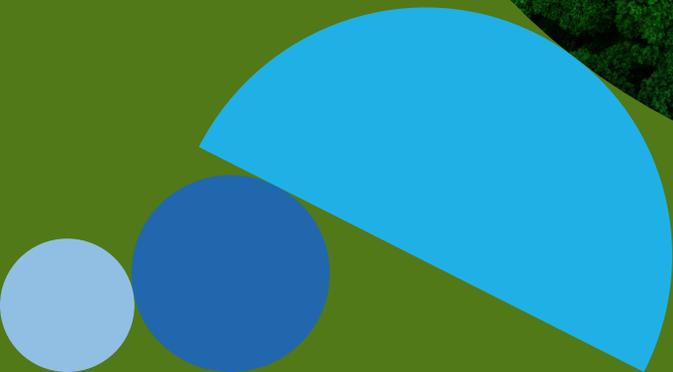


# The economic balancing act of climate policies



## Introduction

The green transition requires a complete overhaul of our energy systems and will have important macroeconomic implications. Climate change needs to be addressed through effective and dedicated policies. While these policies represent an enormous opportunity to build long-term and shared prosperity, they also come with important macroeconomic and geopolitical risks that need to be tackled. The challenge is enormous but solutions exist for the green transition to be a success. Effective climate policies must be both bold and pragmatic, based on sound economic thinking and acknowledge real world constraints. Getting climate policies right is immensely important, but really it is a balancing act.

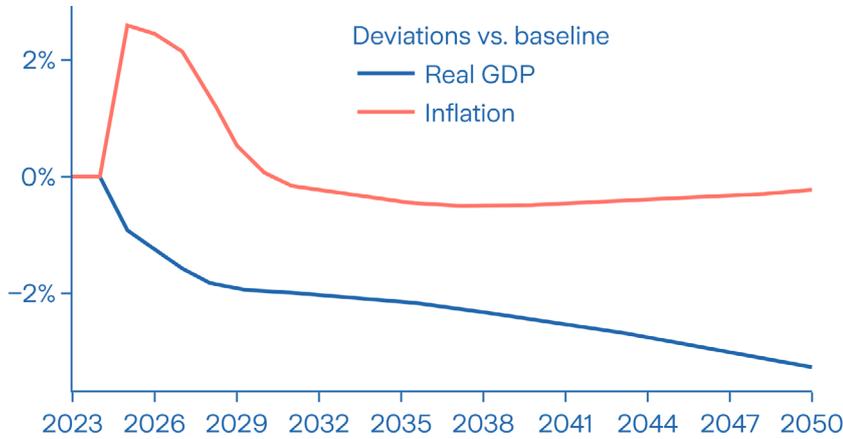
### The green transition is a macroeconomic challenge

The transition towards a greener economy requires a complete overhaul of our energy, industrial, and transport systems. This will mean a massive reallocation of resources away from carbon intensive sectors towards greener ones, both in terms of capital and labor. Given the urgency of tackling climate change, this structural reallocation needs to happen at an unprecedented speed, essentially boiling down to achieving an industrial and technological revolution over the next decade. Such a process is bound to be disruptive and uneven, leading to considerable ramifications for GDP, inflation, interest rates and financial markets more generally. We see this as a key source of macroeconomic and financial market risks and opportunities.

In the short-run, carbon pricing policies will likely push energy prices higher, leading to a surge in production costs. Furthermore, green investments may only become profitable after a delay because it takes time for the economy and the workforce to adopt to the new resources and technologies. This means that climate policies could initially behave as negative supply shocks, characterised by lower economic activity and higher prices. However, this short-term macroeconomic volatility should be weighed against the potentially enormous costs of not addressing climate change. In the longer run, successful climate policies would pay off by limiting the most extreme impacts of a changing climate. Moreover, green investments could enhance productivity by turbo-charging innovation and substantially lowering energy costs, thereby opening up an ocean of new opportunities.

