adjustments. Going forward, Verra will likely operate two standards for emissions reduction/removal units (VCUs), one that comes with corresponding adjustments and one without them.21 By contrast, The Gold Standard will require corresponding adjustments for all emissions reduction/removal credits sold to foreign buyers.22

Verra and The Gold Standard have slightly different missions and visions that guide their decisions, and experts are divided as to which approach is best at this point in time. In theory, and logically, if a foreign investor pays for an avoided or sequestered tonne of GHG emissions, that should enable the host country to allocate its resources to reduce or sequester an additional tonne. However, some experts worry that requiring corresponding adjustments for all internationally transferred emissions credits, regardless of the buyers’ interests or needs, will not in fact improve

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19 “Mobilizing Voluntary Carbon Markets to Drive Climate Action: Recommendations.”
the quality of the credit or integrity of the market system, as it is intended to. This is because a corresponding adjustment is made to the host country's NDC, and some countries, especially developing countries that lack sufficient resources or data, have set their NDCs on the basis of incomplete and/or imprecise information, combined with a subjective consideration of the financial needs to achieve the NDC target. As a result, such NDCs are seen as somewhat speculative in the first place. Given resource constraints, requiring such countries to make precise adjustments to their NDCs to reflect international transfers of offset credits to voluntary markets is unlikely to improve either their climate ambition or, consequently, the ability of the voluntary market to contribute to additional, faster reductions in the atmospheric concentration of GHGs. In addition, it is possible that requiring corresponding adjustments for all international offset sales would lead some countries to preemptively moderate ambition in an attempt to avoid being criticized for overstating their contribution to climate action. It is hard to say how likely this is. Regardless, this risk is likely to decrease over time as host countries develop the capacity to better integrate project-level activities into their NDC modeling projections and NDCs become more standardized and precise. As civil society pressure to prevent greenwashing increases, and as the scale of the voluntary carbon markets grows, one can foresee a point at which corresponding adjustments for international, voluntary transactions will become 'standard'.

**Issue: Applying a Corresponding Adjustment for Sectors and Gases Outside of a Country's NDC**

While all Parties to the Paris Agreement should include in their NDC all significant sources and sinks of GHGs within their borders, the limited capacity of many developing countries (e.g., insufficient data and/or monitoring systems) results in incomplete coverage. Over time, as they develop the necessary information and capacities, countries are expected to reduce these gaps in coverage.

The voluntary carbon market has a clear role to play in sectors and gases that are currently outside the scope of countries' NDCs. Such activity can build capacity and improve the scope and quality of information that a government will need to integrate those sectors and gases into the next update of the NDC.

When emissions reduction or removals from sectors or gases outside of the scope of a country's NDC are transferred without any government involvement, there is no risk of double counting by the government against its NDC, and therefore no need for a corresponding adjustment to the NDC. However, where such transfers have been authorized or attested by the national government, it is expected, but not yet agreed by the Parties, that the Article 6 rules will trigger a corresponding adjustment and update of its NDC to include the sector and/or gases in question.

**Issue: The Transition of the Clean Development Mechanism (CDM) to the Article 6.4 Mechanism**

Simply put, there is ongoing disagreement on how the Article 6.4 mechanism (a.k.a. Sustainable Development Mechanism) should differ from the CDM in order to capture the intent — as described in Article 6.4 — of serving sustainable development goals and/or objectives. Once the guidance for the development of the centralized mechanism is agreed, it will take some time to
build and operationalize it. Until then, the VCM and Article 6.2 arrangements will serve the demand for emissions reduction credits.

Issue: Reporting Requirements under the Paris Agreement
It is important to note that the Katowice rulebook included modalities, procedures and guidelines for the ETF for reporting and review (Article 13) and specifically includes requirements related to Article 6. According to the Katowice COP decisions, Parties are required to report on the outcomes from the use of cooperative approaches under Article 6. VCM transfers (international) do not classify as ITMOs and therefore are not required to be included in the Biennial Transparency Report (BTR), the main instrument of the ETF. However, a Party may voluntarily report VCM transfers as the basis for calculating a corresponding adjustment to their NDC accounting. As yet, there is no guidance on how such VCM transfers would be monitored by a government but the majority of VCM activity is reported in publicly accessible registries.

The next stage of negotiations is on the design of common reporting format tables, where some Parties (mainly Brazil, China, India, Egypt and South Africa) are effectively delaying progress on what should be a purely technical matter. These Parties have been arguing that the format of tables cannot be agreed until Article 6 negotiations have concluded and/or are objecting to any refinement or specification of the agreed reporting requirements. For the VCM, the impact of delay is negligible until or unless VCM participants demand that countries voluntarily commit to make corresponding adjustments to their NDC for VCM (international) transactions or favor countries that do so. In other words, if a buyer wants a guarantee that the emission reduction or removal credits they are acquiring will not also be counted towards the host country’s NDC, they will want to have those units reported in the BTR along with a corresponding adjustment to the NDC.

Another issue related to reporting under the ETF concerns how Parties report on indicators to track progress towards implementation and achievement of its NDC. If a Party with a single-year emissions target (e.g. 2025 or 2030) were to report on its emissions only in the target year then emissions balance resulting from the international transfer of emissions reduction credits (i.e. ITMOs) could not be accurately accounted for during the implementation period, which would be detrimental for environmental integrity.\(^\text{23}\) In other words, if the VCM recognizes the value of governments voluntarily making corresponding adjustments to NDCs for VCM transfers, then this issue of reporting on progress towards single-year targets becomes relevant.

