Marsh

Making sense of net zero

Glossary of terms

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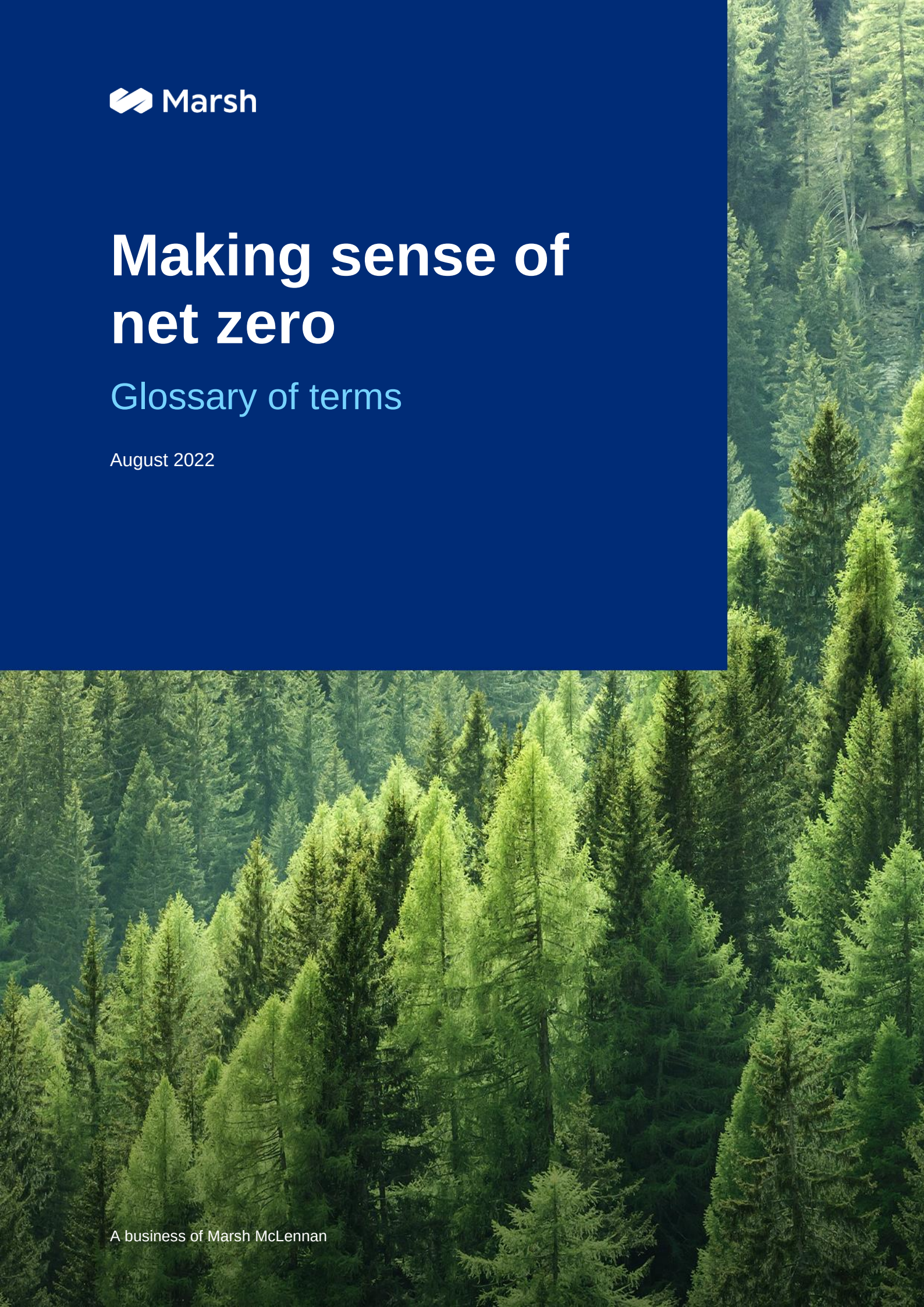

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Net zero glossary of terms

The move toward net zero

Higher levels of greenhouse gas (GHG) in the atmosphere are causing temperature rises and corresponding changes in our climate. As such, reducing it is critical to tackling increasing climate risk.[1]

In 2015, approximately 200 countries signed the Paris Agreement, pledging to reduce their GHG emissions and adapt to the impacts of climate change. As national governments and organizations set their climate ambitions, their commitment to reduce GHG emissions has increased momentum toward net zero.

