

How can we close the gap between ambition and action in decarbonization?

Decarbonization Transformative Approach | Information material



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The better the world works.



Building a better
working world

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Climate change impacts are happening now.

Climate-driven change is happening faster than we thought



Global surface temperature was around **1.1°C higher** in 2011-2020 than in 1850-1900, with larger increase over the ocean.

Source: IPCC



Hot extremes including heatwaves have intensified in cities, where they have also worsened **air pollution events** and **limited functioning of key infrastructure**.

Source: IPCC



Hot extremes (including heatwaves) have become **more frequent** and more intense across most land regions since the 1950s.

Source: IPCC



Since 1997, the monitored glaciers in Europe have lost between 9 m (in northern Scandinavia) and 30 m (in the Alps) of ice.

Source: [Glaciers | Copernicus](#)



More than **220 people were killed in the floods** in Germany, Austria and Belgium in 2021. Research shows now that Climate Change contributed to these deadly floods.

Source: NY Times



Since 1970, the number of **annual days of snowfall in Switzerland** at 2,000 meters above sea level has **diminished by 20%**, and below 800 meters it only snows **half as often as it did then**.

BAFU 2022



Food production is threatened. Increased temperatures, drought and water stress, diseases, and weather extremes create challenges for the farmers and ranchers who put food on our tables.



Loss of hundreds of local species has been driven by increase in the magnitude of heat extremes and mass mortality events on land and in the ocean.

Source: IPCC

What is causing the climate change?

At a time when global greenhouse gas emissions need to rapidly fall, these continue to rise

Power/Energy

Nearly 80% of emissions come from combustion of fossil fuels in total across sectors where **Electricity production** accounts for **25% GHG gas emissions** as 60% of our electricity comes from burning fossil fuels, mostly coal and natural gas.

Approximately 20 % of global GDP is in the sectors like coal and gas power sector that directly emit significant quantities of GHGs. To move to net-zero 2050 scenario, power sector globally would require substantial annual capital spending with \$1 trillion in power generation, \$820 billion in the power grid, and \$120 billion in energy storage.

Industry/Manufacturing

GHG emissions from agriculture comes from livestock such as **cow-based methane**, agricultural soils, and rice production techniques which are 11% of total emissions in U.S only.

Land use primarily contributes to an increase in CO2 emissions today from **land clearing and deforestation**.

GHG-efficient farming practices and halting deforestation are effective decarbonization practices for this sector. Recently U.S. President has launched a \$1 Billion program to fund local conservation projects around the country.

Transportation/Mobility

GHG emissions from transportation primarily comes from **road transportation segment** which has **75%** share, where 90% of the fuel used is petroleum based, primarily gasoline and diesel.

Air travel contributes around 10% to these GHG emissions with rail and shipping modes being lesser contributors.

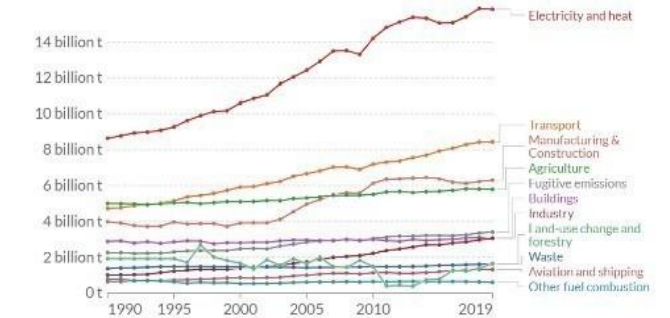
Battery/**Electric vehicles (EV)** or vehicles powered by hydrogen fuel cells replacing internal combustion engine would decarbonize the sector.

Agriculture and forestry

Apart from energy usage emissions, sizeable part of industry emissions come from chemical reactions to produce goods/material. Out of this, **steel and cement** are two focus sectors that together account for approximately 14% of global CO2 emissions and **47% of industry's CO2 emissions**.

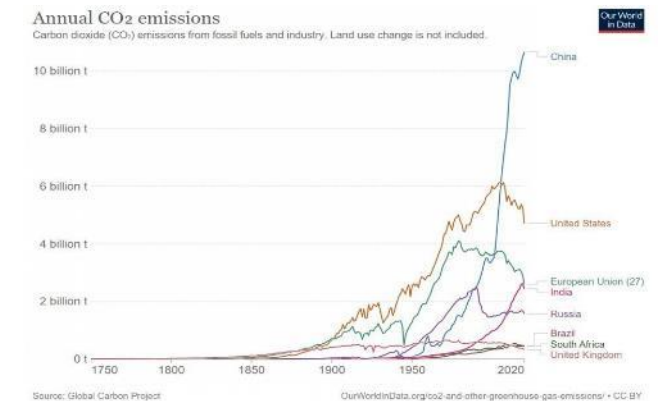
Manufacturing is considered one of the hardest areas to decarbonize, but new technologies like installing of **CCS equipment** and **green hydrogen fuel** show promise for reducing CO2 emissions.