The United States’ Negotiating Position
The United States has returned to the Paris Agreement this year with a very ambitious political mandate for domestic and international climate action. Restoring international confidence in their commitments is a top priority but will take some time. As one of the prime architects of the Paris Agreement, the United States is expected to play a strong role in building consensus on Article 6 as it supports the country’s top priorities of raising ambition and finance for climate action.

Under the previous administration, the United States played an active role in the negotiation of the ICAO CORSIA rules, and its positions on Article 6 issues have not changed substantially in the last four years. While the United States’ revised NDC states that, “[a]t this time, the United States does not intend to use voluntary cooperation using cooperative approaches referred to in Article 6.2 or the mechanism referred to in Article 6.4 in order to achieve its target,” the U.S. federal government is making sure its systems can accommodate any future change in intent. The Eastern States of the U.S. employ a market mechanism under the Regional Greenhouse Gas Initiative (RGGI) and the State of California is maintaining an emissions trading market with the Canadian Province of Quebec. The voluntary carbon market is playing a significant and growing role in meeting U.S. corporate emissions targets. The U.S. federal government is, therefore, expected to have a strong interest in ensuring that any COP decisions related to Article 6 contribute to harmonizing standards for high integrity and increasing in ambition, while avoiding direct interference with the voluntary carbon market.

The U.S. has not expressed publicly any preference for Article 6.2 or 6.4 market approaches. Most of their discussions, internally and with other Parties and stakeholders, have focused on Article 6.2 but this may be due to less detail or certainty available regarding the 6.4 mechanism.

Implications for Companies

In summary, the resolution of UNFCCC negotiations under the Paris Agreement of rules and guidance governing the international transfer of emissions reductions or removals will impact the voluntary carbon market in two ways. First, a successful agreement, resolving the lack of clarity on key issues of accounting and transparency for national governments, is key to addressing legitimate questions over the environmental integrity of corporate claims involving the use of international offsets – particularly the question of double counting or double claiming. In effect, the rules and guidance pertaining to Article 6 transactions between national governments will set a standard by which all international emissions trading systems will be judged. Offset buyers, therefore, will (or should) be interested in knowing the degree to which the units they purchase are recognized by national government policy and systems, which (in turn) must meet the requirements under the Paris Agreement. In addition, the resolution of these negotiations should lead to a significant opening up of supply, particularly for forest-based carbon credits, as many developing country governments have been reluctant to facilitate such supply pending their outcome.

Potential Impacts of United States Federal Policy on Companies and the Voluntary Market

In addition to international negotiations regarding Article 6 of the Paris Agreement, corporate climate strategies will also need to take into account relevant policy developments at the national level. So far, there have only been a handful of policy developments at the United States federal level that could affect the voluntary carbon market or companies’ climate strategies; however, more may be coming in the future. In particular, our interviews with NGOs and Capitol Hill staff suggested that federal lawmakers and regulators may enact policies that would affect companies’ labelling and advertising, aim to ensure the integrity of the offset market and try to prevent double-
counting. In addition, there may be an appetite on Capitol Hill to enact policies that would regulate offset purchases by airlines. This section describes these potential developments and analyzes their relevance for American companies.

Labelling and Advertising
In the United States, the Federal Trade Commission's “Green Guides” already regulate claims about companies' use of offsets and their products’ climate impacts. The Guides indicate that “marketers should clearly and prominently disclose if the carbon offset represents emission reductions that will not occur for two years or longer” and say that it is “deceptive to claim, directly or by implication, that a carbon offset represents an emission reduction if the reduction, or the activity that caused the reduction, was required by law.”24 Several sources interviewed for this project indicated that they would not be surprised to see these regulations revised or amended going forward. Companies will need to shape their marketing efforts accordingly.

Integrity
There is also a real possibility that the United States will enact legislation intended to ensure the integrity of American offset projects. Last year, Senators Whitehouse (Democrat, Rhode Island), Stabenow (Democrat, Michigan), Braun (Republican, Indiana) and Graham (Republican, South Carolina) introduced the Growing Climate Solutions Act in the United States Senate.25 The bill would enable the United States Department of Agriculture to certify third-party verifiers, in effect giving them, and the offset projects they verify, a government stamp of approval. Though it did not pass, the bill’s introduction indicates growing interest in ensuring the credibility of agriculture-based offsets in the United States, as does its recent re-introduction in April. Any such legislation will give companies more confidence in the integrity of affected offsets.

Double-Counting
One source we spoke to suggested that, once negotiations regarding Article 6 of the Paris Agreement are concluded, the United States and other national governments may seek to regulate corporate purchases of offsets so as to prevent double counting. Of course, this is unlikely to happen if the Paris rulebook does not require corresponding adjustments.

CAFE Standards for Airlines
Finally, our interviews with Capitol Hill staff suggested there may be interest among federal lawmakers in setting up policy infrastructure for airlines similar to the Corporate Average Fuel Economy (CAFE) standards for motor vehicles. The latter require automakers' fleets to achieve certain average fuel economy levels each year; manufacturers whose fleets exceed those standards earn credits, while those whose fleets fall short must buy them. A similar system for airlines could set emission caps per plane and require aircraft carriers to offset any emissions in

excess of their allowance for that year. In that case, the legislation would surely include language about the standards offsets would have to meet to be eligible. If sufficiently stringent, those standards could increase demand for, and so supply of, high-integrity credits.

