CARBON

REDUCING EMISSIONS, DEMONSTRATING TRANSPARENCY

BUREAU VERITAS

ABOUT THIS WHITE PAPER

The climate crisis will be the defining issue of the 2020s. All eyes are on governments, businesses and organizations the world over as they face growing demand for greater efforts to cut carbon emissions – and with reason. The Paris Agreement seeks to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C. Research[1] has shown that to meet this target and avoid the worst climate impacts, carbon emissions need to be halved by 2030.

Acting on this urgency, an increasing number of companies are setting themselves ambitious targets, including climate-neutral or net-zero targets. This means reducing emissions wherever possible and compensating for remaining emissions with an equivalent amount of offsets. This white paper examines businesses' main impacts, what they are doing to decarbonize, and how audits of reporting systems and data verification can help companies to realize their carbon goals.

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1. IPCC Special report: Global warming of 1.5°C https://www.ipcc.ch/sr15/

DESTINATION
NET ZERO CARBON

The number of commitments from local governments and businesses to fully decarbonize has roughly doubled in the last year, as more and more leaders put climate action at the heart of their sustainability priorities. The majority are aiming for a zero-carbon economy by 2050, as part of the UN Race to Zero campaign, the largest alliance of local governments, businesses, investors. Others are aiming for net zero emissions on a more ambitious timeframe, such as 2030, or even net-negative emissions targets.

Companies looking to fully decarbonize need to start by eliminating or reducing emissions throughout their value chain. This means they have to take into account direct emissions from owned or controlled sources, including on-site fuel combustion such as in fleet vehicles, and also indirect emissions such as those from the generation of electricity or steam, purchased and used by the organization.

Crucially, they also have to include all other indirect emissions that occur in their value chain, such as raw materials from upstream suppliers, emissions arising from the transport of both raw materials and products, and the use and end-of-life phases of the products and services they provide.

To reach their carbon targets, businesses therefore need to understand their impacts in a consistent manner and identify ways to eliminate and reduce their emissions. It is also vital that businesses have data externally verified to ensure they have accurate data on which to base reduction plans, to confirm strategies are working and to provide confidence to stakeholders that they are taking this seriously.

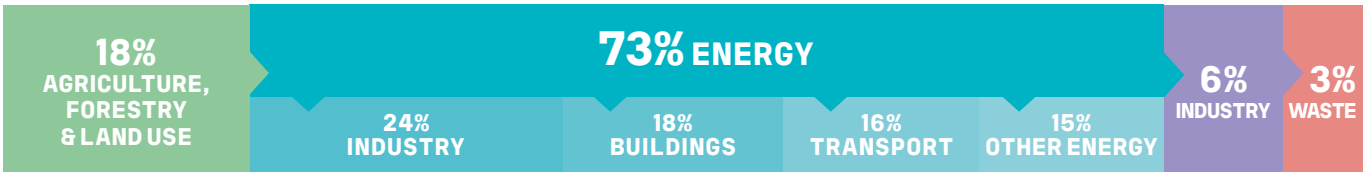
+1,100 BUSINESSES
and 45 of the world's biggest investors **have joined the UN's Race to Zero**[2]

+600 COMPANIES
have set **science-based targets to cut emissions**[3], & this is growing on a daily basis

2050 THE UN TARGET
date for **net zero emissions**

+50% CO_2 INCREASE
in the Earth's atmosphere **since the pre-industrial era**[4]

SOURCES OF CARBON EMISSIONS BY SECTOR[5]



2. *https://cop25.mma.gob.cl/en/tag/race-to-zero-en/* 3. *Source: SBTI : https://sciencebasedtargets.org/companies-taking-action*
4. *Met Office, UK, 2021: https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2021/2021-carbon-dioxide-forecast*
5. *Source: Our World in Data (https://ourworldindata.org/ghg-emissions-by-sector)*

UNDERSTANDING NET ZERO

In a corporate context, the working definition of net zero[6] is generally agreed to be *a state in which the activities of a company and its value chain result in no net impact on the climate from greenhouse gas emissions.* One way to achieve this is to set and pursue a science-based 1.5°C-aligned target which gives a pathway for reducing and eliminating emissions across the entire value chain. The remaining carbon balance would need to be offset, at least in the short-term, until it can be reduced or eliminated.