Emissions by sector



Source: Our World in Data based on Climate Analysis Indicators Tool (CAIT).
Note: Greenhouse gases are weighted by their global warming potential value (GWP100). GWP100 measures the relative warming impact of one molecule of a greenhouse gas, relative to carbon dioxide, over 100 years.
OurWorldinData.org/co2 and other: greenhouse-gas-emissions • CC BY

Emissions by countries



Why is decarbonization a key factor for industries to adopt?

As climate change continues to impact global economies, businesses and communities, it is **more important than ever to speed up the transition to a low-carbon economy.**

Most companies surveyed have **committed to addressing climate change, and report significant emissions reductions** to-date.

- ▶ 93% have made a public climate change commitment.
- ▶ On average, they plan to reduce emissions 41% and have reduced emissions 28% so far.

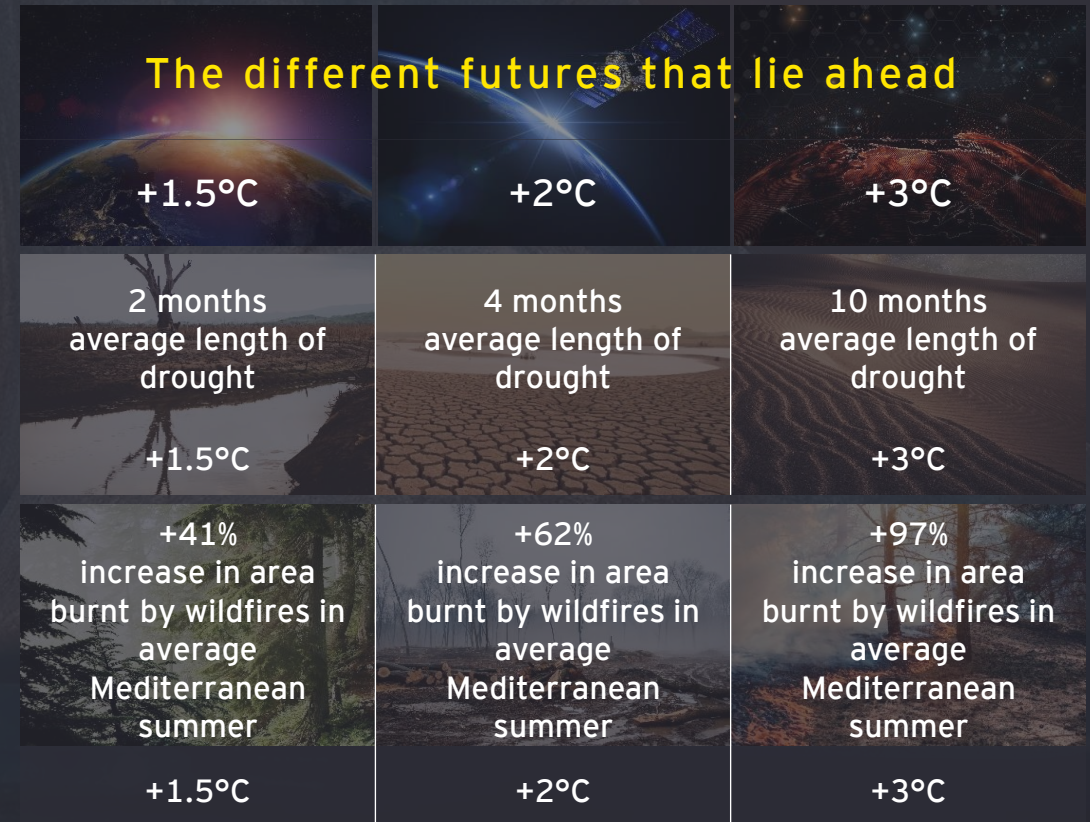
However, companies are planning more investment to address climate change, **motivated first and foremost by value for their company rather than the planet.**

- ▶ 61% will spend more next year to address climate change.
- ▶ Top motivations are improving resilience and ESG rating.
- ▶ Less than half (48%) consider planetary value when evaluating a climate change initiative; Customer (75%) and financial value (68%) are key areas of interest.