Net zero refers to balancing the amount of GHG put into the atmosphere with that removed from it. Achieving real or absolute zero emissions, where no GHGs are released into the atmosphere, is often prohibitively expensive or disruptive for certain sectors. That is why achieving net zero, by reducing GHG emissions and removing any residual emissions, is considered more technologically and economically feasible.

A number of frameworks and standards exist to help organizations set out their net zero commitments, and allow stakeholders to assess these commitments.

Glossary of Terms

Emissions terminology	
CO_2	Carbon dioxide — the primary GHG produced through human activity.
CO2e	Carbon dioxide equivalent. CO_2e is a standard unit for measuring GHG emissions. By converting amounts of other GHGs to the amount of CO2 with the same global warming potential (GWP), it allows organizations to quote a single figure instead of the GWP created by each individual GHG. For example, if we take the GWP for methane over 100 years to be 21 times greater than that of CO_2, this would mean that one million metric tons of methane emissions is equivalent to 21 million metric tons of CO_2 emissions.
Greenhouse gases (GHGs)	Gases that absorb and trap heat (infrared radiation) from the sun into Earth's atmosphere. These gases cause a warming effect. Most commonly refers to these seven gasses: carbon dioxide (CO_2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3).

[1] The science shows clearly that in order to avert the worst impacts of climate change and preserve a liveable planet, global temperature increase needs to be limited to 1.5°C above pre-industrial levels. Currently, the Earth is already about 1.1°C warmer than it was in the late 1800s, and emissions continue to rise.

Emissions measurement

To set emissions targets organizations must first measure their emissions

Greenhouse Gas Protocol (GHGP)	There are a number of different approaches to measuring emissions, posing a challenge to businesses. The GHGP is the most recognized GHG accounting standard to categorize, count, and disclose a company's emissions. It divides emissions into three scopes.
Scope 1	Direct GHG emissions from sources owned or controlled by an organization. For example, emissions from combustion in boilers or vehicles.
Scope 2	Indirect GHG emissions from the generation of purchased electricity, heat, steam, or cooling from a utility provider. Although scope 2 emissions do not typically occur at the organization's premises, they are accounted for in this category because they are a result of the organization's energy use. For example, energy to heat and cool buildings or power electric fleet vehicles.
Scope 3	Also known as value chain emissions. Indirect GHG emissions as a result of activities from sources not owned or controlled by the company — typically supplier or customer activities. These emissions can be up (suppliers) or down (customers) the value chain and include all sources not within the scope 1 and 2 boundaries. Examples include upstream transport and distribution, use of sold products and services, business travel, and employee commuting.

Emissions reduction

These terms are typically "carbon facing" but can sometimes include other GHGs

Carbon avoidance	Taking an action that prevents CO2 being released into the atmosphere in the first place. Avoidance projects include renewable energy projects or reducing emissions from deforestation and forest degradation.
Carbon negative	Going beyond carbon neutrality, the act of further offsetting the GHG emissions produced by a company whereby an organization removes more CO_2 from the atmosphere than it releases, so that its total emissions are net negative. This activity must be specified over a declared time period. Carbon negative means the same as climate positive.

Emissions reduction

These terms are typically "carbon facing" but can sometimes include other GHGs

Carbon neutral	The act of offsetting the GHG emissions produced by a company by removing an equivalent amount through carbon avoidance, carbon removal, or carbon offset. This means organizations do not necessarily reduce their emissions by an amount consistent with reaching net zero at the global or sector level. Achieving carbon neutrality is typically seen as a critical first step on a company's longer-term sustainability journey. The term climate-neutral may be used to reflect the inclusion of GHGs other than carbon.
Carbon offsets	A way for businesses to compensate for the CO2e emissions they could not reduce in a given year. These are external activities that reduce GHG emissions or increase carbon sequestration. These offsets are bought and sold as credits, applying a trading system at a price determined by the market. When purchasing carbon offsets, businesses should look for offsets that are independently validated and verified. There are typically two kinds of carbon offset projects: • Nature-based, using plants, trees, soil, or the ocean to remove carbon from the atmosphere. • Engineered solutions, such as CCS and DAC+S (described below).
Carbon removal	Process of capturing carbon dioxide from the atmosphere and locking it away for decades or centuries in plants, soils, oceans, geological features, or long-lived products like cement. Also sometimes referred to as carbon sequestration. Engineered interventions include: • Direct air capture and storage (DAC+S): Capturing CO_2 directly from the air, which is then permanently stored. • Carbon capture storage (CCS): Capturing CO2 produced by power generation or industrial activity, such as steel or cement making; transporting it; and then storing it deep underground.
Nationally determined contributions (NDCs)	Non-binding commitments submitted by each country under the Paris Agreement to reduce national emissions and adapt to the impacts of climate change.
Net zero emissions targets	A country or organization's long-term strategy for how and when they plan to achieve net zero emissions. Typically, these targets involve reducing all technologically and economically feasible emissions and removing any residual emissions in line with limiting global warming to 1.5°C. Several countries have set a date to reach net zero emissions, with some making net zero a legal requirement.