Why is net zero necessary?

Climate science is clear that the extent of global warming is proportional to the total amount of carbon dioxide and other greenhouse gases (GHGs) that human activities add to the atmosphere. So, in order to stabilize climate change and to limit global warming to 1.5°C, which is the target in the Paris Agreement, carbon dioxide emissions need to fall to zero. The longer it takes to do this, the more the climate will change. The Intergovernmental Panel on Climate Change's 2018 report concluded that global emissions need to reach net zero around mid-century to give a reasonable chance of meeting the 1.5°C goal.[7]

How do we get there?

The first step for any organization adopting a net zero commitment is understanding their emissions. Carbon dioxide is responsible for over 80% of GHG emissions, with the remainder made up of methane, nitrous oxide and fluorinated gases[8]. These GHGs are usually aggregated and converted (in terms of their relative ability to cause atmospheric warming) into tonnes of carbon dioxide equivalent (tCO_2e for short) to enable the impact of the whole basket of GHGs to be easily compared in a single CO_2e currency. Proportion of emissions from each of the GHGs varies by sector. For example one of the biggest GHG challenges in the agriculture and food sector is methane, predominantly from cows, but also from rice production and all food waste.

Before it can get to work on reducing its emissions, a business must therefore first identify exactly how much of each GHG it is emitting, and from which sources. Once this crucial groundwork has been laid, the second step is setting science-based targets to develop a pathway to eliminate, reduce and offset the identified emissions.

6. Working definition provided by the Science-Based Targets initiative *7. https://eciu.net/analysis/briefings/net-zero/net-zero-why*
8. Throughout this white paper, we use "carbon" to designate this basket of greenhouse gases that the Kyoto Protocol first introduced.

THE THREE SCOPES
DIRECT AND INDIRECT EMISSIONS

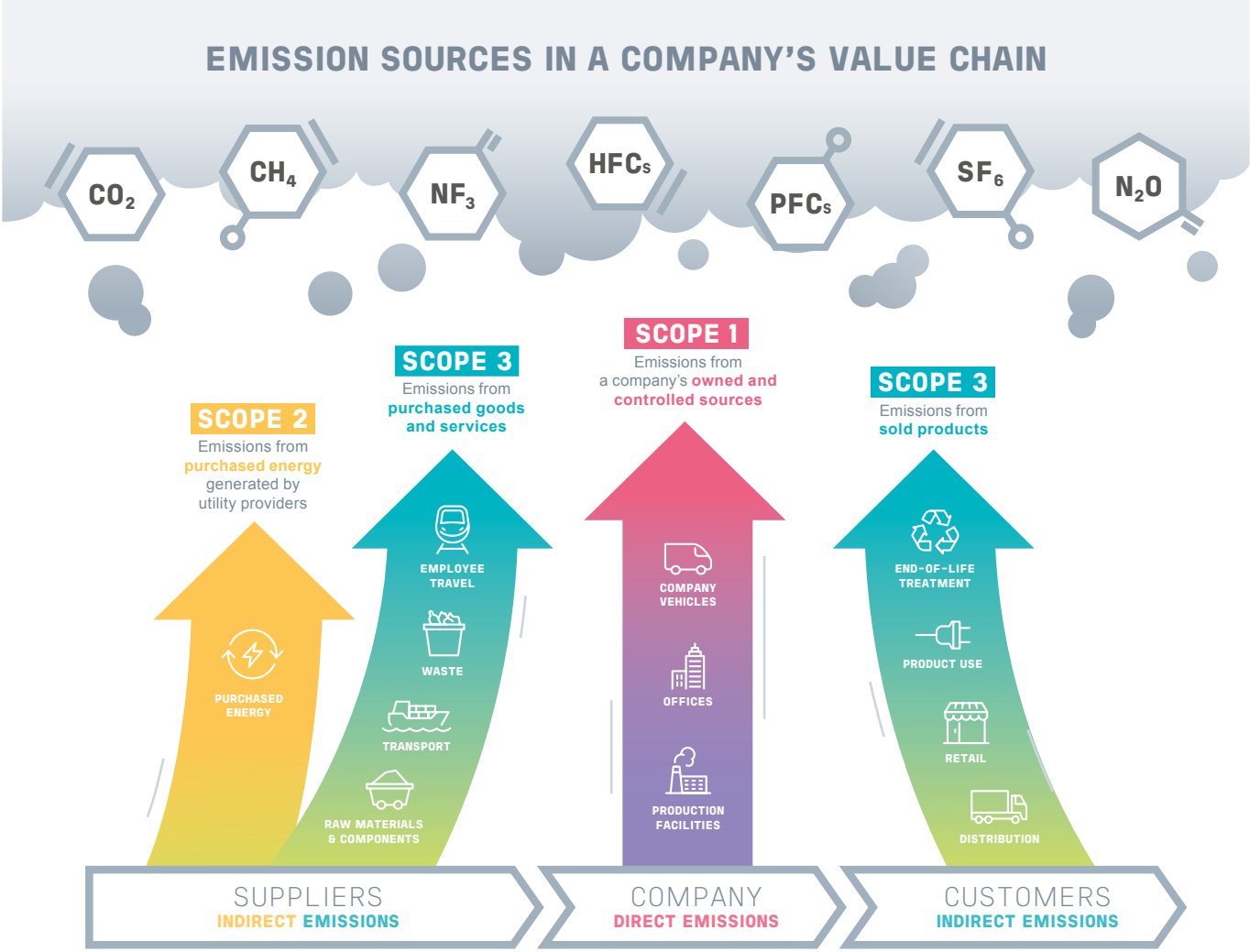
According to the WBCSD/WRI's GHG Protocol Corporate Standard, a company's greenhouse gas emissions are classified in three scopes.

