

Training

Climate change, SDG 13, and Net Zero



Introduction to Climate Change

Introduction to Climate Change

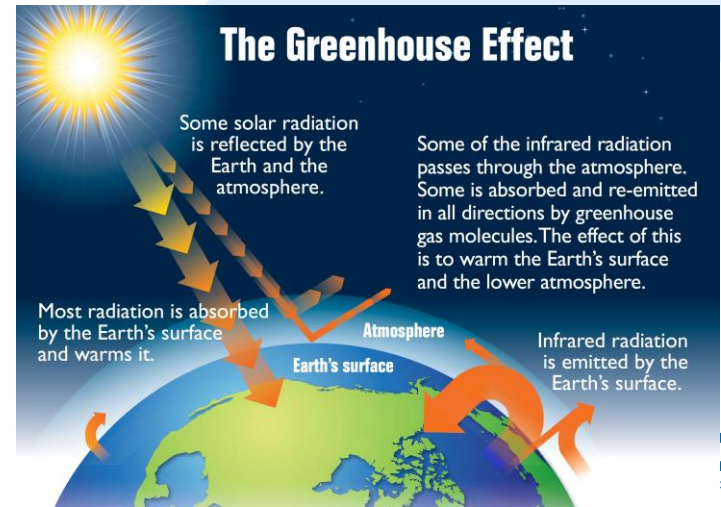
Basic Concepts

Environment

- ▶ The environment or natural environment encompasses all living and non-living things occurring naturally. That is non-human-made surroundings and conditions.
- ▶ This environment encompasses the interaction of all living species, climate, and natural resources that affect human survival and economic activity.
- ▶ The natural environment is in contrast with the 'built environment': the areas fundamentally transformed and influenced by human activity.

Greenhouse effect

- ▶ The greenhouse effect is a process that occurs when gases in Earth's atmosphere trap the Sun's heat. This process makes Earth much warmer than it would be without an atmosphere. The greenhouse effect is one of the things that makes Earth livable.



Introduction to Climate Change

Basic Concepts

Greenhouse gases

- ▶ A greenhouse gas (GHG or GhG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect.
- ▶ The primary greenhouse gases in Earth's atmosphere are water vapor (H₂O), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and ozone (O₃).

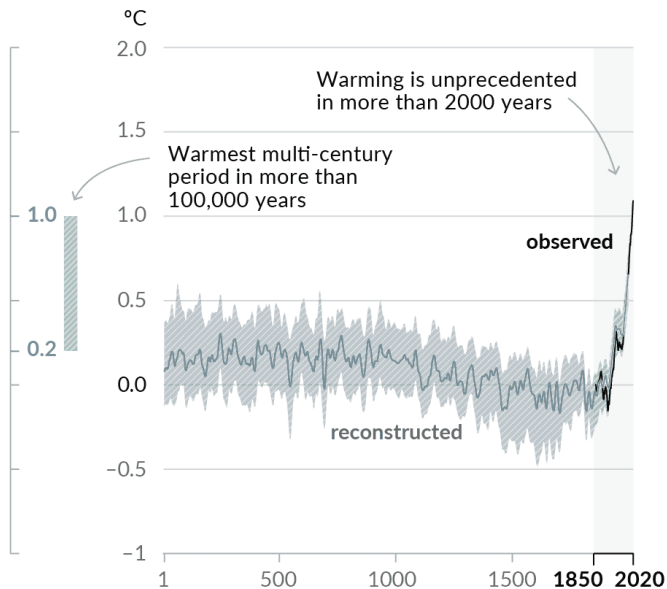
Climate change

- ▶ UNFCCC: *a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.*
- ▶ Its origin lies in global warming, rising average temperature of the planet's surface due to the intensification of the natural greenhouse effect as concentrations of greenhouse gases (GHG) in the atmosphere, produced in part by certain human activities, increase.
- ▶ Global temperatures are already increasing and will continue to rise if GHG emissions continue as they are, causing serious impacts both on the natural environment as well as on socioeconomic systems.

Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Changes in global surface temperature relative to 1850–1900

(a) Change in global surface temperature (decadal average) as **reconstructed** (1–2000) and **observed** (1850–2020)



(b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and **only natural** factors (both 1850–2020)

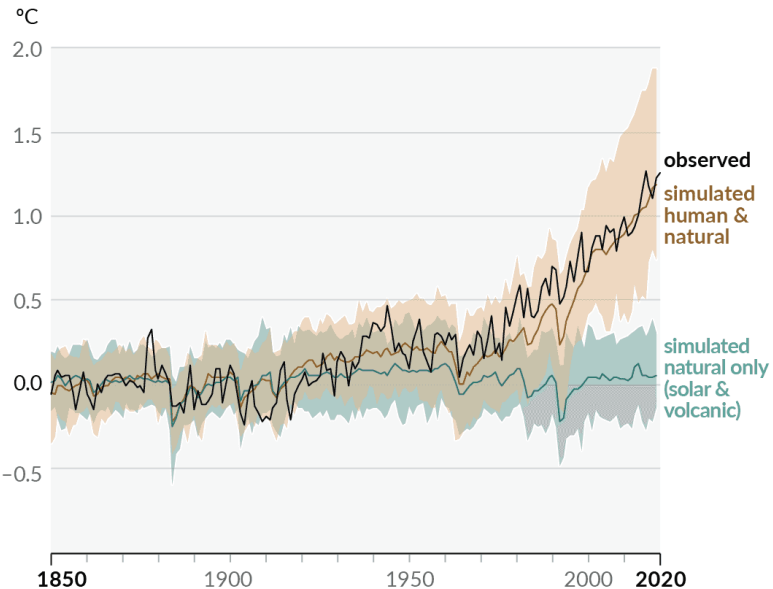


Figure adopted from the Intergovernmental Panel on Climate Change (2021): Figure SPM.1

The human factor

- ▶ Globally, economic and, to a lesser degree today, population growth continue to be the most important drivers of increases in CO₂ emissions from fossil fuel combustion.
- ▶ About half of cumulative anthropogenic CO₂ emissions between 1750 and 2010 have occurred in the last 40 years.
- ▶ Total anthropogenic GHG emissions have risen more rapidly from 2000 to 2010 than in the previous three decades.
- ▶ Regional patterns of GHG emissions are shifting along with changes in the world economy.
- ▶ Regardless of the perspective taken, the largest share of anthropogenic CO₂ emissions is emitted by a small number of countries.