Supply and the Integrity of Offset Programs

Some observers have expressed concern that rapidly growing demand may outpace supply, especially for nature-based offsets. The availability of carbon offsets – from voluntary or compliance-driven markets – depends on a number of factors. The most important of these include the following:

- The physical availability of emission abatement potential from different sectors and regions;
- The extent to which this abatement potential is covered by policy and regulation;
- The price of offsets, driven largely by demand, which is itself a function of corporate commitments, sectoral offsetting commitments, the cost of abatement more generally, regulatory obligations and economic growth, among other things; and
- The cost of generating offsets, including (i) the underlying cost of offset projects (ii) the costs of additional attributes, both process and outcome and (iii) administrative costs, such as validation and verification, monitoring and evaluation, registry fees and insurance.

We examine each of these factors in turn and then draw some partial conclusions regarding the likely availability of sufficient offsets to meet corporate demand.

Physical Availability

Projects registered in the Verified Carbon Standard (VCS) registry currently generate approximately half a billion tons CO2 equivalent (CO2e) of emissions reductions or removals a year. It is difficult to calculate the total annual reductions and removals from other registries but — for want of a better approach — assuming that that the total stock of credits from other programs is proportional to the volume issued each year, our analysis suggests that there are up to one billion tons of potential carbon credits potentially being generated annually. This is about six times the total issued in 2020. This is corroborated by New Climate Institute research that estimates that up 18 gigatons (Gt) CO2e – or on average 1GtCO2e a year – could be available from existing projects in the CDM, VCS, Gold Standard and California Action registries between 2017 and 2035.

Looking further ahead, there are few robust calculations of potential supply (in part due to the factors discussed below), though Ecosystem Marketplace is currently conducting such an analysis which is due to be published later in 2021. However, an assessment of the potential for GHG

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27 https://registry.verra.org/app/search/VCS, accessed 21/02/2021

28 Note that the difference between this number and the total number of VCU’s issued in 2020 (approx. 110 million) is explained that most projects do not issue credits as soon as the emissions reductions/removals are generated but instead wait until they have a buyer for VCU’s.

emission reductions and removals from tropical forests below a cost of the U.S.$100/ton between now and 2100 suggests that there are 26Gt of possible abatement from reduced deforestation – equivalent to 325 megatons (Mt)/year – rising to 126Gt or 1,575Mt/year when reforestation activities are included. Not all of this may be available through voluntary carbon markets but, given that at present nature-based solutions are significantly underfunded, it is safe to assume that carbon financing is likely to be major part of any action to secure these reductions and removals.

Alongside the potential from land use and forestry, there is also significant latent supply of credits from projects in the industrial sectors of emerging economies. Although not true of all companies, on average manufacturing and power generation facilities in emerging economies tend to be less efficient and use more fossil-fuel intensive technologies than their counterparts in the industrialized world. This suggests that there are opportunities for carbon finance to close this gap, generating carbon credits as part of the revenue stream.

In total, McKinsey estimates that there is a potential (or theoretical) supply of between 8GtCO2e and 12GtCO2e per year by 2030 — from avoided nature loss (including deforestation), nature-based sequestration (such as reforestation), avoidance or reduction of emissions such as methane from landfills; and technology-based removal of carbon dioxide from the atmosphere — which is more than sufficient to accommodate the likely demand for credits to meet corporate net-zero commitments, the needs of the aviation and shipping industries and a possible significant uptake of carbon credits by individuals. However, the actual supply is likely to be somewhat lower, depending on the impact of the factors that follow.

Policy Effects

Currently most NDCs are vague on the extent to which the targets they establish assume or depend on investments through the voluntary carbon market. In part this is due to the ongoing uncertainty about the rules governing Article 6 of the Paris Agreement and, in particular, the likely requirement to make “corresponding adjustments” in the inventories of both host (where projects are located) and investor (where the buyer of credits is based) countries.

Notwithstanding this, domestic policies in both investor and host countries could have an impact on the supply (and demand) of credits from the voluntary carbon market. Assuming no immediate physical limitation on carbon reductions and removals, these include:

- The extent to which investor countries allow companies within their jurisdiction to use VCM credits to meet domestic targets; the more this is allowed the greater demand and, all other things being equal, the greater the price, incentivizing the supply of credits from higher cost projects.
- The extent to which host countries are open to the development of emission reduction and removal projects in their territories and to the credits generated being transferred

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The more countries that accept voluntary carbon projects, the greater the supply will be.

- The extent to which host country domestic climate policies mandate (and enforce) policies to, inter alia, increase the efficiency of power generation and other industrial installations, switch from higher to lower carbon fuels, expand forested lands and other carbon reducing or removing actions. The more these are required within a country or region the fewer carbon-credit generating projects will be available as those covered by regulation are unlikely to be considered additional.

- The number and complexity of additional requirements (e.g. local investment share or restrictions on remittances) that host country governments put in place.

- Whether and how requirements for corresponding adjustments are imposed.

Beyond the policies of individual host and investor countries, policy decisions over the permitted scope of activities (such as, for example, the decision by most standards to exclude new renewable energy projects), acceptable credit vintages and baseline definitions will also affect the number of projects that will be registered and the volume of credits they will eventually generate. Other things being equal, the more restrictive the conditions on carbon credit generation, the lower supply and higher prices will be.