Scope 1 emissions (otherwise known as direct emissions, category 1 in ISO 14064-1) are what the organization itself directly produces. Depending on the company's sector and operations, these may represent a relatively low proportion of their total emissions.

Indirect emissions often make up a far larger proportion of the company's overall emissions.

When a company also buys in energy in the form of electricity, heat or steam, these are classed as scope 2 emissions (Category 2 emissions in ISO 14064-1).

Scope 3 emissions are all the GHGs emitted both upstream and downstream: upstream, including raw materials, production and transportation of bought-in products and services; and downstream including the sale, use and disposal of the goods the company produces. Scope 3 emissions align with indirect emissions categories 3-6 of ISO 14064-1.



Source: WBCSD / WRI GHG Protocol / ISO 14064 series

MEASURING AND SHRINKING YOUR CARBON FOOTPRINT

The key to eliminating carbon lies in ensuring that emissions within all three scopes are identified and measured then reduced or eliminated. Companies that succeed in understanding, reducing and reporting direct and indirect emissions across all three scopes could gain a significant competitive advantage through cost savings, having a better understanding of their supply chain and the associated reputational benefits of taking action on emissions.

SCOPES 1 AND 2 **Addressing the emissions you can control**

To tackle direct emissions, organizations can look at reducing the energy consumed by their company facilities and vehicle fleet, and emissions from their production processes. This might mean installing energy-efficient heating or improvements to industrial processes. Companies can also switch their fleet to electric vehicles; although they must be aware that any emissions produced in the generation of electricity purchased to fuel their fleet must be dealt with in scope 2 if the electricity is not generated on-site.

To bring down indirect emissions from energy purchased, there are many solutions. Firstly companies should look to identify and reduce the energy they consume by conducting a detailed energy audit, then actions for reductions can be identified, for example upgrading to automatic light emitting diode (LED) lighting and upgrading to energy efficient heating, ventilation and air conditioning (HVAC). Once all energy savings have been identified, companies can then reduce the emissions of the electricity consumed by investing in infrastructure – such as solar panels – that would allow them to generate their own green energy on-site. They can also purchase “unbundled” renewable energy certificates, enter into off-site power purchase agreements, and participate in utility green tariffs and utility green power programs to reduce their scope 2 emissions.

