

Voluntary compensation of greenhouse gas emissions

**International guidance
and initiatives**



Contents

About the Nordic Dialogue on Voluntary Compensation	4
About this report	5
Summary	6
Voluntary compensation of greenhouse gas emissions	6
Demand-side issues	7
Supply-side issues	8
Summary of good practice elements relevant to voluntary compensation	10
Sammanfattning	11
Frivillig klimatkompensation	11
Klimatkompensationens användarsida	12
Klimatkompensationens utbudssida	13
Sammanfattning av bästa praxis-element som är relevanta för frivillig klimatkompensation	15
Yhteenveto	16
Vapaaehtoinen kompensatio	16
Kysyntä	17
Tarjonta	18
Tiivistelmä vapaaehtoiseen kompensatioon liittyvistä hyvistä käytännöistä	20
Abbreviations	21
1. Introduction	23
2. Policy context and key concepts	25
2.1 The Paris Agreement	25
2.2. Targets towards and beyond carbon neutrality	26
2.3 Voluntary compensation of greenhouse gas emissions	29
2.4 Carbon standards, crediting standards and the voluntary carbon market	31
3. Generating carbon credits	36
3.1. Carbon credit quality criteria	36
3.2. Carbon credit attributes	42
3.3. Assessing crediting standards	47
4. Using carbon credits, making claims and marketing	49
4.1. Good practice elements relevant to high-integrity voluntary compensation	49
4.2 Integrity of claims	51
4.3. Responsible marketing	53
5. Public efforts to facilitate good practice voluntary compensation	55

5.1 National and EU efforts	55
5.2. International cooperation to build carbon market capacity and infrastructure	59
References	62
Annex	71
About this publication	73

This publication is also available online in a web-accessible version at <https://pub.norden.org/temanord2021-541>.

About the Nordic Dialogue on Voluntary Compensation

The Nordic Dialogue on Voluntary Compensation (“the Dialogue”) aims to inform Nordic and international stakeholders on using voluntary compensation of greenhouse gas (GHG) emissions as part of efforts towards and beyond carbon neutrality.

Specifically, the Dialogue aims to promote the high integrity, coherence and transparency of voluntary compensation. It fosters a common understanding of key issues and concepts and alignment with the principles and long-term goals of the Paris Agreement and the United Nations Sustainable Development Goals.

In the context of the Dialogue, voluntary compensation includes both offsetting and non-offsetting use of mitigation outcomes (emission reductions or removals). Offsetting is the purchase and ownership of mitigation outcomes to counterbalance an actor’s carbon footprint. Non-offset uses of mitigation outcomes are when an actor pays for mitigation outside of their value chain but does not use this to counterbalance their carbon footprint.

The Dialogue brings Nordic public and private actors together to co-create recommendations and action points for a Nordic best practice approach to voluntary compensation, drawing on and complementing relevant international and national initiatives.

The Dialogue is managed by Perspectives Climate Research gGmbH and facilitated by an international team of leading climate experts from Perspectives Climate Research, IVL Swedish Environmental Research Institute, Carbon Limits and Tyrsky Consulting.

The Dialogue is funded by the Nordic Council of Ministers’ Working Groups for Climate and Air (NKL) and Environment and Economy (NME).

For more information, please visit: www.nordicdialogue.com

About this report

This report was prepared under the Nordic Dialogue on Voluntary Compensation. It provides an overview of key concepts and issues and maps key international guidance and initiatives relevant to voluntary compensation. This report aims to foster a common knowledge base for the high-integrity use of voluntary compensation as part of actors' broader mitigation efforts towards and beyond carbon neutrality.

This report was co-authored by Hanna-Mari Ahonen (Perspectives Climate Research), Kenneth Möllersten (IVL Swedish Environmental Research Institute) and Randall Spalding-Fecher (Carbon Limits). The authors would like to thank Francois Sammut (Carbon Limits), Kati Berninger and Oras Tynkkynen (Tyrsky Consulting), and Juliana Kessler, Matthias Krey and Aayushi Singh (Perspectives Climate Research) for their valuable inputs.

The views presented in this report do not represent any official position of the Nordic Council of Ministers.

Summary

To contribute to the Paris Agreement's (PA) long-term goal to limit global warming to 1.5 degrees Celsius, countries and non-state actors, such as companies, municipalities, organisations and individuals, are taking steps towards and beyond carbon neutrality and making claims about their climate impact and contribution to mitigation. Most actors are not able to reduce their emissions to zero solely through own mitigation action, at least in the short-to-medium term. Through voluntary compensation of greenhouse gas (GHG) emissions, actors can take responsibility for their remaining emissions by supporting additional GHG emission reductions and removals (hereafter referred to jointly as 'mitigation outcomes') that occur outside the actors' boundaries. These mitigation outcomes could be generated by activities that, for example, promote renewable energy, energy efficiency, clean transport, waste management, carbon dioxide capture and storage, protection of forests or reforestation.

Voluntary compensation of greenhouse gas emissions

In this report, voluntary compensation includes both offsetting and non-offsetting use of mitigation outcomes. Offsetting is the purchase and ownership of mitigation outcomes from outside the actor's boundary or value chain to counterbalance an equivalent amount of the actor's emissions within its boundary or value chain ('carbon footprint'). Non-offset uses of mitigation outcomes are when an actor pays for mitigation outside of their boundary or value chain but does not use this to counterbalance (i.e., offset) their emissions. In other words, for non-offsetting uses, the actor may make a financial contribution to the mitigation activities but it does not own the mitigation outcomes.

Voluntary compensation is not a substitute for the actor's own mitigation action. When used to complement sufficient own mitigation, voluntary compensation enables actors to voluntarily contribute to accelerating society's transition to net zero emissions more than what they are required by law – and able – to do through own mitigation action. For voluntary compensation to truly contribute to accelerated global mitigation, its integrity must be ensured. High-integrity voluntary compensation means using high-quality mitigation outcomes that are not double counted towards more than one purpose.

High-integrity voluntary compensation can unlock urgently-needed additional finance to accelerate and scale up mitigation and support sustainable development co-benefits. However, if integrity is compromised, voluntary compensation can undermine global progress towards the 1.5-degree pathway. Stakeholders have raised significant concerns about the integrity of past and current voluntary compensation practices and related claims, underscoring the need for further guidance and oversight. Therefore, clear and coherent guidance on voluntary compensation is needed both for actors supplying mitigation outcomes for voluntary compensation and those buying and using them. Currently, guidance on voluntary compensation and related claims is fragmented and rapidly evolving to adapt to the

context of the PA and the United Nations Sustainable Development Goals (SDGs). Recent international multi-stakeholder initiatives, such as the Science-Based Targets initiative (SBTi), the Taskforce on Scaling Voluntary Carbon Markets (TSVCM) and the Voluntary Carbon Market Integrity Initiative (VCMI), are developing guidance and frameworks, aligned with the PA and SDGs, that are relevant for voluntary compensation. The Nordic Dialogue on Voluntary Compensation aims to develop a high-integrity Nordic approach to voluntary compensation.

This report maps key international guidance and initiatives relevant to voluntary compensation. It aims to foster a common knowledge base on high-integrity use of voluntary compensation as part of actors' broader mitigation efforts towards and beyond carbon neutrality.

Demand-side issues

When it comes to setting targets for climate change mitigation, actors most commonly strive for net-zero and carbon neutrality. In this report, we assume that carbon neutrality also covers other GHGs, as is often the case. At the level of global emissions, net-zero emissions have the same meaning as carbon neutrality: both refer to a balance between (global) GHG emissions and removals. At the sub-global level (e.g., at the level of countries, sectors, companies or individuals), a standard definition of net zero and carbon neutrality is still missing. Current carbon neutrality and net-zero targets differ in terms of ambition level (alignment with 1.5-degree pathway), timeframe, GHGs covered, scope (only direct or also indirect emissions), activities and strategies (only mitigation within own boundaries or also compensation outside own boundaries; balancing own remaining emissions with voluntary compensation based on emission reductions and/or removals). Net-negative and climate positive approaches imply going beyond net zero and carbon neutrality but also do not have accepted definitions.

These targets are key drivers for voluntary compensation – especially offsetting – and related claims. Voluntary offsetting is used by actors to counterbalance part or all of their remaining emissions, and often – but not necessarily – also to make related claims about carbon neutrality or net-zero emissions. For example, a company may claim that its product is carbon neutral if it has purchased and owns an equivalent amount of mitigation outcomes to offset the product's GHG emissions. It is important to recognise, however, that carbon neutrality or net-zero emissions are not equivalent to zero emissions. Instead, they imply that some emissions remain and are offset with mitigation outcomes achieved elsewhere.

Good practice elements for high-integrity voluntary compensation include prioritisation of own mitigation action, robust quantification of carbon footprints, use of high-quality carbon credits, avoidance of double counting, transparent and accurate reporting, and clear and truthful claims and marketing.

Voluntary compensation is usually done by purchasing carbon credits issued by a recognised crediting standard in the voluntary carbon markets (VCMs) and retiring or cancelling these credits in a carbon registry. There are numerous crediting standards that issue carbon credits against mitigation outcomes meeting relevant criteria and that maintain carbon registries to track carbon credit ownership and minimise the risk of double counting. Each carbon credit represents an additional,

verified GHG emission reduction or removal of one metric tonne of carbon dioxide equivalent (tCO₂e).

At the corporate level, some international initiatives are proposing to distinguish between carbon neutrality and net-zero claims. The SBTi is developing a framework for corporate net-zero targets, and proposes that companies can only make claims about achieving net-zero emissions once it has reduced its emissions in line with the 1.5-degree pathway and 'neutralised' any remaining emissions with emission removals. The SBTi encourages companies, on their way to net zero, to also offset their remaining emissions with mitigation outcomes generated outside their boundaries, potentially allowing companies to achieve carbon neutrality before they reach net zero. The VCMI also proposes that credible carbon neutrality claims are accompanied by own mitigation commitments and progress in line with the 1.5-degree pathway.

Non-offsetting use of carbon credits is emerging as an alternative to offsetting. This refers to supporting mitigation outcomes outside the actor's own boundaries without using them to offset the actor's own emissions and making related claims about carbon neutrality. Instead, the actor could make a non-offset-based claim about supporting a host country in achieving its mitigation pledge.

Supply-side issues

Carbon credit quality criteria are very similar across crediting standards, and compatible with criteria recommended by various sources of guidance. They aim at ensuring environmental integrity of mitigation outcomes through additionality, valid baselines, robust quantification methodologies, monitoring, reporting, independent verification, addressing risks of non-permanence and leakage, and avoidance of double counting. At the same time, crediting standards differ in terms of their governance, geographic and activity-type scope, operationalisation of criteria and approach to environmental and social impacts, leading to both real and perceived differences in the integrity and co-benefits of carbon credits issued under the standards. According to the TSVC, the current VCMs do not operate efficiently due to both real and perceived challenges in the quality of carbon credits. To overcome these challenges, the TSVC is developing a threshold standard for high-integrity carbon credits, a standardised taxonomy of carbon credit attributes, and an assessment framework for crediting standards.

The VCMI serves as an umbrella initiative for promoting the high-integrity use of carbon credits for voluntary purposes. It aims to develop guidance for buyers of carbon credits, including categories of legitimate voluntary use of carbon credits and related claims, to ensure that stakeholders can easily understand the GHG impact of a company's actions. According to the VCMI, credible carbon neutrality claim should be accompanied by a strong, forward-looking mitigation commitment by the claimant. Some VCM actors, such as the Gold Standard, require offset-based claims, such as carbon neutrality claims, to be based on mitigation outcomes that avoid double claiming with the host country pledges. This ensures that voluntary offset-based claims are based on mitigation outcomes that go beyond what countries have already promised to deliver. For mitigation outcomes that are generated during the

PA's implementation period from 2021 onwards, this requires that the host country not count this mitigation outcome towards its own mitigation pledge to the PA, by applying a corresponding adjustment (CA) when creating their emissions balance (i.e., adding back the mitigation outcomes before comparing the country's emissions and removals to its mitigation pledge).

Although the VCMs are voluntary by nature and largely driven and operated by private actors, there are various ways in which public entities are seeking to facilitate and even regulate carbon credit quality, responsible voluntary compensation and the integrity of related claims. Public entities have developed good practice guidance and even domestic crediting standards, carbon registries and carbon neutrality labelling schemes. Some countries are cooperating to develop capacity and infrastructure to generate mitigation outcomes, authorise their international transfer and implement CAs consistent with the rules for market-based cooperation under Article 6 of the PA. Although this cooperation aims to generate carbon credits that are eligible for meeting national pledges under the PA, it could also facilitate non-state buyers' access to Article 6-compliant carbon credits for voluntary compensation.

Summary of good practice elements relevant to voluntary compensation

Good practice element	Level of agreement	Key guidance	Gaps
Robust and comprehensive calculation of own emissions (GHG footprint)	High	Carbon protocols for e.g., calculation and verification of carbon footprints and product lifecycle emissions (e.g., GHG Protocol, ISO)	Insufficient access to and quality of scope 3 (indirect value chain emissions) data
Prioritisation of sufficient own mitigation action (voluntary compensation not used to substitute or postpone own action)	High	The Science-Based Targets initiative (SBTi) is developing a standard for setting and verifying 1.5-degree-compatible net zero targets for companies, including small- and medium-sized enterprises. ICLEI – Local Governments for Sustainability has developed a Climate Neutrality Framework for cities and regions.	SBTi guidance is still under development, does not cover all sub-sectors and is not readily applicable to e.g., micro-sized enterprises or individuals. Assessment of 'sufficiency' and 'alignment with the 1.5-degree pathway' inevitably entails subjective judgement and important equity issues.
Using high-integrity carbon credits for compensation	High regarding the principle of using high-integrity carbon credits. Diverging views on what constitutes high-integrity credits, the extent to which different crediting standards succeed in ensuring carbon credit integrity, and preference for carbon credits based on emission reductions vs removals.	TSVCM is developing Core Carbon Principles, a standard taxonomy for carbon credit attributes and an assessment framework for crediting standards to promote the standardisation of high-integrity carbon credits. Many crediting standards are revising their criteria to align with the PA. The Carbon Credit Quality Initiative is developing a scoring tool for carbon credit quality.	Guidance and tools for high-integrity carbon credits are still under development and focus on carbon credits issued under crediting standards.
Reporting of own emissions and voluntary compensation in a transparent, accurate and disaggregated manner	High	International and national guidance for companies on reporting GHG emissions and aggregate use of carbon credits (e.g., Global Reporting Initiative, GHG Protocol, Carbon Disclosure Project, ISO, UK Environmental Reporting Guidelines), and on the role of voluntary compensation in the broader mitigation strategy (e.g., WWF).	Lack of specific guidance and platforms for standardised reporting of disaggregated and detailed information on the carbon credits used for voluntary compensation and their role in the broader mitigation strategy.
Making clear, truthful and verifiable claims about targets and the voluntary (offsetting and non-offsetting) use of carbon credits	High regarding the <i>principle</i> of ensuring the integrity of claims. Lack of consensus on <i>definitions</i> for claims.	Development of guidance is underway, e.g., SBTi and VCMI. VCMI is developing guidance on claims about targets and the voluntary use of carbon credits, including a classification of claims based on a range of features, e.g., emissions coverage, ambition of targets, types of carbon credits and accounting treatment of carbon credits.	Lack of standardised definitions and classification of claims, which are a precondition for independent third-party verification of claims.
Compliance with good marketing practices when using claims about own emissions, voluntary compensation etc. for marketing	High regarding the <i>principle</i> of complying with good marketing practices. Lack of consensus on <i>definitions</i> for claims (see above).	International (e.g., ICC), supranational (e.g., EU) and national guidance on green claims, including some guidance specifically on carbon neutrality claims.	Lack of standardised definitions and classification of claims, which are a precondition for assessing compliance with good marketing practices. The average consumer has limited understanding of voluntary compensation and related claims.

Sammanfattning

För att bidra till Parisavtalets långsiktiga mål att begränsa den globala uppvärmningen till 1,5 grader Celsius, tar länder och icke-statliga aktörer, såsom företag, kommuner, organisationer och individer, steg mot och bortom växthusgasneutralitet. Dessa länder och övriga aktörer gör också i vissa fall anspråk kopplade till omfattningen av den egna klimatpåverkan och sina bidrag till att minska densamma. De flesta aktörer har inte möjlighet att reducera sina egna utsläpp till noll på kort till medellång sikt. Genom frivillig kompensation av växthusgasutsläpp ('klimatkompensation') kan aktörer då - på vägen mot noll -ta ansvar för sina återstående utsläpp - genom att stödja additionella minskningar av växthusgasutsläpp och borttagning av växthusgaser från atmosfären som sker utanför gränserna för deras egna aktiviteter. I denna rapport använder vi begreppet växthusgasminskningar som en gemensam beteckning för additionella minskningar av växthusgasutsläpp och borttagning av växthusgaser från atmosfären. Sådana växthusgasminskningar kan skapas genom aktiviteter som till exempel främjar förnybar energi, energieffektivitet, hållbar avfallshantering, avskiljning och geologisk lagring av koldioxid, skydd av skogar eller plantering av ny skog.

Frivillig klimatkompensation

I denna rapport omfattar begreppet 'frivillig klimatkompensation' två olika användningsområden för växthusgaskrediter, dels klimatkompensation med "kvittning" av de egna utsläppen, dels klimatkompensation utan sådan kvittning.

- Med kvittning menas köp och ägande av växthusgaskrediter från utanför aktörens gräns eller värdekedja för att 'räkna ned' aktörens växthusgasavtryck.
- Kompensation utan kvittning är när en aktör betalar för växthusgaskrediter från utanför sin gräns eller värdekedja men inte 'räknar ned' sitt växthusgasavtryck. Uttryckt på ett annat sätt, för icke-kvittningsändamål kan aktören ge ett ekonomiskt bidrag till någon annans klimatåtgärder utan att samtidigt göra ägaranspråk på resultatet.

Frivillig klimatkompensation ersätter inte aktörers åtgärder för att minska de egna utsläppen. När klimatkompensation används för att komplettera tillräckligt ambitiösa egna åtgärder, kan aktörer genom frivillig kompensation bidra till att påskynda samhällets övergång till netto-nollutsläpp till en högre grad jämfört med ett fall med enbart egna åtgärder. För att frivillig klimatkompensation verkligen ska bidra till ett accelererat globalt klimatarbete måste dess 'integritet' säkerställas. Frivillig klimatkompensation med hög integritet innebär att man använder högkvalitativa växthusgaskrediter som inte räknas dubbelt (för mer än ett syfte). Det har väckts farhågor om klimatkompensationens integritet vilket understryker behovet av ytterligare vägledning och översyn. För närvarande är den vägledning om frivillig klimatkompensation som finns fragmenterad och under snabb utveckling för att anpassas till de förutsättningar som Parisavtalet skapar och FN:s mål för hållbar utveckling (SDG). Bland de internationella initiativ som utvecklar vägledning och ramverk för klimatkompensation i linje med Parisavtalet och SDG:erna märks

Science-Based Targets-initiativet (SBTi), Taskforce on Scaling Voluntary Carbon Markets (TSVCM) och Voluntary Carbon Market Integrity Initiative (VCMI). 'Nordic Dialogue on Voluntary Compensation' syftar till att utveckla ett nordiskt angreppssätt för frivillig klimatkompensation med hög integritet.

Denna rapport kartlägger viktiga internationella riktlinjer och initiativ som är relevanta för frivillig klimatkompensation. Den syftar till att skapa förutsättningar för en samsyn kring vad som utgör användning av frivillig klimatkompensation med hög integritet som en del av aktörers bredare ansträngningar för växthusgasminskningar med sikte på och bortom växthusgasneutralitet.

Klimatkompensationens användarsida

När det gäller att sätta upp mål för att minska klimatpåverkan strävar allt fler aktörer efter netto-nollutsläpp och växthusgasneutralitet. På den globala nivån har netto-nollutsläpp samma innebörd som växthusgasneutralitet: båda syftar på en balans mellan (globala) växthusgasutsläpp och -borttag. På den icke-globala nivån (t.ex. för länder, sektorer, företag eller individer) saknas fortfarande en standarddefinition av netto-nollutsläpp och växthusgasneutralitet. De växthusgasneutralitets- och netto-nollmål som förekommer skiljer sig åt när det gäller ambitionsnivå (förenlighet med 1,5-gradersmålet), tidsram, vilka växthusgaser som omfattas, räckvidd (endast direkta eller även indirekta utsläpp), etc. Nettonegativa och "klimatpositiva" tillvägagångssätt innebär ambitioner som sträcker sig bortom netto-noll och växthusgasneutralitet men saknar också vedertagna definitioner.

Sådana mål avseende minskad klimatpåverkan, och relaterade anspråk, är viktiga drivkrafter bakom frivillig klimatkompensation. Många aktörer kommer inte att kunna uppnå växthusgasneutralitet eller netto-nollutsläpp, åtminstone på kort till medellång sikt, enbart med egna åtgärder. Frivillig kompensation används då för att kvitta en del av, eller alla, återstående utsläpp, och ofta -men inte nödvändigtvis- för att göra relaterade påståenden om växthusgasneutralitet eller netto-nollutsläpp. Till exempel kan ett företag hävda att dess produkt är växthusgasneutral om det har köpt och äger en motsvarande mängd växthusgaskrediter för att kompensera för produktens växthusgasutsläpp. Det är dock viktigt att inse att begreppen växthusgasneutralitet eller netto-nollutsläpp inte motsvarar nollutsläpp. Istället antyder de att vissa utsläpp kvarstår och kompenseras med hjälp av växthusgasminskningar som har uppnåtts någon annanstans.

God praxis för frivillig klimatkompensation med hög integritet inkluderar hög prioritering av egna åtgärder för växthusgasminskningar, robust kvantifiering av egna växthusgasutsläpp, användning av högkvalitativa växthusgaskrediter, undvikande av dubbelräkning, transparent och korrekt rapportering samt tydliga och sanningsenliga påståenden och marknadsföring.