IPCC (2014): AR5 Climate Change 2014: Mitigation of Climate Change.

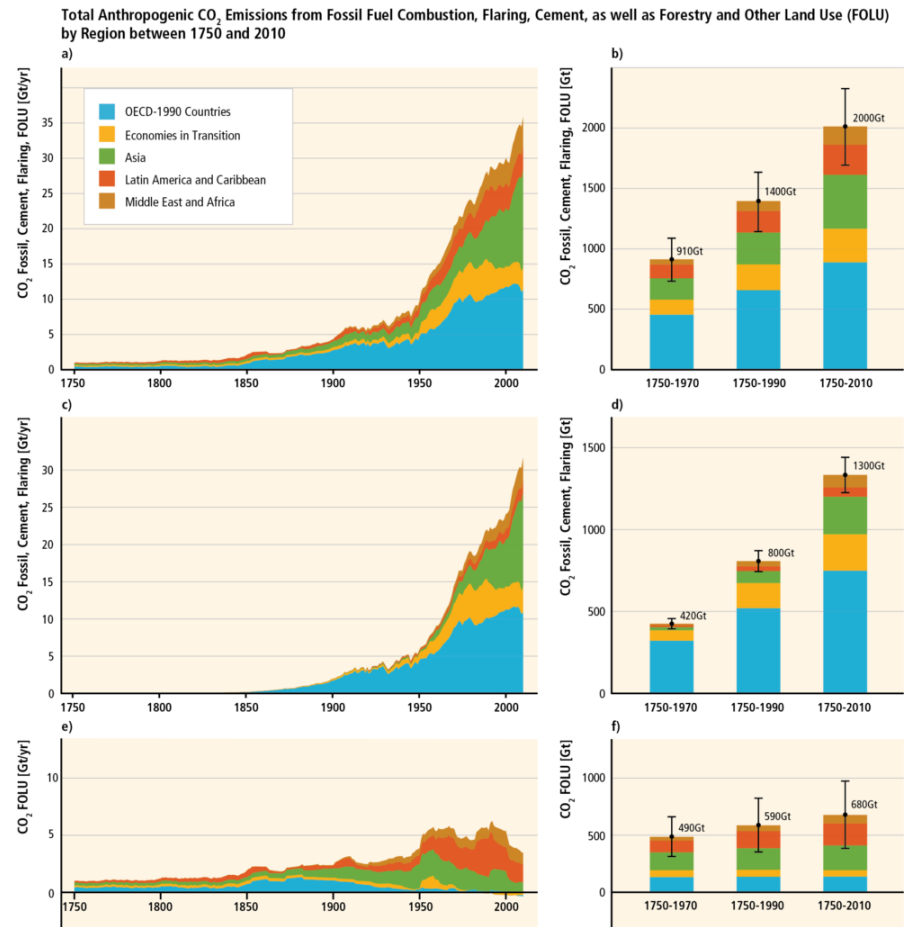


Figure adopted from the Intergovernmental Panel on Climate Change (2014): Figure TS.2

Greenhouse Gas Emissions by Economic Sector

Greenhouse Gas Emissions by Economic Sectors

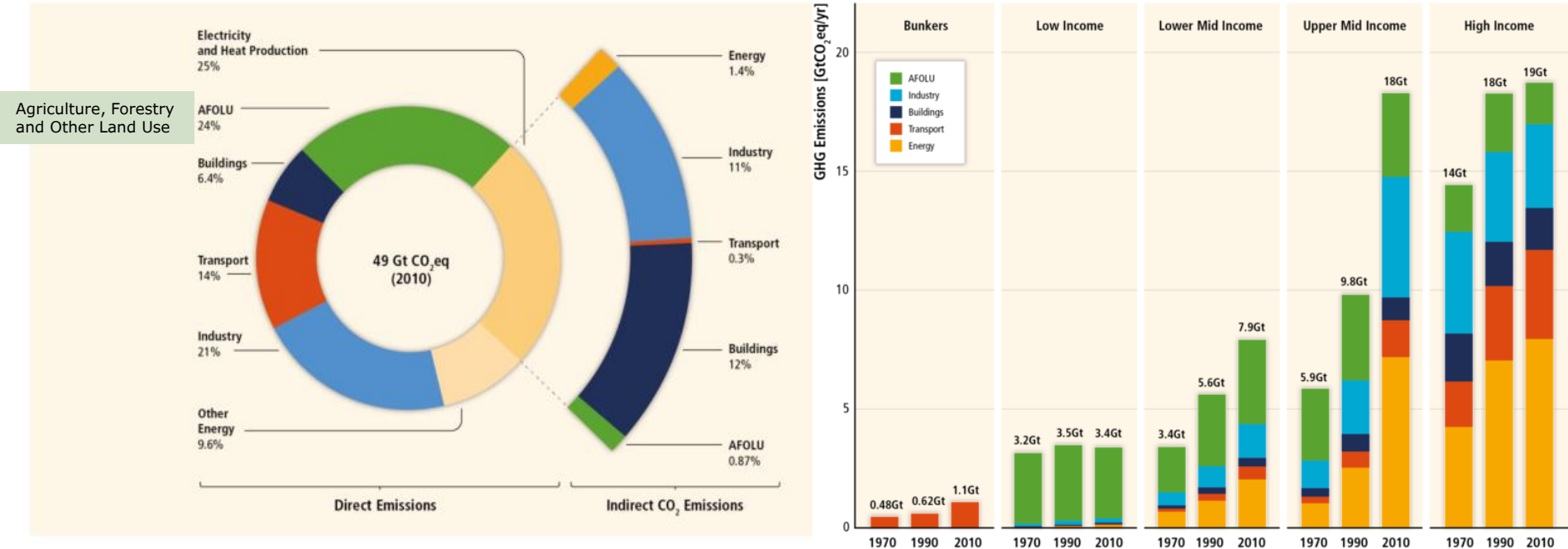
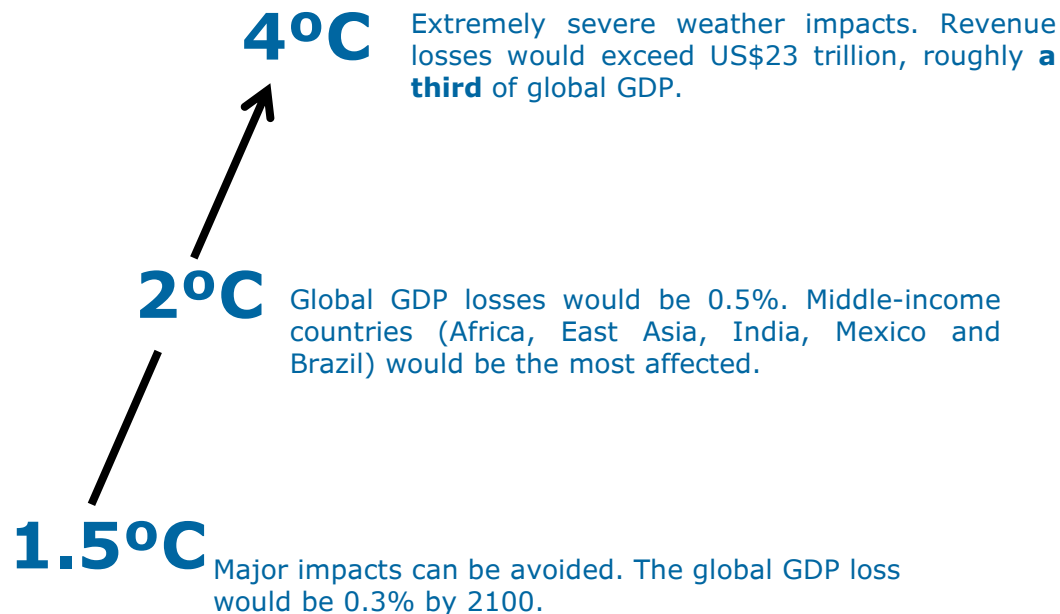