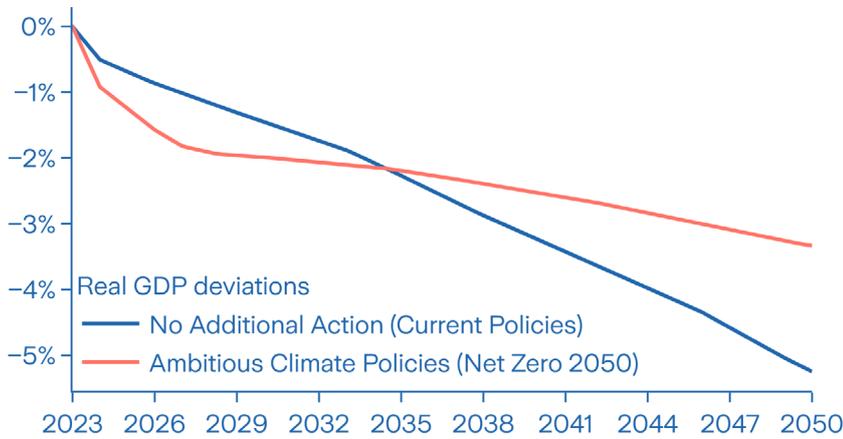


**Ambitious climate scenarios are likely to prove disruptive**



**Notes:** The figure plots the expected deviations for real GDP and inflation in the Net Zero 2050 scenario versus a baseline scenario of no climate change. Real GDP deviations are expressed in cumulative percentage. Inflation deviations are expressed in percentage points. Source: Network for Greening the Financial System (NGFS).

**But the alternative of not tackling climate change is likely to be costlier in the long-run**



**Notes:** The figure compares the (cumulative) real GDP deviations in the Net Zero 2050 and the Current Policies scenario, both versus the baseline scenario of no climate change. While the Net Zero 2050 scenario may initially prove more disruptive, the cumulative effect by 2050 is likely to be smaller. Source: NGFS.

The intertemporal dimension of the green transition (short-term costs versus long-term gains) is fundamental but also subject to important uncertainties. The market pricing of these economic dynamics will be key. For instance, if green industrial policies are perceived as being inefficient and fiscally irresponsible, they may largely backfire and lead to higher interest rates and prices, eventually crowding out private investments and reducing consumption. The recent inflationary period also provides a stark reminder of the importance of the macroeconomic environment for the deployment of highly capital intensive green technologies such as renewables. A recent analysis found that a 2 percentage point increase in the risk-free interest rate pushes up the cost of electricity for a renewables project by 20%, compared to only 11% for a gas plant.<sup>1</sup> These results highlight the pivotal role that governments can play in providing stable sources of funding to ensure that renewable technologies keep their momentum. This support, however, has to take place in a context of limited fiscal space. We see balancing the need for green investment and fiscal constraints as a key macroeconomic challenge.

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<sup>1</sup> This difference can be explained by the typically larger financial leverage of companies in nascent green energy sectors, compared to more established firms with stronger balance sheets in the oil and gas industry. [Wood Mackenzie: The cost of investing in the energy transition in a high interest-rate era.](#)