Frivillig kompensation görs vanligtvis genom att köpa växthusgaskrediter som utfärdas av en erkänd krediteringsstandard på de frivilliga växthusgasmarknaderna (Voluntary Carbon Markets, VCM) och att dessa krediter dras tillbaka/annulleras i ett register. Det finns många krediteringsstandarder som utfärdar växthusgaskrediter mot växthusgasminskningar som uppfyller relevanta kriterier och som för register över kreditinnehav och minimera risken för dubbelräkning. Varje

växthusgaskredit representerar en additionell, verifierad växthusgasminskning motsvarande ett ton koldioxidekvivalenter (tCO₂e).

På företagsnivå föreslår vissa internationella initiativ att skilja mellan påståenden om växthusgasneutralitet respektive om netto-nollutsläpp. SBTi utvecklar ett ramverk för företags netto-nollmål och föreslår att ett företag bara ska kunna göra anspråk på att ha uppnått netto-nollutsläpp när det har minskat sina utsläpp i linje med 1,5-gradersbanan och 'neutraliserat' eventuella kvarvarande utsläpp baserat på aktiviteter som tar bort växthusgaser ur atmosfären. SBTi uppmuntrar företag att på vägen mot netto-noll också kompensera sina återstående utsläpp med projekt som bidrar till utsläppsminskningar som genereras utanför deras gränser, vilket möjliggör för företag att uppnå växthusgasneutralitet innan de når noll. Även VCMI föreslår att trovärdiga påståenden om växthusgasneutralitet skall ta sin utgångspunkt i dels åtaganden angående egna växthusgasminskningar, dels visade framsteg i en takt som är kompatibel med 1,5-gradersmålet.

Icke-kvittande användning av växthusgaskrediter växer fram som ett alternativ till kvittning. Detta avser att stödja växthusgasminskningar utanför aktörens egna gränser utan att använda dem för att "räkna ned" de egna utsläppen och göra relaterade påståenden om växthusgasneutralitet. Istället kan den kompenserande aktören göra ett icke-kvittningsbaserat påstående om stöd till ett världlands ansträngningar att bidra till växthusgasminskningar.

Klimatkompensationens utbudssida

Olika krediteringsstandarder tillämpar väldigt lika kvalitetskriterier för växthusgaskrediter och kriterierna ligger väl i linje med rekommendationer från relevanta vägledningskällor. De syftar till att garantera miljöintegriteten hos växthusgaskrediter genom additionalitet, relevanta referensbanor, robusta kvantifieringsmetoder, övervakning, rapportering, och oberoende verifiering, hantering av risker för icke-permanens och indirekta effekter samt undvikande av dubbelräkning. Samtidigt skiljer sig krediteringsstandarder åt när det gäller hur de styrs, deras omfattning geografiskt och avseende aktivitetskategorier, operationalisering av kriterier samt tillvägagångssätt för att hantera miljömässiga och sociala konsekvenser. Detta leder i sin tur till både verkliga och upplevda skillnader gällande integritetsnivån hos växthusgaskrediter från olika standarder liksom gällande sidoeffekter förknippade med krediterna. Enligt TSVCM fungerar de nuvarande frivilliga klimatkompensationsmarknaderna inte effektivt på grund av både verkliga och upplevda utmaningar när det gäller kvaliteten på växthusgaskrediter. För att övervinna dessa utmaningar utvecklar TSVCM en standard med "tröskelkrav" avseende växthusgaskrediters integritetsnivå, en standardiserad taxonomi för ytterligare "attribut" och ett bedömningsramverk för krediteringsstandarder.

VCMI fungerar som ett paraplyinitiativ för att främja användning av växthusgaskrediter för frivilliga ändamål som präglas av hög integritet. Det syftar till att utveckla vägledning för köpare av växthusgaskrediter, inklusive en indelning av legitim frivillig användning av krediter i kategorier samt därmed relaterade anspråk, för att säkerställa att intressenter enkelt ska kunna förstå effekten av ett företags

handlingar. Enligt VCMi bör ett trovärdigt anspråk avseende växthusgasneutralitet åtföljas av ett starkt, framåtsyftande åtagande om egna växthusgasminskningar. Vissa aktörer på den frivilliga klimatkompensationsmarknaden, till exempel Gold Standard, kräver att kvittningsbaserade påståenden, till exempel påståenden om växthusgasneutralitet, ska baseras på växthusgasminskningar som inte räknas dubbelt mot världsåtaganden. Detta för att säkerställa att frivillig kvittningsbaserad kompensation baseras på växthusgasminskningar som går utöver vad länder redan har lovat att leverera. För växthusgasminskningar som genereras under Parisavtalets genomförandeperiod från 2021 och framåt innebär detta krav på att världlandet inte räknar in de aktuella växthusgasminskningarna i uppfyllandet av sitt eget åtagande under Parisavtalet. För att detta ska vara möjligt krävs att världlandet tillämpar så kallade 'corresponding adjustments' när det skapar sin utsläppsbalans (dvs. att landet lägger tillbaka de aktuella växthusgasminskningarna, och således rapporterar dessa, innan landets rapporterade utsläpp jämförs med landets åtagande).

Även om de frivilliga klimatkompensationsmarknaderna är frivilliga till sin natur och till stor del utvecklas och drivs av privata aktörer, finns det olika sätt på vilka statliga etc. organisationer försöker bidra till - i vissa fall genom reglering - växthusgaskrediter av hög kvalitet, en ansvarsfull frivillig klimatkompensation liksom rimliga relaterade påståenden. Statliga organisationer har utvecklat riktlinjer för god praxis och till och med inhemska krediteringsstandarder, register för växthusgaskrediter och system för märkning avseende växthusgasneutralitet. Vissa länder samarbetar för att utveckla kapacitet och infrastruktur för att generera växthusgasminskningar, godkänna deras internationella överföring och genomföra 'corresponding adjustments' i överensstämmelse med reglerna för samarbetsformerna enligt artikel 6 i Parisavtalet. Även om artikel 6 syftar till att generera växthusgaskrediter som är berättigade att uppfylla nationella åtaganden enligt Parisavtalet kan det också underlätta för icke-statliga köpare att få tillgång till artikel 6-kompatibla växthusgaskrediter för frivillig klimatkompensation.

Sammanfattning av bästa praxis-element som är relevanta för frivillig klimatkompensation

Bästa praxis-element	Grad av samstämmighet	Centrala vägledningar	Kunskapsluckor
Robust och heltäckande beräkning av egna utsläpp (växthusgasavtryck)	Hög	Protokoll för beräkning och verifiering av växthusgasavtryck och produktlivscykelutsläpp (t.ex. GHG Protocol, ISO)	Otillräcklig tillgång till och kvalitet på data från scope 3 (värdekedjans indirekta utsläpp)
Prioritering av egna växthusgasminskningar (frivillig ersättning används inte för att ersätta eller skjuta upp egen åtgärd)	Hög	Science-Based Targets Initiative (SBTi) utvecklar en standard för att fastställa och verifiera 1,5 graderskompatibla netto-nollmål för företag, inklusive små och medelstora företag. ICLEI - Local Governments for Sustainability har utvecklat en ram för växthusgasneutralitet för städer och regioner.	SBTi-vägledningen är fortfarande under utveckling, täcker inte alla undersektorer och är inte lätt att tillämpa på t.ex. mikroföretag eller individer. Bedömning av "tillräcklig egen ansträngning" och "anpassning till 1,5-gradersbana" innebär oundvikligen subjektiva bedömningar och viktiga jämlikhetsfrågor.
Klimatkompensation med växthusgaskrediter av hög integritet	Hög beträffande principen om användning av växthusgaskrediter av hög integritet. Skilda uppfattningar om vad som utgör högintegritetskrediter, i vilken utsträckning olika krediteringsstandarder lyckas säkerställa krediternas integritet, olika preferenser avseende växthusgaskrediter baserade på utsläppsminskningar respektive borttagning av koldioxid ur atmosfären.	TSVCM utvecklar för standardisering av vad som är växthusgaser av hög kvalitet så kallade "Core Carbon Principles", en standardtaxonomi för "ytterligare attribut" och ett ramverk för utvärdering av krediteringsstandarder. Många krediteringsstandarder reviderar sina kriterier för att anpassa sig till Parisavtalet. Carbon Credit Quality Initiative utvecklar ett poängverktyg för växthusgaskreditkvalitet.	Vägledning och verktyg för bedömning av växthusgaskrediters kvalitet är fortfarande under utveckling och omfattar inte växthusgaskrediter som inte utfärdas inom ramen för krediteringsstandarder.
Rapportering av egna utsläpp och frivillig kompensation på ett öppet, korrekt och detaljerat sätt	Hög	Internationellt (t.ex. Global Reporting Initiative, GHG Protocol, Carbon Disclosure Project) och nationell vägledning (t.ex. UK Environmental Reporting Guidelines) för företag om rapportering av växthusgasutsläpp och aggregerad användning av växthusgaskrediter (t.ex. ISO) och om rollen för frivillig klimatkompensation i den bredare klimatåtgärdsstrategin (t.ex. WWF).	Brist på specifik vägledning och plattformar för standardiserad rapportering av detaljerad information om de växthusgaskrediter som används för frivillig kompensation och deras roll i den bredare klimatåtgärdsstrategin.
Att göra tydliga, sanningsenliga och verifierbara påståenden om mål och frivillig klimatkompensation (kvittning och icke-kvittning)	Hög beträffande principen om att säkerställa påståendens integritet. Bristande samsyn om definitioner avseende olika påståenden.	Utveckling av vägledning pågår, t.ex. SBTi och VCMI. VCMI utvecklar vägledning om påståenden angående mål och frivillig kompensation, inklusive en klassificering av påståenden baserat på en rad egenskaper, t.ex. vilka utsläpp som omfattas, målets ambitionsnivå, typer av växthusgaskrediter och bokföring av krediter.	Brist på standardiserade definitioner och klassificering av påståenden, som i sig är en förutsättning för oberoende tredjepartsverifiering av påståenden.
Överensstämmelse med god marknadsföringspraxis vid användning av påståenden om egna utsläpp, frivillig kompensation etc. i samband med marknadsföring	Hög när det gäller principen om att följa god marknadsföringspraxis. Bristande samsyn om definitioner avseende påståenden (se ovan).	Internationell (t.ex. ICC), överstatlig (t.ex. EU) och nationell vägledning om "gröna" påståenden, inklusive viss vägledning specifikt om påståenden om växthusgasneutralitet.	Brist på standardiserade definitioner och klassificering av påståenden, som är en förutsättning för att bedöma överensstämmelse med god marknadsföringspraxis. Den genomsnittliga konsumenten har begränsad förståelse för frivillig kompensation och därmed förknippade påståenden.

Yhteenveto

Pariisin sopimuksen pitkän aikavälin tavoitteena on rajoittaa ilmaston lämpeneminen 1,5 asteeseen. Tavoitteen edistämiseksi valtiot ja monet ei-valtiolliset toimijat, kuten yritykset, kunnat, järjestöt ja yksityishenkilöt, toimivat hiilineutraaliuden saavuttamiseksi ja ylittämiseksi ja tekevät niihin liittyviä ilmastoväittämiä. Useimmat toimijat eivät kuitenkaan pysty vähentämään päästöjään nollaan pelkästään omin toimin, ainakaan lyhyellä tai keskipitkällä aikavälillä. Päästöjen vapaaehtoisen kompensaation avulla he voivat ottaa vastuun jäljelle jäävistä päästöistään tukemalla lisäisiä päästövähennyksiä ja poistoja ("hillintätuloksia") toisaalla. Näitä hillintätuloksia voivat tuottaa esimerkiksi hankkeet, jotka edistävät uusiutuvaa energiaa, energiatehokkuutta, päästötöntä liikennettä, jätehuoltoa, hiilidioksidin talteenottoa ja varastointia, metsien suojelua tai metsitystä.

Vapaaehtoinen kompensaatio

Tässä raportissa vapaaehtoinen kompensaatio kattaa hillintätulosten käytön sekä toimijan omien päästöjen ilmastohaitan kumoamiseen (engl. offsetting) että ilmastomuutosta hillitsevien toimien tukemiseen (engl. non-offsetting). Omien päästöjen ilmastohaitan kumoamiseksi toimija ostaa omistukseensa hillintätuloksia, jotka on toteutettu toisaalla. Toimija voi myös tukea hillintätuloksia käyttämättä niitä omien päästöjensä ilmastohaitan kumoamiseen. Tällöin toimija tukee hillintätuloksia taloudellisesti, muttei omista niitä.

Vapaaehtoinen kompensaatio ei korvaa toimijan omia päästövähennyksiä. Se vauhdittaa siirtymää kohti vähäpäästöistä yhteiskuntaa, jos se ylittää lain edellyttämät ja omin toimin toteutettavissa olevat päästövähennykset. Jotta vapaaehtoinen kompensaatio aidosti vauhdittaisi siirtymää, sen luotettavuus tulee varmistaa. Luotettava vapaaehtoinen kompensaatio perustuu laadukkaisiin hillintätuloksiin, joita ei ole laskettu useampaan tarkoitukseen. Vapaaehtoisen kompensaation ja siihen liittyvien väittämien nykyisiä käytäntöjä on kyseenalaistettu ja kritisoitu laajasti, ja yhteisten pelisääntöjen ja laadunvalvonnan tarve on kiistaton. Selkeää ja yhtenäistä ohjeistusta tarvitaan sekä vapaaehtoisen kompensaation tuottajille että sen käyttäjille. Nykyinen ohjeistus on hajanaista, ja sitä sopeutetaan parhaillaan Pariisin sopimuksen ja YK:n kestävän kehityksen tavoitteiden kontekstiin. Useat uudet kansainväliset aloitteet kehittävät parhaillaan ohjeistuksia (esimerkiksi Science-Based Targets initiative, Taskforce on Scaling Voluntary Carbon Markets ja Voluntary Carbon Market Integrity Initiative). Vapaaehtoista kompensaatiota koskeva pohjoismainen dialogi pyrkii kehittämään yhteispohjoismaiset pelisäännöt laadukkaalle kompensaatiolle.

Tämä raportti kartoittaa vapaaehtoiseen kompensaatioon liittyvät kansainväliset ohjeet ja aloitteet. Raportin tavoitteena on tukea pohjoismaisia ja kansainvälisiä toimijoita vapaaehtoisen kompensaation laadun edistämiseksi osana laajempia hiilineutraaliuspyrkimyksiä.

Kysyntä

Toimijoiden ilmastotavoitteet tähtäävät yleisimmin nettonollaan tai hiilineutraaliuteen. Tässä raportissa hiilineutraalius kattaa hiilidioksidin lisäksi myös muiden kasvihuonekaasujen päästöt. Globaalilla tasolla nettonollapäästöt ja hiilineutraalius ovat synonyymejä: molemmat kuvaavat tilannetta, jossa globaalit päästöt ja poistot ovat tasapainossa. Maiden, sektorien, yritysten ja yksityishenkilöiden tasolla yleisesti hyväksyttyä nettonollan ja hiilineutraaliuden määritelmää ei sen sijaan vielä ole. Nykyiset hiilineutraalius- ja nettonollatavoitteet poikkeavat toisistaan mm. kunnianhimon (yhteensopivuus 1,5 asteen tavoitepolun kanssa), aikajänteen, päästöjen kattavuuden (mitkä kasvihuonekaasut, vain suorat vai myös epäsuorat päästöt), toimenpiteiden ja strategioiden (vain omat toimet vai myös kompensatiota, päästövähennyksiin ja/vai poistoihin perustuva kompensatio). Nettonegatiivisuus ja ilmastoposiivisuus viittaavat nettonollan ja hiilineutraaliuden ylittymiseen, mutta niillekään ei ole yleisesti hyväksyttyjä määritelmiä.

Hiilineutraalius- ja nettonollatavoitteet luovat kysyntää vapaaehtoiselle kompensatiolle, varsinkin toimijan omien päästöjen ilmastohaitan kumoamiselle ja siihen liittyville väittämille. Kumoamisen yhteydessä tehdään usein – muttei aina – hiilineutraaliuteen tai nettonollaan liittyviä väittämiä. Yritys voi esimerkiksi väittää tuotettaan hiilineutraaliksi, jos se on ostanut ja omistaa tuotteen päästöjä vastaavan määrän hillintätuloksia päästöjen ilmastohaitan kumoamiseksi. Tämä ei kuitenkaan tarkoita, että tuote olisi päästötön vaan että toiminnasta aiheutuu päästöjä, jotka kompensoidaan.

Laadukkaan vapaaehtoisen kompensatian hyviin käytäntöihin kuuluu omien päästövähennysten priorisointi, vankka päästölaskenta, laadukkaiden hillintätulosten käyttö, kaksoislaskennan välttäminen, läpinäkyvä ja tarkka raportointi, ja väittämien ja markkinoinnin selkeys ja totuudenmukaisuus.

Vapaaehtoinen kompensatio toteutetaan yleensä ostamalla vapaaehtoisilta hiilimarkkinoilta hyvitysyksiköitä (eng. carbon credits), jotka on sertifioitu yleisesti hyväksytyyn hyvitysstandardin puitteissa, ja mitätöimällä ne päästöreisterissä. Tarjolla on lukuisia hyvitysstandardeja, jotka laskevat liikkeelle hyvitysyksiköitä laatukriteerit täyttäviä hillintätuloksia vastaan ja ylläpitävät päästöreisterejä hyvitysyksiköiden omistuksen ja käytön seuraamiseksi sekä kaksoislaskennan riskin minimoimiseksi. Yksi hyvitysyksikkö vastaa yhden hiilidioksidiekvivalenttitonnin (tCO₂e) suuruista lisäistä ja todennettua kasvihuonekaasun päästövähennystä tai poistoa.

Jotkin kansainväliset aloitteet ehdottavat yritysten hiilineutraaliusväittämien eriyttämistä nettonollaväittämistä. Tieteeseen perustuvia tavoitteita koskeva SBTi-aloite kehittää parhaillaan kriteerejä yritysten nettonollatavoitteille. Sen mukaan yritys saisi väittää saavuttaneensa nettonollapäästötason vasta sitten, kun se on vähentänyt omia (ml. arvoketjun) päästöjään 1,5 asteen tavoitepolun mukaisesti ja "neutraloinut" jäljellä olevat päästönsä vastaavalla määrällä hiilidioksidin poistoja ilmakehästä. Lisäksi SBTi kannustaa yrityksiä, matkallaan kohti nettonollaa, kumoamaan päästöjensä ilmastohaitan päästövähennyksiin tai poistoihin perustuvilla hillintätuloksilla, jotka on toteutettu yrityksen arvoketjun ulkopuolella. Jos tieteen mukaisella tavoitepolullaan oleva yritys kumoaa jäljellä olevien päästöjensä ilmastohaitan täysimääräisesti, se voisi saavuttaa hiilineutraaliuden ennen nettonollapäästötasoa. Myös kansainvälinen VCMI-aloite, joka kehittää

parhailaan ohjeita vapaaehtoiseen kompensaatioon liittyviin väittämiin, esittää uskottavan hiilineutraaliusväittämän edellytykseksi sitä, että toimijalla on 1,5 asteen mukainen tavoitepolku, jota se myös toteuttaa.

Hyvitysyksiköiden käyttö hillintätoimien tukemiseen on nousemassa omien päästöjen ilmastohaitan kumoamisen vaihtoehdoksi. Tällöin toimija tukee hillintätuloksia toisaalla, esimerkiksi oman arvoketjunsä ulkopuolella, käyttämättä niitä omien päästöjensä ilmastohaitan kumoamiseen tai hiilineutraaliusväittämiin. Sen sijaan toimija voi tehdä ilmastotekoväittämän eli todeta tukevansa kansallisen ilmastotavoitteen saavuttamista siinä maassa, jossa hillintätulos toteutuu.

Tarjonta

Hyvitysstandardien laatukriteerit hyvitysyksiköille ovat keskenään hyvin samankaltaisia ja linjassa lukuisten suositusten kanssa. Laatukriteerit pyrkivät takaamaan hillintätulosten luotettavuuden edellyttämällä esimerkiksi lisäisyyttä, vankkoja perusuria, laskentamenetelmiä, seurantaä ja raportointia, riippumatonta todentamista, pysyvyys- ja hiilivuotoriskin hallintaa sekä kaksoislaskennan välittämistä. Hyvitysstandardit eroavat toisistaan hallintomallin, maantieteellisen ja hanketyyppien kattavuuden, kriteerien toimeenpanon sekä ympäristö- ja sosiaalisten vaikutusten käsittelyn osalta. Nämä vaikuttavat käsityksiin laatueroista eri standardien mukaisissa hyvitysyksiköissä. Vapaaehtoisten hiilimarkkinoiden kehittämistä edistävän työryhmän (TSVCM) mukaan hyvitysyksiköiden laatuä koskeva epäluulo estää tällä hetkellä markkinoiden tehokkaan toiminnan. Tilanteen parantamiseksi TSVCM kehittää parhaillaan minimikriteeristöä laadukkaille hyvitysyksiköille, yhtenäistä jaottelua yksiköiden lisäominaisuuksille ja arviointikehikkoa hyvitysstandardeille.

