Carbon Credits

THE KEY TO UNDERSTANDING OFFSETTING

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CARBON CREDITS

What are carbon credits?

Carbon credits are certificates representing quantities of carbon emissions that have been avoided or removed from the atmosphere. Carbon credits are vital tools to restore nature.

A carbon credit is a tradable, certified emissions unit. Each carbon credit generated represents one tonne of carbon dioxide equivalent (CO_2e) emissions that was not emitted, or that was removed from the atmosphere compared to baseline emissions.

Purchasing carbon credits is a great way for businesses to address emissions they cannot eliminate or reduce and contribute to nature.

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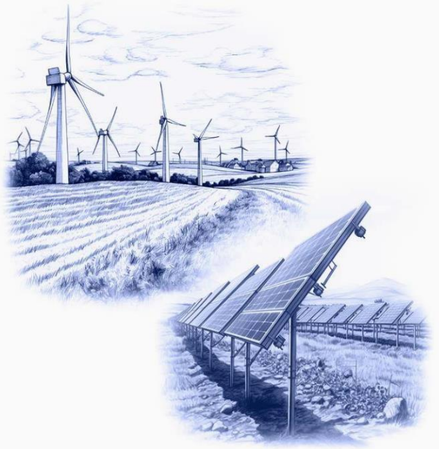
Carbon-reduction project categories

The urgency to address environmental impacts and restore ecosystems has never been greater. Organisations across all industries are recognising the need to take action and commit to carbon-reduction initiatives that restore nature. The global business landscape is shifting, with greater environmental and transition risks, increasing consumer demand for eco-friendly products, and investors embracing Environmental, Social, and Governance (ESG) considerations.

To navigate this changing landscape, businesses must understand the different categories of carbon-reduction projects. By categorising projects based on their objectives and scope, businesses can identify the most effective strategies to achieve their carbon-reduction goals. Carbon-reduction projects generally fall into one of two categories: nature-based or mechanical.

Nature-based

These initiatives include reforestation, afforestation, and wetland restoration projects. They naturally sequester carbon in the environment while offering many other environmental and socio-economic benefits.



Mechanical

These solutions are generally investments in new technologies that create increased efficiencies or reduced emissions (like renewable energy projects or direct carbon-capture technologies).

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Carbon credits by year

Newer credits are valued more highly than older credits. The year in which a carbon credit was issued is its vintage. Buyers may prefer credits with newer vintages because they are issued according to more recently updated methodologies and standard requirements. They may also be available in sectors—like nature-based solutions—not previously credited in the voluntary carbon market.

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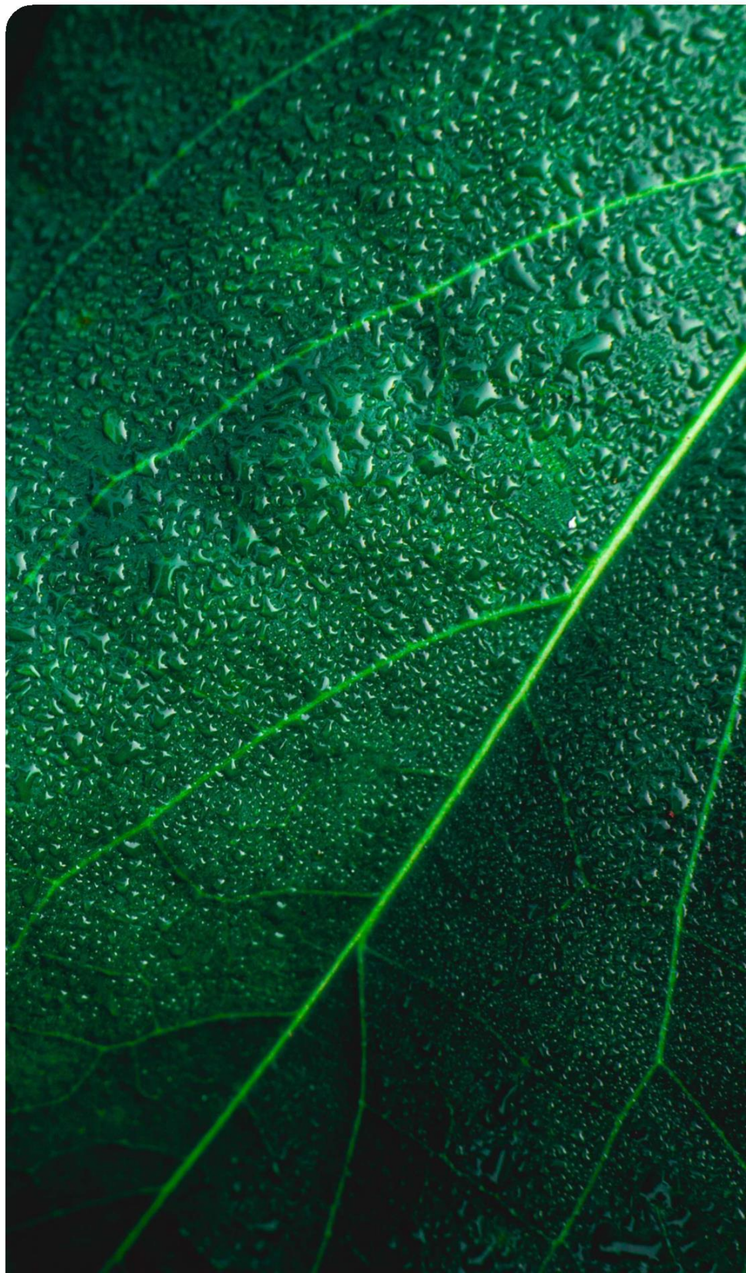
How do carbon credits work?