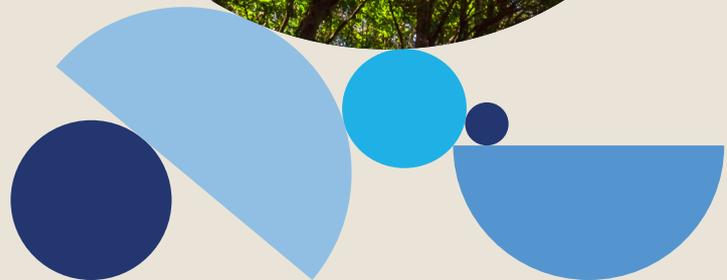
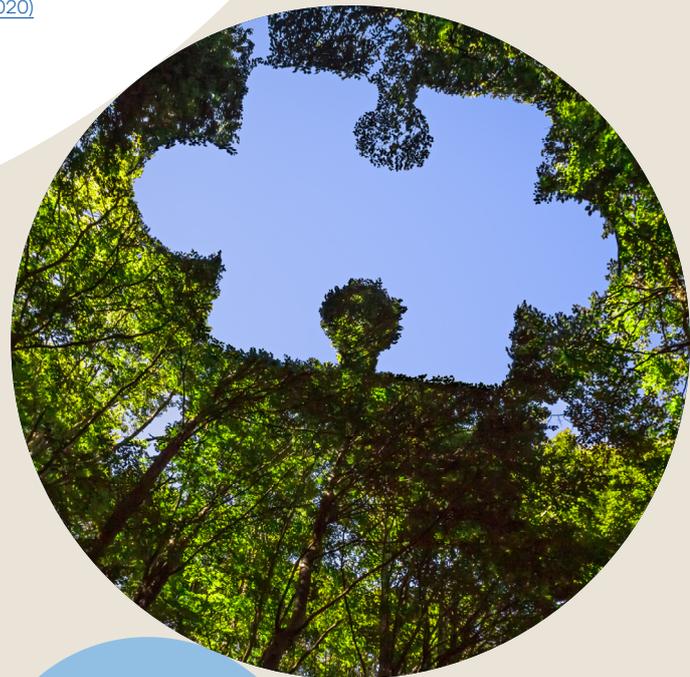
## Carbon pricing is effective but needs to be made more politically acceptable

Solutions exist to address climate change effectively. From an economic perspective, carbon pricing policies represent the most efficient way of addressing climate change and drive down CO<sub>2</sub> emissions globally. The rationale is straightforward: climate change arises because the prices of carbon intensive goods and services do not reflect their true environmental costs (this is what economists like to call an externality). In essence, polluting is simply 'too cheap', which results in excessive emissions. Carbon pricing aims to address this market failure through a pricing mechanism by making explicit the true costs of CO<sub>2</sub> polluting activities. This sends a simple yet incredibly powerful signal to both consumers and businesses, shifting their incentives away from expensive carbon intensive products towards greener, more sustainable alternatives.

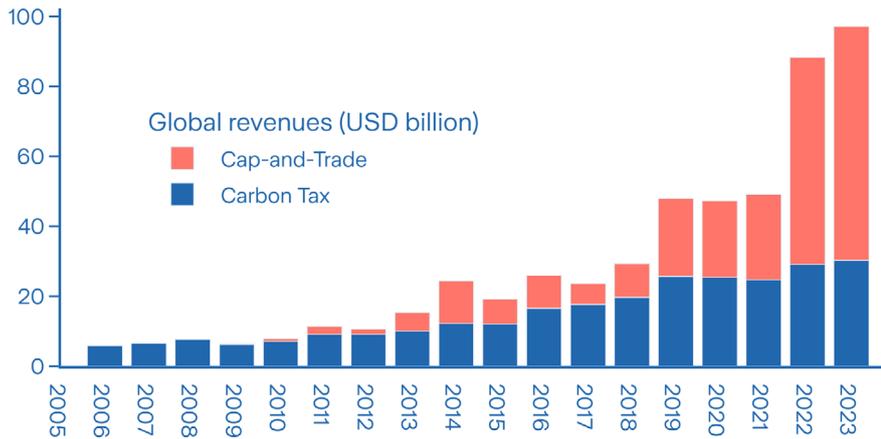
What is more, carbon pricing policies have already demonstrated their effectiveness. Since 2005, the CO<sub>2</sub> emissions of sectors covered by Europe's flagship carbon pricing policy, the EU Exchange Traded System (ETS), have been reduced by 47%.<sup>2</sup> Recent research further demonstrates the role played by the EU ETS in driving down European carbon emissions.<sup>3</sup> Emboldened by these results, the European Union has made the further development of the ETS a key pillar of its ambition to reduce CO<sub>2</sub> emissions by at least 55% by 2030 (the so-called fit-for-55 policy package). Other parts of the world are setting up their own carbon markets, too. In the US, they exist in 10 states, including California (but are crucially missing at the country level). In July 2021, China launched the world's largest nationwide carbon market. While still in its early stage, the increasing coverage of the Chinese carbon market could turn out to be a game changer for international climate policies. In addition to driving down emissions, carbon pricing schemes also generate revenues that could turn out to be particularly valuable in a global context of limited fiscal space. In 2022, revenues from carbon markets (either carbon taxes or cap-and-trade systems) reached USD 100 billion.