Offset Prices

Offset prices are also likely to affect supply. As with all products and services, the price of carbon credits is determined by the interaction of demand and supply. In recent years, prices in the voluntary market have come down, while prices in regulated markets such as the EU Emission Trading Scheme (ETS) and Regional Greenhouse Gas Initiative are at an all-time high.\(^\text{32}\) In addition, some governmental buyers have increased the prices they pay; for instance, in 2019, Norway increased the minimum price it pays for offsets from $5 to $10 per ton.\(^\text{33}\) Prices are likely to continue to rise over the medium and long terms, so an ever-increasing number of projects will come online, in turn generating a growing volume of credits. The determinants of demand include the following:

- The extent to which companies can use credits from the voluntary markets to meet their compliance obligations — currently this is not permitted in almost any jurisdictions — and the emissions reductions required by these obligations;

- The extent to which international sectoral programs allow or are based on the use of offsets, as is the case with CORSIA;

- The extent to which voluntary corporate programs allow companies committing under them to use offsets to meet their targets — currently the Science-based Targets Initiative does not allow offset use while the Climate Pledge does; and

- The cost of acquiring credits, with a higher cost likely to reduce demand as buyers choose either to reduce at source or scale back their voluntary targets.

\(^\text{32}\) Price data for the EU ETS is available here: [https://ember-climate.org/data/carbon-price-viewer/](https://ember-climate.org/data/carbon-price-viewer/); data for RGGI is here: [https://www.rggi.org/auctions/auction-results/prices-volumes](https://www.rggi.org/auctions/auction-results/prices-volumes).

Although we would expect higher prices to drive increases in supply and have seen that there is more than sufficient theoretical supply to meet this demand, supply and demand factors do not completely explain the price of offsets or its impact on their supply. The underlying cost structure is also an important determinant.

Offset Costs

Although a subset of offset prices, the underlying cost of generating carbon credits will also affect eventual supply. Two areas are of particular importance here: 1) the fixed costs associated with project registration, validation, stakeholder consultation, verification, monitoring and evaluation, reporting and, in the case of REDD projects, setting aside credits in a “permanence buffer”; and 2) the additional costs of meeting individual buyer requirements, such as meeting specific sustainability targets, restrictions on project types or defined beneficiary groups or host countries. The higher these underlying costs are, especially for smaller and/or more complex projects, the higher the market price for credits needs to be to incentivize supply.

As the graphic below shows, the majority of natural climate solutions can be delivered at low cost:

![Graphic showing natural climate solutions and their costs](image)

**Notes:**
- 2.2 Gt total: avoided deforestation 0.95 Gt; peatland restoration 0.21 Gt; reforestation 0.39 Gt; avoided coastal impact and restoration 0.30 Gt; cover crops 0.22 Gt; trees in cropland 0.11 Gt.
- Source: McKinsey Nature Analytics

Implications for Offset Supply

Over the next decade there appears to be no physical constraint on the supply of emission reductions that can potentially be converted into tradable carbon credits, whether in compliance or voluntary markets. As in the case of the calculation of oil and other mining reserves, however, physical availability is not the key metric; the actual market supply will be determined by a combination of all the factors outlined above, in particular the interaction between demand and the marginal cost of developing projects that generate carbon credits.

This makes it much harder to estimate the “real” supply, especially in the context of many unknown policy variables and the often long lead times between the emergence of a project concept and/or demand and the point at which credits are issued. The research cited above suggests that these “real world factors” could reduce actual supply to around a third to a half of the physical potential – between 1 and 5 GtCO2e/year. Nevertheless, as countries increase the ambition of their climate commitments and seek private sector engagement to enable them to meet the targets it seems clear that investment through the voluntary carbon market will continue to grow in importance, leading to greater project development and a supply of credits more than sufficient to meet short- and medium-term demand. In a world in which we continue to emit close to 40Gt of CO2e each year, it is hard to imagine that activity will be constrained by a lack of supply of opportunities for emissions reductions and removals.

A more difficult question is whether or not there will be enough high-integrity offsets to meet demand. In principle, there is no reason why an increased supply of offsets should imply a decline in integrity. Indeed, if supply growth is driven by higher prices as a result of growing demand, then the overall quality of projects could improve as activities with greater positive social and environmental impacts that may not have been viable at lower prices become economically feasible. The true determinant of offset integrity will be the robustness of standards and the rigor with which projects are assessed against them. Here, offset suppliers and verifiers will be subject to competing pressures from consumers. On the one hand, they will face pressure to lower standards to reduce prices, a worrisome prospect that could lead to a large supply of non-additional projects that not only do little to cut GHG emissions but also undermine the credibility of voluntary climate actions that depend on offsets. On the other hand, a proliferation of low-integrity offsets could repel buyers concerned both about genuine emissions reductions and about the potential reputational risks they will open themselves to if they back claims about progress on their climate goals with low-integrity offsets. Suppliers and verifiers concerned about this prospect will want to ensure that the quality of their products and assessments remains high. How this dynamic plays out, and which set of competing pressures prevails, will determine the extent to which the VCM accelerates or undermines genuine action to mitigate climate change. In addition, and in combination with other factors, it will determine how risky it is for companies incorporate offset purchases as a significant part of their climate strategies.

34 McKinsey and Co, A Blueprint for Scaling Voluntary Markets to Meet the Climate Challenge.
Reputational Risks for Companies Buying Offsets

Any company claiming to have made progress on its climate commitments by buying low-integrity offsets is of course likely to be criticized. In addition, even firms relying on high-integrity offsets to meet their climate targets may open themselves to a variety of criticisms. This section surveys a variety of broader concerns that have been raised by stakeholders about offsets that bear on their use by corporations to meet their climate targets. In addition, it indicates whether and how companies might address these concerns.

