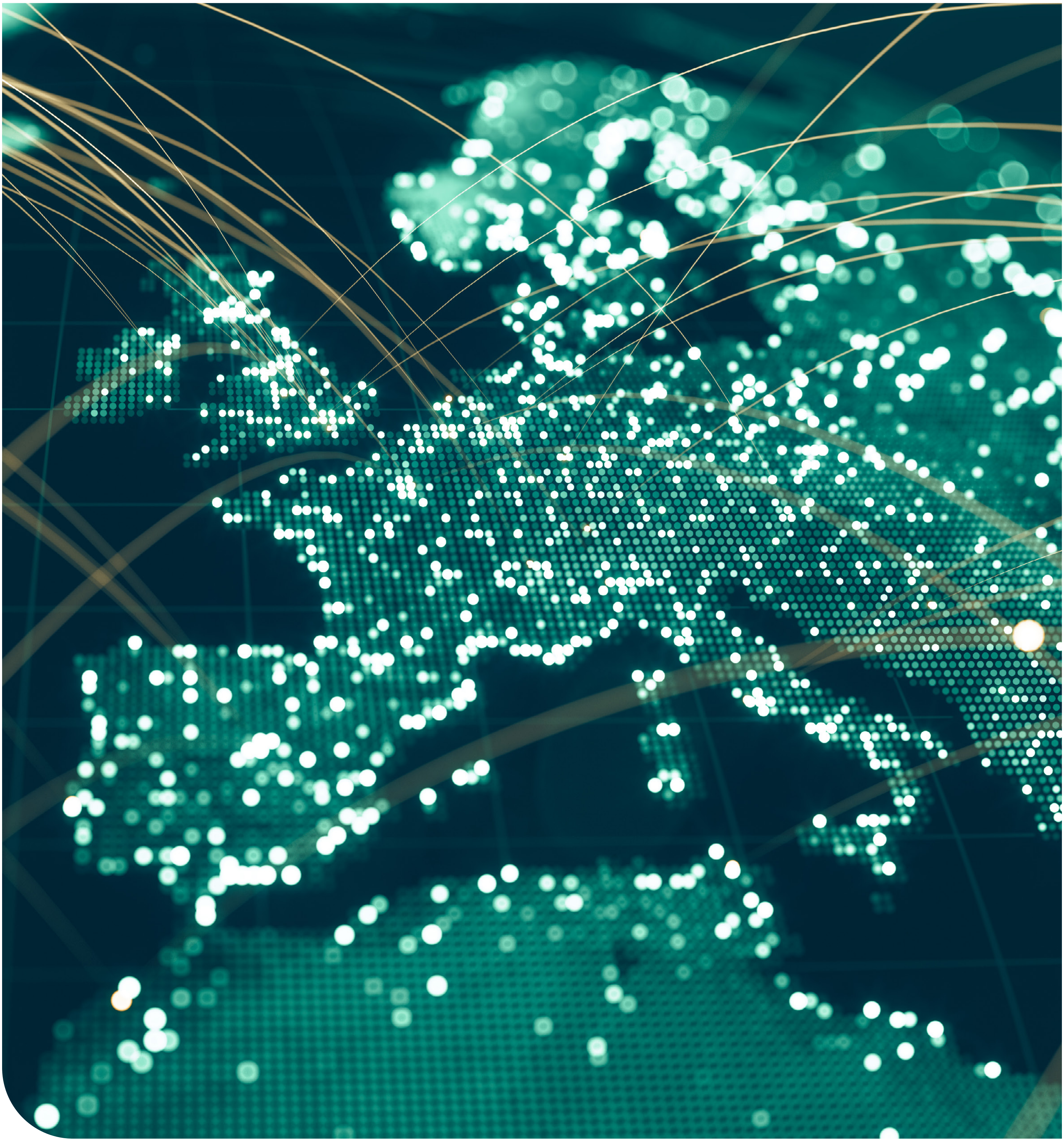
How Europe is paving the way for a greener world

2023



The significance of carbon emissions as a catalyst for change is growing and will influence business practices worldwide. The European Union Emission Trading System and the new EU Carbon Border Adjustment Mechanism were approved on 18 April 2023. Here the EFGAM ESG team* looks at the impact of these ground-breaking initiatives on industries and green practices, highlighting Europe's lead in combating climate change through market-driven solutions.