VCMIä kokoaa yhteen vapaaehtoisen kompensaation luotettavuutta edistävät toimijat ja aloitteet. Sen tavoitteena on kehittää ohjeet hyvitysyksiköiden ostajille, mukaan lukien kategoriat uskottaville väittämille, ja lisätä yritysten ilmastovaikutusten ymmärrettävyyttä. VCMI:n mukaan uskottavan hiilineutraaliusväittämän tekeminen edellyttää, että väittämän tekijällä on kunnianhimoinen ilmastotavoite. Jotkut hiilimarkkinatoimijat, kuten Gold Standard, edellyttävät, että päästöjen ilmastohaitan kumoutumiseen liittyvät väittämät, kuten hiilineutraaliusväittäma, perustuvat hillintätuloksiin, joita ei hyväksilasketa isäntämaan kansalliseen ilmastotavoitteen täyttämiseen. Tämä varmistaa, että omien päästöjen ilmastohaitan vapaaehtoinen kumoaminen perustuu hillintätuloksiin, jotka ylittävät Pariisin sopimukselle jo ilmoitetut kansalliset tavoitteet. Pariisin sopimuksen toimeenpanokaudella vuodesta 2021 lähtien toteutuneiden hillintätulosten osalta tämä edellyttää, ettei isäntämaa hyväksilasketa niitä kansalliseen tavoitteeseensa vaan tekee vastaavat mukautukset (engl. corresponding adjustments) päästötaseeseensa.

Vaikka vapaaehtoinen hiilimarkkina on nimensä mukaisesti luonteeltaan vapaaehtoinen ja pitkälti yksityisten toimijoiden säätelyn varassa, myös julkiset toimijat voivat edistää – ja jopa säännellä – vapaaehtoisen kompensaation luotettavuutta. Julkiset tahot ovat muun muassa kehittäneet ohjeita hyvistä käytännöistä sekä perustaneet kotimaisia hyvitysstandardeja, päästörekesterejä ja

hiilineutraaliutta koskevia ympäristömerkkijärjestelmiä. Jotkut maat kehittävät yhteistyössä valmiuksia ja prosesseja hillintätulosten tuottamiselle, niiden kansainvälisille siirroille ja vastaaville mukautuksille Pariisin sopimuksen markkinayhteistyön sääntöjen (ns. 6 artiklan) mukaisesti. Tämän yhteistyön puitteissa Pariisin sopimuksen kriteerit täyttäviä hillintätuloksia voisi tuottaa myös ei-valtiollisten toimijoiden vapaaehtoiseen käyttöön.

Tiivistelmä vapaaehtoiseen kompensatioon liittyvistä hyvistä käytännöistä

Hyvät käytännöt	Yhteisymmärryksen taso	Keskeinen ohjeistus	Puutteet
Omien päästöjen (hiilijalanjäljen) vankka ja kattava laskenta	Laaja yhteisymmärrys	Ohjeistukset esim. hiilijalanjäljen ja tuotteen elinkaari päästöjen laskentaan ja todentamiseen (esim. GHG Protocol, ISO)	Epäsuoria arvoketjupäästöjä (ns. scope 3) koskevan tiedon puutteellinen laatu ja saatavuus
Omien päästövähennysten priorisointi ja riittävyys (vapaaehtoista kompensatiota ei käytetä omien toimien korvaamiseen tai lykkäämiseen)	Laaja yhteisymmärrys	SBTi-aloite kehittää yrityksille standardia 1,5 asteen tavoitteen mukaisten tavoitteiden asettamiseksi ja todentamiseksi. ICLEI on laatinut hiilineutraalikeskeisten kaupungeille ja kunnille.	SBTi:n ohjeistus on vielä kehitteillä. Se ei kata kaikkia toimialoja eikä sovellu esimerkiksi pienille yrityksille tai yksityishenkilöille. Arviot riittävästä ja 1,5 asteen tavoitepolun mukaisista toimista ovat subjektiivisia ja niihinliittyviä tärkeitä oikeudenmukaisuuskysymyksiä.
Päästöjen kompensointi laadukkailla laadukkailla hyvitysyrityksillä	Laaja yhteisymmärrys laadukkaiden hyvitysyrityksien käyttämisestä. Eriäviä näkemyksiä laadun mittareista, eri hyvitysstandardien laadunvarmistuksen tasosta ja päästövähennyksiin vs. poistoihin perustuvien hyvitysyrityksien suosimisesta.	TSVCM kehittää minimikriteeristöä laadukkailla hyvitysyrityksille ja yhtenäistä jaottelua yksiköiden lisäominaisuuksille sekä arviointikehikkoa hyvitysstandardeille. Useat hyvitysstandardit päivittävät kriteerejään yhteensopiviksi Pariisin sopimuksen kanssa. Carbon Credit Quality Initiative -aloite kehittää hyvitysyrityksien laatua koskevaa pisteytysjärjestelmää.	Hyvitysyrityksien laatua koskevien ohjeiden kehitystyö on kesken ja keskittyy hyvitysstandardien mukaisiin hyvitysyrityksiin.
Omien päästöjen ja vapaaehtoisen kompensatian läpinäkyvä, tarkka ja eritelty raportointi	Laaja yhteisymmärrys	Kansainvälinen ja kansallinen ohjeistus (yritysten päästöjen ja hyvitysyrityksien käytön raportointiin (esim. Global Reporting Initiative, GHG Protocol, Carbon Disclosure Project, ISO, Ison-Britannian ympäristöraportointiohjeet) ja vapaaehtoisen kompensatian rooliin osana laajempaa ilmastostrategiaa (esim. WWF).	Tarkkojen ohjeiden ja alustojen puuttuminen yhtenäiselle ja eritellylle raportoinnille, ml. vapaaehtoisen kompensatioon käytetyistä hyvitysyrityksistä ja niiden roolista ilmastostrategiaassa.
Selkeät, totuudenmukaiset ja todennettavissa olevat väittämät hyvitysyrityksien vapaaehtoisesta käytöstä omien päästöjen ilmastohaitan kumoamiseen ja hillintätoimien tukemiseen	Laaja yhteisymmärrys väittämien laadun varmistamisen <i>periaatteesta</i> . Eriäviä näkemyksiä väittämiä koskevista <i>määritelmistä</i> .	Ohjeiden kehitystyö on käynnissä, esim. SBTi ja VCMI. VCMI kehittää ohjeita tavoitteisiin ja hyvitysyrityksien käyttöön liittyville väittämille, ml. väittämien jaottelu, joka huomioi esim. päästöjen kattavuuden, tavoitetaso, hyvitysyrityksityyppien ja hyvitysyrityksien käyttötarkoituksen perusteella.	Väittämiä koskevien yhtenäisten määritelmien ja jaottelun puute. Määritelmiä ja jaottelua tarvitaan väittämien riippumattomaan todentamiseen.
Hyvien markkinointikäytäntöjen soveltaminen vapaaehtoiseen kompensatioon liittyviin markkinointiväittämiin	Laaja periaatetason yhteisymmärrys hyvien markkinointikäytäntöjen soveltamisesta. Eriäviä näkemyksiä väittämiä koskevista määritelmistä (ks. yllä).	Kansainvälisiä (esim. Kansainvälinen kauppakamari ICC), ylikansallisia (esim. EU) ja kansallisia ohjeita ympäristöväittämistä, ml. hiilineutraaliväittämiä koskevia yleisiä ohjeita.	Väittämiä koskevien yhtenäisten määritelmien ja jaottelun puute. Määritelmiä ja jaottelua tarvitaan hyvien markkinointikäytäntöjen arvioimiseen. Keskiarvotuluttajalla on rajallinen ymmärrys vapaaehtoisesta kompensatiosta ja siihen liittyvistä väittämistä.

Abbreviations

A6.4M	Article 6.4 Mechanism
ACR	American Carbon Registry
BAU	Business-as-usual
CA	Corresponding adjustment
CAR	Climate Action Reserve
CCB	Climate, Community and Biodiversity
CCP	Core Carbon Principles
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CER	Certified Emission Reduction
CO ₂	Carbon dioxide
COP	Conference of the Parties
CORSIA	Carbon Offset Reduction Scheme for International Aviation
CPLC	Carbon Pricing Leadership Coalition
ERF	[Australian] Emission Reduction Fund
ETS	Emissions trading system
EU	European Union
GCOF	[UK] Government Carbon Offsetting Facility
GDP	Gross Domestic Product
GHG	Greenhouse gas
GS4GG	Gold Standard for the Global Goals
ICAP	International Carbon Action Partnership
ICC	International Chamber of Commerce
ICROA	International Carbon Reduction and Offset Alliance
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standard Organisation
ITMO	Internationally transferred mitigation outcome
JCM	Joint Crediting Mechanism
JI	Joint Implementation
KliK	Swiss Foundation for Climate Protection and Carbon Offset
LDCs	Least Developed Countries
LT-LEDS	Long-term low greenhouse gas emission development strategy

NDC	Nationally Determined Contribution
NEFCO	Nordic Environment Finance Corporation
NGO	Non-governmental organisation
NICA	Nordic Initiative for Cooperative Approaches
OECD	Organisation for Economic Co-operation and Development
PA	Paris Agreement
PMR	Partnership for Market Readiness
QAS	Quality Assurance Scheme for Carbon Offsetting
REDD	Reducing emissions from deforestation and degradation
SBTi	Science-Based Targets initiative
SDGs	Sustainable Development Goals
SDI	Sustainable Development Initiative
SEA	Swedish Energy Agency
tCO ₂ e	metric tonne of carbon dioxide equivalent
TSVCM	Taskforce on Scaling Voluntary Carbon Markets
T-VER	Thailand Voluntary Emission Reduction
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCMI	Voluntary Carbon Market Integrity Initiative
VCS	Verified Carbon Standard
WWF	World Wide Fund For Nature

1. Introduction

Countries and non-state actors, such as companies, municipalities, organisations and individuals, are taking steps towards and beyond carbon neutrality, to contribute to the Paris Agreement's (PA) long-term goal to limit global warming to 1.5 degrees Celsius. Companies are facing increasing pressure from consumers, civil society, shareholders and institutional investors to set and implement mitigation targets that are consistent with the 1.5-degree pathway. For example, the UK requires companies to have credible net-zero targets and plans in place to bid for major government contracts (UK Government, 2021) while France is preparing legislation to require companies receiving state aid to have net zero targets compatible with national sectoral carbon budgets (Legifrance, n.d.).

One key element of the discussion on carbon neutrality and net zero is the view that all actors should prioritise action to reduce their own greenhouse gas (GHG) emissions in line with a 1.5-degree pathway. However, the reality is that most actors will not be able to eliminate all of their emissions, at least in the short-to-medium term. Actors can take responsibility for their GHG emissions by supporting additional GHG emission reductions and removals (hereafter referred to jointly as 'mitigation outcomes') that occur outside the actors' boundaries. This compensation is typically done through the purchase of carbon credits, which are an emissions unit that is issued by a crediting standard and represents an emission reduction or removal of GHGs. Carbon credits are traded on voluntary carbon markets (VCMs).

In the context of this report, voluntary compensation includes both offsetting and non-offsetting use of carbon credits. To date, the voluntary use of carbon credits has focused on offsetting. Offsetting is the purchase and ownership of carbon credits to counterbalance an actor's own emissions (carbon footprint or value chain emissions). Non-offset uses of carbon credits are when an actor pays for mitigation outside of their value chain but does not use this to counterbalance their value chain emissions. In other words, for non-offsetting uses, the actor may make a financial contribution to the mitigation activities, but it does not own the mitigation outcomes.

To date, most carbon credits used for voluntary offsetting have been generated by activities that displace fossil fuel-based energy generation with renewable energy sources or protect existing forests from deforestation and degradation. Other activity types include reducing emissions from waste disposal, transportation, industrial and chemical processes, promoting energy efficiency, household fuel switching and efficiency (e.g., improved cookstoves or water filters), and removing carbon dioxide (CO₂) from the atmosphere through afforestation and reforestation (Donofrio, et al., 2020). Technological removals, such as capturing CO₂ from bioenergy use or directly from the air and permanently storing it in deep underground reservoirs or mineralisation approaches, are emerging as a new activity category seeking to accelerate deployment with support from voluntary compensation (Carbon Direct, 2021).

Ensuring the integrity of voluntary compensation and related claims is crucial. High-

integrity voluntary compensation can unlock urgently-needed additional finance to accelerate and scale up mitigation and support sustainable development co-benefits. If integrity is compromised, however, voluntary compensation can undermine global progress towards the 1.5-degree pathway. Stakeholders have raised significant concerns about the integrity of past and current voluntary compensation practices and related claims, underscoring the need for further guidance and oversight to promote the integrity of voluntary compensation. Guidance on voluntary compensation and related claims is currently fragmented and rapidly evolving to adapt to the context of the PA and the United Nations Sustainable Development Goals (SDGs).

This report maps the current international guidance and initiatives on voluntary compensation of emissions. It aims to foster a common knowledge base on high-integrity use of voluntary compensation as part of actors' broader mitigation efforts towards and beyond carbon neutrality.

2. Policy context and key concepts

This section provides an overview of the international climate policy context and key concepts covered in this report, highlighting areas of agreement and diverging views among VCM actors.

2.1 The Paris Agreement

The PA's long-term goals include pursuing efforts to limit the increase in the global average temperature to 1.5 degrees compared to pre-industrial levels, and making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development. The IPCC warns that, if warming reaches two degrees, the impacts of climate change would become significantly more severe and the globally agreed SDGs significantly more difficult to achieve compared with limiting warming to 1.5 degrees (IPCC, 2018a). To achieve this temperature goal, the PA aims for the global peaking of GHG emissions as soon as possible and rapid reductions thereafter in line with best available science, to achieve a balance between GHG emissions and removals in the second half of this century.

Under the PA, all countries are required to include mitigation pledges in their Nationally Determined Contributions (NDCs). They should also strive to formulate long-term low GHG emission development strategies (LT-LEDS). The implementation of mitigation targets in all countries under the PA from 2021 onwards is a major change compared with the mitigation targets under the Kyoto Protocol, which covered only 37 countries and around 10% of global GHG emissions at the end of 2020. The current NDCs (as of August 2021), which cover climate action until 2030, imply well above two degrees of warming by 2100, and are less than a fifth of the mitigation effort needed to stay on the path to limiting warming to 1.5 degrees (Climate Action Tracker, 2021). We refer to this as the 'ambition gap'.

The PA enables countries to voluntarily cooperate in achieving their NDCs, in line with the criteria included in its Article 6. Article 6 covers both market-based and non-market-based cooperation. It builds on over two decades of experience gained with and lessons learned from market-based cooperation under the Kyoto Protocol, namely under the Clean Development Mechanism (CDM), Joint Implementation (JI) and International Emissions Trading. Under Article 6, countries have the power to authorise public and private entities to participate in voluntary cooperation, and authorise international transfers of mitigation outcomes for use towards NDCs as well as for other purposes. The PA also establishes an internationally governed crediting mechanism (Article 6.4 Mechanism, A6.4M), which could also serve as the basis for international transfers. The PA sets requirements for countries that engage in or authorise cooperation that involves the international transfer of mitigation outcomes. They must ensure environmental integrity and transparency, including in governance, apply robust accounting, including to avoid double counting, and promote sustainable development. Participating countries must report on these aspects as part of their regular reporting to the PA, which is subject to a technical expert review. Double counting can be avoided by countries through robust national

GHG inventories, accounting and reporting under the PA, including the application of corresponding adjustments (CAs) whereby a host country adds back any internationally transferred mitigation outcomes (ITMOs) in its 'emissions balance'. The emissions balance serves as the basis for assessing progress towards its mitigation pledge.

As of September 2021, the rules to operationalise Article 6 had not yet been adopted. They are expected to be adopted at the COP26 climate conference in Glasgow in November 2021. In December 2019, a group of countries outlined a set of principles for robust Article 6 rules, known as the San José Principles on High Ambition and Integrity in International Carbon Markets (see Box 11) (Dirección de cambio climático, 2019).

2.2. Targets towards and beyond carbon neutrality

At the sub-global level, e.g., at the level of countries, sectors, companies or individuals, a widely accepted, standardised definition of net zero and carbon neutrality is still missing. Current carbon neutrality and net-zero targets are self-defined by actors and differ in terms of, inter alia:

- ambition level (i.e., alignment with 1.5-degree pathway)
- timeframe
- GHGs covered
- scope (i.e., only direct or also indirect emissions),
- activities, and
- strategies (i.e., only mitigation within own boundaries or also compensation outside own boundaries; balancing own remaining emissions with voluntary offsetting based on emission reductions and/or removals).

The terms 'climate positive' and 'net negative' imply going beyond carbon neutrality.

The PA's global goal to achieve a balance between global GHG emissions and removals is synonymous with net-zero emissions as defined by the Intergovernmental Panel on Climate Change (IPCC). According to the IPCC, "net-zero emissions are achieved when emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals [...]" (IPCC, 2018b). At the sub-global level, the Science-Based Target initiative (SBTi) is developing a standard for corporate science-based net-zero targets. To achieve net zero according to the SBTi definition, companies would have to mitigate their own value chain emissions in line with the 1.5-degree pathway and 'neutralise' (counterbalance) any residual emissions with removals by the target year (CDP, 2020). It is important to recognise that net-zero emissions are not equivalent to zero emissions. Net zero implies that some emissions remain in the value chain and that those emissions are counterbalanced with removals.

The Climate Ambition Alliance, launched in September 2019, brings together countries, businesses, investors, cities and regions that are committed to net zero by 2050 at the latest. Through the alliance, over 120 governments, covering around 70% of global GDP, have, as of August 2021, committed to develop plans to reach net-zero emissions by 2050 and to submit more ambitious NDCs (UNFCCC, 2021). In

addition, over 3 000 organizations have committed to net zero under the alliance's Race to Zero campaign. In April 2021, the Race to Zero campaign published refined criteria that outline the minimum standard for initiatives of businesses, investors, cities, regions and universities for robust and credible net-zero commitments (Table 1) (Race to Zero, 2021). The UNFCCC's Carbon Neutral Now (CNN) initiative supports organisations in meeting Race to Zero requirements and has developed guidelines for participation in the CNN (Climate Neutral Now, 2021).

Table 1. Race to Zero criteria for net-zero commitments

Minimum criteria required for participation in the Race to Zero campaign	
'Starting Line' criteria define procedural steps for all actors in the Race to Zero	
Pledge	Pledge at the head-of-organization level to reach (net) zero GHGs as soon as possible, and by mid-century at the latest, in line with global efforts to limit warming to 1.5 degrees. Set an interim target to achieve in the next decade, which reflects maximum effort toward or beyond a fair share of the 50% global reduction in CO ₂ from 2010 by 2030 identified in the IPCC Special Report on Global Warming of 1.5 degrees.
Plan	Within 12 months of joining, explain what actions will be taken toward achieving both interim and longer-term pledges, especially in the short- to medium-term.
Proceed	Take immediate action toward achieving (net) zero, consistent with delivering interim targets specified.
Publish	Commit to report publicly both progress against interim and long-term targets, as well as the actions being taken, at least annually. To the extent possible, report via platforms that feed into the UNFCCC Global Climate Action Portal.
'Leadership Practices' define substantive areas where networks and initiatives must at least reach the current frontier of best practice and indicate how leaders can push beyond it.	
Scope*	<p>Targets must cover all greenhouse gas emissions:</p> <ol style="list-style-type: none"> 1. Including Scope 3 for businesses and investors where they are material to total emissions and where data availability allows them to be measured sufficiently. 2. Including all territorial emissions for cities and regions. <p>Leading targets may also include:</p> <ol style="list-style-type: none"> 1. Cumulative emissions (for all actors) 2. Consumption emissions (for cities, states, and regions).
Sinks and credits	<ol style="list-style-type: none"> 1. In the transition to (net) zero, prioritize reducing emissions, limiting any residual emissions to those that are not feasible to eliminate. 2. Clearly specify what sinks or credits are used to make what, if any, neutralization claims, clarifying how sinks and credits are used both on the path to (net) zero, and after (net) zero is obtained. Any neutralization of residual emissions must transition to permanent removals by the time (net) zero status is achieved.
Empowerment and equity	Seek to enable all actors to contribute to the global transition toward (net) zero through engagement, information sharing, access to finance, and capacity building. Develop pledges, plans, and actions in consideration of equity, drawing on, inter alia, the SDGs and Articles 2 and 4 of the PA.

*Corporate emissions are categorised into three scopes: Scope 1 refers to the company's direct emissions, scope 2 to emissions relating to the company's energy use and scope 3 to indirect emissions in the company's value chain (not included in scope 2) (WBCSD/WRI, 2004).

At the global level, the IPCC defines carbon neutrality as synonymous with net-zero CO₂ emissions. At the sub-global level, actors that cannot yet reduce their emissions – sometimes referred to as their carbon or GHG footprint – to zero would need offsetting for their emissions beyond those compatible with a 1.5-degree pathway in order to make carbon neutrality claims. Carbon neutrality is commonly used to refer to a situation where an actor 'offsets its emissions with (at least) an equivalent amount of mitigation outcomes achieved elsewhere, covering also other GHGs in addition to CO₂. Increasingly, the actor's own ambitious mitigation action is considered a precondition for credibly claiming carbon neutrality. That is, an actor cannot credibly claim to have achieved carbon neutrality by relying fully on mitigation outcomes generated by others (VCMI, 2021b). As is the case with net zero, carbon neutrality does not mean zero emissions.

In this report, we refer to carbon neutrality as a general concept that can also cover other GHGs besides CO₂. Climate neutrality is often used synonymously with carbon neutrality, to indicate that multiple GHGs covered. Climate neutrality is, however, defined by the IPCC as "... a state in which human activities result in no net effect on the climate system. Achieving such a state would require balancing of residual emissions with emission (carbon dioxide) removal as well as accounting for regional or local biogeophysical effects of human activities that, for example, affect surface albedo or local climate", hence a broader concept than carbon neutrality (IPCC, 2018b).

Some targets go beyond carbon neutral and net zero, aiming for net-negative GHG emissions. At the global level, net-negative emissions are achieved when anthropogenic removals are greater than anthropogenic emissions (Obersteiner, et al., 2001). At the sub-global level, net-negative emissions may be achieved by offsetting an actor's emissions with more than an equivalent amount of mitigation outcomes. The terminology can be confusing, however, because the term 'negative emissions' is sometimes use for permanently removing GHGs from the atmosphere through human-induced natural sequestration or technological capture of GHGs and their permanent storage (IPCC, 2018b). In this report, this action is simply called 'removals'. Finally, a 'climate positive' approach would also mean going beyond carbon neutrality (see Box 1).