But companies' **targets and timeframes are insufficient to accelerate the path to 1.5°C.**

- ▶ World needs a 45% reduction by 2030 to keep 1.5 degree Celsius on track.
- ▶ Only 42% of companies plan to reduce emissions 45% or more.
- ▶ And only 35% have a commitment by 2030.

Could a mindset shift on value help accelerate companies' climate action as **net-zero and climate change are key for investors, consumers and the future of our planet?**



Degrees are measured in terms of an increase from temperatures in the "pre-industrial era (1880) by the end of this century (2100).

You already know why formulating a Net-Zero strategy is so important

98% of investors who responded to our latest EY investors survey say they conduct either an informal or structured evaluation of ESG information

91% of investors say that non-financial performance has played a pivotal role in their investment decision-making over the past year either "frequently" or "occasionally"

Corporate decarbonization is central to investors' investment decision-making: 86% of the respondents state that investing in companies with aggressive carbon-reduction initiatives is an important part of their strategy



Paris Climate Agreement



Rising carbon offset prices



Competitive advantage as a frontrunner while reducing costs



Companies will have to contribute to the Net-Zero world by 2050



Impact of climate change on companies' license to operate



Increasing ESG investor requests

Reporting regulations



EU NFRD

- For environmental and social material topics:
 - Description of a policy and its outcomes
 - Sustainability KPIs
 - Identification of risks and mitigation measures
- Has become **CSRD** in 2024

TCFD

- Governance for climate related issues
- Climate strategy
- Climate related risk management
- Climate metrics and targets

EU TAXONOMY

- The EU Taxonomy will define what can be qualified as sustainable, and companies will have to comply with their sector specific criteria. We expect that soon, technical screening criterias will be defined for all six objectives, as they already are for:
- Climate change mitigation
 - Climate change adaptation

Overview - Scope 1, 2 & 3 emissions

To facilitate decarbonization efforts, governments and campuses are increasingly focused on addressing emissions generated both within their own operations and throughout their supply chains. The classification of emissions into Scope 1, Scope 2, and Scope 3 allows for a comprehensive evaluation of carbon emissions, encompassing emissions from various sources within an entity's value chain. This categorization framework, established by the GHG Protocol Corporate Standard*, serves the purpose of differentiating between direct and indirect emission sources.

Scope-1 Direct Emissions

- ▶ Scope 1 emissions encompass direct greenhouse gas (GHG) emissions arising from an organization's operations and activities
- ▶ These emissions originate from sources directly controlled or owned by the organization. In a corporate context, Scope 1 emissions could include process emissions occurring during industrial processes and on-site manufacturing
- ▶ In a Government & Public Sector (GPS)/campus context, examples of such emissions could be on-site energy sources such as natural gas and fuel, refrigerants, and emissions from combustion in owned or controlled boilers, and furnaces as well as emissions from fleet vehicles

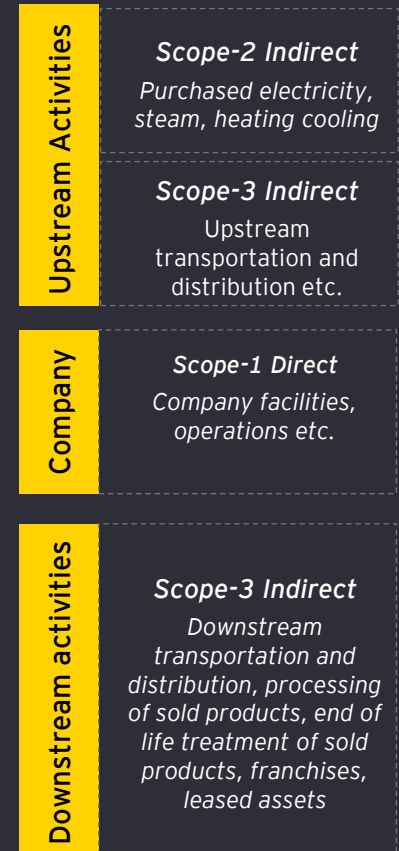
Scope-2 Indirect Emissions

- ▶ Scope 2 emissions are indirect GHG emissions associated with the processes or activities of the organizations
- ▶ Some examples of these emissions are the purchase of electricity, steam, heat, or cooling for an organization's own activities and end-use consumption
- ▶ While scope 2 emissions physically occur at the production site where they are generated, they are still reported in the organization's GHG inventory because they are a result of the organization's energy use and were produced on behalf of the organization
- ▶ Nearly 40% of GHG emissions can be traced to energy generation, and half of that energy is used by industrial or commercial entities.
- ▶ GPS and tax-exempt clients are also major sources of energy consumption and Scope 2 emissions.