Respecting Indigenous Peoples' and Forest Communities' Land Rights and Ways of Life

A longstanding concern about offset programs is that they may involve or encourage violations of Indigenous peoples' and forest communities' land rights or interfere with traditional ways of life. The reason for this concern is straightforward: because such programs create a pathway for sellers to make money by preserving standing forests, they give would-be offset providers an incentive to gain control of forest land, including land that is currently occupied, and perhaps also to expel its current occupants. In principle, it is possible for would-be providers to secure any necessary land rights while respecting its current occupants' land claims, namely by securing occupants' Free, Prior and Informed Consent (FPIC) to any sales or transfers of title. But the worry has always been that not all project developers will be so scrupulous, and in fact they haven't been. In one widely discussed case that took place in 2010 in Peru, an Australian named David Nilsson with a history of fraud sought to trick the Matsés indigenous people into signing a fraudulent joint venture agreement that would have given Nilsson's company, Sustainable Carbon Resources Limited, exclusive rights to trade carbon credits derived from the Matsés' 500,000-hectare territory.\(^{35}\) Once Nilsson's dealings with the Matsés came to light, a coalition of indigenous groups released a statement condemning his actions.\(^{36}\)

In the years since Nilsson sought to defraud the Matsés in Peru, various efforts have been made to prevent similar actions. In 2010, delegates to COP 16 in Cancún agreed on a set of safeguards for REDD+ activities.\(^{37}\) Some subsequently developed frameworks governing offset purchases, such as California's Tropical Forest Standard (TFS), use these same standards.\(^{38}\) In addition, the TFS includes a set of guiding principles that were actually written by indigenous peoples in collaboration with government representatives.\(^{39}\) In fact, today most standards for offsets have some kind of FPIC or consultation provision that should help to ensure land claims are properly taken into account. In addition, some experts contend that jurisdictional programs now under


development may help to better safeguard forest communities’ interests.\(^{40}\) In light of all these factors, some experts now believe deforestation is a far more significant threat to Indigenous land tenure and ways of life than offset programs and so-called “carbon cowboy” developers like Nilsson.\(^{41}\) Nevertheless, buyers should keep this issue in mind, checking to ensure that whichever standards governing the offsets they buy include provisions to ensure forest communities’ land rights are appropriately respected, especially in the next few years, as market come under massive pressure to scale up to meet demand.

### Greenwashing

Firms that buy low-integrity offsets are likely to be charged with greenwashing, since their offset purchases may not in fact be balancing out these companies’ emissions. However, this is not the only ground on which they may be accused of greenwashing. A corporation might use the most robust, highest quality offsets but still be accused of greenwashing if, e.g., it has weak targets, continues to lobby against climate action, is not promoting change internally or along its supply chains, is outsourcing the dirty bits of its production, etc. This worry—that some companies might brand themselves as climate champions because of their offset purchases while continuing to undermine climate action or delaying the fundamental societal transformations necessary to keep warming to well below 2 degrees C—is precisely what has led critics to say offsets create a “moral hazard.”\(^{42}\)

Charges of greenwashing are particularly likely to be levelled at oil and gas firms. This is especially true of firms that proceed with oil and gas exploration and or otherwise proceed with business as usual even after announcing their climate targets. In cases like this, critics are liable to claim that firms’ offset purchases are simply a substitute for the strategy they should really be adopting, namely, completely changing their business model by ending oil and gas exploration and shifting their focus to renewables or other clean energy sources or services.\(^{42}\) Such companies would be open to this charge no matter how high-quality their offsets are. Generally speaking, many stakeholders are skeptical of oil and gas firms presenting themselves as good actors on climate and environmental issues, given their track records of contributing to politicians who have sought to thwart climate action and campaigns that have downplayed the severity of climate-related risks or attempted to muddy the waters on climate science. For that reason, it may be impossible for oil and gas firms to avoid criticism altogether. However, oil and gas firms at least partially guard against this criticism by funding efforts to that will help to accelerate the transition away from fossil fuels, such as building electric vehicle (EV) charging infrastructure or funding building retrofits to replace gas stoves, furnaces, and water heaters with electric appliances. In addition,

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critics are likely to respond positively to announcements by oil and gas firms that they are writing down their reserves or ending exploration and new production.

In addition to seeking out high-integrity offsets, therefore, firms seeking to avoid charges of greenwashing should take care to ensure that their overall business strategy as well as any political or public relations activities are appropriately aligned with their climate targets, as well as those of the Paris Agreement.

Environmental and Racial Justice

Offsets have long been criticized on account of the fact that they allow buyers to reduce their overall emissions without reducing pollution at its source. Recently, however, such concerns have begun to be taken much more seriously in the United States. The fate of Mary Nichols, President Biden’s first nominee to head the Environmental Protection Agency, is a striking testament to the central role these sorts of concerns have come to play in the broader climate conversation in the wake of the murder of George Floyd in May 2020 and subsequent protests against racial injustice. Though Nichols was unquestionably qualified for the role, the administration chose to withdraw her nomination after the publication of an open letter criticizing Nichols for actions taken during her time on the California Air Resources Board (CARB), which oversaw the implementation of the state’s cap-and-trade program. The letters authors express frustration with CARB’s and Nichols’ response to their concerns about the state allowing fossil fuel companies to use tropical forest offsets to satisfy their climate obligations without reducing the particulate pollution harming so-called “fenceline” communities in the state. In addition, they call her interactions with CARB’s Environmental Justice Advisory Commission “contentious” and her record on environmental racism “bleak” and describe her as “not fit to lead an EPA that values environmental justice.” Though the administration has declined to comment on its decision to withdraw Nichols’ nomination and Nichols herself doubts that the letter had anything to do with it, many observers thought the reasons were clear. At a time when public attention is more focused than usual on both climate and racial justice issues, the concerns expressed in the letter seem to have been viewed by the administration as too serious to proceed with Nichols’ nomination.