Box 1. Climate positive approach

The World Wide Fund For Nature (WWF) (2019) has developed a draft climate positive framework, under which climate positivity “means to achieve a state of net negative emissions by 2040 at the latest and reducing and physically removing more [GHG] gas emissions from the atmosphere than the whole value chain emits regardless of business growth”.

A climate positive company should set an SBTi-aligned target, support the low-carbon movement, and not rely on carbon credits in a way that would delay own mitigation action. Furthermore, “carbon credits used to achieve net negative emissions should be clearly communicated as a short to mid-term measure and should be reported separately from company emissions. Meaningful, robust and lasting carbon removals should be realised as an element of fulfilling the ambition of the Climate Positive Framework”.

2.3 Voluntary compensation of greenhouse gas emissions

As discussed earlier, in this report, voluntary compensation includes both the concept of offsetting as well as non-offsetting. Offsetting refers to an actor purchasing and owning mitigation outcomes which they use to counterbalance their own value chain emissions. Traditionally, if the offsetting volume was the same as the actor's total emissions, they were considered 'carbon neutral', even though the actors' own emissions might not have been in line with any particular long-term global emissions trajectory. Voluntary offsetting enables actors with emissions to make offset-based claims, such as claims about carbon neutrality or net zero, and is thus often motivated by a carbon neutrality or net-zero target. By contrast, using offsetting for compliance enables actors to comply with mitigation obligations (e.g., emissions caps or obligations to pay carbon taxes).

There is wide agreement that high-integrity offsetting must be based on real mitigation outcomes that are not double counted (see Section 3.1 and Figure 1). Furthermore, high-integrity offsetting should not be used to substitute or postpone ambitious own mitigation action (see Section 4.1). It is important to recognise that offsetting an actor's own emissions with mitigation outcomes elsewhere does not eliminate these emissions and is thus not equivalent to having zero emissions. This is why it is important for actors to also implement own mitigation in line with the 1.5-degree pathway. This investment in mitigation inside of the actor's boundary or value chain contributes towards the mitigation pledge of the country in which the actor resides. High-integrity voluntary offsetting enables actors to finance more mitigation than what could be achieved through own action alone, based on mitigation outcomes beyond what countries have already pledged that they would deliver, thereby increasing global mitigation compared to the situation without voluntary offsetting. If integrity is not ensured and offsetting is used to substitute own mitigation action, however, voluntary offsetting may undermine global mitigation by making it more difficult for countries to meet their pledges.

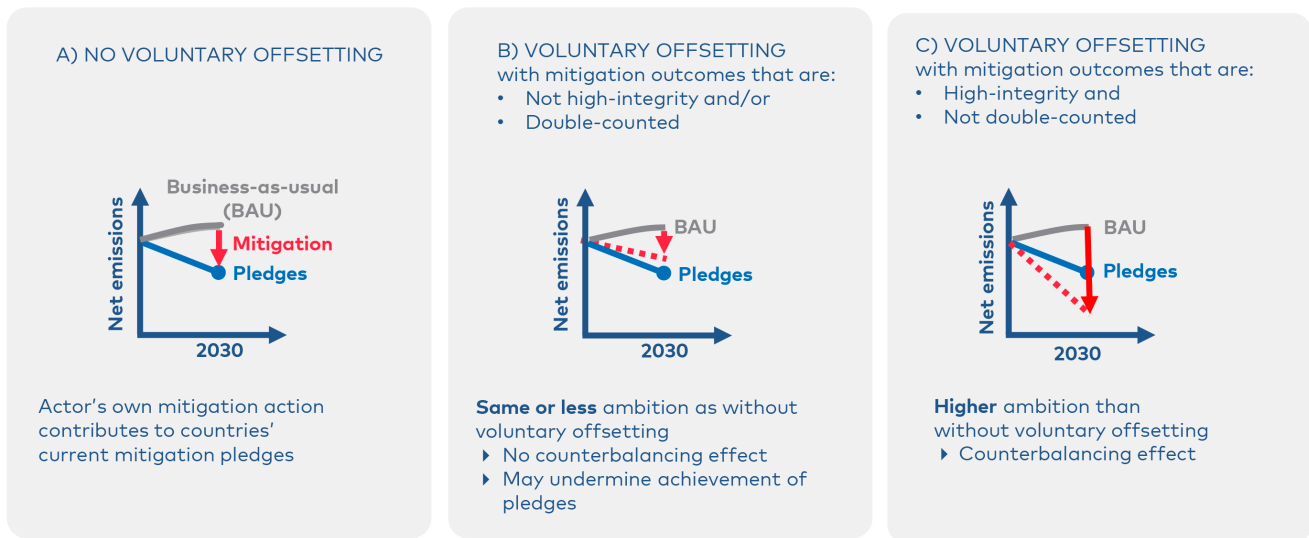


Figure 1. Voluntary offsetting's impact on global net emissions

Source: Authors

Traditionally, compensation has been used as a synonym for offsetting. However, some recent initiatives (e.g., SBTi and TSVC) tend to differentiate between offsetting based on emission reductions, referring to it as 'compensation', and offsetting based on removals, referring to it as 'neutralisation'. As discussed earlier, in this report, compensation is a broader term, covering mitigation outcomes – typically carbon credits – associated with either emission reductions or removals and with the potential for both offsetting and non-offsetting uses of those mitigation outcomes (Figure 2).

Non-offsetting use of mitigation outcomes can be the actor's way to take responsibility for its emissions without claiming that the actor's emissions have been offset. Various actors, including WWF (2019), Carbon Market Watch (2020) and Gold Standard (2021a), are developing guidance for non-offsetting approaches. Through non-offset-based claims, actors can voluntarily support the achievement of national mitigation pledges of the countries hosting the mitigation activities, which could be different from the country(ies) where the actor resides. The national mitigation pledge for the host country could be the achievement of its NDC under the PA and/or a national target going beyond the NDC, e.g., a carbon neutrality target.

In the case of offsetting, the counterbalancing of the entity's own remaining emissions could be reflected in the actor's own GHG reporting while, for a non-offsetting use, this would not be the case. While offsetting is often motivated by achieving carbon neutrality targets, non-offsetting is motivated by other goals or commitments to support mitigation and co-benefits, possibly with preference for specific activities and technologies in particular countries.

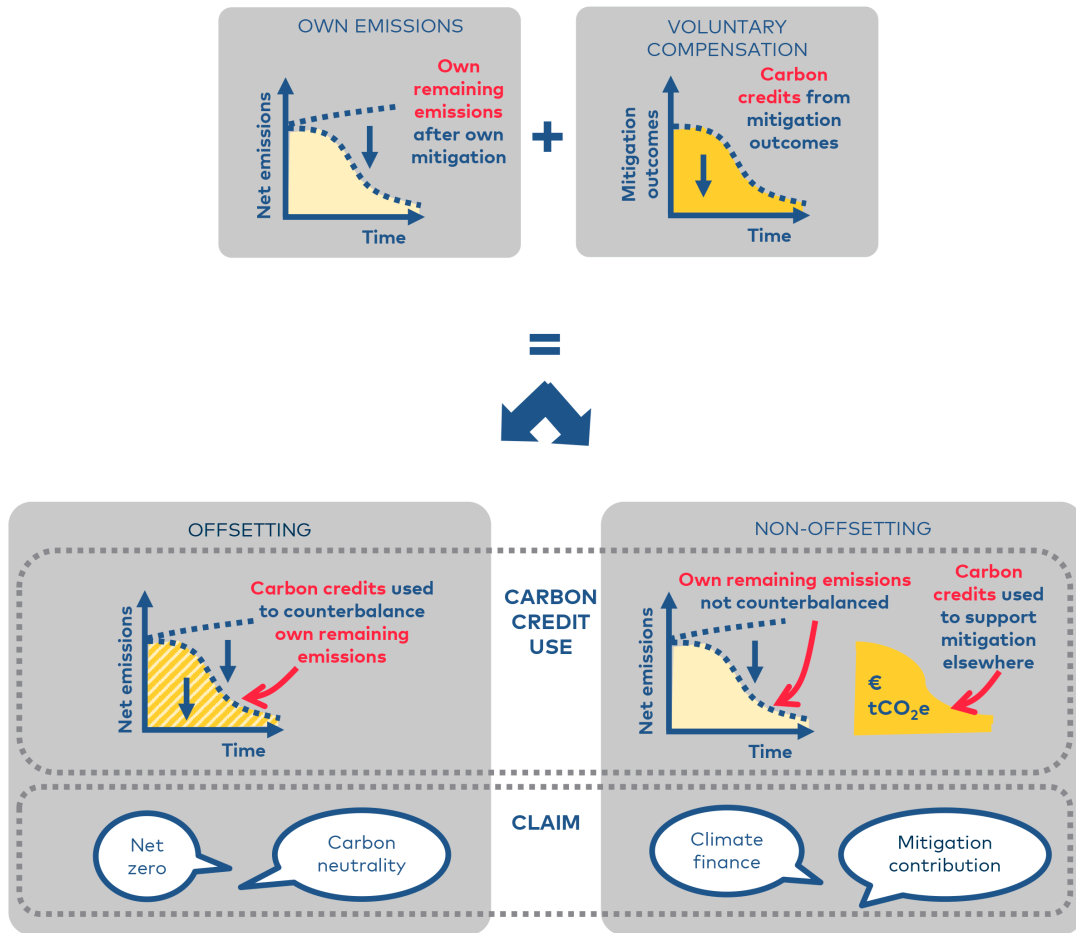


Figure 2. Different types of voluntary compensation of GHG emissions

Source: Authors

2.4 Carbon standards, crediting standards and the voluntary carbon market

Carbon market mechanisms are instruments to generate and enable trading of emissions units, each representing one metric tonne of CO₂ equivalent (tCO₂e). Carbon markets can increase the flexibility of how, where and by whom mitigation outcomes are financed and generated, thereby mobilising results-based finance for cost-effective mitigation action from public and private sources. Carbon market mechanisms fall into two main categories (see Box 2), namely emissions trading systems (ETSs) (also referred to as cap-and-trade schemes) and crediting standards (also referred to as baseline-and-credit schemes). ETSs are tools for complying with mandatory mitigation obligations while crediting standards can cater for both voluntary and compliance purposes.

Box 2. Carbon market mechanisms

Emissions trading systems (ETSs)

Under an emissions trading system (ETS), a regulator sets a collective cap on the GHG emissions of covered entities and issues emission allowances equivalent to the emission cap. These allowances are then allocated to covered entities e.g., for free and/or through auctions. One emission allowance represents the right to emit one tCO₂e. At the end of each reporting period, actors that are covered by the cap must surrender emission allowances equivalent to their emissions to the regulator. Regulators may allow the use of emission allowances from other ETSs and/or carbon credits (see below) for compliance, subject to specific quantitative and/or qualitative restrictions. Actors can buy and sell emission allowances and carbon credits in the carbon markets. The number of emission allowances is limited by the emission cap. The amount of emission allowances may be reduced over time, through a tightening emission cap and/or other provisions. The integrity of the ETS is defined by the stringency of its cap, as well as other design features. ETSs can cover various sectors, typically at least energy generation and energy-intensive industry, but in some cases also waste, transport, domestic aviation, buildings and forestry (ICAP, 2021b).

Examples: International Emissions Trading for countries with targets under the Kyoto Protocol; ETSs in California, China, the European Union (EU), Republic of Korea, Mexico, New Zealand, and Quebec. For more examples, see the ETS Map of the International Carbon Action Partnership (ICAP) (ICAP, 2021a).

Crediting standards

Under crediting standards, carbon credits are issued into a carbon registry for mitigation outcomes. Carbon credits are generated by approved activities and are additional, quantified against a conservative crediting baseline, monitored and verified, and meet all other relevant criteria. One carbon credit represents one tCO₂e of mitigation. A wide range of activity types could be used to generate carbon credits (e.g., renewable energy, energy efficiency, waste management, industrial gas destruction, CO₂ capture and storage, protection of forests, afforestation and reforestation).

Examples: CDM (see below) and JI in countries without and with targets under the Kyoto Protocol, respectively; Verified Carbon Standard (VCS), Gold Standard for the Global Goals (GS4GG), American Carbon Registry (ACR), Climate Action Reserve (CAR). For more examples, see (World Bank, 2021).

Ensuring the environmental integrity of carbon market mechanisms is key to making them a tool for driving ambitious mitigation. In this context, environmental integrity means that the use of carbon markets does not lead to a net increase in global emissions (Schneider & La Hoz Theuer, 2019). Otherwise, carbon market mechanisms could undermine global mitigation efforts. Over the past 20 years, a wide range of guidance, criteria and protocols have been developed by various actors, aimed at safeguarding the environmental integrity of carbon market mechanisms. We refer to these as carbon protocols. We define carbon protocols broadly to also include guidance on GHG emission calculations and reporting, as well as marketing of carbon neutral products etc. In this report, we focus on carbon protocols relevant for voluntary compensation.

The vast majority of voluntary compensation is based on carbon credits issued by a handful of leading crediting standards. An ETS or a carbon tax scheme can be a source of demand for carbon credits that meet relevant criteria, and crediting standards may adapt their criteria to cater for this demand. Furthermore, emissions allowances from ETSs can also be used for voluntary offsetting.

During the past 20 years, numerous crediting standards have emerged to issue carbon credits against mitigation outcomes that meet specific criteria relating to additionality, baseline setting, monitoring, reporting and verification, leakage, permanence, double-counting, and in some cases also environmental and social impacts and safeguards. The purpose of these standards is to ensure the environmental integrity of carbon credits and their use, including to ensure that each carbon credit represents at least one tCO₂e permanently reduced or removed. Crediting standards also include the approval of methodologies, the accreditation of validation and verification bodies, and the operation of a carbon registry for approved activities and issued carbon credits (Michaelowa, et al., 2019a; Broekhoff, et al., 2019). Crediting standards may be governed by independent, international, bilateral, regional, national or sub-national bodies (see Table 2). National and sub-national crediting standards focus on domestic mitigation activities while independent and international crediting standards typically have a broader geographic scope. Some crediting standards focus on a single activity type in a single country (e.g., the Woodland Carbon Code focuses on woodland creation in the UK) while others cover activities in a wide range of sectors globally.

A crediting standard originally designed for voluntary offsetting use may be approved for compliance use (see Table 2). For example, Gold Standard for the Global Goals (GS4GG) and Verified Carbon Standard (VCS) are eligible to provide carbon credits for use towards compliance under the South African and Colombian carbon tax. Carbon Action Reserve (CAR) and American Carbon Registry (ACR) cater for California's Compliance Offset Program. Furthermore, all of these standards are eligible to generate carbon credits for compliance use under the Carbon Offset Reduction Scheme for International Aviation (CORSIA). And vice versa, crediting standards, such as the CDM, that were originally designed for compliance use may also be used for voluntary compensation.

Table 2: Examples of crediting standard governance and use (World Bank, 2021)

Crediting standard	Governance	Use	
		Voluntary	Compliance
Clean Development Mechanism (CDM)	International	•	•
Gold Standard for the Global Goals (GS4GG)	Independent	•	•
Verified Carbon Standard (VCS)	Independent	•	•
Climate Action Reserve (CAR)	Independent	•	•
American Carbon Registry (ACR)	Independent	•	•
Joint Crediting Mechanism (JCM)	Bilateral		•*
Thailand Voluntary Emission Reduction Program (T-VER)	National	•	
Australian Emission Reduction Fund (ERF)	National	•	•
California Compliance Offset Program	Sub-national		•

*JCM aims to generate ITMOs for compliance use towards national mitigation pledges under the PA (Greiner, et al., 2020).

Carbon credits intended for voluntary use are traded in the voluntary carbon markets (VCMs). The VCMs emerged in parallel to the compliance market, outside of the internationally supervised compliance framework under the Kyoto Protocol and jurisdictionally supervised compliance schemes such as the EU ETS (Hamrick & Gallant, 2017). Unlike compliance markets, the VCMs do not have centralised supervision. Instead, buyers choose between various crediting standards offered by private entities or NGOs (Hermwille & Kreibich, 2016). The volume of carbon credits retired has increased constantly and there has been a steady accumulation of oversupply of issued carbon credits (Figure 3).

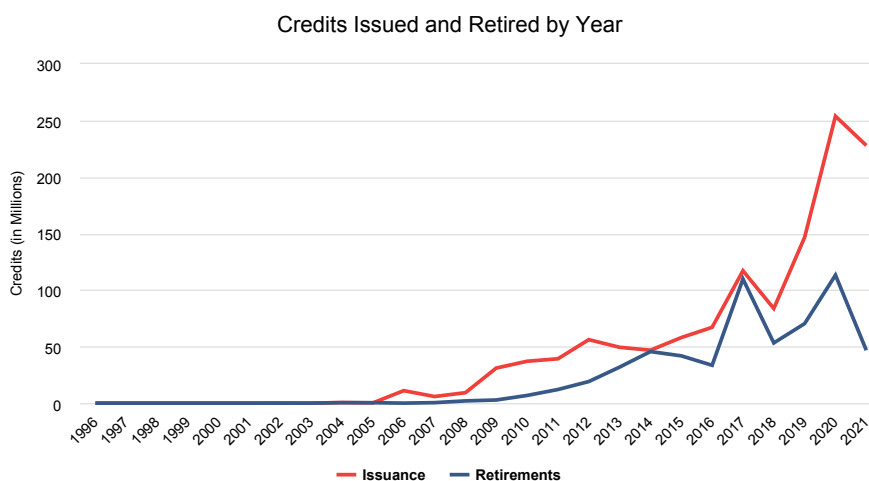


Figure 3. Credits issued and retired by year in the VCMs 1996-05/2021

Source: University of California (2021)

According to the Taskforce on Scaling Voluntary Carbon Markets (TSVCM), a private sector-led initiative working to scale effective and efficient VCMs, global decarbonisation in line with the PA's goals will require "a large, transparent, verifiable and robust voluntary carbon market, one that promotes genuine action of high environmental integrity" as many companies, especially in hard-to-mitigate sectors, will need to offset emissions to achieve their decarbonization goals (TSVCM, 2021a). The TSVCM (2021a) estimates that the VCMs would need to grow 15-fold by 2030 to meet growing demand for high-integrity carbon credits driven by companies' decarbonisation efforts that rely extensively on offsetting. However, according to the TSVCM, the current VCMs do not operate efficiently due to both real and perceived challenges in the quality of carbon credits, as well as other challenges. To overcome these challenges, the TSVCM is developing a threshold standard for high-quality carbon credits, a taxonomy of additional carbon credit attributes and an assessment framework for crediting standards. Other initiatives are also operating in this space. For example, the Voluntary Carbon Markets Global Dialogue is an international initiative that focuses on the supply of high-integrity carbon credits, working with developing countries to identify how VCMs could support national climate plans and local priorities, stimulate sustainable development and unlock more private investment (Voluntary Carbon Markets Global Dialogue, 2021). The Voluntary Carbon Market Integrity Initiative (VCMI) will also engage with countries to develop strategies and capacity to access high-integrity VCMs (VCMI, 2021a).

In this report, we focus on voluntary offsetting that is based on carbon credits that have been issued under a crediting standard and retired or cancelled in a carbon registry. However, there are also actors that offer voluntary offsetting based on mitigation outcomes that have not been issued under a crediting standard. They are typically small in scale and cater for the domestic market. Furthermore, emission allowances issued under ETSs are sometimes used for voluntary offsetting.

3. Generating carbon credits

3.1. Carbon credit quality criteria

Ensuring environmental integrity is a key overarching goal for all crediting standards, meaning that carbon credits represent real, measurable and long-term mitigation of (at least) one tCO₂e, and their use does not lead to a net increase in global emissions compared to a situation without their use (Schneider & La Hoz Theuer, 2019).

Crediting standards use carbon credit quality criteria to ensure environmental integrity. There is a wide agreement on carbon credit quality criteria across crediting standards and guidance (see Table 4), embodying a common conceptual underpinning as well as two decades of learning-by-doing and cross-pollination across crediting standards. The Kyoto Protocol's CDM pioneered the operationalisation of carbon credit quality criteria (Box 3), and other crediting standards have drawn extensively on CDM's technical work and practical lessons.

Box 3. Clean Development Mechanism (CDM) – the first international crediting standard

The Clean Development Mechanism (CDM) of the Kyoto Protocol was operationalised in 2001 as the first full-scale application of a crediting standard. Under CDM, the international community gained practical experience of how to operationalise key criteria for carbon credits, including their issuance on the basis of 'real, measurable, and long-term benefits related to the mitigation of climate change' and 'reductions in emissions that are additional to any that would occur in the absence of the certified' activity (UNFCCC, 1998). The CDM Executive Board approved, consolidated and regularly revised detailed methodologies and procedures for CDM with the objective to ensure transparency, efficiency and accountability through independent auditing and verification. Under CDM, Certified Emission Reductions (CERs) representing over 2 billion tCO₂e of mitigation outcomes have been issued for more than 8000 registered projects and programmes between 2005 and 2021 (UNFCCC, n.d.) (UNEP DTU, 2021). As of September 2021, there are almost 250 approved CDM methodologies for a wide range of activity types in various sectors (UNEP DTU, n.d.).

According to Broekhoff et al. (2021, p. 57), "although most critical studies of carbon [credits] have focused on the CDM and JI because of their high profile, many of the same issues are likely to arise in other [crediting standards] as well. For some [crediting standards] – like Verra (i.e., VCS) and the Gold Standard – this is because they incorporate CDM methodologies by reference, so there is substantial overlap in the kinds of projects they certify. In other cases, [crediting standards] have used CDM methodologies as a starting point in developing their own standards. Although a number of [crediting standards] have followed approaches that differ from the CDM, no [crediting standards] should be considered categorically free of all concerns about [carbon credit] quality."