SCOPE 3 **The major emissions challenge**

The majority of total corporate emissions come from Scope 3 sources. Collecting data on these, then reducing them, is one of the biggest barriers to being able to set and achieve emission reduction goals. Nevertheless, many corporations are now demonstrating best practices in reducing Scope 3 emissions – and are making headlines as a result.

The sources of upstream emissions are highly industry dependent, and working with suppliers is important to quantify and manage them. One approach is to put in place procurement requirements, such as only buying materials only from suppliers that use 100% renewable energy. Companies can also look at how they handle business travel: is it truly always necessary, and can it be done in a greener way – perhaps by using trains rather than flying?

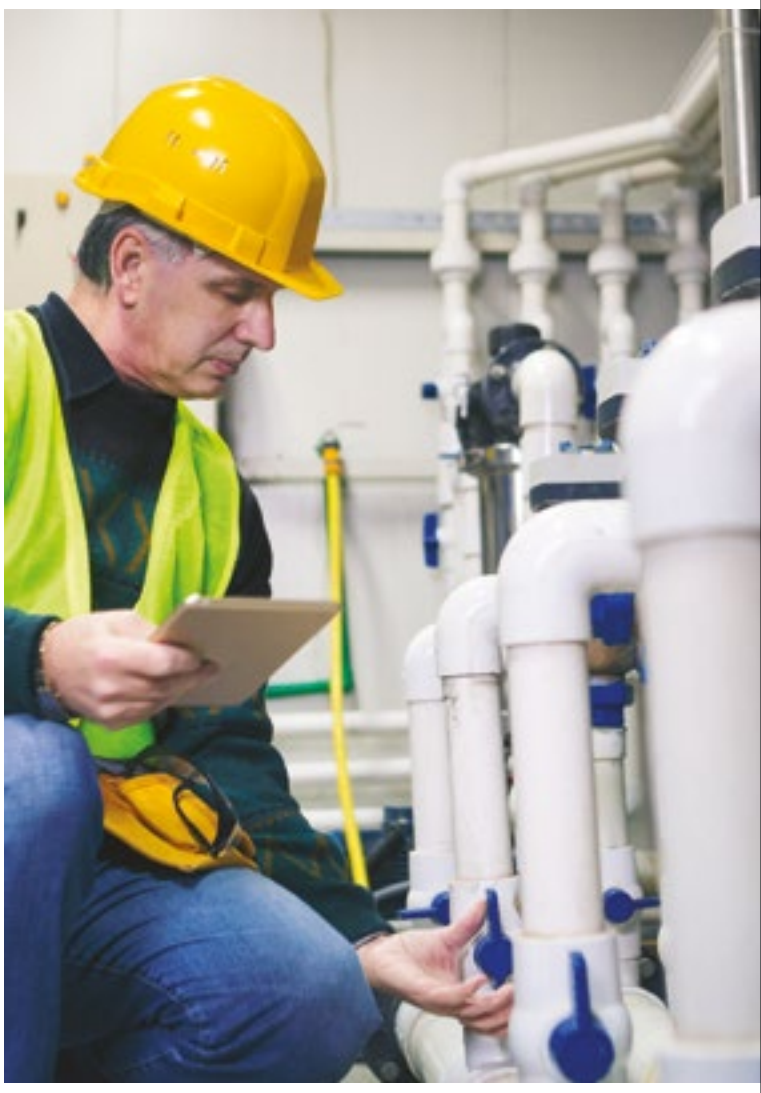
Downstream, it is crucial that any manufacturing businesses look at how their products contribute to their footprint. Are they themselves energy efficient? Are they designed from the outset to be recycled? Can the company set up take-back programs to reuse or partially reuse products at end-of-life?