Scope-3 Indirect Emissions in value chain

- ▶ The US Environmental Protection Agency (EPA) defines Scope 3 emissions as the indirect emissions resulting from activities outside the reporting organization's ownership or control, but that are influenced by its value chain
- ▶ These emissions are not in the control of the reporting entity; the contribution could be largest among the entity's total carbon footprint and its GHG emissions inventory
- ▶ There could be multiple sub-activities in upstream and downstream set of activities under this scope such as upstream transportation and distribution, waste generated in operations, upstream leased assets, downstream transportation and distribution, etc.

Examples of GHG Protocol scopes and emissions across the value chain



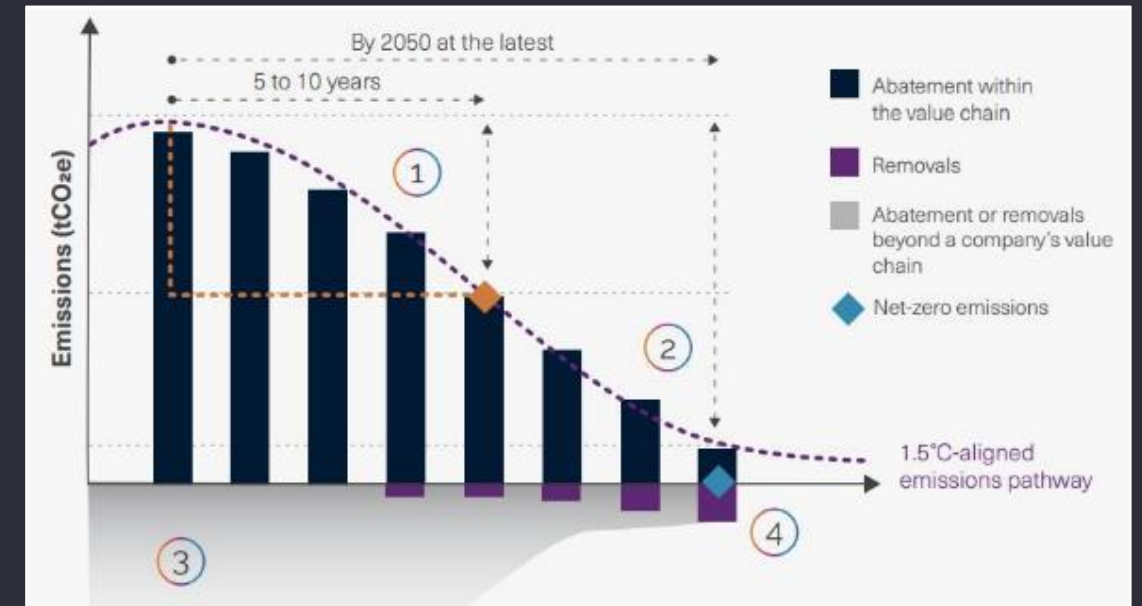
*The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a GHG emissions inventory. More information on the standard is available here <https://ghgprotocol.org/corporate-standard>

Science Based Target Initiative Corporate Net-Zero Standard

Many corporations and governments are creating decarbonization strategies that align with the required decarbonization targets of the Paris Agreement of 2015. The central goals of the Agreement are to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”¹

The most accepted net-zero standard that aligns with the Paris Agreement is from the Science Based Targets initiative (SBTi), which outlines requirements and records corporate commitments, approves targets, and tracks progress towards those goals.

Key elements of Net-Zero



1 Near-term Science Based Target (SBT)

- ▶ 5-10 years in the future
- ▶ 4.2% per year reduction for Scopes 1 & 2
- ▶ 2.5% per year reduction for Scope 3

2 Net-Zero

Long-term SBT	Neutralization
<ul style="list-style-type: none"> ▶ By 2050 at the latest ▶ Must cover >90% of Scope 3 ▶ Must follow sector-specific guidance ▶ Contains little residual emissions (<10%) 	<ul style="list-style-type: none"> ▶ Neutralization of residual emissions ▶ Must remove carbon from the atmosphere ▶ Permanent removal and storage