<sup>2</sup>[The Economist: Carbon Emissions are dropping fast in Europe](#)

<sup>3</sup>[The economic effects of carbon pricing \(D. Känzig & M. Konrad, 2023\), The European Union Emissions Trading System reduced CO<sub>2</sub> emissions despite low prices \(P. Bayer and M. Aklin, 2020\)](#)



**Carbon pricing policies generate revenues that could be particularly valuable in a context of limited fiscal space**

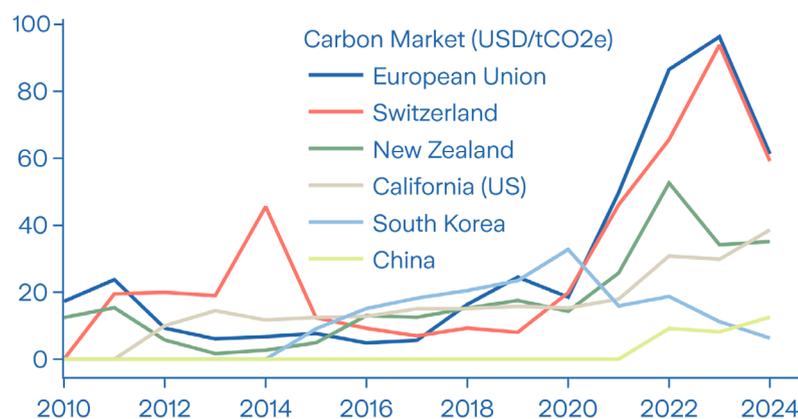


Source: International Energy Agency (IEA)

Despite their effectiveness, carbon pricing schemes only cover around 25% of carbon emissions globally, with a weighted average price of around USD 23/tCO<sub>2</sub>e<sup>4</sup>, which is way below what is required to achieve climate objectives. (Research from the IMF suggests USD 75/tCO<sub>2</sub>e at a bare minimum). A key element that is materially slowing down the adoption of carbon markets is their unpopularity. As a striking example, the recent Inflation Reduction Act in the US makes essentially no reference to further carbon pricing schemes, a direct result of their lack of popular support. The lack of stronger momentum and recognition of carbon markets' effectiveness are clear sources of concern that threaten the successful realisation of ambitious climate objectives.

One way to increase public support is to make carbon pricing policies more explicit when it comes to revenue recycling and redistribution schemes. These considerations need to be at the core of the policy itself, rather than being treated as an afterthought. At the country level, fiscal policies targeted towards poorer households (which typically spend more on energy and gasoline as a share of their income) should be a priority to make carbon pricing policies less regressive. Redistribution considerations also need to happen across countries to foster global cooperation. For instance, developed economies could decide to recycle even a modest share of their carbon tax revenues to incentivise emerging economies set up their own carbon markets.