Concerns about localized pollution are likely to be most applicable to fossil fuel companies and utilities using fossil fuels to generate electricity, since it is their facilities (rather than, say, Microsoft’s) that are more likely to pollute surrounding communities. For instance, coal-fired power plants produce harmful particulate pollution, mercury, arsenic, volatile organic compounds (VOCs), sulfur dioxide and nitrous oxides, all of which harm human health.

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44 Ibid.
45 Ibid.
fracturing or “fracking” can contaminate groundwater resources, and oil and gas pipelines can leak or explode. Oil refineries also emit various harmful pollutants. Nevertheless, the concerns here are perfectly general and apply to any company whose operations or products produce pollutants that harm surrounding communities, especially communities of color.

Companies’ efforts to present themselves as good actors with respect to climate and environmental issues on the basis of the progress toward achieving their climate targets are therefore likely to face criticism if that progress does not come, at least in part, through reductions in localized pollution. In such cases, companies’ claims may be called misleading or worse. In addition, because point-source pollution from fossil fuel use disproportionately affects communities of color, at least in the United States, such companies may be charged with being insufficiently sensitive to concerns about racial justice. To avoid such criticism, companies should seek to eliminate any harmful, localized pollution associated with the production, transport, or use of their products, even if doing so is not strictly necessary to achieve their climate goals.

“Carbon-Neutral” Products and Services

Companies working to meet their climate targets will of course want to advertise their efforts to customers, shareholders and other stakeholders. It is therefore not surprising that a variety of companies have begun leveraging their offset purchases to offer so-called “carbon-neutral” or “climate-neutral” products and services. The table below shows only a small sample of the offerings now available.

<table>
<thead>
<tr>
<th>Company</th>
<th>Product or Service Offered</th>
<th>Carbon-neutrality standard used</th>
<th>Type of offsets used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell</td>
<td>Gasoline</td>
<td>Not specified</td>
<td>Reforestation and forest conservation</td>
</tr>
</tbody>
</table>

In addition, some fossil fuel companies are working to improve public perceptions of “carbon-neutral” products and services. For instance, a group of fifteen Japanese gas companies recently formed the “Carbon Neutral LNG Buyers Alliance,” which “will work to increase the recognition of CNL in society and carry out initiatives to improve its evaluation by investment institutions and establish its position within the various systems in Japan with the aim of contributing toward Japan’s achievement of a carbon neutral society by 2050.”

Because they rely on offsets to back claims of carbon neutrality in their offerings, these companies are liable to encounter all of the obstacles already discussed and run the same risks, though in some cases these will be more acute than in others. In addition, however, stakeholders have concerns that are specific to the trend of offering carbon-neutral products and services. This section explains those concerns, with a special focus on the most controversial of these offerings, “carbon-neutral” oil and gas products.

**General Concerns About “Carbon-Neutral” Products and Services**

At present, there appears to be no single, universally accepted understanding of the term “carbon neutral.” In the entry for “carbon neutrality” in the glossary appended to its Special Report on the impacts of global warming of 1.5°C above pre-industrial levels, the IPCC refers readers to the entry for “Net zero CO₂ emissions,” which it says “are achieved when anthropogenic CO₂ emissions are balanced globally by anthropogenic CO₂ removals over a specified period.” In case there was any

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53 The press release is available here: https://www.tokyo-gas.co.jp/Press_e/20210309-02e.pdf.

doubt, the entry goes on to clarify that “Net zero CO\textsubscript{2} emissions are also referred to as carbon neutrality.”\textsuperscript{55} However, of the several standards for the use of the term described in the box below, all allow for the use of avoidance- and reduction-based credits.\textsuperscript{56} In addition, companies’ claims about many of the products and services mentioned in the table above are backed by both avoidance- and reduction-based credits in addition to those based on removals. Finally, as the table above makes clear, some companies offering “carbon-neutral” products and services do not appear to be adhering to any particular standard for the use of that term at all.

### Carbon or Climate Neutrality Standards

The Climate Neutral standard instructs companies to determine their carbon footprint, offset their emissions, and then develop a plan to reduce them. By contrast, the CarbonNeutral Protocol developed by Natural Capital Partners instructs companies to first define the scope of their commitment to carbon neutrality (in particular, whether it is company-wide or product-specific) and then measure their relevant emissions, set an emissions reduction target, reduce what they can (including through purchasing renewable energy credits) and offset the rest. Similarly, the British Standards Institute’s PAS 2060 requires that companies first measure their emissions, then reduce those they can, and finally offset any that remain. (South Pole says that its standard is “closely aligned” with PAS 2060.)

Notably, the commonly accepted “mitigation hierarchy” as reflected in, for example, the Oxford Principles for Net Zero Aligned Carbon Offsetting require that companies first reduce and then offset rather than offset and then reduce. In this respect, the Climate Neutral standard differs both from the other carbon neutrality standards mentioned and from widely accepted norms regarding offset use.

All of these standards allow the use of avoidance-, reduction-, and removal-based offsets. However, the CarbonNeutral Protocol prohibits the use of credits generated through some hydroelectric power and HFC-23 and NO\textsubscript{2} destruction projects, as well as any that are not in accordance with several named standards.