WHERE TO START **Carbon footprinting**

An organizational carbon footprint is an essential first step on the carbon journey. It provides an initial risk and opportunities assessment by identifying emissions hotspots across the value chain. Organizational carbon footprints capture greenhouse gas emissions on an annual basis, whereas product carbon footprints look at the emissions associated with a particular product or service. Data is gathered from a variety of different sources including travel, logistics and operations. Organizational footprinting enables a company to evaluate its progress on emissions reduction and adjust its strategy where necessary.

The accuracy and reliability of an organization's carbon footprint can be significantly improved when carbon footprint data is verified by a trusted and independent third party. This not only ensures companies are basing their sustainability strategies on reliable and precise data – optimizing all their actions, but also enables businesses to prove the environmental claims they are making are accurate and transparent.

Carbon footprinting is an important step in an organization's carbon journey.



WHAT ROLE FOR CARBON OFFSETTING?

Carbon offset schemes allow businesses to invest in projects outside of their organizational boundaries to balance out their own carbon footprints. This could involve clean energy technologies or purchasing and "retiring" carbon credits from an emissions trading scheme. GHG removal schemes use tree planting, improved woodland management or mechanical capture to directly remove CO_2 from the air.

To offset or not to offset?

Carbon offsetting is increasingly popular, but the use of offsets to support net zero claims remains controversial. Some consider that the use of carbon offsets are a way to perpetuate business as usual, without addressing the root cause of the emissions.

Others argue that actually reducing carbon emissions to zero, and doing so fast enough, to meet the Paris goals should be the priority and consider offsetting to be an important part of the solution. For some companies and industries – particularly those who produce a high proportion of hard-to-eliminate emissions, such as the aviation sector – offsetting may be the only tangible option available to them right now.

Should companies choose to use carbon offset schemes, they need to know that the offsets are legitimate. For this reason, they should only invest in offsets generated from schemes with a third-party seal of approval. A number of schemes ensure the credibility of emission reduction projects. Verified Carbon Standard (VCS) certified projects are issued tradeable GHG credits sold to companies looking to offset emissions. The Gold Standard is another scheme to attest that a project's carbon credits are real and verifiable. Certification by a third party of offset projects is fundamental to the transparency and liquidity of the carbon credit market as it generates trust between market players.

BENEFITS OF VALIDATION & VERIFICATION IN CARBON OFFSETTING

Measure & control emissions

Evaluate & report on the impact of your projects

Prove the legitimacy of your carbon credits

ENERGY MANAGEMENT SYSTEMS

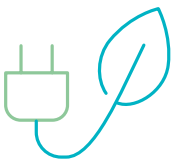
The world emits around 50 billion metric tons of greenhouse gases each year[9]. It is estimated that almost three quarters of those emissions come from energy use[10], which makes improving our management of energy the key to reducing emissions and curtailing climate change. For companies looking to make a significant contribution to battling climate change, conducting targeted energy audits or the implementation of a business-wide Energy Management System (EnMS) is often the best place to start.

How an energy management system works

The first step for companies putting in place an EnMS is to become aware of the parts of their business that consume the most – their areas of Significant Energy Use (SEUs). This process is crucial to highlighting crunch points and areas for improvement specifically in terms of scope 1 emissions. Identifying SEUs starts with an Energy Review, which analyses energy consumption based on measurements and hard data. This information is used to determine current energy performance and identify opportunities for improvement, such as the installation of smart meters which record and report on energy consumption in near-real time.

An EnMS such as that outlined in ISO 50001 can also enable a company to reduce scope 2 emissions. By highlighting SEUs and providing companies with a comprehensive evaluation of their energy use, an EnMS enables an organization's management to create an energy policy that establishes the systems and processes necessary to improve energy performance. This might include influencing staff behavior, more granular sub-metering of processes and a register of opportunities to enhance energy efficiency.

More than 80% of the world's energy still comes from fossil fuels.[11] Transitioning to low-carbon sources of energy is vital to bring down emissions.