**The global price of carbon remains too low**



**Notes:** The figure plots the carbon price in the ETS market for selected countries and regions. Source: World Bank

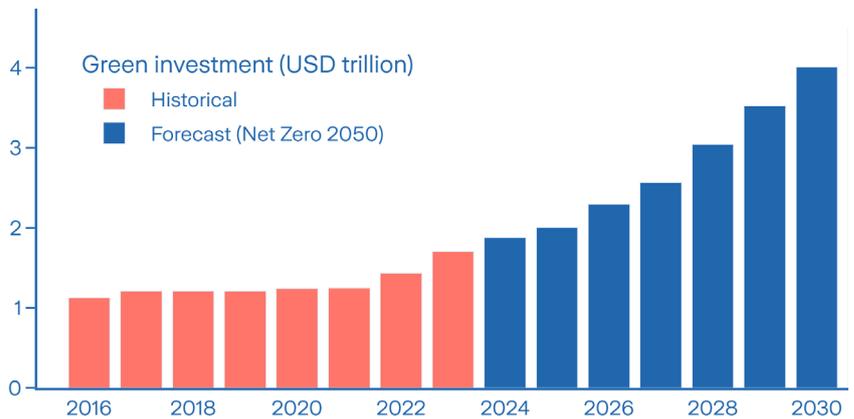
<sup>4</sup> Morgan Stanley, CBAM and the path to a global carbon price.

### The need for ambitious climate commitments

Despite a record 2024 in which investment in green technology reached around USD 2 trillion, the International Energy Agency (IEA) estimates that this number needs to rise to USD 4.5 trillion per year by the early 2030s to be on track to reach the so-called Net Zero scenario by 2050. Clearly, green investment needs to be massively scaled up to achieve ambitious climate objectives. Both governments and financial markets have key roles to play to ensure an efficient allocation of resources that will make it possible to unlock technological breakthroughs.

In our view, a lack of regulatory certainty and credible climate commitments is preventing market forces from being fully unleashed. If ambitious climate policies aimed at phasing out fossil fuels are perceived as binding and unlikely to be reversed, investments in fossil fuels would suddenly become much riskier, making their risk-reward profile far less attractive than it currently is. Diminishing uncertainties regarding the future climate policy landscape will also enable a more accurate assessment of companies' true exposure to climate policy risks. Successful public-private partnerships can serve as valuable models. For example, the Chilean government is actively promoting hydrogen use within its mining sector as part of its National Energy Strategy and plans to become the leading exporter of green hydrogen by 2040.<sup>5</sup> In Europe, the REPowerEU strategy has introduced new binding targets for renewable energy, spurring private sector engagement and leading to a record installation of solar capacity in 2023.<sup>6</sup>

### Green investment needs to scale up to reach climate objectives



**Notes:** The graph shows the historical and the required amount of green investment in order to reach ambitious climate objectives. Source: IEA, author's calculation.

<sup>5</sup>Chile's Bet on Green Hydrogen (IMF)

<sup>6</sup>European Commission: REPowerEU – 2 years on

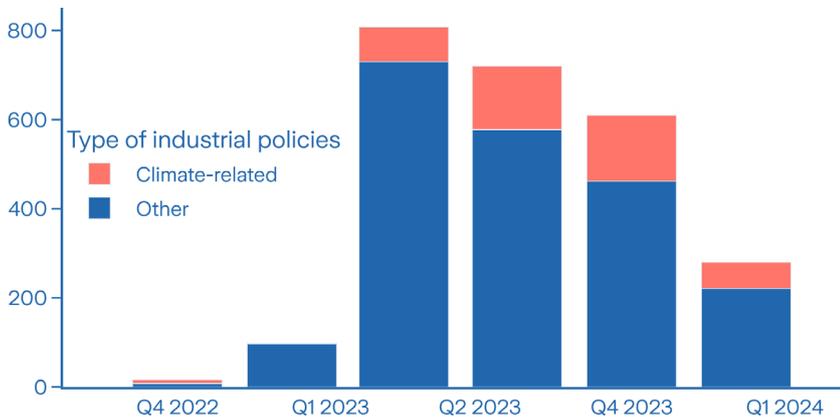


## Industrial policies can be for the better or the worse

Given the speed at which green investments need to happen, industrial policies in the form of subsidies and tax breaks to incentivise green capital expenditure and R&D appear necessary to complete the climate policy toolkit. Nevertheless, governments should refrain from picking winners and rather create an environment conducive for the best technologies to be exploited to their full potential. In the current fiscal environment, it is critical to ensure that subsidies are well-targeted and generate strong learning-by-doing externalities. Otherwise, the fiscal costs may turn out to be large and effectively threaten the success of the transition. The Covid-19 vaccine experience has shown that, when pushed in the right conditions, the private sector can develop innovative solutions at an unprecedented speed.