1. Source - United Nations. [The Paris Agreement](#). N.d.

- 1 Near-term SBT
- 2 Long-term SBT
- 3 Voluntary action outside of value chain
- 4 Neutralization of residual emissions

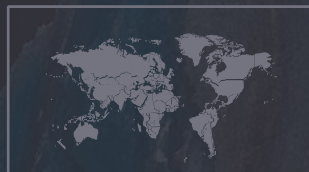
Climate challenge is at the forefront of the government agendas, companies that don't address accelerating regulation risk higher cost of compliance



Tax-related climate change measures (tax and incentives) are a prioritized lever for change used by many governments –through Green Deal and equivalent national legislation

“Internalizing externalities” is the purpose of the environmental policy –tax is an instrument of choice

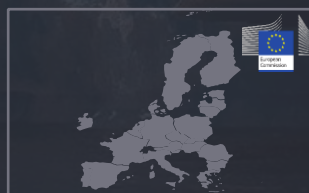
It is anticipated that from 2021/22 onwards environmental taxes will likely (at least) double which will increase pressure on companies to transform



Import levy on EU imports of electricity, cement, aluminium, fertilizer and iron and steel products, depending on the emission content of production and the difference between the EU ETS price and any carbon price paid in the production country



- ▶ High pressure from global climate change and natural disasters
- ▶ Two-degree target insufficient
- ▶ Sectors and countries failing to meet Paris climate targets
- ▶ Tighten targets by 2020 to achieve climate neutrality in 2050



- ▶ Europe's new growth strategy -implementation begins in 2021
- ▶ First climate-neutral continent by 2050
- ▶ European companies as world leaders in clean technologies
- ▶ Measures in all sectors, emissions trading and CO2 tax
- ▶ Proposal for European climate law

The opportunities with a net-zero future

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The allocation of finance has never been bigger

Financial institutions with over \$130 trillion (c.40% of global financial assets) are now committed to limiting global warming to 1.5°C and align their portfolios with net-zero emissions by 2050 or sooner. In addition, developed countries pledged to mobilize \$100 billion per year in climate finance for developing countries, with a new goal to mobilize \$500 billion annually by 2025.

2021 United Nations

The Global CEOs Speak

“

Achieving net-zero emissions requires collaboration across industries and governments. We must work together to develop innovative solutions and drive the transition to a sustainable future.

Bernard Looney,
CEO of BP

“

Net-zero is our North Star. We are committed to achieving this goal by 2050, and we believe that by taking bold action now, we can build a better, more sustainable future for all.

Jim Fitterling,
CEO of Dow Chemical

“

Achieving net-zero emissions is not only the right thing to do for the planet, it's also good for business. By investing in clean technologies and renewable energy, we can create new opportunities for growth and innovation.

Brian Moynihan,
CEO of Bank of America

The opportunities ahead

Setting a net-zero target and creating a decarbonization strategy is a powerful driver of business transformation and growth. It can create new markets, attract top talent, and build brand value.

By setting a net-zero target and creating a decarbonization strategy, you can future-proof your business and position yourselves for long-term success in a low-carbon economy.

Without a net-zero strategy, your business may be less competitive in the marketplace. Your clients and investors are increasingly focused on sustainability and climate action, and without taking action, you may be seen as lagging behind.

Increasing ESG reporting requirements improve measuring, reporting and managing a company's sustainability performance

Key developments and dates



¹ for companies in scope of the current EU NFRD

Other examples of expected developments

Upcoming Regulations

- ▶ EU taxonomy regulation
- ▶ EU plastics levy
- ▶ CBAM: Carbon border adjustment mechanism
- ▶ German supply chain act and upcoming EU directive
- ▶ Counterproposal to the Swiss responsible business initiative



Accounting Standards

- ▶ Green house gas protocol updates



Commitment and Voluntary Frameworks

- ▶ Industry Standards SBTi
- ▶ UN Sustainable Development Goals (SDGs)



Reporting Standards

- ▶ Global reporting Initiative (GRI)
- ▶ European sustainability reporting standards (EFRAG)



New regulations will impose measures, requiring companies to report more rigorously – **Time is now!**

“

Transformative change is required to meet government and regulatory commitments. Are you prepared to go down that road?

Sources: World Economic Forum, IFRS, US SEC

The regulatory environment is rapidly evolving, with significant changes to ESG standards and regulations fast approaching. **US market** is as at a nascent stage of regulations which soon will become strong enough to compel companies to take action, which is why they need to be prepared.