The difference in usage between the IPCC and the private sector may have to do with the fact that, in the private sector, the term was in use long before it became widely understood that limiting warming to 1.5 or 2 degrees Celsius will require the world to achieve net-zero emissions by mid-century. In any case, the resulting ambiguity has led some observers to express concern that, in its current usage, the term “carbon neutral” is confusing and, since the IPCC’s interpretation

\textsuperscript{55} Ibid., p. 555.
has seemed to some to be the most obvious, potentially misleading. Consequently, its use could have negative repercussions both for companies and climate action.

On the one hand, companies offering “carbon-neutral” products backed by avoidance- and reduction-based credits may find themselves in the crosshairs of climate-conscious consumers and advocates wary of corporate greenwashing. As the term “carbon neutral” has come to be used by some companies, including those in the table above, carbon-neutrality can be achieved by avoiding emissions or reducing them by comparison with a business-as-usual trajectory. By contrast, the achievement of net-zero emissions will ultimately require that any emissions be paired with corresponding removals. Consequently, while robust carbon neutrality efforts should lead to overall emissions reductions over time, especially if based on the reduce what you can first approach, these efforts will ultimately need to offset any emissions with credible emissions removals (as opposed to reduction- or avoidance-based credits) if they are to be compatible with the achievement of net-zero emissions globally. Consumers buying “carbon neutral” products may not understand this difference and may be under the impression that the products and services they are buying are paired with corresponding removals. When they find out otherwise, they may feel betrayed and frustrated, leading them to lash out at the companies by whom they feel they have been misled.

On the other, and for similar reasons, offering consumers the option to purchase “carbon-neutral” versions of products may lead them to buy more of these products and services than they would otherwise. Indeed, this is presumably part of the reason companies are offering these products: they want to assuage consumers’ concerns so that they will buy the companies’ products. In some cases, this may be perfectly fine. However, when it comes to products and services like carbon-neutral flights, meat, and gasoline, it is a serious problem, since achieving the Paris Agreement’s temperature goals will require decreasing consumption of all these things.

In light of these concerns, it might be suggested that companies would do better to back any claims to carbon-neutrality with removal-based offsets only. Against this suggestion, however, others are liable to make two points. First, at present, supply of removal-based offsets is far too low to meet demand. Second, while it is true that avoided emissions from conservation or reduced emissions from renewable energy projects do not cancel out those associated with “carbon-neutral” products and services, such projects will ultimately be necessary to achieve Paris targets and so can make a meaningful contribution to climate action, provided of course that the offsets in question are of sufficiently high quality.

Our view is that it is far more important that companies do everything they can to reduce their emissions in line with Paris targets than that they buy any particular type of offset. As Andrew Steer and Craig Hanson explained in a recent blog post for the World Resources Institute,

It is no longer appropriate for emitters to be given the choice to delay action within their own operations by buying offsets elsewhere. [...] To stay within 2°C, it was perhaps rational

a decade ago to delay higher-cost abatement, while purchasing lower-cost interventions. But now, having lost another decade, if we are to remain within 1.5°C, it is necessary for all emitters, including those in hard-to-abate sectors, to drive down their own emissions by investing in new technologies as aggressively as possible, right away. Any delay — or offsetting against emissions due to less aggressive abatement — would jeopardize ambition.

In our view, therefore, the best option is simply for companies to signal their climate ambition by setting firm-wide, science-based decarbonization targets, aiming to abate all or their scope 1, 2, and 3 emissions by 2050 and setting interim abatement targets for 2030 and 2040. In cases (such as oil and gas products) where use of the companies’ products accounts for a significant portion of its emissions, these should certainly be included in the company’s target. On the way to net-zero, companies could help drive climate action outside their own operations by buying offsets to cover unabated emissions. We are neutral as to whether these should be based on avoided, reduced, or removed emission. We insist only that they must be high-quality and genuinely additional.

Should they wish to do so, companies could advertise such efforts by claiming that the firm as a whole (rather than specific products or services) are carbon-neutral. For companies consumption of whose products and services will need to decline to achieve net-zero emissions globally, this may not be advisable, for the reasons noted above. However, for other companies, we see little potential for harm in corporate use of this label, so long as companies take steps to ensure that their customers understand what it means. Indeed, if the prospect of being able to advertise their efforts in this way incentivizes firms to contribute to meaningful climate action through purchases of high-quality offsets, use of that label has the potential to be beneficial.

Concerns About and Prospects for “Carbon-Neutral” Oil and Gas Products

“Carbon-neutral” oil and gas products are especially controversial. In part this is due to the concerns mentioned above. In addition, however, it is because, in this particular case, several factors are likely to make stakeholders especially sensitive to these concerns as well as the broader concerns about offset use discussed in earlier sections.

One such factor is that public opinion appears to be turning against the oil and gas industry in general. This shift is evident in the proliferation of lawsuits that have been and continue to be brought against the industry by state and local governments in the U.S., as well as in the growth of anti-fracking sentiment. The latter led to a robust discussion in the 2019-2020 Democratic Party primary about banning fracking altogether. Though that is unlikely, President Biden has now


declared a moratorium on new oil and gas leases on public lands. This shift in public opinion likely derives from several different sources. Years of exposés concerning the industry’s attempts to muddy the waters on climate science and a spate of extreme weather events in the last decade have surely played apart. As the price of renewables has fallen and the economic case for fracking has weakened, concerns about the technique’s tendency to pollute groundwater and cause earthquakes have come to the fore, as have its failure to deliver promised jobs and other economic benefits to local communities. In addition, increasing attention on environmental justice issues has increased awareness of the harms caused by localized pollution from the industry.