A key concern, however, are the geopolitical implications of industrial policies, in particular when these are driven more by political considerations than genuine economic arguments. There are clear risks that would result from a dangerous and inefficient subsidy race to lure green investments at the expense of trading partners.<sup>7</sup> The resulting geopolitical fragmentation and economic inefficiency could have disastrous consequences, both for the climate and global economic prosperity. Addressing this will be an enormous challenge and there is no magic bullet. We see international coordination of industrial policies as a crucial element of a successful green transition.

### (Green) industrial policies are back



**Notes:** The figure plots the number of industrial policies announcement. Source: International Monetary Fund (IMF)

<sup>7</sup> Recent research from the IMF seems to confirm the tit-for-tat nature of recent industrial policies, see e.g. The Return of Industrial Policy in Data (S. Evenett et al., 2024)



### International cooperation as a way forward

As a global phenomenon, climate change calls for a global response. Despite its ambitious climate objectives, Europe, for instance, has very little influence on the course of climate change on a standalone basis (it accounts for only roughly nine percent of global CO<sub>2</sub> emissions). Achieving international cooperation in the fight against climate change is thus likely to be the single-most important determining factor, and policies that can generate this kind of international traction are particularly valuable.

One such approach is the implementation of a carbon border adjustment mechanism (CBAM). A border tax aims to level the playing field by eliminating the competitive advantage enjoyed by emissions-intensive firms operating in countries with lax environment regulations (in economic jargon, it prevents so-called 'carbon leakage'). A company that wants to export to a region with a CBAM therefore needs to pay a carbon duty based on the unpriced carbon intensity of its exports, in addition to the usual import duty. As a result, the CBAM incentivises other countries to follow suit in order to collect the carbon tax at home rather than letting the revenues flow abroad. The introduction of the CBAM can thus help kickstart the introduction of a worldwide carbon price and spur wider discussions around the role of global trade regulation. On paper, the CBAM could turn out to be a critical leap forward in the fight against climate change. The European Union has been an early proponent of this approach, and has recently agreed to introduce the first-ever CBAM by 2026. Other countries such as the US and China are contemplating the introduction of similar policies.

While the approach benefits from a sound theoretical justification, concerns about potential unintended consequences are emerging. EU trade partners are already accusing the CBAM of creating protectionist trade barriers, while domestic firms are worried about the increased red tape. Others accuse the policy of contributing to European industrial decline. These discussions fit into a wider context of concerns about the competitiveness of the European regulatory approach, in particular when compared to a 'carrot' approach such as that of the Inflation Reduction Act in the US. These considerations are no reason for abandoning the policy altogether. Yet, they raise fair and valid economic concerns that need to be addressed effectively. Due to its pioneering nature, getting the policy right is even more critical, as its success, as much as its failure, will set the tone for future climate policies worldwide.



## Conclusion

Climate change is a defining challenge of our lifetime, requiring both bold and pragmatic approaches to navigate complex political and economic constraints. The scale and speed at which the green transition needs to happen is unprecedented, essentially boiling down to achieving an industrial and technological revolution over the next decade. While this process is bound to be disruptive, it is also a unique opportunity to build long-term and shared prosperity. In today's complex geopolitical landscape, achieving international cooperation will undeniably be challenging but is key to move the transition forward. The cost of inaction looms far too large to be ignored. The urgency is clear: there is really no time to waste.



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