As shown in Table 3, there is wide agreement across crediting standards and relevant guidance that carbon credit quality criteria relating to the quantification of the underlying mitigation outcome include:

- **Demonstration of additionality:** Additionality means that the mitigation activity would not have happened without the incentives provided by the carbon credits (Schneider, et al., 2020). Often this is assessed by ensuring that the mitigation outcomes exceed what is required by law, regulation, or legally binding mandate and that the activity would not be financially viable without the revenue from the sale of carbon credits. In the context of the PA, mitigation outcomes need to be additional to those needed to achieve the host country's mitigation pledge to the PA (Ahonen, et al., 2021).
- **Application of a robust crediting baseline:** Carbon credits are calculated relative to a baseline scenario that is the hypothetical scenario that would occur in the absence of the incentives from the crediting standard, based on conservative assumptions and in accordance with approved baseline methodologies (Schneider, et al., 2020). In the context of the PA, baselines need to take into account existing and planned mitigation policies that are needed to achieve the host country's mitigation pledge to the PA, as well as net-zero emissions in the long term (Michaelowa, et al., 2021; Ahonen, et al., 2021; Partnership for Market Readiness, 2017). According to the draft rules for market-based Article 6 cooperation, internationally transferred mitigation outcomes must apply baselines that are set below business-as-usual (BAU) (UNFCCC, 2019a; 2019b; 2019c; 2019d; 2019e).
- **Application of a robust monitoring methodology:** Under the existing crediting standards, a large selection of monitoring methodologies has been developed for quantifying the mitigation outcomes of different activity types, including requirements for data sources and collection, formulas for calculations, the setting of appropriate system boundaries as well as reporting (Michaelowa, et al., 2019). Monitoring refers to the process of data collection over time, providing basic, accurate and precise datasets for relevant variables (UN-REDD, 2009).
- **Ex-ante third-party validation of the activity design:** An accredited independent third-party entity validates that the proposed activity design meets relevant criteria under a crediting standard. In most crediting standards, a positive validation is a precondition for registering the activity.
- **Ex-post third-party verification of mitigation outcomes:** After the activity has started, in most crediting standards an accredited independent third-party entity periodically assesses that the mitigation outcomes generated during a specific monitoring period are quantified in accordance with applicable approved methodologies, based on accurate data and conservative assumptions, to assure that the mitigation outcomes are not overestimated (Broekhoff, et al., 2019). 'Forward', or 'ex-ante', crediting on the basis of expected future mitigation outcomes leads to over-issuance risks (e.g., related to the possibility that the activity fails to perform as expected and/or that future events such as regulatory changes undermine the additionality or mitigation outcome ownership) (Broekhoff, et al., 2019; Schneider, et al., 2020).
- **Addressing non-permanence:** Non-permanence refers to the reversal of all or part of the generated mitigation outcomes, for example due to a natural

disaster or activity mismanagement. The risk of non-permanence differs across activity types and is particularly pronounced for many carbon removal activities that store carbon in reservoirs (e.g., forests, soils, etc.). The risk of reversal depends on how activity owners manage the underlying drivers for reversals. To be eligible to generate carbon credits, the non-permanence of mitigation outcomes must be addressed in a robust manner. Crediting standards pursue varying approaches to reduce non-permanence risks and to compensate for any non-permanence. Key factors determining whether non-permanence is appropriately addressed include the establishment of liability for reversals (e.g., by requiring buffers), the duration for which the occurrence of reversals is monitored and accounted, as well as whether and how any reversals are compensated (Broekhoff, et al., 2019).

- **Addressing leakage:** In many cases, a mitigation activity will have both intended and unintended effects on emissions. Unintended increases in emissions attributable to the mitigation activity outside of its boundaries are referred to as leakage (Schneider, et al., 2020). An example of leakage is when an activity that aims to protect a specific forest area from logging leads to increased logging outside the protected area. If quantification methods fail to account for emission increases caused by the activity at some sources (even indirectly), then the mitigation outcomes will be overestimated. Leakage must be appropriately addressed in order to prevent overestimation of an activity's mitigation outcome (PMR, 2015).
- **Avoiding double counting:** The underlying mitigation outcomes should not be counted more than once. Double counting can occur through double issuance, double use or double claiming (see **Box 4**). The risk of the first two types of double counting can be addressed by crediting standards through e.g., unique serialisation upon issuance, cancellation¹ or retirement upon use, and cooperation across standards (Schneider, et al., 2014). Addressing the risk of double claiming may, in some cases (see Section 4.2), require the host country to apply CAs (see Box 6). Crediting standards can help to avoid double claiming by labelling carbon credits that have CAs as a carbon credit attribute (see Section 3.2).

1. The definitions of cancellation and retirement vary between crediting standards and carbon registries. For the purposes of this report, retirement refers to a situation in which the carbon credit is directly used towards a carbon neutrality or GHG reduction goal (VCMI, 2021a).

Box 4. Double counting

VCMI (2021a) defines double counting as “a situation in which a single greenhouse gas emission reduction or removal is counted more than once towards achieving climate change mitigation.”

Double counting can occur through:

1. **Double issuance** - more than one carbon credit is issued for the same mitigation outcome, if more than one of these carbon credits is counted towards achieving climate change mitigation. This can occur, for instance, when the same mitigation activity is registered under two different crediting standards or more than once under the same crediting standard.
2. **Double use**: A situation in which the same carbon credit is used more than once towards achieving climate change mitigation. This could, for example, occur if an entity would use a single carbon credit to fulfil two different purposes.
3. **Double claiming**: A situation in which the same mitigation outcome is claimed by more than one entity towards achieving a mitigation target. For example, by the host country in which the mitigation outcome occurs (i.e., towards its domestic or international pledge) as well as by another actor using the carbon credit or voluntary offsetting.

In addition to carbon credit quality criteria relating to quantifying mitigation outcomes, there is broad support for considering key environmental and social aspects associated with carbon credit generation. However, their consideration varies considerably across crediting standards, ranging from minimal (ex-ante) consideration to extensive (ex-ante) assessment and safeguards and (ex-post) monitoring, reporting and verification. There are also labels specifically developed as an add-on to crediting standards, focusing solely on the environmental and social aspects of mitigation activities.

The Sustainable Development Initiative (SDI) advocates for and raises awareness on the opportunities associated with strong sustainable development provisions in carbon markets in the PA era (Gold Standard, n.d.). The SDI has mapped best practice, tools and guidance for sustainable development assessment of climate actions. Globally accepted best practices for credible sustainable development assessment include the following main elements (Arens, et al., 2014):

- Indicators for sustainable development assessment, guidance and tools/ methods of impact assessment
- Appropriate guidance for effective engagement of all impacted stakeholders, ensuring that stakeholders are involved from the design stage and provided with relevant communication channels to access information and raise complaints
- Credible assessment of any negative impact the mitigation activity or policy may cause
- Robust monitoring, reporting and verification requirements including third party involvement to ensure credibility and impartiality

The GS4GG started as an add-on standard for assessing and tracking sustainable development impacts of CDM activities. Over time, it developed into a fully-fledged crediting standard that covers both mitigation and other sustainable development impacts. The Gold Standard has developed a set of requirements and guidelines for sustainable development assessment, covering demonstration of the contribution to sustainable development, stakeholder consultation and engagement, do-no-harm safeguarding and gender equality (Gold Standard, 2019). The Gold Standard requires activities to demonstrate contribution to at least two additional SDGs besides climate action (SDG 13), and monitor and verify these contributions based on SDGs targets and indicators, a Gold Standard-approved SDG tool or a Gold Standard-approved methodology (Gold Standard, 2019).

Some forest-related activities combine VCS with the Climate, Community and Biodiversity (CCB) Standards (Verra, n.d.). The CCB Standards work as an add-on label to crediting standards, focusing on the environmental and social impacts of land management activities. It aims to promote activities that improve the well-being and reduce the poverty of local communities, and conserve biodiversity. Further criteria for high-quality carbon credits have also been proposed, such as facilitation of transition towards net zero emissions (Schneider, et al., 2020).

Table 3: Carbon credit quality criteria under selected crediting standards and guidance (non-exhaustive)

• Explicitly included (•) Implicitly/partly included

Criteria	Crediting standards				Guidance							
	CDM	VCS	GS4GG	A6.4M	GHG-P	CORSIA	ICROA	TSVCM	UK-ERG	DCA	SJP	CCQI
Additionality	•	•	•	•	(•)	•	•	•	•	•	•	•
Valid baseline	•	•	•	•	•	•	•	•	•	•	•	•
Monitoring & reporting	•	•	•	•	•	•	•	•	•	•	•	•
Ex-ante validation	•	•	•	•					•	•	•	•
Ex-post verification	•	•	•	•		•	•	•	•	•	•	•
Ex-post issuance only	•		•			•	•	•		•		•
Permanence	•	•	•	•		•	•	•	•	•	•	•
Addressing leakage	•	•	•	•	•	•	•	•	•	•	•	•
No double counting		(•)	•	•		•	(•)	•		•		•
Stakeholder consultation	•	•	•	•								•
Do-no-harm			•	•		•	(•)	•		•	•	•
SD impact assessment	•		•	•			(•)			•		•
SD monitoring & verification			•							•		•

Abbreviation

Description

Source

SD	Sustainable development	n/a
CDM	Clean Development Mechanism	(UNFCCC, n.d.)
VCS	Verified Carbon Standard	(Verra, 2019)
GS4GG	Gold Standard for the Global Goals	(Gold Standard, 2019)
A6.4M	Article 6.4 Mechanism (draft rules)	(UNFCCC, 2019d; UNFCCC, 2019e; UNFCCC, 2019f)
GHG-P	GHG Protocol for Project Accounting	(WBCSD/WRI, 2005)
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation	(ICAO, 2019)
ICROA	International Carbon Reduction and Offset Alliance	(ICROA, 2021)
TSVCM	Taskforce on Scaling Voluntary Carbon Markets	(TSVCM, 2021b)
UK-ERG	UK Environmental Reporting Guidelines	(HM Government, 2019)
DCA	German Development and Climate Alliance	(Development and Climate Alliance, 2020a)
SJP	San Jose Principles for High Ambition and Integrity in International Carbon Markets	(Dirección de cambio climático, 2019)
CCQI	Carbon Credit Quality Initiative	(Schneider, et al., 2020)

3.2. Carbon credit attributes

In addition to the one tCO₂e of mitigation outcome that each carbon credit should embody, carbon credits have also other attributes, such as those relating to the underlying mitigation activity, that determine their suitability for particular uses and claims, as well as their perceived quality and value.

The TSVC is developing a standard taxonomy of additional carbon credit attributes, with the dual aim to drive scale and liquidity through standardisation and enable a price differential for carbon credits with specific benefits (TSVC, 2021b).

According to the TSVC (2021b), additional attributes could be operationalized within existing registry structures by attaching information labels to carbon credits that meet the Core Carbon Principles criteria. For example, in addition to being labelled as meeting the Core Carbon Principles, carbon credits would carry information about e.g., their activity type, co-benefits and any CAs.

Key issues relating to five key attribute types proposed by the TSVC are summarised below:

- **Activity type** (removal vs avoidance/reduction): There are diverging views on whether removals should be prioritised over emission reductions (Allen, et al., 2020; Gold Standard, 2020). There is wide agreement that, over time, as accelerated mitigation drives emissions towards zero, focus of mitigation will necessarily shift from emission reductions to removals. Those advocating prioritisation of removals point to the need to balance emissions with removals. Advocates of emission reductions note that acceleration of emission reductions implies reduced need for removals. They also point out that most nature-based removals are associated with much greater risks of non-permanence and leakage than emission reductions (Broekhoff, 2020). Furthermore, they suggest that some arguments in favour of prioritising removals are flawed (see Box 5).
- **Removal method** (nature-based vs. technology-based): There are diverging views on whether nature-based solutions should be prioritised over technology-based methods (Gehrig-Fasel, et al., 2021; Broekhoff, 2020). Advocates of nature-based solutions emphasise the high potential for co-benefits while others point out the higher risks of non-permanence and leakage associated with nature-based solutions compared with technology-based solutions (e.g., direct air capture, carbon capture in exhaust streams). Activities focusing on reducing deforestation have been found to have a relatively high risk of inflated baselines (Carbon Market Watch, 2021; Compensate, 2021; Ehara, et al., 2021; West, et al., 2020).
- **Storage method** (biological vs geologic): It is widely recognised that biological storage faces significantly higher risks of non-permanence than geological storage and mineralisation approaches (Jeffery, et al., 2020). The durability of storage in different products, such as wooden building materials, is associated with uncertainties and deserves further research.
- **Co-benefits**: There are differing views on the extent to which co-benefits should be included as a carbon credit quality criterion and as carbon credit attributes. There is wide support for case-by-case assessment of potential (both negative and positive) environmental and social impacts of mitigation activities, ideally

based on reputable standards or labels such as the GS4GG, CCB Standards (see Section 3.1).

- **Corresponding adjustments (CAs):** There is wide agreement that crediting standards should differentiate between carbon credits with and without CAs, given that CAs may be a precondition for certain uses of carbon credits, such as compliance under CORSIA and the PA (Gold Standard, 2021a; TSVC, 2021b; Verra, 2021). There are different views on whether CAs should be a precondition for the use of carbon credits for voluntary offsetting (see Section 4.2 and Box 6).

Further attributes that may influence the eligibility of and preference for certain carbon credits include vintage (i.e., the year of the generation of the mitigation outcome) and location. Regarding vintage, there is a tendency towards prioritising recent vintages over older ones (WWF, 2019; Allen, et al., 2020). Compliance schemes, such as the EU ETS and CORSIA, have implemented vintage restrictions for eligible carbon credits, which may influence buyer preferences also in the voluntary market. In its pilot phase (2021–2023), CORSIA accepts carbon credits based on mitigation outcomes that are generated by the end of 2020 by activities that were registered under eligible standards no later than 1 January 2016 (ICAO, 2021). Regarding location, there are diverging views on whether and to what extent certain country groups, such as Least Developed Countries (LDCs) should enjoy preferential treatment and/or simplified requirements (Gold Standard, 2021a). Under the EU ETS, carbon credits from new activities were eligible for compliance in 2012–2020 only if they were located in LDCs (European Parliament and the Council, 2011).

Box 5. Offsetting based on emission reductions vs removals

Some experts have argued that the net impact on global emissions of offsetting using carbon credits based on emission reductions would be different from using carbon credits based on removals. The flaw in this argument is explained using Figure 4.

Business-as-usual (BAU): In case 1, two entities (A and B) each emit 1 tCO₂e into atmosphere. Entity C emits zero emissions. The net impact on global emissions is 1 + 1 + 0 = 2 tCO₂e.

Own mitigation: In case 2, entity A reduces its emissions by 1 tCO₂e to zero while entity B takes no action and emits 1 tCO₂e. Entity C takes no action and emits zero emissions. The net impact on global emissions is reduced to 0 + 1 = 1 tCO₂e.

Offsetting using emission reductions: In case 3, entity A takes no mitigation action and emits 1 tCO₂e while entity B reduces its emissions by 1 tCO₂e to zero. Entity A purchases the emission reduction of 1 tCO₂ from entity B to offset entity A's emissions. Entity C takes no action and emits zero emissions. The net impact on global emissions is 1 + 0 + 0 = 1 tCO₂e.

Offsetting using removals: In case 4, entities A and B take no action and each emit 1 tCO₂e. Entity C removes 1 tCO₂e from the atmosphere and permanently stores it, resulting in a negative emission of -1 tCO₂e. Entity A purchases the removal of 1 tCO₂ from entity C to offset entity A's emissions. The net impact on global emissions is 1 + 1 - 1 = 1 tCO₂e.

Therefore, regardless of whether entity A reduces its value chain emissions, or offsets its emissions based on emission reductions or removals, the net impact on global emissions is the same.

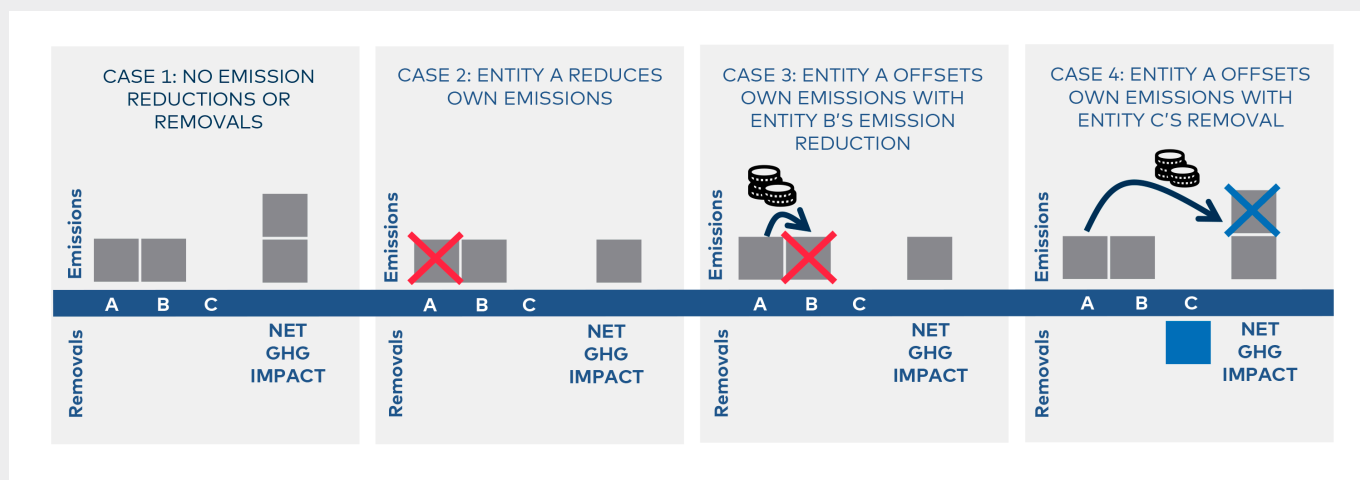


Figure 4. Net GHG impact of emission reductions and removals (*Source: Authors*)

Source: (Möllersten, 2021)

Box 6. Corresponding adjustments

The PA gives host countries the power to authorise the international transfer of mitigation outcomes achieved in their country for use towards other countries' mitigation pledges (Nationally Determined Contributions, NDCs) or for other purposes. Such other purposes could include use for compliance under CORSIA or use for voluntary purposes.

The authorisation is voluntary, but it triggers a requirement for the host country to add back the internationally transferred mitigation outcomes (ITMOs) to create an "emissions balance" that is compared to its NDC target. The authorization also leads to a requirement to report to the PA how it ensures environmental integrity and robust accounting and promotes sustainable development (UNFCCC, 2018). The adjustment is done by implementing 'corresponding adjustments' (CAs). The emissions balance represents a country's national GHG emission level, adjusted for any transfers and/or acquisitions of ITMOs. The emissions balance, rather than the country's actual GHG inventory, is used to track progress towards the country's NDC achievement (for those countries with NDC goals expressed in units of GHGs) (see Figure 5).

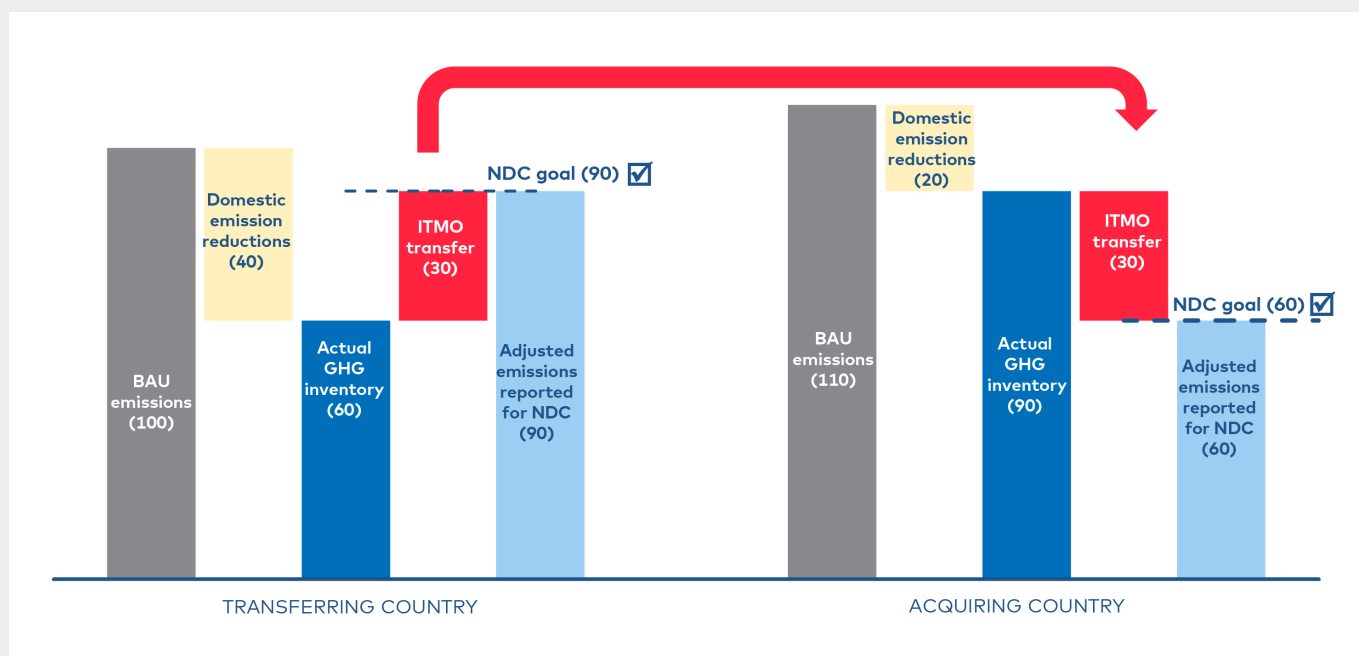


Figure 5. Illustration of corresponding adjustments

Source: Spalding-Fecher, et al. (2021)

In terms of the voluntary carbon market, the implementation by the host country of corresponding adjustments would ensure that the underlying mitigation outcome does not count towards the host country's NDC. If the mitigation outcome is then

voluntarily retired or cancelled, it represents mitigation above and beyond what countries have pledged to do in the NDC goals (see Figure 5), provided that the mitigation outcome is of high integrity. This, in turn, ensures the counterbalancing effect of voluntary offsetting (see also Figure 1).