Carbon emission reductions or removals are measured using specific protocols and methodologies. Voluntary carbon markets (VCMs) trade carbon credits through a baseline and credit system that compares actual emissions to a counterfactual baseline emissions scenario.

The differences between actual and counterfactual emissions are accounted for as emissions reductions and removals that would not have occurred in a business-as-usual scenario. Project developers (public or private) demonstrate that their mitigation project or programme activities lead to carbon emission reductions and removals beyond those that would have occurred without the carbon activity. A baseline or reference level must be developed against which emission reductions or removals are quantified. Baselines describe a counterfactual scenario that will not occur but would have occurred in an alternative reality without the carbon project or programme.

In Cap & Trade regulated markets, organisations that emit less than their limit may resell carbon credits on the corresponding carbon market. The number of credits issued to a company represents its emissions limit or 'cap'. If a company can keep its emissions below its cap, it will have a surplus of carbon credits (to retain for future use or to sell in the carbon credit market). If a company cannot keep emissions under its limit, it must make up that difference. It can turn to the carbon market to purchase carbon credits. Alternatively, it may sell them immediately into the compliance carbon market, which is overseen by a regulatory body.

Carbon credits are therefore tradable commodities: generated, sold, transferred, and purchased by private and public actors that play different roles in the carbon market.



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Who creates carbon credits and who buys them?

Supply

Project and programme developers design and implement mitigation activities registered under crediting standards. Carbon credits are then issued by carbon crediting agencies to developers. They may range from for-profit or not-for-profit private project developers to local private or community landowners, municipalities, public agencies, and—particularly in the case of public sector jurisdictional programmes—sub-national or national governments.

Developers design a project or programme, consult with government entities and local communities, comply with carbon-standard requirements to receive certification, establish monitoring systems, and sell credits to buyers or intermediaries. Activity developers may recruit investors to provide upfront financing, partner with local communities or civil society organisations, or engage other participants. Governments may mobilise advance finance for VCM activities, or funds can also come from donors or sponsors.

Demand

Most carbon-credit end users are private companies that voluntarily engage in environmental impact mitigation to offset their emissions, invest in nature, or achieve broader corporate sustainability goals. Governments, non-governmental organisations, and individuals also buy VCM carbon credits to offset emissions from flights, events, or producing goods and services. Activities, products, or services that offset emissions are often marketed as carbon neutral.

Investors and intermediaries operate on both the supply and demand sides by investing in projects and purchasing carbon credits. Market intermediaries are generally for-profit companies acting as traders or fund managers managing carbon credit portfolios. They ensure the availability of risk capital and help market stability. Investors can be private companies, foundations, or individuals.

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Verified positive impact

A carbon standard entails the complete set of rules, procedures, and methodologies according to which certified carbon credits are generated and issued. The process consists of standard setting, regulation, validation and verification. Carbon standards are typically developed by international non-governmental organisations, but national governments can also develop or support the development of carbon standards.