Figure adopted from the Intergovernmental Panel on Climate Change (2014): Figure TS.3

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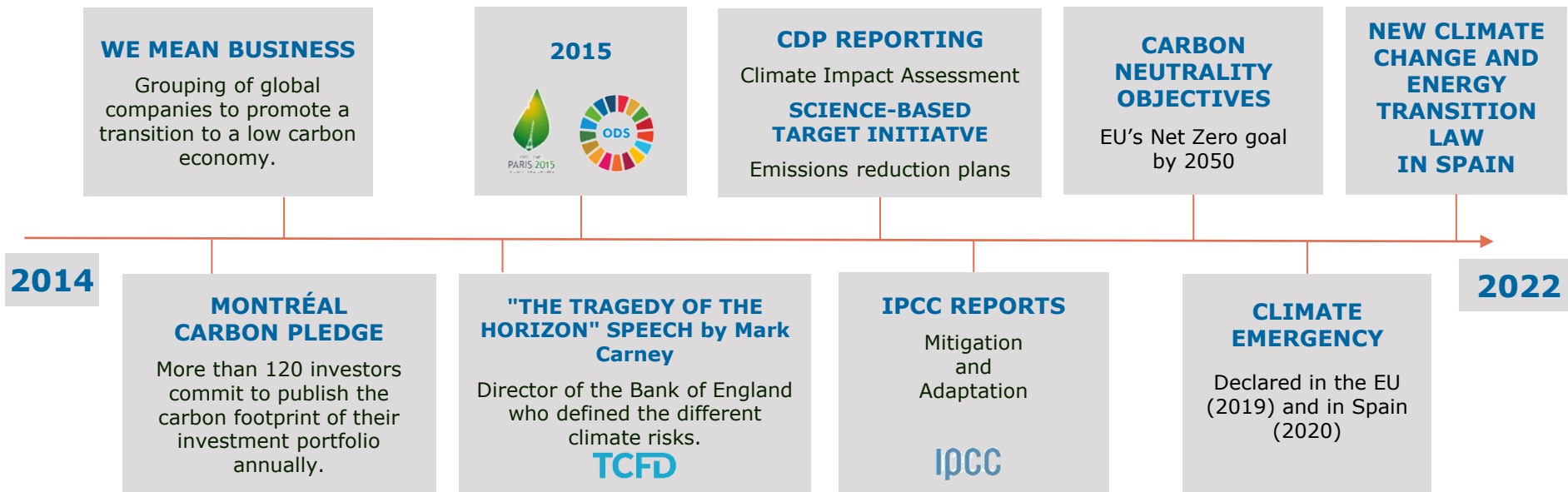
The Impact of Climate Change

Climate change is one of the main and most urgent risks of our time, with considerable economic impacts:



Introduction to Climate Change

National and international overview



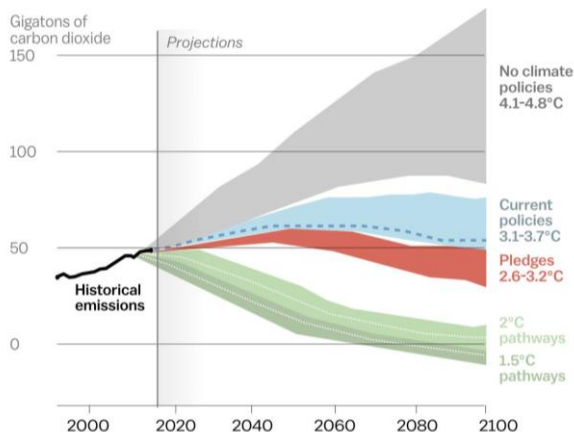
Introduction to Climate Change

National Commitments

In October 2018, the Intergovernmental Panel on Climate Change (IPCC) published its latest report assessing the impacts of rising global temperatures, providing compelling evidence of the urgent need to set more ambitious climate targets.

Effect of current pledges and policies

Global greenhouse gas emissions



As you can see in the chart, current climate policies are not enough to maintain the temperature rise below 2°C.

Current national commitments are not enough to keep global temperatures below 2°C!