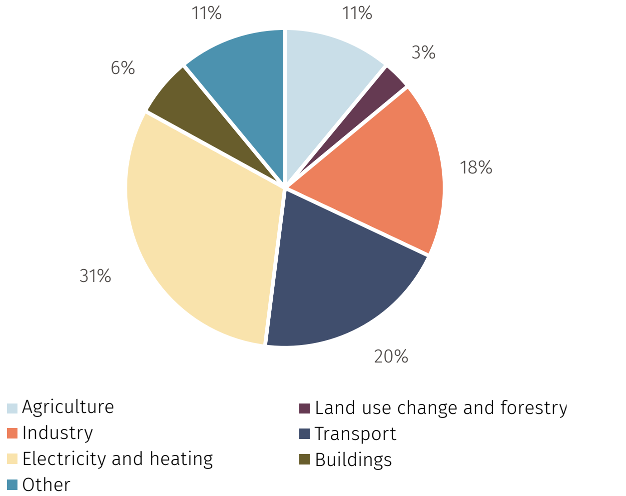
The European Union Emission Trading System (EU ETS) and the new EU Carbon Border Adjustment Mechanism (CBAM) will force companies to incorporate the environmental costs associated with emissions into their operations. This establishes a system where polluters pay, and creates appealing investment opportunities in sustainable endeavors. Additionally, this approach provides incentives for other countries to adopt similar regulations, potentially initiating a new green wave on a global scale.

Carbonomics

The global average temperature on Earth has risen approximately 1.2°C above pre-industrial levels. Human-induced global warming has reached 0.2°C in the decade from 2013 to 2022, a rate unprecedented in history. The magnitude of the problem requires the adoption of a combination of measures such as renewable energy, increased efficiency, electrification, and new agricultural systems. A carbon tax assigning an economic cost to pollution would incentivise the reduction of CO2 emissions.

CO2 emissions come from different activities with electricity generation, agriculture, and manufacturing industry being the main contributors. Together, these sectors were responsible for more than two-thirds of the total emissions in 2019 (see Chart 1).

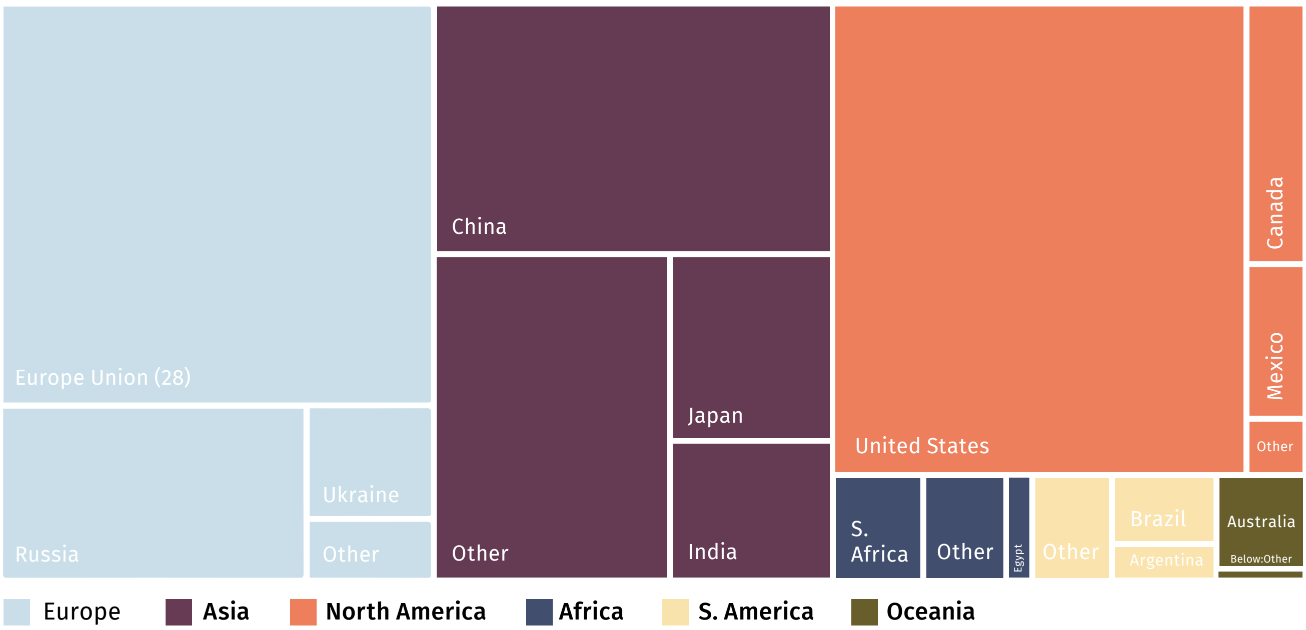
Chart 1 – Global greenhouse gas emissions by economic sector (%)[1]