Carbon standards both certify carbon projects and facilitate the trade of carbon credits. Projects must comply with the standards' processes, rules, requirements, and safeguards; apply methodologies approved by the standards; and provide compliance evidence generated by activity developers and reviewed by an independent third-party auditor. Carbon standards use registries to track all credits generated, transfer tradable credits, and trace transactions between buyers and sellers. The standards convert certified carbon emission reductions and removals into tradable carbon credits by issuing one credit for each tonne of emissions avoided, reduced, or removed. Standardised procedures for crediting carbon emission reductions, avoidance, and removals thus regulate the VCMs. Given the voluntary nature of this market, standard organisations safeguard the quality of VCM carbon credits and provide credibility to the baseline-and-credit system on which the VCM relies.

DGB Group harnesses artificial intelligence, blockchain, big data, and drone technology to validate, measure, and help deliver high-quality nature-based projects for verification aimed at generating AAA carbon credits.

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Independently certified

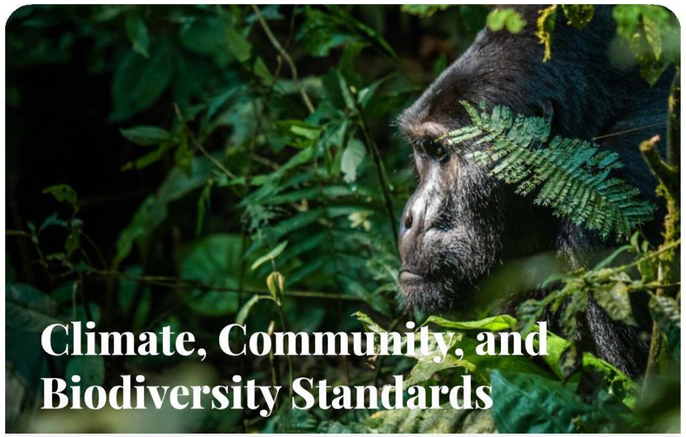
The main carbon standards are the Verified Carbon Standard (VCS), the Gold Standard (GS), Climate, Community and Biodiversity Standards (CCBS), and Plan Vivo. All of them offer methodologies for projects in nature-based solutions, energy, and industrial sectors. VCS and GS are the major standards worldwide, issuing 68.5% and 20.1% of credits, respectively.

Verified Carbon Standard

The Verified Carbon Standard (VCS) is managed by United States non-profit organisation Verra, headquartered in Washington, DC. Since its launch in 2006, it has been the most widespread programme available. It allows certified projects to turn their emission reductions and removals into carbon credits. Verra has more than 1,806 certified VCS projects over 15 major sectors that collectively reduced or removed over 928 million tonnes of carbon emissions. VCS does not require projects to have additional environmental or social benefits. VCS is the largest carbon credit programme: at 746 million credits, it has approximately 70% of the total market share.

The Gold Standard

The Gold Standard was jointly developed by the World Wildlife Fund (WWF), HELIO International, and SouthSouthNorth. GS focuses on projects that provide lasting social, economic, and environmental benefits, highlighting the commitment towards the UN Sustainable Development Goals (SDGs). Projects need to contribute to at least 3 out of 17 UN SDGs to be certified. For a carbon offset project to be accepted by GS it must perform an assessment of its community impact. It must also ensure that populations nearby are also benefitting from the project. The GS programme is applicable to both voluntary offset projects and to Clean Development Mechanism (CDM) projects in over 40 countries. The GS for voluntary offset projects is known as the GS Verified Emission Reduction or VER. GS projects fall under three major categories: renewable energy, reforestation, and community service projects. GS is considered one of the most rigorous carbon credit programmes with over 80 NGOs endorsing it, 2,000 GS-certified projects in over 80 countries, and over 184 million tonnes of CO_2 emissions reduced or removed (17% market share).