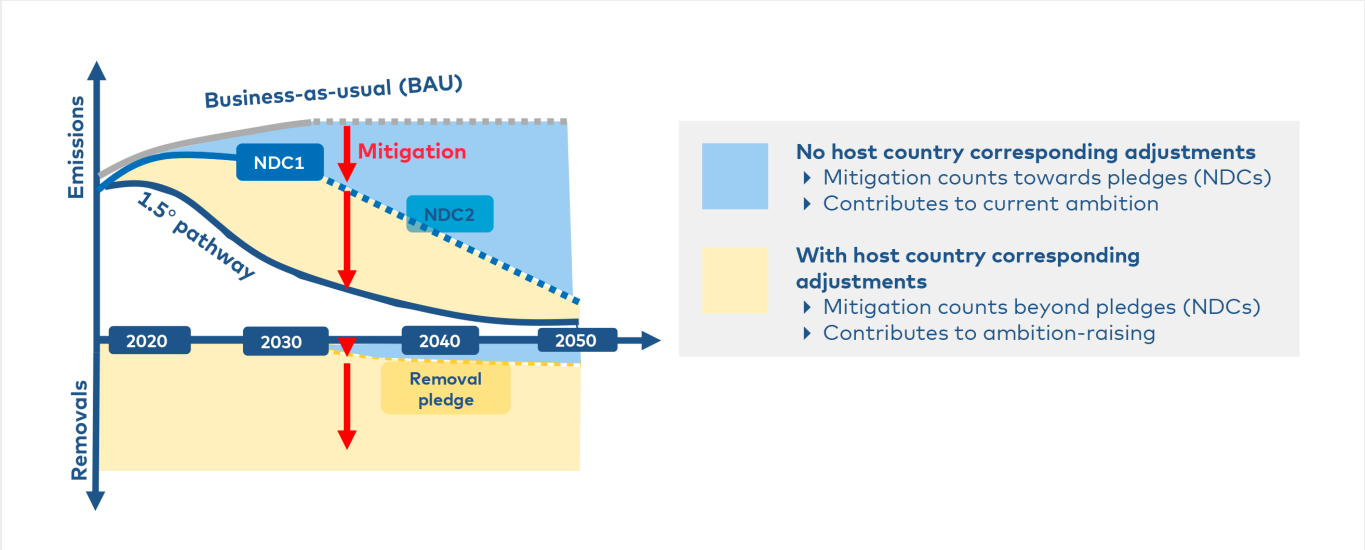


Figure 6. Corresponding adjustments and ambition-raising

Source: Authors

3.3. Assessing crediting standards

Carbon credit quality criteria are operationalised by crediting standards (see Table 4). Differences in how these criteria are operationalised leads to both real and perceived differences in the integrity of carbon credits issued under these standards. Differences also arise from the crediting standards' different scopes in terms of functions, geography and/or activity types.

Crediting standards provide processes for developing and approaching methodologies, monitoring, verification and certification requirements (e.g., third-party accreditation, validation and verification and carbon credit issuance) and registration and enforcement systems (e.g., registry operations). Some cover all countries and activity types while others focus on specific regions and/or technologies (Kollmuss, et al., 2008). On the other hand, some carbon protocols, such as the GHG Protocol for Project Accounting, only cover the principles, concepts and methods for quantifying, reporting and/or verifying mitigation outcomes, and do not provide the institutions, processes or infrastructure for generating carbon credits.

While there is wide consensus on carbon credit quality criteria, there are differing views on the degree to which different crediting standards succeed in ensuring these criteria for different activity types and host countries and across time.

Various actors have developed, and in some cases applied, criteria for crediting standards. Assessment of crediting standards typically address requirements with respect to overall programme governance, transparency, clear procedures and public participation, procedures for independent validation and verification, clear methodologies for quantification/accounting, the legal nature of units, and registries for the identification and tracking of units. Ongoing key initiatives covering standard-level guidance include:

- **International Carbon Reduction and Offset Alliance (ICROA)**, a non-profit organisation made up of carbon credit providers in the VCM, has listed crediting standards that ICROA considers consistent with ICROA's principles for carbon credits (ICROA, 2021).
- **Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**, a scheme established by ICAO, accepts carbon credits that are issued under ICAO-approved crediting standards (ICAO, 2021) on the basis of carbon credit eligibility criteria (ICAO, 2019).
- **The Taskforce for Scaling Voluntary Carbon Market's (TSVCM)** new governing body will develop an assessment framework for standards, for use by the proposed governance body to evaluate whether a crediting standard may issue carbon credits that are labelled to meet Core Carbon Principles (CCP). This framework will include criteria for governance; transparency and public participation provisions; clear and transparent requirements for independent third-party verification; legal underpinning; publicly accessible registry; registry operation; mis-issuance of carbon credits; and registry terms and conditions. It seeks to go beyond current quality standards, for example by recommending that crediting standards eligible for issuing CCP-labelled carbon credits require the demonstration of financial additionality through profitability or return on capital considerations, application of baselines that are set by third parties and maintaining of collective buffer pools in line with their project portfolio risk. (TSVCM, 2021b)

- **Carbon Credit Quality Initiative** aims to provide independent, user-friendly scorings for the quality of carbon credits. The initiative has developed criteria for high-quality carbon credits and a methodology for assessing the quality of carbon credits based on assessing standards, methodologies and activity type risks. During the course of 2021, the project team is piloting the Initiative's methodology to assess three project types (landfill gas utilisation, afforestation and reforestation, and efficient cookstoves) and four crediting standards (CDM, VCS, GS4GG and CAR), and developing a tool that allows users to feed data on key carbon credit features to generate carbon credit scoring. (Carbon Credit Quality Initiative, n.d.)

4. Using carbon credits, making claims and marketing

4.1. Good practice elements relevant to high-integrity voluntary compensation

There is wide agreement that the following elements are relevant for the good practice use of carbon credits for voluntary compensation. Table 4 provides an overview of selected sources of guidance.

- **Robust and comprehensive calculation of own emissions (carbon footprint):** There is wide agreement that own emissions, covering both direct and indirect emissions (scopes 1, 2 and 3 of the value chain in the case of companies), should be determined in accordance with carbon standards for GHG accounting and reporting and use publicly available and nationally relevant emissions factors from reputable and recognized sources. However, the use of different standards for reporting emissions and the lack of precision in those standards reduces transparency and comparability, and access to and reliability of scope 3 data are also insufficient (Möllersten & Källmark, 2020).
- **Prioritisation of sufficient own mitigation action:** There is wide agreement that sufficient own mitigation should be prioritised, and voluntary compensation should not be used to substitute or postpone own mitigation action. There is increasing pressure from consumers, civil society, shareholders, investors and even governments for companies to set targets and actions in line with the 1.5-degree pathway. However, guidance is still under development (see Section 2.2), does not cover all sub-sectors and is not readily applicable to e.g., micro-sized enterprises or individuals. Assessment of 'sufficiency' and 'alignment with the 1.5-degree pathway' inevitably entails subjective judgement and important equity issues.
- **Using high-integrity carbon credits for compensation:** There is wide agreement regarding the principle of using high-integrity carbon credits but diverging views on what constitutes high-integrity credits, the extent to which different crediting standards succeed in ensuring carbon credit integrity, and preference for carbon credits based on emission reductions vs removals. Guidance and tools for high-integrity carbon credits are still under development and focus on carbon credits issued under crediting standards. The ideal high-ambition approach to net zero is to complement own mitigation towards net-zero targets in line with the 1.5-degree pathway by compensating remaining emissions with high-integrity carbon credits already on the way to net zero (Adams et al. 2021; CPLC 2021).
- **Reporting of own emission and voluntary compensation in a transparent, accurate and disaggregated manner:** There is wide agreement that actors should report own GHG emissions, progress towards commitments and plans on an annual basis using reputable protocols for GHG accounting and reporting. The use of voluntary compensation should also be reported on an annual basis, separately from own emissions, and information should be provided on the carbon credits used for voluntary compensation. There is a range of

international and national guidance for companies on reporting emissions and aggregate use of carbon credits, and on the role of voluntary compensation in the broader mitigation strategy. However, there is a lack of specific guidance and platforms for standardised reporting of disaggregated and detailed information on the carbon credits used for voluntary compensation and their role in the broader mitigation strategy.

- **Making clear, truthful and verifiable claims about targets and the voluntary use of carbon credits:** There is wide agreement on the principle of ensuring the integrity of claims. Development of guidance is underway, including on claims about targets and the voluntary use of carbon credits (see Section 4.2). There is a lack of standardised definitions and classification of claims, which are a precondition for independent third-party verification of claims.
- **Compliance with good marketing practices when using claims about own emissions, voluntary compensation etc. for marketing.** There is wide agreement principle of complying with good marketing practices. There is international, supranational and national guidance on green claims, including some guidance specifically on carbon neutrality claims (see Section 4.3 and 5.1). However, the lack of standardised definitions and classification of claims, which are a precondition for assessing compliance with good marketing practices. The average consumer has limited understanding of voluntary compensation and related claims.

Table 4: Selected sources of guidance relevant to best practice elements for voluntary compensation (non-exhaustive)

• Explicitly included (•) Implicitly/partly included (◐)

Source	Carbon footprint	Own targets and action	Carbon credit quality	Reporting	Claims	Marketing
ISO 14021* (ISO, 2016)	•					•
GHG Protocol for Project Accounting (WBCSD/WRI, 2005)	•		•	•		
Gold Standard (2021a; 2021b; 2019)		•	•		•	
Science-Based Targets initiative (SBTi) (2020; 2021)	•	•	(◐)	•	(◐)	
ICROA Code of Best Practice (ICROA, 2021)	•	•	•	•	•	
German Development and Climate Alliance (2020a)	•	•	•	•	•	•
WWF (2019)	•	•	(◐)**	•	•	•
VCMI (2021a; 2021b)		•			•	
TSVCM (2021b)	•	•	•	(◐)		•
Carbon Pricing Leadership Coalition (CPLC) (2021)		•	(◐)	•	•	
VCS (Verra, 2019)			•		•	
Clim'Foot (Clim'Foot, n.d.)	•					

*Primary objective is to identify misleading marketing claims.

**Reference to ongoing work on carbon credit criteria under the Carbon Credit Quality Initiative (Schneider, et al., 2020)

4.2 Integrity of claims

The Voluntary Carbon Market Integrity Initiative (VCMI) proposes the categorisation of carbon credit-related claims into commitment claims and achievement claims, with the former referring to forward-looking commitments (e.g., becoming a net-zero company by 2030) and the latter referring to achievements to date (e.g., providing a carbon neutral product) (VCMI, 2021b). For both categories of claims, the VCMI proposes further classification to reflect quality and mitigation impact. It proposes to differentiate claims based on, for example, the existence, scope, ambition and validation of a target, the existence of a credible strategy, progress towards target and use of carbon credits to offset past, present and/or future emissions.

Guidance on high-integrity commitment claims is still under development, and current commitment claims by companies are often vague and difficult to assess, validate and compare (VCMI, 2021b). The SBTi is developing a standard for assessing and validating corporate net-zero targets (CDP, 2021), and the Carbon Pricing Leadership Coalition's (CPLC) Task Force on Net Zero Goals and Carbon Pricing will promote a common understanding of what net zero means and how it can be

achieved for national and sub-national governments and institutions, the private and financial sector, and civil society. It will also explore the role carbon pricing mechanisms in this context (CPLC, 2021). ICLEI has developed a Climate Neutrality Framework for cities and regions (ICLEI, 2020). At the municipal level, criteria for municipalities striving towards carbon neutrality have been developed, inter alia, under Finland's Hinku network - Towards Carbon Neutral Municipalities, including an approval process to assess the fulfilment of relevant criteria (Finnish Environment Institute, 2020).

Guidance on high-integrity achievement claims is also still under development. To date, the voluntary use of carbon credits has mainly focused on offsetting and making offset-based claims, such as carbon neutrality claims (Gold Standard, 2021a). The implementation of the PA extends mitigation pledges to all countries, prompting a re-framed debate on its implications for voluntary offsetting and consideration of alternative, non-offset-based claims. With traditional offsetting, there is a risk that actors (1) use offsetting as a substitute to sufficient own mitigation action and (2) double claim the underlying mitigation outcomes towards both the host country's mitigation pledge and voluntary offsetting. These risks do not apply to non-offset-based claims, which, by definition, are claims to support the host country in achieving its mitigation pledge, rather than to counterbalance own emissions. Carbon Market Watch advocates non-offsetting use of carbon credits on the basis that "this would make companies' claims more accurate, recognizing that the achieved emission reductions could actually be displacing host country action, and could, inter alia, be non-permanent. Beyond a change in rhetoric, this would protect consumers from false advertising which misleads them into believing that certain products and services have no impact on the climate" (Carbon Market Watch, 2020, p. 3).

To mitigate the risk of using offsetting to substitute or postpone own action, the VCMI proposes a strong commitment to reducing own emissions as a precondition for a credible carbon neutrality or net-zero claim. This reduces the risk of offsetting being used as a substitute for own mitigation.

As mentioned earlier, a key area of divergence is around avoiding double claiming of the same mitigation outcomes towards national mitigation pledges and voluntary offsetting. Prior to the implementation of the PA in 2021, mitigation outcomes that were counted towards the host country's mitigation pledge, for example under the Kyoto Protocol, were not eligible for voluntary offsetting. Until 2020, offsetting was primarily based on mitigation outcomes from countries without mitigation pledges where double claiming was not an issue, namely developing countries and the United States (Kreibich & Hermwille, 2020). In industrialised countries with mitigation pledges, voluntary offsetting focused mainly on marginal activities, such as wetland restoration, that were outside the scope of the national pledges (e.g., Max.Moor in Switzerland and MoorFutures in Germany) (Kreibich & Hermwille, 2020), with the exceptions of New Zealand (see Section 5.1) and Japan.

As mitigation pledges expand to all countries under the PA, VCM stakeholders are revisiting and debating the need to avoid double claiming in the context of voluntary offsetting and its implications for the integrity of related claims. Gold Standard and Verra, administrators of the two leading crediting standards catering for both the VCMs and CORSIA, have adopted differing positions on requiring CAs for mitigation outcomes used for voluntary offset-based claims. For mitigation outcomes

generated from 2021 onwards, the Gold Standard will require that Gold Standard-issued carbon credits are used for offsetting and offset-based claims only if they are based on mitigation outcomes with CAs (Gold Standard, 2021a). According to Gold Standard (2021a) and Carbon Market Watch (2020), mitigation outcomes without CAs should only be used for non-offsetting purposes and related non-offset-based claims, such as mitigation contribution or climate finance claims. Verra, the administrator of the VCS, is of the position that mitigation outcomes without CAs could also be used for voluntary offsetting and related offset-based claims, provided that it is clearly communicated that these mitigation outcomes count towards the host country's mitigation pledge (Verra, 2021).

In May 2021, the G7 Ministers responsible for climate and environment affirmed "the fundamental importance of environmental integrity and sustainable development in the design of high integrity carbon market mechanisms, including those used for voluntary purposes, which should be based on robust rules and accounting that ensure avoidance of all forms of double counting" (G7, 2021). The German Climate and Development Alliance (Box 8) emphasises the need to prevent double counting of mitigation outcomes by the host country (towards its NDC) and the voluntary carbon credit buyer (towards voluntary purposes), and calls for standards to contain provisions to prevent such double counting (Development and Climate Alliance, 2020a).

The VCMI has not yet addressed the issue of CAs but intends to provide guidance on the matter in the future, taking into account any relevant decisions reached at the COP26 climate conference in November 2021 (VCMI, 2021b). To date, the TSVCM has excluded CAs from the scope of its work but the issue may be considered in the future by the proposed governance body expert panel, in the context of Core Carbon Principles and/or carbon credit attributes (TSVCM, 2021b). The International Standard Organisation (ISO) is developing a standard on carbon neutrality (ISO, n.d.).

There are diverging views on whether to treat claims based on domestic mitigation outcomes in the same way as claims based on international mitigation outcomes. Gold Standard (2021a) argues that both domestic and international mitigation outcomes used for offset-based claims should be subject to CAs. In the context of New Zealand, two types of carbon neutrality claims for the voluntary use of domestic mitigation outcomes have been explored: "Carbon Horizon" claims to help New Zealand meet its national mitigation pledge (NDC) and "Carbon Frontier" claims about financing mitigation beyond the NDC (Leining & White, 2021).

4.3. Responsible marketing

Environmental or green claims are statements made by companies or organisations about the environmental benefits of a particular good or service (OECD, 2011). There is a wide range of guidance on green claims, aimed at improving their credibility and legitimacy and preventing 'greenwashing', that is, unsubstantiated or exaggerated statements about environmental benefits.

International standards in place include the ISO 14020 series that deals with the

communication of information about environmental aspects of products, including a product's carbon footprint. ISO 14021 deals with self-declared environmental claims. Its primary objective is to identify misleading marketing claims, so they can be removed from the market. ISO 14021 addresses claims of carbon neutrality in a rudimentary fashion, consistent with the standard's purpose. ISO 14026 covers communicating a carbon footprint calculated in accordance with ISO 14067. The reasoning behind this approach is that the ability of the purchaser of a product, even a business purchaser, to take on board explanatory environmental information as part of the purchasing decision is very limited. If the label says 'carbon neutral', that is generally all the information that the purchaser is going to absorb. As with ISO 14021, the objective of ISO 14026 is to create a level playing field in the marketplace. Helping to address climate change using market forces may be an indirect benefit, but it is not the primary focus of ISO 14026. Corresponding PAS standards include PAS 2060 for carbon neutral products and PAS 2050 for calculating lifecycle emissions from a product.

The International Chamber of Commerce's (ICC) framework for responsible environmental marketing communications includes guidance for applying ICC principles to claims relating to carbon footprint, carbon offsets and carbon neutrality (ICC, 2019). ICC recommends claims to be accompanied by qualifiers to "avoid consumer misperception that the carbon claim means that the product or package poses no adverse impact" (ICC, 2019, pp. 22-23). To avoid creating misperception of having eliminated their emissions, WWF recommends companies to avoid making carbon neutrality or net zero claims about their business or products or referring to offsetting, and, instead, being clear about their remaining GHG emissions, own efforts to reduce them and how carbon credit purchases fit into their long-term vision and strategy to decarbonise own operations (WWF, 2019). WWF also points to the lack of strong consensus, benchmarks and methodologies on net-zero definitions and pathways in the corporate context. The VCMI, too, proposes that, when marketing products or services as carbon neutral, the limitations of the claim are clearly communicated, including that carbon neutral does not mean zero emissions (VCMI, 2021b).

5. Public efforts to facilitate good practice voluntary compensation

5.1 National and EU efforts

Around the world, national governments have taken various roles in promoting voluntary climate action and facilitating and even regulating good practice voluntary compensation. For example, a study commissioned by the Ministry of the Environment of Finland explores options to regulate voluntary compensation and recommends a package of measures, including: good practice guidance for the sellers and buyers of carbon credits intended for voluntary compensation; a green deal among carbon credit users on good practice use of voluntary compensation; a national registry for domestic voluntary compensation activities and mitigation outcomes; and consumer protection guidance on marketing associated with voluntary compensation (Laine, et al., 2021).

Several countries already have practical experience with these measures. For example, UK has developed good practice guidance (Box 7), the Netherlands has developed a green deal for suppliers of domestic mitigation outcomes (Cevallos, et al., 2019) and the German Development and Climate Alliance's 'green deal' for users of carbon credits (Box 8). New Zealand has in place a national procedure that enabled voluntary offsetting with domestic mitigation outcomes within the scope of its national pledge under the Kyoto Protocol, while avoiding double claiming. However, this procedure is based on cancelling Kyoto units and it does not avoid double claiming with New Zealand's mitigation pledge under the PA. New Zealand is currently investigating potential options for enabling credible voluntary offsetting based on domestic mitigation outcomes also under the PA (Ministry for the Environment, 2020).

Public actors are managing several domestic voluntary crediting standards, such as the MoorFutures in Germany, the Woodland Carbon Code in the UK, the Registro Huella de Carbono in Spain, the Label Bas Carbone in France and Carbomark in Italy (Cevallos, et al., 2019). Some public actors are managing comprehensive national schemes for promoting domestic voluntary mitigation that cover also own mitigation action and marketing. For example, Peru (Box 9) and Thailand (Thailand Greenhouse Gas Management Organisation, n.d.) have national schemes that award national labels to non-state actors that meet good practice criteria relating to carbon footprint calculation and verification, achievement of verified own mitigation and compensation of remaining emissions with eligible carbon credits. These schemes also approve eligible methodologies, issue carbon credits, and maintain a registry. In 2022, the European Commission will develop a legislative proposal on carbon removal certification in the EU (European Commission, 2021).

Box 7. UK's efforts to facilitate voluntary offsetting

Carbon Offsetting Facility and guidance on carbon offsetting for the public sector

The Government Carbon Offsetting Facility (GCOF) ran from 2006 to 2013, aimed at offsetting participant government departments' air travel emissions through the purchase and cancellation of carbon credits from CDM (Department for Transport, 2019). The Department of Energy and Climate Change has also published a guide to carbon offsetting for the public sector and a practitioner's guidance to the GCOF (DECC, 2010).