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EU's Green Deal and Corporate Sustainability Reporting Directive (CSRD)

EU CSRD requirements come into effect from 2023, alongside "Fit for 55" package (renewables, energy efficiency, ETS) as part of the EU Green Deal.

US SEC climate disclosure proposal

In March, the US (SEC) released a proposal requiring domestic and foreign SEC-registrants to disclose climate-related information in regulatory filings from 2023.

02

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IFRS creation of International Sustainability Standards Board (ISSB)

Board tasked with delivering a comprehensive global baseline of sustainability-related disclosure standards. New standards due end of 2022.

UK TCFD now mandatory as of 1 April 2022

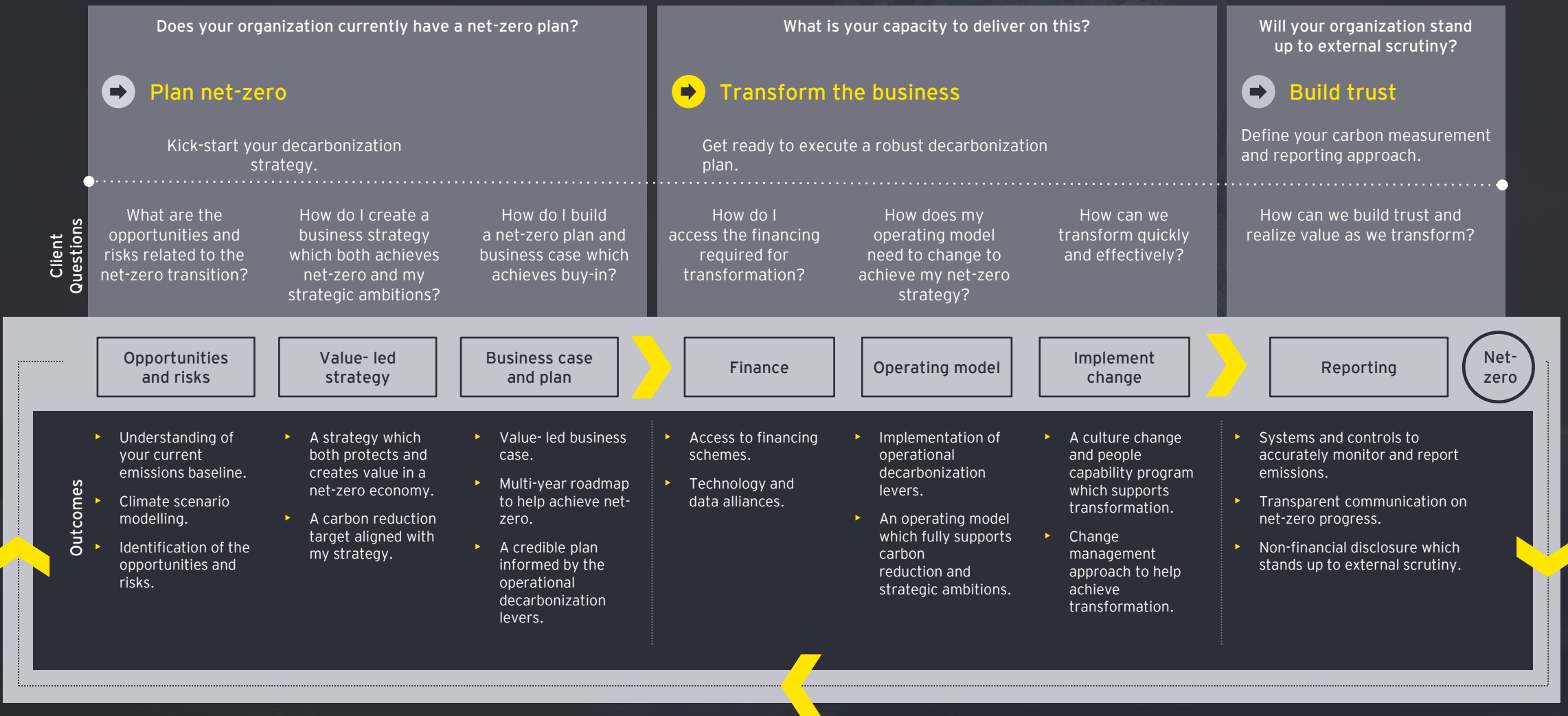
UK Government has confirmed that large UK-registered companies will have to disclose climate-related financial data from April 2022.

04

(*) IPCC report, March 2023

Decarbonization transformation approach

EY has the end-to-end approach that will deliver a net-zero transformation



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