Climate, Community, and Biodiversity Standards

Climate, Community, and Biodiversity Standards (CCBS) provide a comprehensive framework for sustainability and the impact of land-management projects. The purpose of CCBS is to ensure that carbon-credit projects not only sequester carbon emissions but also deliver high environmental and social benefits. These standards ensure that projects are designed and implemented to deliver environmental, social, and economic benefits while mitigating negative impacts. CCBS can be applied to various land management projects, including afforestation, sustainable agriculture, and grassland management. CCBS requires project leaders to adhere to key principles and requirements, such as: stakeholder engagement; respecting rights and consents; assessing costs, benefits and risks; and protecting high conservation values. Over 120 projects have achieved validation under CCBS, with over 100 of them demonstrating verifiable climate, community, and biodiversity benefits. These projects are spread across 48 countries, representing a diverse range of landscapes and regions across the globe. There are over 298 million CCBS-labelled Verified Carbon Units (VCUs) in existence.

Plan Vivo

Plan Vivo is a leading standard for forestry, agriculture, and other land-use projects that prioritise sustainable development and improve rural communities' livelihoods. By working closely with smallholders and local communities, a system that originated in 1994 as a pilot research project in Chiapas, Mexico, Plan Vivo projects ensure design and implementation are guided by those most impacted by the project. The participatory approach emphasises the use of native species, the enhancement of biodiversity, and the provision of ecosystem services. The Plan Vivo Foundation issues two types of carbon credits: 'ex-ante' credits based on projections, and 'ex-post' credits based on verified results. Plan Vivo has 265,000 hectares of land under management, planted over 18 million trees, and involved 850 communities in its projects. Unlike other standards, Plan Vivo guarantees 'fairly traded carbon', sharing benefits between participants and project coordinators, with at least 60% of the money from every credit bought going directly to the participants.

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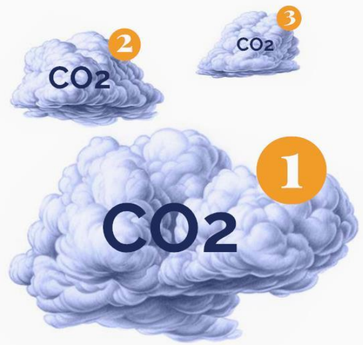
3-Step guide to becoming carbon neutral



Calculate your carbon footprint

For both small and large businesses, calculating your carbon footprint is the first step to understanding and reducing your business' environmental impact. Use DGB´s Carbon Calculator to start identifying your footprint.

Offset and reduce emissions

We will help you to create a reduction roadmap and identify risks and opportunities along the way. You can offset your emissions through our high-quality carbon credits from projects that meet leading international verification standards.

Positive impact showcasing

After reducing and offsetting your business' carbon footprint, we enter the reporting process. In this phase, we demonstrate and report on your nature-positive impacts to engage your teams, customers, and stakeholders.