Keeping global warming at 1.5°C would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems

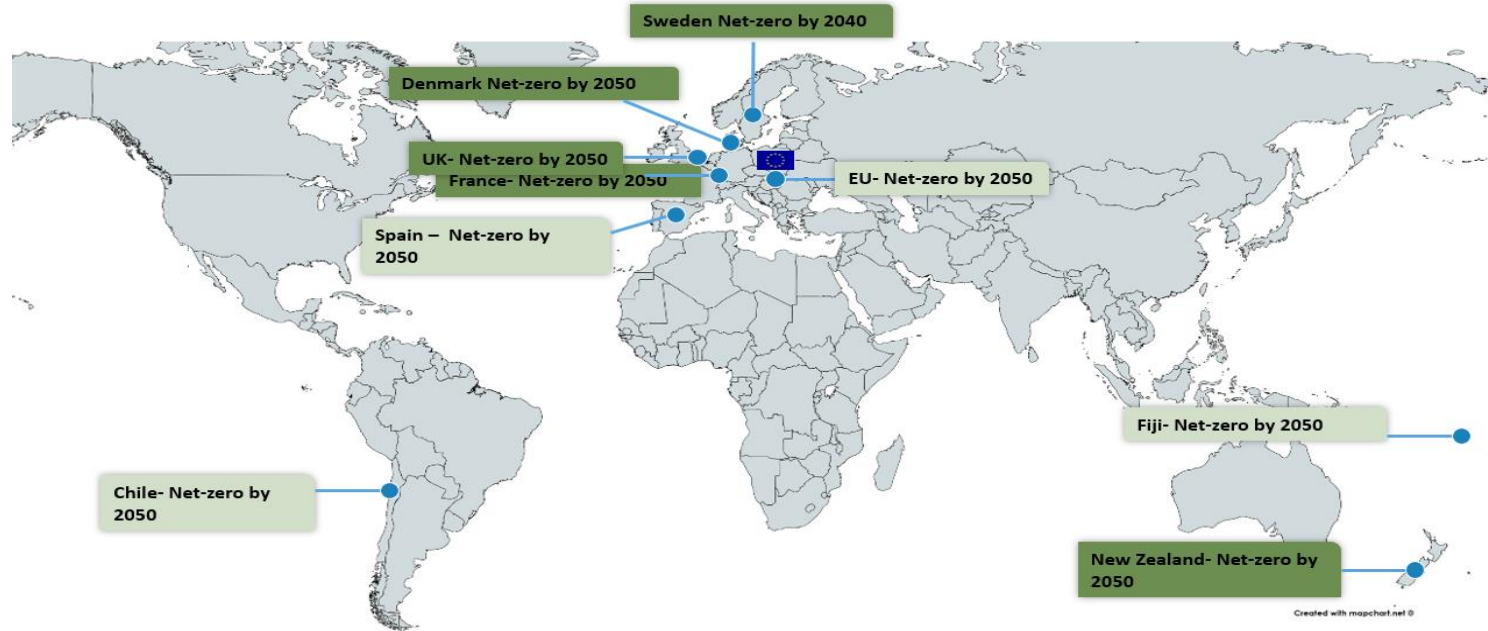
No or limited overshoot of 1.5°C: global net anthropogenic CO₂ emissions need to decline by about 45% from 2010 levels by 2030 and reach net zero around 2050.

For limiting global warming to below 2°C: CO₂ emissions need to decline by about 25% by 2030 and reach net zero around 2070.

Introduction to Climate Change

International panorama

To align with the Paris Agreement, several countries have legislated goals with zero emissions goal or *net zero*. As these objectives are legally binding, this puts countries in line with limiting the increase in temperatures to 1.5°C by the end of the century, and implies that companies that are not in line with this objective run the risk of not being able to operate in said countries.



Global map showing country commitments to reach zero emissions or 'net zero'. In dark green, you can see the goals already included in legislation. In light green, the goals that are in the consultation process.

Introduction to Climate Change

International panorama

European Green Deal



The Green Deal establishes a roadmap to achieve carbon neutrality in Europe by 2050, with actions to promote efficient use of resources by moving to a clean economy, and restore biodiversity and reduce pollution.

The Compact outlines the necessary investments and available financing instruments, and explains how to ensure a just and inclusive transition.

Paris Agreement and NDCs



Through the Paris Agreement, countries have agreed to limit global warming to "significantly less" than 2°C above pre-industrial levels, while trying to limit the increase to 1.5°C. As part of this commitment, countries have submitted official plans detailing how they will reduce emissions through so-called Nationally Determined Contributions (NDCs). To achieve these NDCs, countries like Spain or the United Kingdom have declared a climate emergency.

Agenda 2030



In September 2015, at the end of the Millennium Development Goals compliance period, more than 180 member states of the United Nations agreed on a new action plan. Thus, the 2030 Agenda for Sustainable Development, better known as the Sustainable Development Goals (SDGs), was established.

This new agenda is made up of 17 objectives, which are broken down into 169 goals, covering 5 spheres of action: people, the planet, prosperity, peace and alliances.

EU sustainable taxonomy



At the end of 2019, a formal agreement was reached on a taxonomy that classifies the environmental impact of economic activities at a European level, establishing a common language for all financial actors. It will be applicable from December 2021 for the mitigation and adaptation objectives, which implies an important step in the integration of climate aspects in investment decision-making.

Introduction to Climate Change

National panorama

National Plan for Adaptation to Climate Change (PNACC)

Reference framework for public efforts to generate knowledge and build adaptive responses to climate change in Spain since 2006. The PNACC 2021-2030 will be the basic planning instrument to promote coordinated action against the effects of climate change in Spain in the next decade, defining objectives, criteria, areas of work and lines of action to promote adaptation and resilience to climate change.

National Integrated Energy and Climate Plan (PNIEC)

The PNIEC 2021-2030 defines the objectives for the reduction of GHG emissions, the penetration of renewable energies and energy efficiency. The PNIEC pursues a 23% reduction in GHG emissions compared to 1990, an increase of up to 42% in the use of renewable energies in the final use of energy (74% in the electricity sector), and an increase of up to 39.5% improvement in energy efficiency.

New Bill on Climate Change and Energy Transition

Aligned with the European Green Pact, the new law establishes the roadmap to achieve the total decarbonisation of the Spanish economy in 2050. Sent to the Parliament in May 2020, and in a context of reactivation of the economy in the face of COVID-19, the project aims to take advantage of all the opportunities in terms of modernizing the economy, industry, job creation and investment attraction that opens the way to an inclusive prosperity that respects the limits of the planet.

Disclosure of non-financial information

Through Law 11/2018 on non-financial information, the EU Directive on Non-Financial Information was transposed into Spanish law. The new law requires large companies (>500 employees) to publish non-financial information on their impact on society and the environment in their management reports. This fact represents a significant change with respect to the voluntary nature that has traditionally characterized reports on non-financial information.