Source: Our World in Data (2019)

In 2021, over one quarter of the 37.1 GtCO2e produced is traced back to China alone and around one quarter originated in the US and the EU combined.[2] However, the

Chart 2 – Contributions to carbon emissions % (cumulative data from 1751 to 2017)[3]



Source: Our World in Data based on the Global Carbon Project (2021)

*Special thanks to Nicolas Endress and Andreas Avraam for their work on this piece.

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picture changes when analysing cumulative emissions from 1751 to 2017. During this period, Europe was the largest emitter (33%) followed by Asia (31%) and North America (30%), with the USA alone responsible for 25% (see Chart 2).

The financial impact of climate change

According to SwissRe, the current trajectory of temperature increases, assuming actions to mitigate climate change in line with official pledges, points to a global warming of 2.0-2.6°C by midcentury. This would lead to a gradual decline in global GDP of 11-14%:

Table 1: 2021 calculation based upon total costs of natural catastrophes of that year on GDP.

Year	Cost of Climate Change/GDP
2021	0.29%
...	
2050	4.2% if below 2°C (in 2050)
	11% if around 2°C
	14% if around 2.6°C
	18% if around 3.2°C

Source: SwissRe (2021)

In a more severe but less likely scenario, if nothing is done to combat climate change the world economy could be 18% smaller by 2050.[4] This means that the impact of inaction on climate change on global GDP is estimated to be around USD 17 trillion. However, if countries abide by the Paris Agreement, the decline in GDP could be reduced to 4.2%, around USD 4 trillion. This is still 10 times more than what countries spend on climate change today.[5]

These estimates must consider physical and transitional risks. Physical risks include damages caused by disrupted rain patterns, such as agricultural shortages, droughts, infrastructure damage, rising sea levels, migrations, disruptions to trade and supply chains, and loss of productivity, leading to elevated costs, mainly in developing Asia.

Transitional risks arise from adjustments to a low-carbon economy and include changes in resource deployment, technology usage, and regulatory measures such as a carbon tax. According to SwissRe, earnings from companies in the energy, materials and utilities sectors are the most affected by the introduction of a USD 100 per ton carbon tax.[6] Estimations show a potential decline between 40-80% in earnings depending on whether these firms are based in Europe, Asia, or the Americas. Other sectors, such as financials, IT, and real estate, might be less affected by the introduction of this tax.

Decarbonisation will require large investments. According to the UN's Intergovernmental Panel on Climate Change, to meet the 2°C target an investment of USD 2.4 trillion up to 2035 is needed. The International Energy Agency estimates that annual spending needs to increase by around USD 500 billion to meet the new energy needs by 2035. A carbon tax could finance part of this infrastructure development.

Carbon markets

Carbon markets create economic incentives to reduce emissions by putting a price on carbon emissions. They provide a platform for buying and selling carbon credits, which represent the right to emit a certain amount of carbon dioxide or other greenhouse gases.

There are two main types of carbon markets: compliance carbon markets (CCMs) and voluntary carbon markets (VCMs). Compliance carbon markets are established and regulated by governments. They require companies or sectors to meet emission reduction targets and provide a means for them to trade carbon credits to comply with those targets. Virtuous companies can sell their carbon credits while laggards must buy credits to abide by their limits. Compliance markets help governments enforce decarbonisation among heavily polluting industries.