Quality Assurance Scheme for Carbon Offsetting (QAS) and draft Code of Best Practice for Carbon Offsetting

The UK Quality Assurance Scheme for Carbon Offsetting (QAS) ran from 2009 to 2011. The QAS aimed to help consumers in purchasing high-quality carbon credits and raise consumers' awareness of the role of offsetting in tackling climate change (DECC, 2009). Carbon credits that met the requirements could apply for a quality mark awarded by the QAS. Carbon credit providers could use the quality mark in their marketing. At the start of the scheme, carbon credits issued under CDM and JI and emission allowances issued under the EU ETS were deemed eligible for the quality mark, with a possibility to award the quality mark also to other crediting schemes at a future point, "subject to a satisfactory level of assurance becoming available about their quality, and especially additionality." (DECC, 2009, p. 4).

Woodland Carbon Code and Peatland Carbon Code

The UK government has helped to develop the Woodland and Peatland Carbon Codes which are domestic mechanisms for supporting woodland creation and peatland restoration.

Environmental reporting guidelines, including carbon reporting requirements

The UK government's environmental reporting guidelines for companies and organisations include guidance for reporting on voluntary use of carbon credits. The guidance defines quality criteria for carbon credits, including additionality, avoiding leakage, permanence, validation and verification, timing, transparency, and avoiding double counting. The purchase, retirement, or sale of international carbon credits is reported separately from buying and retiring domestic units from the Woodland and Peatland Carbon Codes. In addition to, and separate from reporting own remaining ('gross') emissions, the use of international carbon credits and domestic units that meet quality criteria can be reflected through a 'net' GHG emissions statement that reflects the use of units. While both types of units can be reflected in the net GHG emissions, the guidance notes that domestic units "are not termed offsets or carbon credits because they do not meet all aspects of "additionality" requirements, in common with all domestic emissions reduction projects. (This is related to UK government policy towards reducing emissions under UNFCCC agreements), This does not mean that it is inappropriate to finance domestic projects; indeed, doing so helps the UK to meet its targets efficiently" (HM Government, 2019, p. 116).

Box 8. Germany's approach to voluntary offsetting

Guidance provided by the German Environment Agency

The German Emissions Trading Authority of the German Environment Agency adopted a guidebook on voluntary offsetting through climate protection projects in 2018 (German Environment Agency, 2020). Next to the general idea of offsetting and the need to avoid and reduce emissions first, quality elements of carbon credits are outlined including additionality, permanence, quantification, monitoring and verification of emission reductions, transparency and regulations, time of issuance as well as double counting. The Federal Government has been using CERs to offset its employees' GHG emissions from business trips by planes and cars since 2014, and from all business trips since 2018 (German Environment Agency, 2021).

German Development and Climate Alliance

The German Development and Climate Alliance - a foundation supported by the Federal Ministry for Economic Cooperation and Development - has introduced approved standards and processes for German stakeholders engaging in voluntary offsetting projects (Development and Climate Alliance, 2020a). As of September 2021, the Alliance counts 1,110 supporters including 737 companies, 20 municipalities and state agencies, 66 sport clubs, 16 civil society organisations, individuals and 24 carbon credit providers as well as individuals (Development and Climate Alliance, 2021a). In general, the German Alliance's approach is based on the ICROA code of best practice. It is specified that the goal is to reduce as much emissions as possible before offsetting remaining emissions (Development and Climate Alliance, 2020b). The supporters sign up to the Alliance's requirements, which include the purchase of carbon credits from only certain approved standards, which generate certified SDG benefits in addition to the mitigation impact, are verified ex-post by independent auditors and avoid double counting (Development and Climate Alliance, 2020a). Regarding the avoidance of double counting, the Alliance recommends to only engage in activities that are implemented after 2020 if they apply CAs (Development and Climate Alliance, 2021). However, this is not specified as a participation requirement.

Box 9: Peru's carbon footprint programme (Huella de carbono Perú)

The Ministry of the Environment of Peru has developed the digital platform "Huella de Carbono Perú", a tool created to promote and recognise the efforts of public and private organisations to contribute to the national NDC target for 2030. This scheme grants carbon neutrality labels to domestic actors that have reported their verified emissions and achieved verified reductions in own emissions. Only if the company has received three stars (for emission calculations, verification of the reductions, automatic identification of emission reductions in two subsequent years), the company can pursue the offsetting of its emissions to receive the fourth star (Ministerio del Ambiente, 2021). For each step, certain documentation must be made publicly available on the platform. For example, regarding the GHG emissions calculation, information on emissions for each scope must be disclosed. The Ministry of the Environment sets the criteria for assessing mitigation activities.

In the EU, a green claims initiative is underway to enhance requirements for companies to substantiate their green claims and environmental impacts using standard methodologies (European Commission, n.d.). At the national level, government authorities responsible for fair competition and consumer protection have issued guidance on environmental claims. However, even where existing regulation requires claims to be truthful, clear and understandable and prohibits misleading or false claims in their marketing, its application to climate-related claims, such as carbon neutrality or net zero, is currently challenging due to the lack of clear definitions and/or case law for such claims (Swedish Consumer Agency, 2021). Some guidance on environmental claims, such as that of the Commerce Commission New Zealand (2020), cover also "carbon-offsets/carbon neutral" claims. Recently, the Swedish Consumer Agency has scrutinised carbon neutrality claims (Box 10).

Box 10. Swedish Consumer Agency's work on climate-related claims in marketing

In 2020–2021, the Swedish Consumer Agency conducted a survey, webinars and studies on climate-related claims, especially relating to voluntary compensation of GHG emissions.

The survey found that, of the 80% of respondents that had come across the term 'climate compensation' ('klimatkompensation' in Swedish), half considered them difficult to understand. Every fourth respondent had bought something that was climate-compensated, with foodstuff and flights at the top of the list (Swedish Consumer Agency, 2020).

To enhance awareness on voluntary compensation of GHG emissions and related claims, the Swedish Consumer Agency commissioned a study on key terms and concepts (Möllersten, et al., 2020). The Swedish Consumer Agency has also conducted a study on the current status of climate-related claims in marketing, guidance on climate-related claims in Sweden, Denmark, Norway, Germany and New Zealand (Swedish Consumer Agency, 2021).

The study concluded that claims such as 'climate neutral', 'climate compensated' and 'net zero' are not precise or clear. An average consumer cannot be expected to understand the meaning of such simple claims or make informed choices based on such claims. In general, it is also impossible to judge the quality of the underlying activity and carbon credits. Furthermore, it may not be clear to consumers that, despite voluntary compensation, the product or service has own (remaining) GHG emissions.

The Swedish Consumer Agency has also commissioned a study looking into "net zero climate impact" claims made in marketing dairy products whose GHG footprint has been compensated (Einarsson & Rööös, 2021).

5.2. International cooperation to build carbon market capacity and infrastructure

Besides national efforts, some countries are also cooperating internationally to promote carbon market cooperation in line with Article 6 of the PA. They aim to build capacity to assess international carbon market potential, harness carbon markets to promote the achievement and enhancement of national mitigation pledges, and meet the requirements for authorising and trading ITMOs and applying CAs under Article 6.

Piloting Article 6 through concrete activities is an effective way to build capacity through learning-by-doing and testing how Article 6 cooperation could work in practice. It is also valuable for developing detailed rules for the operationalisation of Article 6. In the absence of agreed rules for Article 6, the San Jose Principles on High Ambition and Integrity in International Carbon Markets (Box 11) provide guidance for many Article 6 pilots.

Although Article 6 pilots are primarily focused on generating carbon credits that are

eligible for compliance under PA, that is, use by countries towards their mitigation pledges, Article 6 frameworks developed through piloting can also cater for non-state buyers of carbon credits, especially those seeking early access to carbon credits with CAs. Article 6 piloting and procurement could also be set up as a public-private partnerships, similar to the Prototype Carbon Fund (World Bank, 2019) and the Baltic Sea Region Testing Ground Facility (Lumijärvi & Ahonen, 2007) which successfully piloted CDM and JI, respectively. To date, private sector participation in Article 6 piloting has been limited (Greiner, et al., 2020).

The Joint Crediting Mechanism (JCM), a bilateral mechanism between Japan and 17 partner (host) countries was launched in 2011, four years before the adoption of the PA (Ministry of Foreign Affairs of Japan, n.d.). In the PA era, it aims to adapt to Article 6 requirements and generate ITMOs for use towards Japan's mitigation pledge under the PA.

As of September 2021, Switzerland has concluded bilateral Article 6 cooperation agreements with Peru, Ghana and Senegal (KliK, 2021). Bilateral Article 6 agreements are a key precondition enabling the private Swiss Foundation for Climate Protection and Carbon Offset (KliK) to purchase Article 6-compliant ITMOs on behalf of Swiss motor fuel importers who are required by law to offset part of the GHG emissions generated by motor fuel use in Switzerland (KliK, n.d.).

The Swedish Energy Agency (SEA) is also actively building Article 6-related capacity through studies and piloting, and seeking to finance activities through purchases of ITMOs on behalf of the Swedish Government. SEA has commissioned virtual pilot studies, launched calls for proposals for Article 6 projects, and funded a programme on developing pilots with the Global Green Growth Institute (Swedish Energy Agency, 2021a). In August 2021, the SEA announced a new partnership with Gold Standard to facilitate the Swedish Government's purchases of high-quality ITMOs under Article 6 (Swedish Energy Agency, 2021b). The partnership aims to serve as a model for broader international cooperation in mitigating climate change, and illustrates the strong linkages and interactions between voluntary and compliance carbon markets and standards.

The Nordic Environment Finance Corporation (Nefco) pioneered the piloting of international crediting standards already under the Kyoto Protocol in partnership with Nordic countries and companies. Now Nefco is piloting Article 6 under the Nordic Initiative for Cooperative Approaches (NICA) in partnership with Sweden, Finland and Norway. NICA seeks to operationalise international market-based collaboration under Article 6 and foster partnerships between Nordic private and municipal actors and their global peers that can deliver real and lasting mitigation outcomes, promote higher ambition, harness private sector finance and innovation and deliver sustainable development, including adaptation co-benefits. In 2021, NICA has been mapping and screening feasible opportunities for Article 6 piloting, paving way for a detailed design phase (Nefco, 2021). Article 6 pilots and frameworks developed under NICA could facilitate Nordic non-state actors' access to compliance-grade carbon credits with CAs and co-benefits that could be used for high-integrity voluntary compensation.

Box 11. San José Principles on High Ambition and Integrity in International Carbon Markets

Under the San Jose Principles on High Ambition and Integrity in International Carbon Markets (SJP), a total of 32 countries pledge to work together to secure ambitious rules for operationalising market-based cooperation under Article 6 of the PA.

According to the SJP, these rules should, at minimum:

- Ensure environmental integrity and enable the highest possible mitigation ambition.
- Deliver an overall mitigation in global emissions, moving beyond zero-sum offsetting approaches to help accelerate the reduction of global greenhouse gas emissions.
- Prohibit the use of pre-2020 units, Kyoto units and allowances, and any underlying reductions toward Paris Agreement and other international goals.
- Ensure that double counting is avoided and that all use of markets toward international climate goals is subject to CAs.
- Avoid locking in levels of emissions, technologies or carbon-intensive practices incompatible with the achievement of the Paris Agreement's long-term temperature goal.
- Apply allocation methodologies and baseline methodologies that support domestic NDC achievement and contribute to achievement of the Paris Agreement's long-term temperature goal.
- Use CO₂-equivalence in reporting and accounting for emissions and removals, fully applying the principles of transparency, accuracy, consistency, comparability and completeness.
- Use centrally and publicly accessible infrastructure and systems to collect, track, and share the information necessary for robust and transparent accounting.
- Ensure incentives to progression and support all Parties in moving toward economy-wide emission targets.
- Contribute to quantifiable and predictable financial resources to be used by developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.
- Recognise the importance of capacity building to enable the widest possible participation by Parties under Article 6.

Source: Dirección de cambio climático, 2019

References

- Adams, T., Carney, M., Nazareth, A., Stern, N., Thallinger, G. & Winter, B. 2021. Calling for a High Ambition Path to Net-Zero. [Online]
Available at: https://www.iif.com/Portals/1/Files/High_Ambition_Path_to_Net_Zero.pdf
[Accessed 6 September 2021].
- Ahonen, H.-M. et al., 2021. *Safeguarding integrity of market-based cooperation under Article 6*, s.l.: Perspectives Climate Research.
- Allen, M. et al., 2020. *The Oxford Principles for Net Zero Aligned Carbon Offsetting*, s.l.: Smith school of enterprise and the environment, Oxford University.
- Arens, C. et al., 2014. *Mapping the Indicators. An Analysis of Sustainable Development Requirements of Selected Market Mechanisms and Multilateral Institutions.*, Berlin: German Emissions Trading Authority (DEHSt).
- Broekhoff, D., 2020. *Should carbon offsets only include removing CO2 from the atmosphere?*, s.l.: Stockholm Environment Institute.
- Broekhoff, D., Gillenwater, M., Colbert-Sangree, T. & Cage, P., 2019. *Securing Climate Benefit: A Guide to Using Carbon Offsets*, s.l.: Stockholm Environment Institute & Greenhouse Gas Management Institute.
- bsi., 2021. *PAS 2060 Carbon Neutrality*. [Online]
Available at: <https://www.bsigroup.com/en-ID/PAS-2060/>
[Accessed 20 August 2021].
- Carbon Credit Quality Initiative, n.d. *The Carbon Credit Quality Initiative. Independent, user-friendly information on carbon credit quality*. [Online]
Available at: <https://carboncreditquality.org/>
[Accessed 6 September 2021].
- Carbon Direct, 2021. *Criteria for high-quality carbon dioxide removal*, New York & Redmond: Carbon Direct & Microsoft.
- Carbon Market Watch, 2020. *Above and Beyond Carbon Offsetting. Alternatives to compensation for climate action and sustainable development*, Brussels: Carbon Market Watch
- Carbon Market Watch, 2021. *Two shades of green: How hot air forest credits are being used to avoid carbon taxes in Colombia*. [Online]
Available at: https://carbonmarketwatch.org/wp-content/uploads/2021/06/Two-shades-of-green_EN_WEB.pdf
[Accessed 3 September 2021].
- CDP, 2020. *Foundations for science-based net-zero target setting in the corporate sector*, London: Carbon Disclosure Project.
- CDP, 2021. *Net-zero draft for public consultation*, London: Carbon Disclosure Project.
- Cevallos, G., Grimault, J. & Bellassen, V., 2019. *Domestic carbon standards in Europe. Overview and perspectives.*, Paris: Institute for Climate Economics.
- Climate Action Tracker, 2021. *Climate summit momentum: Paris commitments improved warming estimate to 2.4 °C*, s.l.: Climate Action Tracker.

Climate Neutral Now, 2021. *Guidelines for Participation*, Bonn: UNFCCC Secretariat.

Clim'Foot, n.d. *Clim'Foot*. [Online]

Available at: <https://www.climfoot-project.eu/>

[Accessed 6 September 2021].

Commerce Commission New Zealand, 2020. *Environmental Claims Guidelines. A guide for traders.*, Wellington: Commerce Commission New Zealand.

Compensate, 2021. *Reforming the voluntary carbon market*. [Online]

Available at: <https://www.compensate.com/articles/white-paper-qa>

[Accessed 15 September 2021].

CPLC, 2021. Report of the Task Force on Net Zero Goals & Carbon Pricing.

Washington, DC:

International Bank for Reconstruction and Development / The World Bank

DECC, 2010. *A guide to carbon offsetting for the public sector*, London: Department of Energy & Climate Change

DECC, 2009. *UK Government Quality Assurance Scheme for Carbon Offsetting.*

Approval requirements and procedures for offset providers., London: Department of Energy & Climate Change

Department for Transport, 2019. *Carbon offsetting in transport. A call for evidence.*,

London: Department for Transport

Development and Climate Alliance, 2020a. *Approved Standards and Processes*.

[Online]

Available at: [https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/](https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/AllianzEntwicklungKlima_Anforderungskatalog_Standards_EN.pdf)

[AllianzEntwicklungKlima_Anforderungskatalog_Standards_EN.pdf](https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/AllianzEntwicklungKlima_Anforderungskatalog_Standards_EN.pdf)

[Accessed 3 September 2021].

Development and Climate Alliance, 2020b. *Working together for sustainable development and global climate protection*. [Online]

Available at: [https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/](https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/200316-Allianz-Flyer-EN.pdf)

[200316-Allianz-Flyer-EN.pdf](https://allianz-entwicklung-klima.de/wp-content/uploads/2020/11/200316-Allianz-Flyer-EN.pdf)

[Accessed 2 September 2021].

Development and Climate Alliance, 2021a. *Über die Stiftung*. [Online]

Available at: <https://allianz-entwicklung-klima.de/>

[Accessed 3 September 2021].

Development and Climate Alliance, 2021. *Vermeidung von Doppelzählung und Unterstützung der Gaststaaten im freiwilligen Markt*. [Online]

Available at: [https://allianz-entwicklung-klima.de/wp-content/uploads/2021/02/](https://allianz-entwicklung-klima.de/wp-content/uploads/2021/02/leitfaden2021-vermeidung-von-doppelzaehlung-freiwilliger-markt.pdf)

[leitfaden2021-vermeidung-von-doppelzaehlung-freiwilliger-markt.pdf](https://allianz-entwicklung-klima.de/wp-content/uploads/2021/02/leitfaden2021-vermeidung-von-doppelzaehlung-freiwilliger-markt.pdf)

[Accessed 3 September 2021].

Dirección de cambio climático, 2019. *Press release: 32 leading countries set*

benchmark for carbon markets with San Jose Principles. [Online]

Available at: [https://cambioclimatico.go.cr/press-release-leading-countries-set-](https://cambioclimatico.go.cr/press-release-leading-countries-set-benchmark-for-carbon-markets-with-san-jose-principles/)

[benchmark-for-carbon-markets-with-san-jose-principles/](https://cambioclimatico.go.cr/press-release-leading-countries-set-benchmark-for-carbon-markets-with-san-jose-principles/)

[Accessed 19 08 2021].

Donofrio, S., Maguire, P., Zwick, S. & Merry, W., 2020. *Voluntary carbon and the post-pandemic recovery*, Washington, DC: Ecosystem Marketplace.

Ehara, M. et al., 2021. Allocating the REDD+ national baseline to local projects: A

case study of Cambodia. *Forest Policy and Economics*, p. 102474.

Einarsson, R. & Rööf, E., 2021. *Om betydelsen av metriker och antaganden om permanens för påståendet "netto noll klimatavtryck" gällande Arlas klimatkompenserade mejeriprodukter*, Karlstad: Swedish Consumer Agency.

European Commission, 2021. *State of the Union 2021: Letter of intent*, Brussels: European Commission.

European Commission, n.d. *Initiative on substantiating green claims*. [Online]
Available at: https://ec.europa.eu/environment/eussd/smgp/initiative_on_green_claims.htm
[Accessed 6 September 2021].

European Parliament and the Council, 2011. *Commission Regulation (EU) No 550/2011 of 7 June 2011 on determining, pursuant to Directive 2003/87/EC of the EP and of the Council, certain restrictions applicable to the use of international credits from projects involving industrial gases*. L 149/1 ed. Brussels: European Parliament and the Council

Federal Office for the Environment, 2021. *Host countries for projects abroad*. [Online]
Available at: <https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/reduction-measures/compensation/abroad/host-countries.html>
[Accessed 6 September 2021].

Finnish Environment Institute, 2020. *Hinku criteria*, [Online]
Available at: https://www.hiilineutraalisuomi.fi/en-US/Hinku/Hinku_criteria
[Accessed 6 September 2021].

G7, 2021. *G7 Climate and Environment: Ministers' Communiqué, London, 21 May 2021*, London: Cabinet Office

Gehrig-Fasel, J., Gehrig, M. & Hewlett, O., 2021. *Nature-based Solutions in Carbon Markets*, Frankfurt am Main: Foundation Future of the Carbon Market (Stiftung Zukunft des Kohlenstoffmarktes).

German Environment Agency, 2020. *Voluntary CO2 offsetting*. [Online]
Available at: https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/guide_voluntary_co2_offsetting_through_climate_protection_projects_bf_2020_09_14.pdf
[Accessed 21 August 2021].

German Environment Agency, 2021. *Climate neutral business trips of the Federal Government*. [Online]
Available at: https://www.dehst.de/EN/climate-projects_maritime-transport/business-trips-of-the-german-government/business-trips-of-the-german-government-node.html
[Accessed 3 September 2021].

Gold Standard, 2019. *Principles and Requirements*. [Online]
Available at: <https://www.goldstandard.org/project-developers/standard-documents>
[Accessed 6 September 2021].

Gold Standard, 2020. *Commentary on the Oxford Principles for Net Zero Aligned Carbon Offsetting*, Geneva: Gold Standard Foundation

Gold Standard, 2021a. *Integrity for scale: Aligning Gold standard-certified projects with the Paris Agreement*, Geneva: Gold Standard Foundation.

Gold Standard, 2021b. *Go Climate+ positive action for people and planet*. [Online] Available at: <https://www.goldstandard.org/our-story/reduce-your-footprint> [Accessed 20 August 2021].

Gold Standard, n.d. *Optimising markets. Sustainable Development Initiative (SDI)*. [Online] Available at: <https://www.goldstandard.org/our-story/sustainable-development-initiative-sdi> [Accessed 6 September 2021].

Greiner, S. et al., 2020. *Article 6 piloting: State of play and stakeholder experiences*, Amsterdam & Freiburg: Climate Focus & Perspectives Climate Research.

Hamrick, K. & Gallant, M., 2017. *Unlocking Potential, State of the Voluntary Carbon Markets 2017*, Washington, D.C.: Ecosystem Marketplace.