SDG 13



The United Nations (UN) Sustainable Development Goals (SDGs)



The SDGs

Our planet is facing enormous economic, social and environmental challenges. In order to combat them, the Sustainable Development Goals (SDGs) have defined global priorities and aspirations for **2030**. These represent an unprecedented opportunity to **eliminate extreme poverty** and put the world on a **sustainable path**. Governments around the world have agreed to these goals. Now is the **time for companies to act**.



Unlike its predecessor, the Millennium Development Goals, the SDGs make **an explicit call for all companies** to apply their creativity and innovation to solve the challenges of **sustainable development**.

The SDGs

Integration in the business



BUSINESS CASE : INTEGRATING THE SDGs INTO THE BUSINESS MODEL

- ▶ First, the SDGs were prioritized by choosing the most relevant for the business and for our stakeholders (this information is usually obtained with focus groups determining the materiality of sustainability aspects).
- ▶ Sustainability goals were defined for each of the SDGs and whose progress is reported annually through the performance indicators in the annual reports. A separate and exclusive SDG report provides a review of how the company is progressing towards achieving these goals.

The SDGs

Integration into the business

THE SPANISH BUSINESS PRIVATE SECTOR

1. Acknowledge that:

- 1.A The SDGs as an **essential framework** to promote until 2030 the economic, social and environmental transformations that the world needs.
- 1.B The **key role** of the business sector in the implementation of the SDGs and the importance of all economic sectors and of the Spanish business sector as a whole.
- 1.C The fundamental role of **business leaders** as a lever to promote the transformation of the entire business community.



2. Agree to:

- 2.A Incorporate the SDGs into **business strategies**, always observing compliance with international frameworks or regulations.
- 2.B Align the **main activity of the business with the SDGs**, evaluating the performance of a diagnosis of impacts throughout the value chain and establishing priority focuses for action and indicators to measure progress.
- 2.C Integrate a **business culture** linked to the SDGs in all the activities and operations of the company and transfer it to the groups of

Source: Report of the Spanish Network of the Global Compact on the occasion of the review national voluntary and the National Plan of Action

The SDGs

Integration in the business

THE SPANISH BUSINESS PRIVATE SECTOR

1. Acknowledge that:



2. Agree to:



1.D

The need for **new innovative solutions** required by the 2030 Agenda, which can also provide **opportunities** linked to the SDGs.



1.E

The need to promote **alliances** and increase the mobilization of public and private resources towards the **financing** of the 2030 agenda.



2.D

Assess the establishment of **public, quantifiable, and scheduled commitments** and **reporting on progress towards the SDGs.**



2.E

Establish **alliances** with the public administration, civil society organizations, the scientific and academic community and other companies to develop joint solutions to the SDGs.

Source: Report of the Spanish Network of the Global Compact on the occasion of the review national voluntary and the National Plan of Action

Agenda 2030



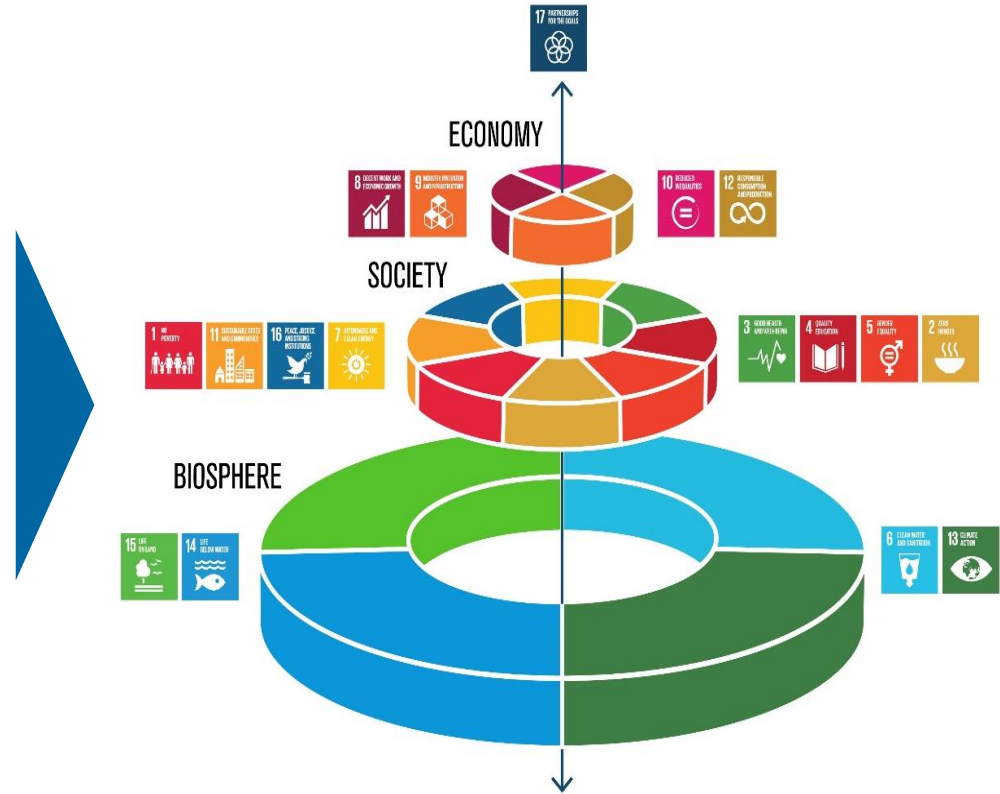
Agenda 2030

The 2030 Agenda was developed and adopted by the UN in 2015 as a commitment to **eradicate poverty** and **achieve sustainable development globally by 2030**. This Agenda was adopted by all UN member states with the expectation that it will frame future development agendas and policies of the countries. Within the Agenda, a set of 17 Sustainable Development Goals (SDGs) and 169 targets were developed, focusing on people, the planet and prosperity. Unlike the Paris Agreement, which focuses solely on combating climate change and mitigating its consequences, the 2030 Agenda is a more holistic framework that integrates all aspects of sustainable development.



Agenda 2030

The following diagram of the “pie” model of the SDGs, developed by the Stockholm Resilience Center¹⁰, shows how social, economic and environmental development are all connected under the SDGs. This highlights the need to move away from the current sectoral approach of thinking of the economy, society and the biosphere as separate parts, towards a **more holistic approach**.