The production of electricity generates **the second largest share of the world's total greenhouse gas emissions.[12]**

The world's energy consumption increases each year, and hit over 170,000 TWh in 2019. Over the last 50 years, there have only been a few years in which energy consumption did not increase.[13]

9. https://ourworldindata.org/ghg-emissions-by-sector 10. https://certification.bureauveritas.com/magazine/optimizing-energy-management-through-systematic-measuring-and-monitoring#_ftn1 11. https://ourworldindata.org/energy-mix 12. https://certification.bureauveritas.com/magazine/optimizing-energy-management-through-systematic-measuring-and-monitoring#_ftn1 13. https://ourworldindata.org/energy-production-consumption

DATA VERIFICATION
CRUCIAL FOR CREDIBILITY

To ensure their emissions reduction strategies are well chosen, companies have to base their decisions on accurate and meaningful data. By the same token, to benefit from the huge reputational advantage offered by sustainability efforts, companies need to be able to prove that the data they are communicating to stakeholders is a true and transparent representation of the facts.

In both of these cases, robust data gathering systems that have been independently certified by an expert third party are crucial. It is also important that all resulting data be verified if a corporate carbon reduction program is to be considered fully credible.

How Bureau Veritas can help

Bureau Veritas supports responsible companies by providing audits and verification of carbon inventories/footprints and reports on progress towards their objectives. We also validate and verify offsetting and removal initiatives, proving the legitimacy of carbon credits.

In addition, our experts can verify carbon claims such as carbon neutrality with third-party verification and certification to various standards and schemes.

It is one thing for a company to announce a net zero or carbon neutral target, it is quite another to achieve it. And, in an age where consumers and other stakeholders are both increasingly demanding and skeptical, companies simply cannot credibly claim excellent green credentials if they have not taken the extra step of verification.

Data verification by an independent third party is the cornerstone to the kind of transparent and accurate communication that builds stakeholder trust and safeguards brand image.

BUREAU VERITAS CERTIFICATION

OUR ROLE IN YOUR CARBON JOURNEY

Achieving ambitious carbon targets require the implementation of best business practices across the entire value chain. With many large companies setting carbon neutral and net zero targets, the onus today is on many smaller upstream suppliers to understand and reduce their emissions. Bureau Veritas supports both large and small companies by verifying reports on progress towards their objectives. We provide verification, validation and, in some cases, certification of component parts of holistic strategies.

REDUCING CARBON FOOTPRINT

For organizations to accurately assess and report on their carbon emissions and identify areas for improvement, Bureau Veritas verifies businesses' data to a variety of voluntary standards and regulatory schemes for carbon footprinting, including ISO 14064-1 and the European Union's Emissions Trading Scheme. We are also a leading provider of ISO 50001 Energy Management System certification.

PROVIDING TRANSPARENCY TO CARBON REDUCTION CLAIMS

To demonstrate full transparency, companies can obtain Bureau Veritas certification of their maturity with the Carbon Progress© labeling scheme or make certified carbon neutrality declarations following PAS 2060 (or the anticipated ISO 14068). These standards require companies to set carbon objectives, monitor carbon output, identify areas of inefficiency, make improvements, measure emissions reductions, and in the case of carbon neutral claims buy the right quantity of carbon credits to offset any residual emissions.

CERTIFICATION FOR CARBON OFFSETS & REMOVALS

Bureau Veritas validates and verifies carbon offsetting and removal initiatives, proving the legitimacy of carbon credits and helping companies achieve carbon neutral and net zero operations. Schemes include Verified Carbon Standard (VCS), ISO 14064-2, the Clean Development Mechanism (CDM) and the Gold Standard.

VERIFYING GREEN FINANCE INVESTMENTS

Organizations are increasingly investing in green finance projects that contribute to a low-carbon and climate change-resilient economy. Bureau Veritas is an approved verifier for the Climate Bonds Initiative and can offer certification to green bond principles, helping businesses verify the positive impact of their investments and provide transparency to investors and stakeholders.

BV GREEN LINE OUR GREEN LINE OF SERVICES AND SOLUTIONS

SHAPING A WORLD OF TRUST

Bureau Veritas is a Business to Business to Society company, contributing to transforming the world we live in. A world leader in testing, inspection and certification, we help clients across all industries address challenges in quality, health & safety, environmental protection, cybersecurity and social responsibility.

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