Hermwille, L. & Kreibich, N., 2016. *Identity crisis? - Voluntary carbon crediting and the Paris Agreement. Report No.02/2016*, Wuppertal: Wuppertal Institute for Climate, Environment and Energy.

HM Government, 2019. *Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance. March 2019 (Updated Introduction and Chapters 1 and 2)*, London: HM Government

Hyams, K. & Fawcett, T., 2013. The ethics of carbon offsetting. *WIREs Climate Change*,. *WIREs Climate Change*, Volume 4, pp. 91-98.

ICAO, 2019. *CORSIA Emissions Unit Eligibility Criteria*, Montreal: International Civil Aviation Organization.

ICAO, 2021. *CORSIA Eligible Emissions Units*. [Online] Available at: https://www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20Document%2008%20_%20CORSIA%20Eligible%20Emissions%20Units_March%202021.pdf [Accessed 3 September 2021].

ICAP, 2021a. *ETS Map*. [Online] Available at: <https://icapcarbonaction.com/en/ets-map> [Accessed 21 August 2021].

ICAP, 2021b. *Emissions Trading Worldwide: Status Report 2021*, Berlin: International Carbon Action Partnership.

ICC, 2018. *ICC advertising and marketing communication code*, Paris: International Chamber of Commerce.

ICC, 2019. *ICC Framework for Responsible Environmental Marketing Communications*, Paris: International Chamber of Commerce.

ICLEI, 2020. *ICLEI's Climate Neutrality Framework. Accelerating integrated climate action for sustainable urban development*, Bonn: ICLEI World Secretariat

ICROA, 2021. *Code of best practice for carbon management services*, s.l.: International Carbon Reduction and Offset Alliance.

IPCC, 2018a. Summary for Policymakers. In: *Global warming of 1.5°C*. Geneva: World Meteorological Organization, p. 32.

- IPCC, 2018b. *Special Report: Global Warming of 1,5 °C, Glossary*, Geneva: World Meteorological Organisation.
- ISO, 2016. *ISO 14021:2016(E), Environmental Labels and Declarations - Self-declared environmental claims (Type II environmental labeling)*, Geneva: International Organization for Standardization.
- ISO, n.d. *ISO/WD 14068. Greenhouse gas management and related activities – Carbon neutrality*. [Online]
Available at: <https://www.iso.org/standard/43279.html>
[Accessed 6 September 2021].
- Jeffery, L. et al., 2020. *Options for supporting Carbon Dioxide Removal*, Berlin: New Climate Institute.
- KliK, 2021. *Bilateral agreement*. [Online]
Available at: <https://www.international.klik.ch/procurement-process/bilateral-agreement>
[Accessed 1 September 2021].
- KliK, n.d. *International Carbon Offset*. [Online]
Available at: <https://www.international.klik.ch/en/home>
- Kollmuss, A., Lazarus, M., Lee, C. & Polycarp, C., 2008. *A Review of Offset Programs: Trading Systems, Funds, Protocols, Standards and Retailers*, Stockholm: Stockholm Environment Institute.
- Kreibich, N. & Hermwille, L., 2020. *Caught in between: Credibility and Feasibility of the Voluntary Carbon Market post-2020.*, Wuppertal: Wuppertal Institute for Climate, Environment and Energy GmbH.
- Laine, A. et al., 2021. *Vapaaehtoisten päästökompensaatioiden sääntely*, Helsinki: Ministry of the Environment .
- Legifrance, n.d. *LOI n° 2020-935 du 30 juillet 2020 de finances rectificative pour 2020*. [Online]
Available at: https://www.legifrance.gouv.fr/loda/article_lc/LEGIARTI000042178955/
[Accessed 9 September 2021].
- Leining , C. & White, D., 2021. *Boosting voluntary climate action in Aotearoa New Zealand*, Wellington: Motu Economic and Public Policy Research.
- Lumijärvi, A. & Ahonen, H.-M., 2007. *Evaluation of the Baltic Sea Region Testing Ground Facility*, Copenhagen: Nordic Council of Ministers.
- Michaelowa, A., Ahonen, H.-M. & Espelage, A., 2021. *Setting crediting baselines under Article 6 of the Paris Agreement*, Freiburg: Perspectives Climate Research.
- Michaelowa, A., Shishlov, I. & Brescia, D., 2019. Evolution of international carbon marketes: lessons for the Paris Agreement. *WIREs Climate Change*, p. e613.
- Michaelowa, A. et al., 2019a. *Overview and comparison of existing carbon crediting schemes*, Helsinki: NEFCO.
- Ministerio del Ambiente, 2021. *¿Cómo funciona?*. [Online]
Available at: <https://huellacarbonoperu.minam.gob.pe/huellaperu/#/funciona>
[Accessed 3 September 2021].
- Ministry for the Environment, 2020. *Guidance for voluntary carbon offsetting –*

updated and extended until 31 December 2021, Wellington: Ministry for the Environment.

Ministry of Foreign Affairs of Japan, n.d. *Joint Crediting Mechanism (JCM)*. [Online] Available at: https://www.mofa.go.jp/ic/ch/page1we_000105.html [Accessed 6 September 2021].

Möllersten, K., 2021. *Kompensation av klimatskuld inom LFM30*, Stockholm: IVL.

Möllersten, K. & Källmark, L., 2020. *Assessment and reporting of environment- and climate-related risks and impacts on financial markets*, Copenhagen: Nordic Council of Ministers.

Möllersten, K., Källmark, L. & Ryding, S.-O., 2020. *Genomlysning av klimatkompensation*, Karlstad: Swedish Energy Agency.

Nefco, 2021. *Nordic Initiative for Cooperative Approaches*. [Online] Available at: <https://www.nefco.int/fund-mobilisation/funds-managed-by-nefco/nordic-initiative-for-cooperative-approaches/> [Accessed 6 September 2021].

Obersteiner, M. et al., 2001. Managing climate risk. *Science*, 294(5543), pp. 786-787.

OECD, 2011. *Environmental Claims. Findings and Conclusions of the OECD Committee on Consumer Policy*, Paris: OECD.

Partnership for Market Readiness, 2017. *Establishing Scaled-up Crediting Program Baselines under the Paris Agreement: Issues and Options*, Washington, D.C.: World Bank.

PMR, 2015. *Carbon Leakage: Theory, Evidence and Policy Design*. [Online] Available at: https://www.thepmr.org/system/files/documents/Technical%20Note%202011_Carbon%20Leakage.pdf [Accessed 21 August 2021].

Race to Zero, 2021. *The Race to Zero strengthens and clarifies campaign criteria*. [Online] Available at: <https://racetozero.unfccc.int/the-race-to-zero-strengthens-and-clarifies-campaign-criteria/> [Accessed 21 August 2021].

SBTi, 2020. *Foundations for science-based net-zero target setting in the corporate sector*. [Online] Available at: <https://sciencebasedtargets.org/resources/?p=resources> [Accessed 20 August 2021].

SBTi, 2021. *Net-zero criteria draft for public consultation*. [Online] Available at: <https://sciencebasedtargets.org/resources/files/Net-Zero-Criteria-Draft-for-Public-Consultation-v1-0.pdf> [Accessed 21 August 2021].

Schneider, L. et al., 2020. *What makes a high-quality carbon credit?*, s.l.: WWF, EDF & Öko-Institut.

Schneider, L., Kollmuss, A. & Lazarus, M., 2014. *Addressing the risk of double counting emission reductions under the UNFCCC*, Stockholm: Stockholm Environment Institute.

Schneider, L. & La Hoz Theuer, S., 2019. Environmental integrity of international carbon market mechanisms under the Paris Agreement. *Climate Policy*, pp. 386-400.

Spalding-Fecher, R., Martin, M., Saines, R. & Scheinder, L., 2021. *Summary Report: Designing governance structures and transactional documentation for mitigation outcome transactions under Article 6 of the Paris Agreement*, Seoul: GGGI; SEA.

Swedish Consumer Agency, 2020. *Klimatpåståenden. Svåra att förstå för konsumenter.*, Karlstad: Swedish Consumer Agency.

Swedish Consumer Agency, 2021. *Miljöpåståenden om klimatkompenserade produkter i marknadsföring*, Karlstad: Swedish Consumer Agency.

Swedish Energy Agency, 2021a. *Bilateral cooperation under the Paris Agreement*. [Online]
Available at: <https://www.energimyndigheten.se/en/cooperation/swedens-program-for-international-climate-initiatives/cooperation-under-the-parisagreement/bilateral-cooperation-under-the-paris-agreement/>
[Accessed 6 September 2021].

Swedish Energy Agency, 2021b. *The Swedish Energy Agency Partners with Gold Standard to ensure integrity in international cooperation under Paris Agreement*. [Online]
Available at: <https://www.energimyndigheten.se/en/news/2021/the-swedish-energy-agency-partners-with-gold-standard-to-ensure-integrity-in-international-cooperation-under-paris-agreement/>
[Accessed 6 September 2021].

Thailand Greenhouse Gas Management Organisation, n.d. *What is T-VER?*. [Online]
Available at: <http://ghgreduction.tgo.or.th/en/what-is-t-ver/what-is-t-ver.html>
[Accessed 6 September 2021].

TSVCM, 2021a. *Taskforce on Scaling Voluntary Carbon Markets*. [Online]
Available at: https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf
[Accessed 20 August 2021].

TSVCM, 2021b. *Taskforce on Scaling Voluntary Carbon Markets: Phase II Report*. [Online]
Available at: https://www.iif.com/Portals/1/Files/TSVCM_Phase_2_Report.pdf
[Accessed 12 August 2021].

UK Government, 2021. *Press release. Firms must commit to net zero to win major government contracts.*, London: Cabinet Office

UNEP DTU, 2021. *UNEP DTU CDM/JI Pipeline Analysis and Database*. [Online]
Available at: <http://www.cdmpipeline.org/>
[Accessed September 2021].

UNFCCC, 1998. *Kyoto Protocol*. Bonn: UNFCCC Secretariat

UNFCCC, 2018. *Decision 18/CMA.1: Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement*, Bonn: UNFCCC Secretariat

UNFCCC, 2019a. *Draft CMA decision on guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, Version 1 of December 13*, Bonn: UNFCCC Secretariat

UNFCCC, 2019b. *Draft CMA decision on guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, Version 2 of 14 December*, Bonn: UNFCCC Secretariat

UNFCCC, 2019c. *Draft CMA decision on guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, Version 3 of 15 December*, Bonn: UNFCCC Secretariat

UNFCCC, 2019d. *Draft CMA decision on the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, Version 1 of 13 December*, Bonn: UNFCCC Secretariat

UNFCCC, 2019e. *Draft CMA decision on the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, Version 2 of 14 December*, Bonn: UNFCCC Secretariat

UNFCCC, 2019f. *Draft CMA decision on the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, Version 3 of 15 December*, Bonn: UNFCCC Secretariat

UNFCCC, 2021. *Climate Ambition Alliance: Net Zero 2050*. [Online]
Available at: <https://climateaction.unfccc.int/views/cooperative-initiative-details.html?id=94>
[Accessed 20 08 2021].

UNFCCC, n.d.. *Issuance of CERs*. [Online]
Available at: <https://cdm.unfccc.int/Issuance/index.html>
[Accessed September 2021].

UNFCCC, n.d.. *Rules and References*. [Online]
Available at: <https://cdm.unfccc.int/Reference/index.html>
[Accessed September 2021].

University of California, 2021. *Voluntary Registry Offsets Database*. [Online]
Available at: <https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database>
[Accessed 13 September 2021].

UN-REDD, 2009. *Measurement, Assessment, Reporting and Verification (MARV): Issues and options for REDD*, Geneva: UN-REDD Programme.

VCMI, 2021a. *Aligning Voluntary Carbon Markets with the 1.5°C Paris Agreement Ambition: A global consultation report of VCMI, s.l.*: VCMI

VCMI, 2021b. *VCM Related Claims Categorization, Utilization, & Transparency Criteria, s.l.*: VCMI

Verra, 2019. *VCS Program Guide*. [Online]
Available at: <https://verra.org/project/vcs-program/>
[Accessed 20 August 2021].

Verra, 2021. *The Future of the Voluntary Carbon Market*, Washington, DC: Verra

Verra, n.d.. *Climate, Community & Biodiversity Standards*. [Online]
Available at: <https://verra.org/project/ccb-program/>
[Accessed 6 September 2021].

Voluntary Carbon Markets Global Dialogue, 2021. *Voluntary Carbon Markets Global Dialogue*. [Online]
Available at: <https://vcm-gd.org/>
[Accessed 6 September 2021].

WBCSD/WRI, 2004. *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*, Geneva & Washington, DC: World Business Council for

Sustainable Development & World Resources Institute

WBCSD/WRI, 2005. *The GHG Protocol for Project Accounting*, Geneva & Washington, DC: World Business Council for Sustainable Development & World Resources Institute

West, T. A., Börner, J., Sills, E. O. & Kontoleon, A., 2020. Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon. *Proceedings of the National Academy of Sciences*, pp. 24188-24194.

World Bank, 2019. *Carbon Markets under the Kyoto Protocol: Lessons Learned for Building an International Carbon Market under the Paris Agreement.*, Washington, DC: World Bank Group.

World Bank, 2021b. *Carbon Pricing Dashboard*. [Online]
Available at: https://carbonpricingdashboard.worldbank.org/carbon_crediting
[Accessed 21 August 2021].

World Bank, 2021a. *State and Trends of Carbon Pricing 2021*, Washington, DC: World Bank.

WWF, 2019a. *Climate Positive Framework (Draft)*, Solna: World Wide Fund For Nature Sweden

WWF, 2019b. *WWF position and guidance on voluntary purchases of carbon credits*, Washington, DC: World Wide Fund For Nature Sweden

Annex: Glossary of key terms and concepts

Key terms and concepts included in this glossary are **bolded**.

Term	Description
Additionality	Additionality means that the mitigation outcomes of a mitigation activity would not have happened without the incentives provided by the carbon credits
Baseline	Baseline is the hypothetical emissions scenario that would occur in the absence of the incentives from the carbon credits
Cancellation of a carbon credit	The definitions of cancellation and retirement vary between crediting standards and carbon registries. For the purposes of this report, cancellation refers to a situation in which the carbon credit is put out of circulation without being used towards any particular carbon neutrality or mitigation goal. See also the definition of retirement of a carbon credit .
Carbon credit	A carbon credit is issued by a crediting standard against a mitigation outcome representing one additional and verified tonne of CO ₂ equivalent. Carbon credits are uniquely serialised, issued, tracked, and retired or cancelled by means of an electronic carbon registry.
Carbon footprint	A common term used in the provision of information relating to emissions within the boundaries or value chains of individuals, entities, processes and products.
Carbon neutrality	In the global context, carbon neutrality is the same as net-zero CO₂ emissions , which are achieved when anthropogenic CO ₂ emissions are balanced globally by anthropogenic CO ₂ removals over a specified period. Carbon neutrality commonly also includes other GHGs. At the sub-global level, entities claim to achieve carbon neutrality by offsetting their carbon footprint with carbon credits representing at least an equivalent amount of mitigation outcomes . At the corporate level, there is an emerging view that credible carbon neutrality claims should be accompanied by ambitious own mitigation targets and action.
Corresponding adjustment (CA)	An accounting rule under the Paris Agreement that requires countries to add back any transferred ITMOs and subtract any acquired and used ITMOs to calculate an emissions balance, which is used to assess progress towards their mitigation pledge in their Nationally Determined Contributions (NDCs)
Double claiming	A situation in which the same mitigation outcome is claimed by two different entities towards achieving climate change mitigation, e.g., once by the country in which the mitigation outcome occurs, and once by the entity using a carbon credit
Double counting	A situation in which a mitigation outcome is counted more than once towards achieving climate change mitigation. Double counting can occur through double issuance, double use, and/or double claiming
Double issuance	A situation in which more than one carbon credit is issued for the same mitigation outcome . This leads to double counting if more than one of these carbon credits is counted towards achieving climate change mitigation. This can occur, for instance, when the same mitigation activity is registered under two different crediting standards or twice under the same crediting standard.
Double use	A situation in which the same carbon credit is counted twice towards achieving climate change mitigation. This could, for example, occur if an entity used a single carbon credit to fulfil two different purposes
Environmental integrity	In the context of carbon markets, environmental integrity means at least that market-based cooperation must not lead to an increase in global net GHG emissions.
Internationally transferred mitigation outcome (ITMO)	Internationally transferred mitigation outcome (ITMO) is a mitigation outcome authorised for transfer under Article 6.2 of the Paris Agreement, for use for NDC achievement or other international mitigation purposes
Leakage	Unintended increases in emissions attributable to the mitigation activity outside of its boundaries are referred to as leakage .

Mitigation outcome	Emission reductions and removals are jointly referred to as mitigation outcomes
Monitoring	Processes of data collection over time, providing basic datasets, including associated accuracy and precision, for the range of relevant variables.
Nature-based solutions (NBS)	Nature-based solutions (NBS) are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.
Negative emissions	See removal
Net-zero emissions	At the level of global emissions, net-zero emissions have the same meaning as carbon neutrality : both refer to a balance between (global) emissions and removals . At the corporate level, there is an emerging view that net-zero can only be claimed in the net-zero target year if the company has reduced its own emissions in line with a science-based net-zero pathway and counterbalanced any remaining emissions with removals .
Non-offsetting	Non-offsetting refers to the payment by an actor for mitigation outcomes outside of its boundary or value chain without owning these mitigation outcomes or using them to counterbalance (i.e., offset) their emissions.
Offsetting	Offsetting refers to the purchase and ownership of mitigation outcomes from outside the actor's boundary or value chain to counterbalance an equivalent amount of the actor's GHG emissions within its boundary or value chain.
Permanence	Permanence refers to a situation where the mitigation outcomes generated by a mitigation activity are later not reversed. is the situation
Removal	Anthropogenic activities removing CO ₂ from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but excludes natural CO ₂ uptake not directly caused by human activities.
Reporting	Making public, in a prescribed format, data collected through measuring and monitoring, as well as any outcomes derived using that data.
Retirement of a carbon credit	The definitions of cancellation and retirement vary between crediting standards and carbon registries. For the purposes of this report, retirement refers to a situation in which the carbon credit is directly used towards a carbon neutrality or a mitigation goal. See also the definition of cancellation of a carbon credit .
Scope 1, 2, 3 emissions	GHG emissions are categorised into three groups or ' scopes ' by the most widely-used international accounting tool, the GHG Protocol. Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company. Scope 3 includes all other indirect emissions that occur in a company's value chain.
Validation	Third-party auditing of mitigation activity design, often in relation to eligibility criteria for registration under a crediting standard.
Value chain emissions	A company's Scope 1, 2, and 3 emissions as defined by the GHG Protocol accounting protocol.
Verification	In the context of crediting standards, verification is the periodic independent review and ex post determination by a third-party entity of the monitored mitigation outcomes generated by a mitigation activity during a specific monitoring period against a crediting standard.
Voluntary carbon markets	The voluntary carbon markets (VCMs) encompass all transactions of, and in relation to, carbon credits for use towards voluntary offsetting and non-offsetting purposes
Voluntary compensation of greenhouse gas (GHG) emissions	In this report, voluntary compensation includes both offsetting and non-offsetting use of mitigation outcomes .

About this publication

Voluntary compensation of greenhouse gas emissions

International guidance and initiatives

Hanna-Mari Ahonen, Kenneth Möllersten and Randall Spalding-Fecher

ISBN 978-92-893-7127-8 (PDF)

ISBN 978-92-893-7128-5 (ONLINE)

<http://dx.doi.org/10.6027/temanord2021-541>

TemaNord 2021:541

ISSN 0908-6692

© Nordic Council of Ministers 2021

Cover photo: Rihards Rudzis / Momenti

Published: 28/10/2021

Disclaimer

This publication was funded by the Nordic Council of Ministers. However, the content does not necessarily reflect the Nordic Council of Ministers' views, opinions, attitudes or recommendations.

Rights and permissions

This work is made available under the Creative Commons Attribution 4.0 International license (CC BY 4.0) <https://creativecommons.org/licenses/by/4.0>.

Translations: If you translate this work, please include the following disclaimer: This translation was not produced by the Nordic Council of Ministers and should not be construed as official. The Nordic Council of Ministers cannot be held responsible for the translation or any errors in it.

Adaptations: If you adapt this work, please include the following disclaimer along with the attribution: This is an adaptation of an original work by the Nordic Council of Ministers. Responsibility for the views and opinions expressed in the adaptation rests solely with its author(s). The views and opinions in this adaptation have not been approved by the Nordic Council of Ministers.

Third-party content: The Nordic Council of Ministers does not necessarily own every single part of this work. The Nordic Council of Ministers cannot, therefore, guarantee that the reuse of third-party content does not infringe the copyright of the third party. If you wish to reuse any third-party content, you bear the risks associated with any such rights violations. You are responsible for determining whether there is a need to obtain permission for the use of third-party content, and if so, for obtaining the relevant permission from the copyright holder. Examples of third-party content may include, but are not limited to, tables, figures or images.

Photo rights (further permission required for reuse):

Any queries regarding rights and licences should be addressed to:
Nordic Council of Ministers/Publication Unit
Ved Stranden 18
DK-1061 Copenhagen
Denmark
pub@norden.org

Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and the Faroe Islands, Greenland and Åland.

Nordic co-operation has firm traditions in politics, economics and culture and plays an important role in European and international forums. The Nordic community strives for a strong Nordic Region in a strong Europe.

Nordic co-operation promotes regional interests and values in a global world. The values shared by the Nordic countries help make the region one of the most innovative and competitive in the world.

The Nordic Council of Ministers
Nordens Hus
Ved Stranden 18
DK-1061 Copenhagen
pub@norden.org

Read more Nordic publications on www.norden.org/publications