Another factor, this one especially relevant to “carbon-neutral” gas and liquified natural gas (LNG) products, is that gas in particular seems to be losing popularity. As recently as the second term of the Obama administration, it was widely believed that gas had to remain a significant part of the energy mix in the medium-term as a bridge to renewables. Today, however, that sentiment is less widespread, and climate campaigners both in the U.S. and in Europe are working hard to convince policymakers that we do not need natural gas as a bridge fuel. In part this change in attitudes is surely due to new information that has emerged in the last few years about methane emissions from natural gas production. It likely also reflects the drastic decreases in the price of renewables.

It is unlikely that offering carbon-neutral fossil fuels will do much to assuage any of these concerns. Meanwhile, renewables are unlikely to become less competitive with gas, and concerns about environmental justice issues in particular and harms caused by the oil and gas industry more broadly are unlikely to dissipate to any significant degree. Nor, presumably, is concern about climate change. In light of these trends, we would expect the market for carbon-neutral oil and gas products to plateau in the foreseeable future, though it is impossible to say when exactly this will happen. Since oil and gas firms will want to leverage consumer concern about climate change to their advantage, we expect to see the market grow somewhat in the near term, especially given that interviewees in the oil and gas industry indicated that their company’s carbon-neutral offerings had been received well by consumers so far. However, we do not view this as a viable long-term business strategy.

Recommendations for Companies Considering Using Offsets to Achieve Their Climate Targets

As the foregoing makes clear, companies planning to rely on the voluntary carbon market to achieve their climate goals will have to contend with significant uncertainty, especially around implications of corresponding adjustments and Article 6 outcomes more generally, as well as other relevant policy developments. In addition, these companies may open themselves up to variety of


criticisms and reputational risks, including charges of greenwashing, failure to respect Indigenous people's rights, failure to take environmental justice concerns seriously and charges of delaying or undermining needed change. We offer the following recommendations to companies trying to navigate this complex landscape.

- Companies that choose to buy offsets as part of their broader climate strategies should seek to ensure that those offsets are high-integrity.
- Whether or not they choose to buy offsets, companies should work to ensure that their broader business model is aligned with their climate commitments, including internal protocols and incentives, as well as any political activity.
- Regardless of whether they buy offsets, companies should set ambitious, science-based targets for their own emissions, aiming to achieve net-zero by mid-century. Commitments should include interim abatement targets for 2030 and 2040 in line with that long-term goal and should encompass scope 1, 2, and 3 emissions.
- More broadly, companies should bear in mind the mitigation hierarchy as outlined in the Oxford Principles for Net Zero Aligned Carbon Offsetting, prioritizing direct emissions reductions in their own operations and only buying offsets to cover those they have not (yet) been able to reduce.64
- In addition to offsetting, companies should consider other ways of contributing to the global climate effort, such as those discussed in WWF’s new corporate climate action blueprint.65
- Whether or not they choose to buy offsets, companies whose infrastructure causes localized harms (such as oil refineries and gas pipelines) should prioritize addressing the causes of those harms, even if reducing those harms does not directly lead to any emissions reductions.
- Companies should monitor relevant policy developments both at the international and at the federal levels and shape their long-term climate strategies accordingly.
- Companies should support legislative and regulatory efforts to promote ambitious climate action.

Appendix on Article 6 Negotiations

Key Country Positions

Brazil has always played a prominent role in the development of market mechanisms under the UNFCCC, and particularly when the topic focuses on forest and land sectors. In the context of Article 6 and the need for corresponding adjustments to NDCs, Brazil has maintained the position that it should be able to benefit from international cooperation under Article 6.2 and 6.4 but without having to make a corresponding adjustment to avoid double counting. So far, the explanation provided by Brazilian negotiators has not satisfied others (including EU and Umbrella Group countries) who see this position as inconsistent with the requirements under Article 6 to avoid double counting. It is likely that this impasse will only be resolved at the political level, possibly in the final days of COP 26 along with other issues on the table.

Egypt and several other countries have submitted NDCs that are not expressed in tCO2eq. Egypt’s is most unusual as it is not expressed as a measurable goal. Alternative approaches for calculating a country’s NDC are accepted as long as there is a verifiable methodology for tracking and reporting on progress. However, these alternative approaches do represent challenges for the selection of suitable indicators. Consequently, as VCM activity is measured in tCO2eq, the potential to relate VCM activity to the NDC is not direct and, without clear conversion factors the claim to be contributing to the country’s NDC, is difficult to verify quantitatively. In the ongoing negotiations on the negotiation of common reporting format tables (noted above), these countries have maintained positions that resist making it a requirement under the ETF to report in tCO2eq.

External influences on the UNFCCC negotiations concerning Article 6

The Paris Agreement does not cover emissions from international aviation as it was expected that the International Civil Aviation Organization (ICAO) would develop its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to align with the Paris Agreement. To address the potential transfer of emissions reduction or removal credits between the two systems, the Paris Agreement rules were expanded to ensure that international rules related to corresponding adjustments are applied to avoid double counting when an airline uses a carbon credit to comply. Also, the Paris Agreement rules ensure the CORSIA rules require the program (i.e. the standard setting body) to secure an 'attestation' from the host country (the country where the emission reduction/ removal/avoidance takes place) confirming that it will account according to international rules.

CORSIA’s operational rules, including eligibility requirements for CORSIA-compliant offsets, were agreed in 2020. As several of the outstanding Article 6 issues under negotiation have since been addressed within the context of CORSIA, several country negotiators expect that this will influence the outcome of the Article 6 negotiations. However, those who feel they lost their arguments under the CORSIA process may fight harder for them under UNFCCC – i.e., attempting to re-negotiate agreements whenever an opportunity presents itself.
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