Emissions reduction

These terms are typically "carbon facing" but can sometimes include other GHGs

Science-based targets	GHG reduction targets adopted by organizations that align with what the latest climate science deems necessary to meet the goals of the Paris Agreement — limiting global warming to 1.5°C above pre-industrial levels. An absolute target refers to the total amount of emissions being emitted. It relates to a goal of reducing GHG emissions by a set amount (for example, an emissions reduction of 20% by 2025 that uses 2019 emissions as its baseline. An intensity target is a normalized metric that sets an organization's emissions targets relative to some sort of economic output (for example, number of employees or revenue). This allows organizations to set emissions reduction targets while accounting for economic growth.

Frameworks and standards

Carbon Disclosure Project (CDP)	Not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts.
CarbonNeutral Protocol	First published in 2002, this open source document gives businesses a rigorous and transparent framework to deliver carbon neutrality for their operations and/or products.
Glasgow Climate Pact	An agreement reached at the 2021 United Nations Climate Change Conference (COP26), the Glasgow Climate Pact calls on all countries to revisit and strengthen the 2030 targets in their NDCs by the end of 2022, to keep the Paris Agreement temperature target of 1.5°C achievable. It is the first climate agreement to explicitly mention and agree upon a position on phasing down unabated coal power.
Paris Agreement	An international treaty aiming to strengthen the global response to the threat of climate change with the goal of limiting a global temperature rise this century to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.
Science Based Targets initiative (SBTi)	A part of the World Resources Institute's (WRI) Center for Sustainable Business and a collaboration of WRI, CDP, the World Wildlife Fund, and the UN Global Compact, it is the most widely recognized framework for helping organizations develop net zero strategies and best practices. Science-based targets must cover scopes 1 and 2. For companies whose scope 3 emissions cover more than 40% of their combined scope 1, 2, and 3 emissions, targets must cover scope 3.

Frameworks and standards

	After sending a commitment letter, companies have 24 months to submit their target and have it validated and published by the SBTi. All targets must cover a minimum of five years and a maximum of 10 years. The SBTi does not validate carbon neutrality claims.
Task Force on Climate-related Financial Disclosures (TCFD)	Framework to help organizations disclose climate-related risks and opportunities. Previously voluntary, now governments are increasingly mandating public and large private organizations publish annual TCFD reports.
United Nations Framework Convention on Climate Change (UNFCCC)	Signed in 1992, a landmark international environmental treaty calling for the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The pact outlines the need for ongoing scientific research and meeting at regular intervals, thereby establishing the "Conference of the Parties" (COP), which continues to meet annually.

Industry bodies and international organizations

Glasgow Financial Alliance for Net Zero (GFANZ)	Consists of more than 450 financial firms, from 45 countries, and is responsible for more than US$130 trillion in financial assets. Members of GFANZ are committed to aligning their operations and financing with limiting global temperature increases to 1.5 °C.
Net-Zero Insurance Alliance (NZIA)	United Nations (UN)-convened group, consisting of more than 20 leading insurers representing more than 11% of world premium volume globally. Its members have committed to transition their insurance and reinsurance underwriting portfolios to net zero GHG emissions by 2050.
Partnership for Carbon Accounting Financials (PCAF)	Building on the GHGP, this global partnership of financial institutions works to develop and implement a harmonized approach to assess and disclose the GHG emissions associated with loans and investments. In September 2021, in collaboration with NZIA, PCAF launched the PCAF Insured Emissions Working Group, tasked with developing the first global standard to measure and disclose insured emissions.
Intergovernmental Panel on Climate Change (IPCC)	Intergovernmental body of the UN composed of 195 member states responsible for advancing knowledge on human-induced climate change.
International Energy Agency (IEA)	Intergovernmental forum of 31 Organization for Economic Co-operation and Development (OECD) countries, 3 accession countries, and 11 association countries that is a source of energy data and analysis. Publishes sectoral level content around climate scenarios and target setting.

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