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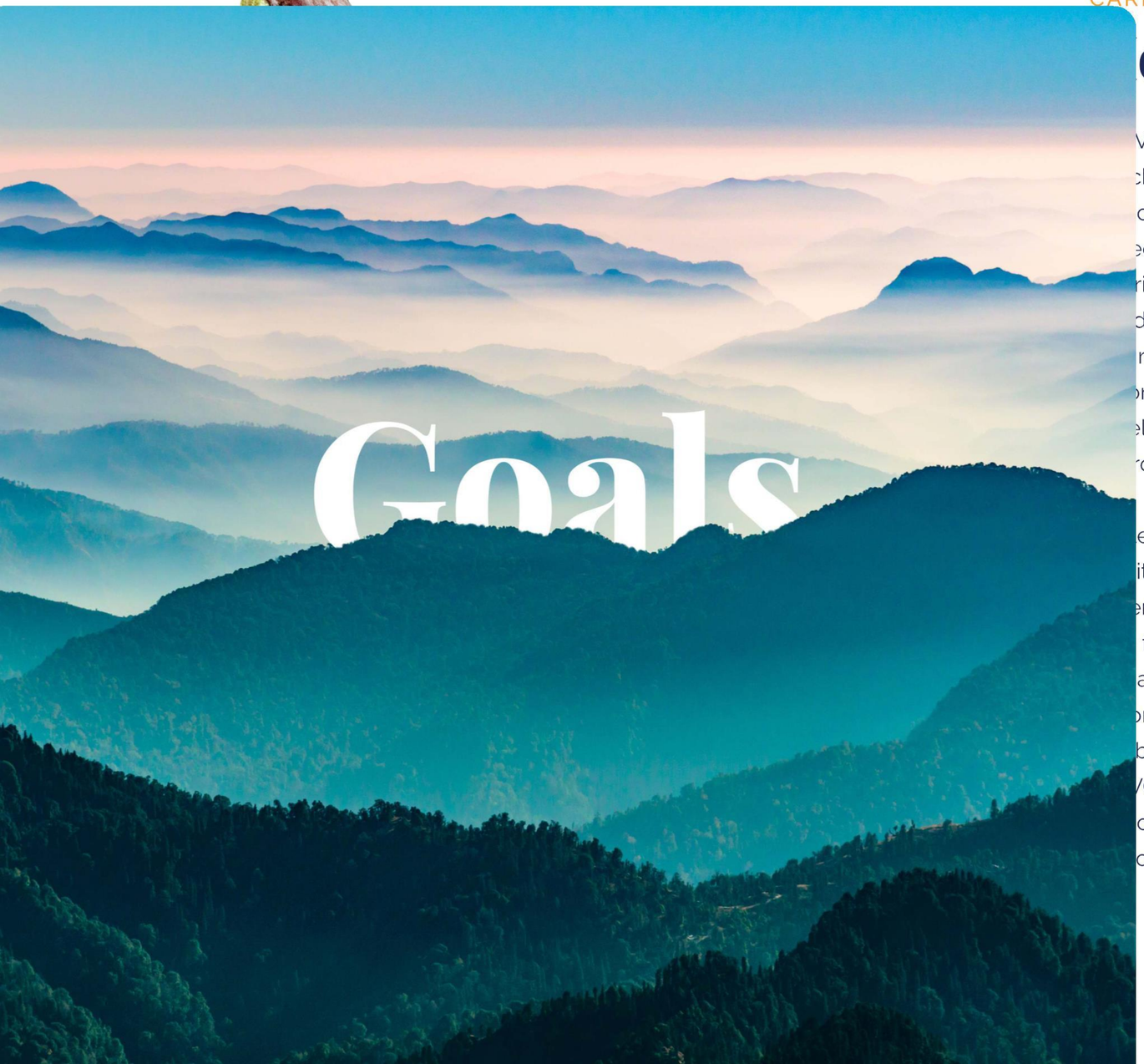
Ensuring real environmental impacts

Carbon offsetting through carbon credits are a cost-effective, efficient option to reduce your business' carbon footprint and make a positive impact on the environment. However, many offsets being sold today are based on dubious assumptions and can worsen environmental harm.

MIT Professor John Sterman has proposed a simple framework that companies and consumers can use to ensure that any offset they buy genuinely cuts emissions: AVID+. To truly offset their emissions, companies must ensure the offsets they buy are Additional, Verifiable, Immediate, and Durable. After all four requirements are met, companies should favour offsets that also help meet habitat or societal goals (the 'plus').

DGB finances, develops, and manages high-quality, large-scale projects that are developed and tested according to leading industry standards to ensure they comply with AVID+.