Agenda 2030

SDG 13

The fight against climate change is part of the 2030 Agenda within the framework of Goal 13 of the SDGs:

"Adopt urgent measures to combat climate change and its effects"

It has been included since many of the worst effects of climate change will affect the poorest and most vulnerable; exacerbating current problems and giving rise to new challenges. For example, the detrimental environmental impacts of climate change, including ocean acidification and ecosystem degradation, will erode food, energy and water security.



National commitments to the Paris Agreement

NDC national commitments

Nationally Determined Contributions (NDCs) play a key role in meeting the goals of the Paris Agreement.

The NDCs detail the action plan for how each country will **reduce GHG emissions, mitigate and adapt** to deal with the consequences of climate change and, more importantly, how they will be **financed**.

Currently, 181 countries out of the 195 signatories to the Paris Agreement have submitted an NDC.

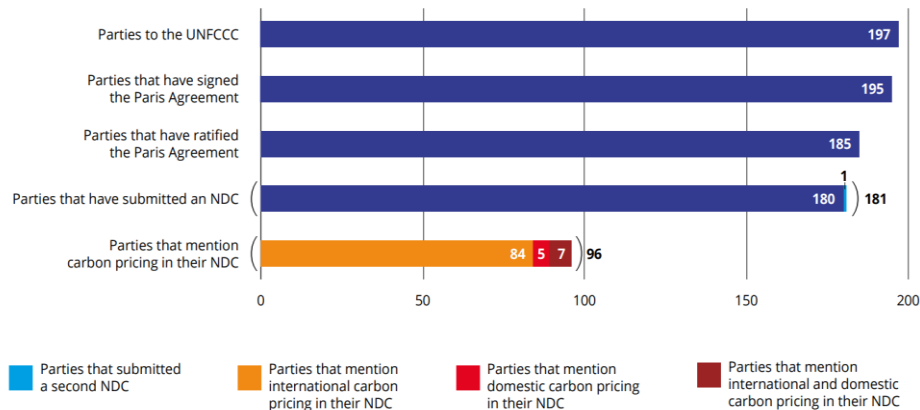
The European Union's NDC comprises a binding target of at least a 40% total reduction in national GHG emissions by 2030 compared to 1990 and reaching carbon neutrality by 2050. This commitment has already been introduced into law in Spain.

NDC national commitments

The NDCs have been a key tool in **analyzing the level of ambition of different countries to reduce GHG emissions**. These are to be submitted every 5 years, with the latest round in 2020.

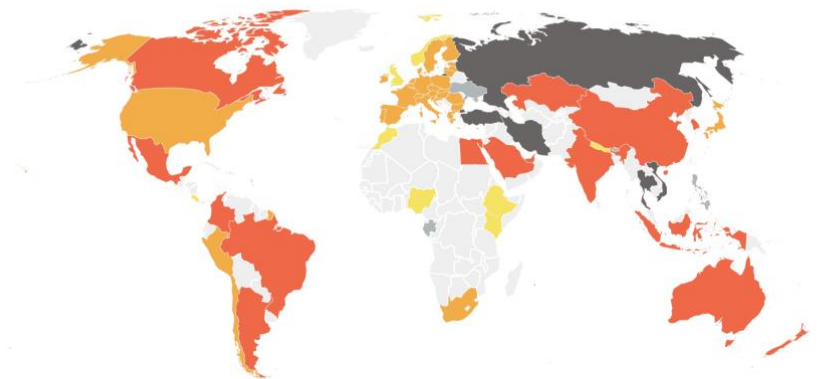
Notably, the NDCs proposed in 2015 were not all in line with the amount of GHG reductions required to reach the 2°C temperature goal. In fact, analysis by Climate Action Tracker found that based on the first NDCs submitted in 2015, there was still a greater than 90% chance that the temperature will exceed 2°C, even if the plans were to be fully implemented.

Although NDC countries have set emission reduction targets, this needs to be translated into policies and actions to ensure these targets are met.



NDC national commitments

- ▶ Even with the latest round of NDCs (2020), the Paris Agreement Goals are still unlikely to be met, according to the evaluation of the Climate Action Tracker.



The maps displayed are for reference only.

Assessments of:

 **AVIATION**
[Find out more](#)

 **SHIPPING**
[Find out more](#)

LAST UPDATE: July 2022

CRITICALLY INSUFFICIENT

HIGHLY INSUFFICIENT

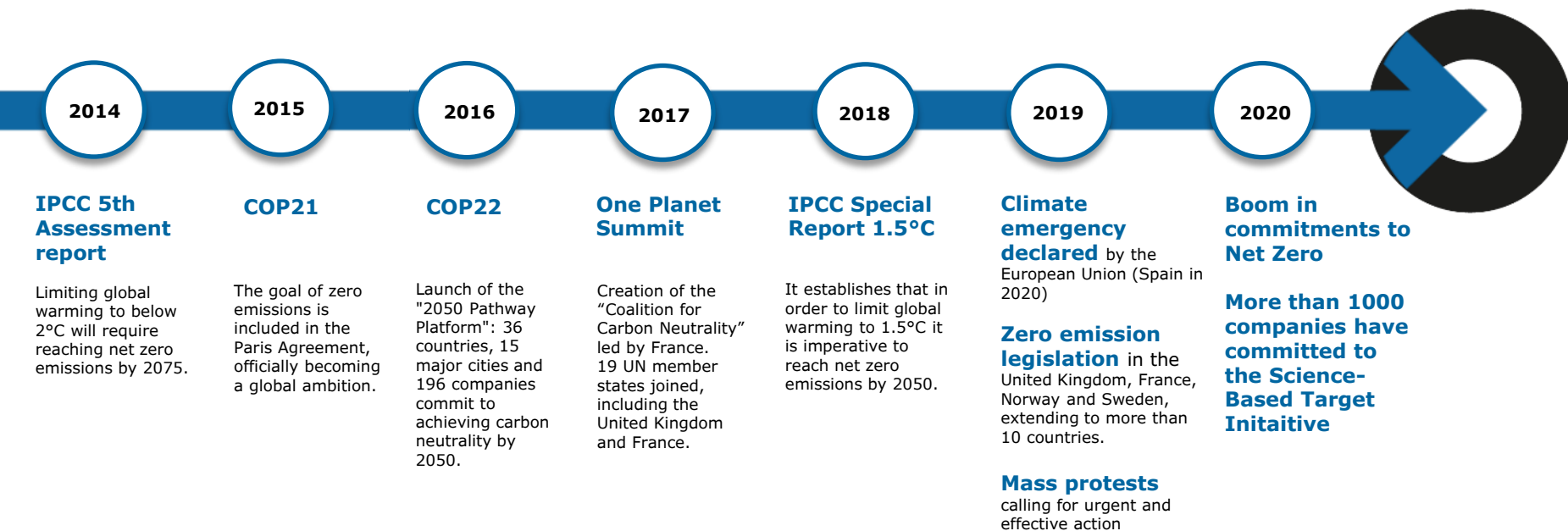
INSUFFICIENT

ALMOST SUFFICIENT

1.5°C PARIS AGREEMENT
COMPATIBLE

Net Zero

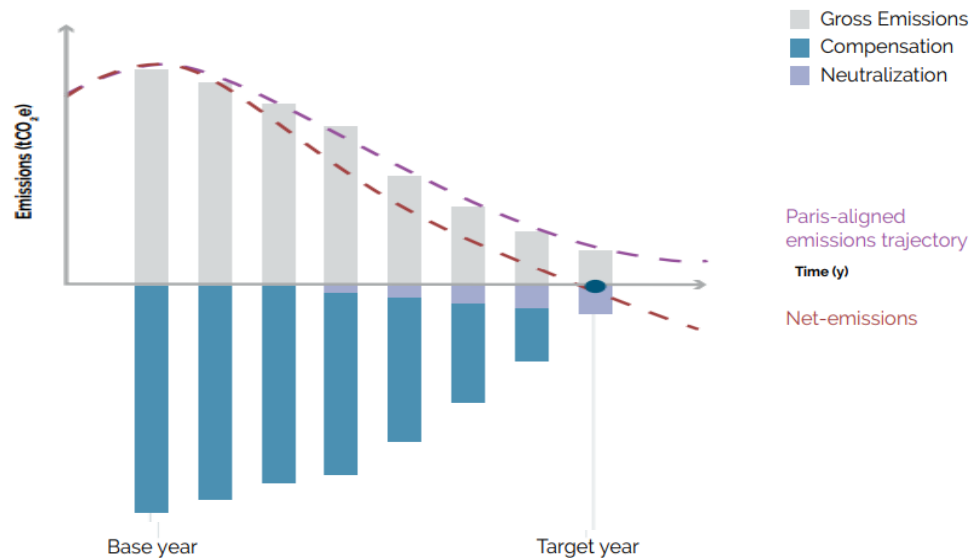
Net Zero Evolution



Net Zero Definition

Achieving a state of **net zero emissions** globally entails two conditions:

1. Decarbonization: Achieving emission reductions in the value chain consistent with limiting warming to 1.5°C and;
2. Offsetting: Compensating/Neutralizing the impact of residual emissions that cannot be eliminated by permanently removing an equivalent amount of carbon dioxide from the atmosphere.



Net Zero

What is a science-based target?

Although it is true that the purchase of carbon credits to offset emissions would allow companies to take stock of their impact, from a global point of view it is essential to carry out the first step:

Reduce emissions in line with the 1.5 °C trajectory, in order to reach zero globally.

A greenhouse gas reduction target aligned with the latest climate science.

It defines how much and how quickly companies must reduce their emissions to ensure that they contribute to the global effort to prevent drastic climate change.

It gives companies a clear vision of where they need to be in the future, challenging them to transform their business and help create a low-carbon economy where they can thrive.

Net Zero

Set a science based target

A FIVE-STEP APPROACH



FEASIBILITY
ASSESSMENT
FOR
ESTABLISHING
& ACHIEVING
AN SBT

1



IDENTIFY AN
APPROACH
THAT FITS
THE
COMPANY

2



CALCULATE &
CONFIRM THE
OBJECTIVE
BASED ON
SCIENCE

3



REQUEST
APPROVAL BY
SBTi

4

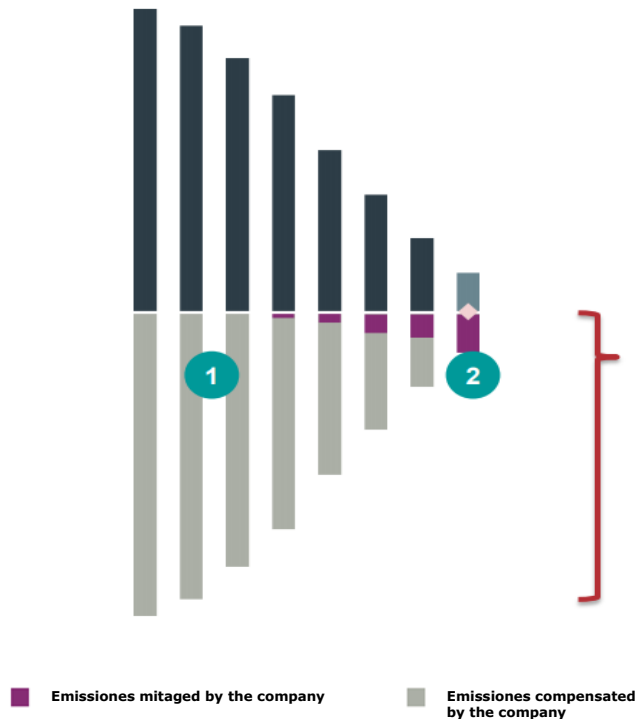


ACHIEVE THE
OBJECTIVE

5

Net Zero

Definition SBTi



Compensation vs Neutralization of Emissions

1. In the transition to zero emissions: companies can choose to offset the emissions that are still being released into the atmosphere while transitioning to a state of net zero emissions;
 - Compensation: helping society avoid or reduce emissions outside of their value chain
 - Neutralization: removing carbon from the atmosphere within or beyond the value chain
2. Net Zero: Companies with unavoidable residual emissions within their value chain are expected to offset those emissions with an equivalent amount of carbon dioxide removal.

Both offsetting and neutralizing measures by companies can play a critical role in accelerating the transition to net-zero emissions globally. However, **they do not replace the need to reduce emissions from the value chain in the first place.**

Net Zero

Definition SBTi

#1

SCOPE: The goal of net zero must cover **all GHG** of **the entire value chain**

#2

TRANSPARENCY: The sources **included and excluded**, the **period**, the amount of **reduction** and **neutralization** planned and any intermediate objective or milestone must be reported.