Voluntary carbon markets are driven by businesses, organisations, and individuals that purchase carbon credits voluntarily to offset their emissions. These credits are typically generated from projects that reduce or remove greenhouse gas emissions, such as renewable energy projects, reforestation initiatives, or energy efficiency improvements.

Carbon markets create financial incentives to encourage companies to choose the most cost-effective ways to reduce emissions or offset them. Additionally, they can mobilise financial resources to support sustainable development projects and contribute to the transition to a low-carbon economy.

Carbon markets involve setting a carbon price, either through a carbon tax or a cap-and-trade system. A carbon tax imposes a direct price on each ton of emitted CO2, while a cap-and-trade system sets a limit (cap) on total emissions and allows companies to buy, sell and trade permits representing their emission allowances.

Europe's plan to achieve Net Zero

The European Union (EU) has set the ambitious goal of

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reaching net-zero emissions by 2050, balancing greenhouse gas (GHG) emissions with the amount removed from the atmosphere. The roadmap for the EU's net-zero target is outlined in the European Green Deal, a comprehensive plan for sustainable growth and climate action.

In July 2021, the EU adopted the European Climate Law, which legally binds member countries to reduce GHG emissions by at least 55% by 2030 compared to 1990 levels. The EU is aiming to increase the share of renewable energy sources in its energy mix. The goal is to reach at least a 32% share of renewable energy consumption by 2030 and to promote the use of clean energy technologies such as wind, solar and hydropower. Additionally, the EU aims to improve energy efficiency across various sectors, including buildings, industry, and transport.

The EU created an Emission Trading System (EU ETS) that has served as a model for other carbon markets worldwide. EU ETS hands out emission certificates (1 certificate = 1 ton of CO2) to companies. If a company exceeds its limit, it needs to purchase new certificates from firms that did not use their allowance cap. These provide incentives to decarbonise. Consequently, the total number of emission allowances available in the market decreases over time to put pressure on companies to reduce their emissions. The newly approved regulation will continuously reduce the number of credits available.

The recently approved Carbon Border Adjustment Mechanism (CBAM) aims to prevent carbon leakage and ensures a level playing field for EU industries. The CBAM will impose a carbon price on certain imported goods from countries outside the EU. The main objective of the CBAM is to address the risk of carbon-intensive industries relocating to regions with lower climate standards, which could undermine the EU's efforts to reduce greenhouse gas emissions worldwide. Additionally, from 2026 the EU will apply a gradually increasing carbon tax (phase-out of free allowances) applying to the total continental and import emissions.[7] The effects of the new legislation are unlikely to be limited to Europe as the CBAM entices other countries to impose a similar tax scheme to avoid missing out on tax income. The CBAM allows tax deductions if carbon taxes have already been paid outside of the EU, potentially paving the way for a global approach to pricing carbon emissions.

Conclusions

Failing to limit emissions will result in significant costs to the world economy. To effectively decarbonise, new legislation should make carbon sequestration economically viable and avoid greenwashing risks. The upcoming carbon border tax will create a level playing field, incentivise international carbon pricing, and prevent carbon leakage. Revenues from the carbon tax can support spending on green infrastructure and technological advancements, and ensure a "just transition" for the people and countries that will be heavily impacted by the changes. A supportive regulatory framework is crucial for investments in clean energy and efficiency. The EU's approval of the CBAM increases the chances for accelerated emission reductions. These actions are essential for a sustainable future and to mitigate the consequences of unchecked emissions.

[1] https://ourworldindata.org/emissions-by-sector#:~:text=Here%20we%20see%20that%20electricity,similar%20materials)%2C%20and%20agriculture

[2] https://ourworldindata.org/co2-emissions#co2-emissions-by-region

[3] https://ourworldindata.org/grapher/cumulative-co-emissions?time=earliest..2017

[4] SwissRe (2021). The economics of climate change: no action not an option. [online] Available at: https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf

[5] Based on the World Bank's estimation of global GDP of USD 96 trillion in 2021

[6] SwissRe (2021). The economics of climate change: no action not an option. [online] Available at: https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf

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