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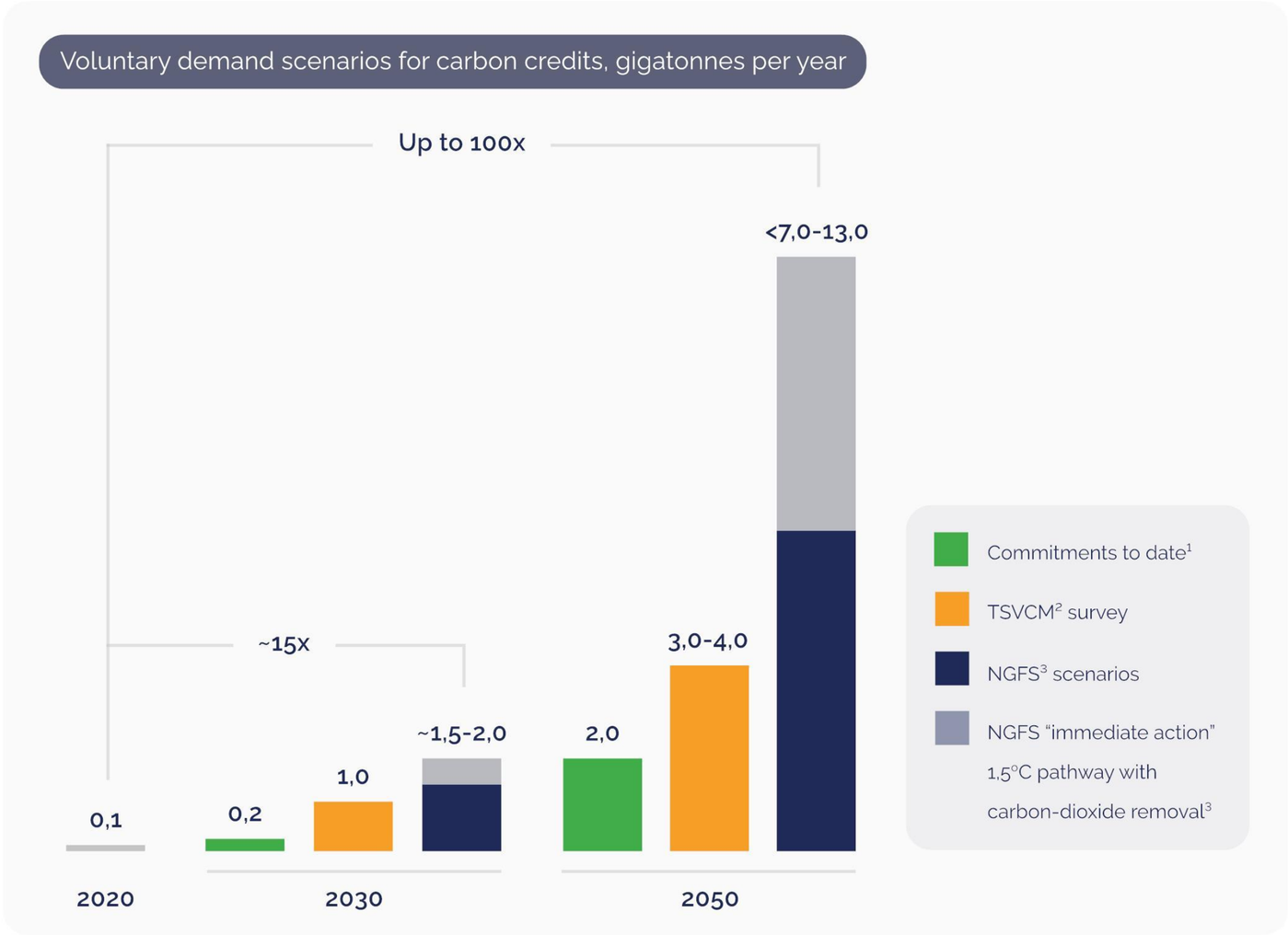
ow do carbon markets work?

VCM is not regulated by governments. Organisations issue carbon credits that
ch verified emission reductions and sequestrations, which are then acquired by
orations and investors, often with the goal to offset their own emissions.
ects and programmes to reduce and remove carbon emissions are developed
rivate and local actors, which are then are registered by private carbon
dard organisations, such as Verra or Gold Standard. VCM projects and
rammes can channel investment into sectors that are not covered by
nally determined contributions or other public policy, support sustainable
elopment as well as environmental targets in host countries, and accelerate
ronmental action while legislation and regulations are developed.

e carbon credits have been in use for decades, the voluntary market for carbon
its has grown significantly in recent years. McKinsey estimates that in 2020,
ers retired carbon credits for 95 million tonnes of CO2e, more than doubling
figures. The Institute of International Finance (IIF) and McKinsey estimate that
and for carbon credits could increase by 15 fold or more by 2030 and by a
r of up to 100 by 2050. The market for carbon credits could be worth above
billion in 2030. The unprecedented growth in demand for carbon credits from
VCM stems from voluntary environmental impact mitigation activities such as
orate environmental commitments, consumer interest, investor appetite for
on credits, and mandatory emissions disclosures and reductions.



Source: https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge

Nature-based solutions (NbS) to protect, sustainably manage, and restore ecosystems hold benefits for humans and nature. Identified as one of the most important and cost-effective tools to mitigate biodiversity loss while providing important social, economic, and ecological benefits, NbS could deliver about one-third of the emission reductions and removals needed to keep warming below 1.5˚C*.

Which NbS activities are supported by the VCM?
The VCM supports NbS through the development of projects or programmes that sequester and avoid carbon emissions and trade of carbon credits generated by those activities. The VCM NbS projects or programmes that can be certified by VCM carbon standards fall into three main classes: forestry, agriculture, and wetlands.

*Estimated by Roe et al. 2019 and Griscom et al. 2017.

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