#3

REDUCTION: The objective should be to eliminate emission sources from the value chain at a rate consistent with the **1.5°C scenario**

#4

PERIOD: Net zero must be reached **no later than 2050**. While closer targets are encouraged, this should not come at the cost of a lower levels of reduction on the target.

#5

ACCOUNTABILITY: Long-term net-zero goals should be supported by **science-based** milestones, with milestones in line with corporate strategy and investment cycles.

Net Zero

Definition SBTi

#6

NEUTRALIZATION: An effective strategy removes carbon from the atmosphere and stores it long enough to neutralize the impact of any GHG emitted.

#7

OFFSETTING: Although achieving a balance between emissions emitted and eliminated is the ultimate goal, efforts to offset emissions that have not been able to be reduced should be considered as part of the transition to net zero.

#8

MITIGATION HIERARCHY: The elimination of GHG emissions from the value chain should be prioritized over their compensation or neutralization. Climate strategies must prioritize those interventions that help preserve existing terrestrial carbon stocks.

#9

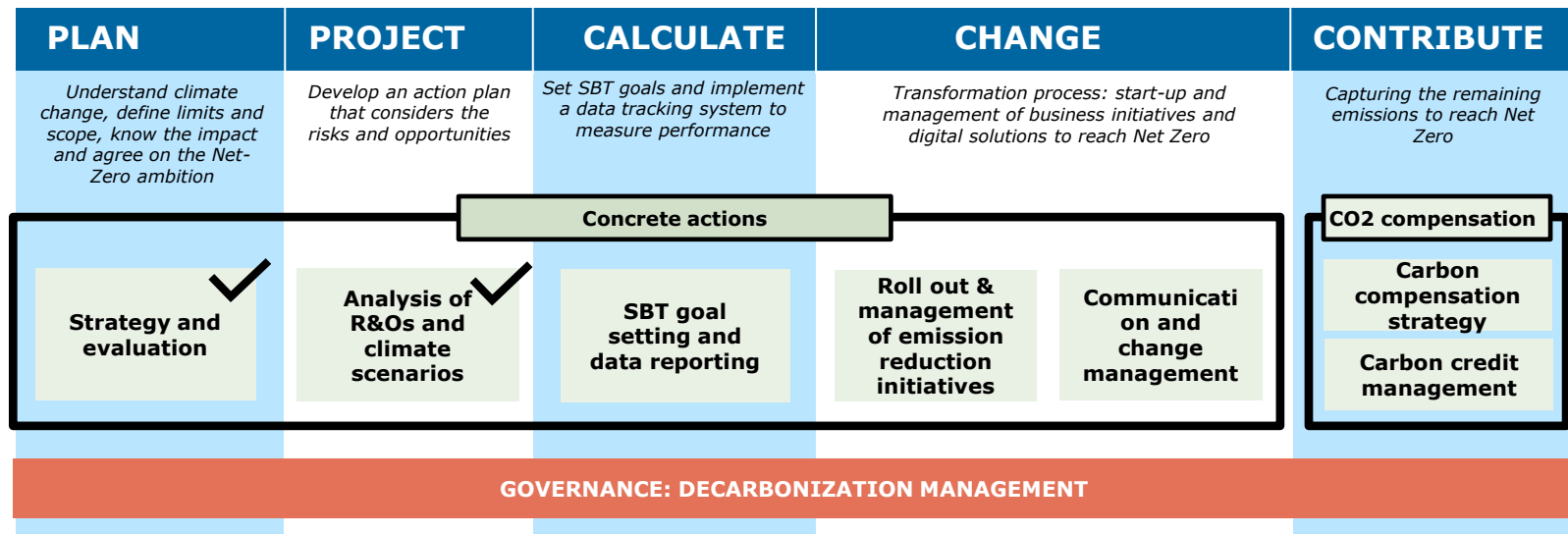
SOCIAL AND ENVIRONMENTAL GUARANTEES: Mitigation strategies must adhere to social and environmental principles, guaranteeing the protection/restoration of ecosystems, protection of biodiversity or solid social guarantees.

#10

STRENGTH: Compensation and neutralization strategies must: (a) ensure additionality; (b) have measures to ensure the permanence of the mitigation results; and (c) avoid double counting

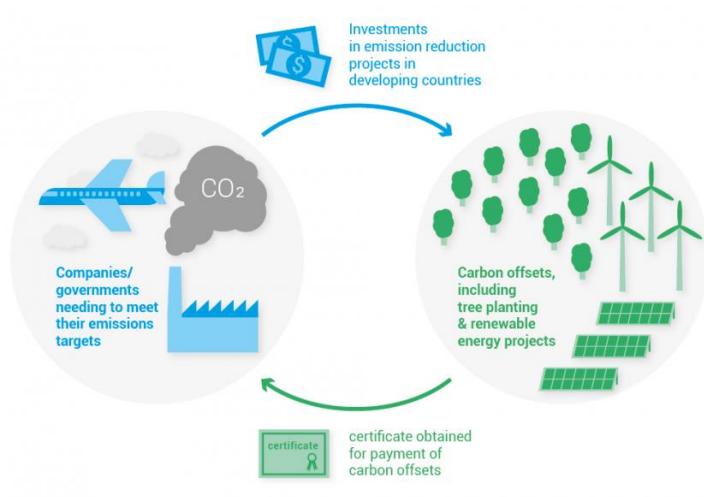
Net Zero

How to reach net zero?



Net Zero

Emission compensation



TYOLOGY CARBON OFFSET PROJECTS

- ▶ Energy efficiency in industrial plants
- ▶ Renewable energy
- ▶ Distribution of water filters and access to drinking water
- ▶ Energy efficiency – distribution of energy efficient ovens
- ▶ Gas capture (methane)
- ▶ Conservation and reforestation



Net Zero Emission Offset

#1

CREDIBLE STANDARDS

Prioritize projects with recognized standards, such as VCS/VERRA or Gold Standard.

#2

RISK MANAGEMENT

Analyze project risks based on political, legal, industrial, financial, social, environmental and communication factors.

#3

CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

Assess your contribution to the United Nations Sustainable Development Goals.

#4

CO-BENEFITS AND LINK WITH THE PURPOSE OF THE COMPANY

Consider the benefits for nature resources, communities, the local economy and align them with your purpose.

Your climate experts. Your partners for positive change.

EcoAct, an Atos company, is an international advisory consultancy and project developer that works with clients to meet the demands of climate change. We work with many large and complex multinational organisations to offer solutions to their sustainability challenges.



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