European Environment Agency

European Union 8th Environment Action Programme

Monitoring report on progress towards the 8th EAP objectives 2024 edition

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Executive summary

The 8th Environment Action Programme (EAP) is the EU's legally agreed, overarching framework for action on EU environmental policy until 2030.

The programme includes a long-term priority objective of living well within planetary boundaries by 2050 at the latest. It also sets out six thematic priority objectives for 2030 and identifies the conditions needed to achieve them. It builds on the European Green Deal and aims to accelerate the green transition, as well as to protect, restore and improve the state of the environment.

The 8th EAP Decision requires progress towards the priority objectives to be monitored annually, taking into account the enabling conditions and the overall goal of systemic change.

The priority objectives, the enabling conditions and the monitoring framework and governance of the 8th EAP as stipulated in the 8th EAP Decision are described in Annex 1.

The European Environment Agency (EEA) takes stock of progress towards the 8th EAP objectives annually, based on a set of 28 headline indicators and corresponding targets. This report is the second in the annual series, with the first EEA monitoring report on progress towards the 8th EAP objectives published in 2023, accompanied by the 8th EAP scoreboard.

The European Commission selected and adopted the indicators and targets after broad consultation with stakeholders, Member States and the EEA. They represent key aspects of the 8th EAP and were outlined in the European Commission communication on the 8th EAP monitoring framework.

The EEA developed and applied a methodology to assess the prospects of meeting the 28 monitoring targets by 2030, based on the expected direction of the corresponding 28 ([a]) 8th EAP headline indicators, described in Annex 2.

The headline indicators, their targets and the prospects of meeting them by 2030 are presented in the form of a scoreboard in Table ES.1. Specifically, the table presents the indicators and corresponding targets in each of the six thematic priority objectives, the long-term priority objective and the enabling conditions in line with the Communication on the 8th EAP monitoring framework.

([a]) The European Commission Communication on the 8th EAP monitoring refers to 26 headline indicators and targets. This is because two of the headline indicators (and associated targets) are doubles. Specifically, the indicator on designated protected areas is two indicators: one on terrestrial and one on marine protected areas with separate targets. The indicator on the environmental goods and services sector is also two distinct indicators and targets: one on employment and one on gross value added of the environmental goods and services sector.

Table ES.1 8th Environment Action Programme monitoring results, 2024

8TH EAP PRIORITY OBJECTIVES AND ENABLING CONDITIONS **8th EAP indicators** Monitoring targets	Outlook of meeting the targets by 2030 On track	Likely on track	Likely off track	Off track
CLIMATE CHANGE MITIGATION				
Greenhouse gas emissions Reduce net GHG emissions by at least 55% by 2030 from 1990 levels		●		
GHG emissions from land use, land-use change and forestry Increase net GHG removals by carbon sinks from the LULUCF sector to -310 million tonnes CO_2 equivalent by 2030				●
CLIMATE CHANGE ADAPTATION				
Climate-related economic losses Reduce overall monetary losses from weather and climate-related events			●	
Drought impact on ecosystems Decrease the area impacted by drought and loss of vegetation productivity			●	
A REGENERATIVE CIRCULAR ECONOMY				
Raw material consumption Significantly decrease the EU's material footprint, by reducing the amount of raw material needed to produce the products consumed in the EU			●	
Total waste generation Significantly reduce the total amount of waste generated by 2030			●	
ZERO POLLUTION AND A TOXIC FREE ENVIRONMENT				
Premature deaths due to exposure to fine particulate matter Reduce premature deaths from air pollution by 55% (from 2005 levels) by 2030	●			
Nitrates in groundwater Reduce nutrient losses by at least 50% in safe groundwater resources			●	
BIODIVERSITY AND ECOSYSTEMS				
Designated terrestrial protected areas Legally protect at least 30% of the EU's land area by 2030			●	
Designated marine protected areas Legally protect at least 30% of the EU's sea area by 2030			●	
Common bird index Reverse the decline in populations of common birds			●	
Forest connectivity Increase the degree of connectivity in forest ecosystems with a view to creating and integrating ecological corridors and increase climate change resilience			●	
ENVIRONMENTAL AND CLIMATE PRESSURES RELATED TO EU PRODUCTION AND CONSUMPTION				
Energy consumption Reduce by 2030 the primary and the final energy consumption levels to respectively 992.5 and 763 million tonnes of oil equivalent			●	
Share of renewable energy in gross final energy consumption At least 42.5% of energy from renewable sources in gross final energy consumption by 2030			●	
Circular material use rate Double the ratio of circular material use by 2030 compared to 2020				●
Share of buses and trains in inland passenger transport Increase the share of collective transport modes (buses, coaches and trains)			●	
Area under organic farming 25% of EU agricultural land organically farmed by 2030				●

8TH EAP PRIORITY OBJECTIVES AND ENABLING CONDITIONS

8th EAP indicators
Monitoring targets

Outlook of meeting the targets by 2030

	On track	Likely on track	Likely off track	Off track
ENABLING CONDITIONS				
Share of environmental taxes in total tax revenues Increase the share of environmental taxes in total revenues from taxes and social contributions		●		
Fossil fuel subsidies Reduce environmentally harmful subsidies, in particular fossil fuel subsidies, with a view to phasing them out without delay			●	
Environmental protection expenditure Increase spending by households, corporations and governments on preventing, reducing and eliminating pollution and other environmental degradation	●			
Share of green bonds in total issued bonds Increase the issuance of green bonds to boost public and private financing for green investments		●		
Eco-innovation index Increasing eco-innovation as a driver for the green transition	●			
LIVING WELL, WITHIN PLANETARY BOUNDARIES				
Land take No net land take by 2050			●	
Water scarcity Reduce water scarcity			●	
Consumption footprint Significantly decrease the EU's consumption footprint, i.e. the environmental impact of consumption				●
Employment in the environmental goods and services sector Increase the share of green employment in the whole economy	●			
Gross value added of the environmental goods and services sector Increase the share of the green economy in the whole economy	●			
Environmental inequalities Reduce environmental inequalities and ensure a fair transition			●	

Key messages from the 8th EAP scoreboard by priority objective and enabling conditions

Climate change mitigation

The 8th EAP mirrors the vision of the European Green Deal to make Europe the world's first climate-neutral continent by 2050 [1] through a just transition that leaves no one behind. It aims to reduce the EU's net greenhouse gas (GHG) emissions as well as to enhance carbon removal in the land use, land-use change and forestry sector (LULUCF).

In 2023, GHG emissions are estimated to have fallen sharply with a year-on-year reduction of 8%. This was likely driven by reductions in the energy supply sector and it means that the EU has made significant progress towards meeting its 55% emissions reduction target. To close the remaining gap, the legally binding measures under the Fit for 55 package create a framework to further accelerate emission reductions across all sectors. Aggregated GHG projections from March 2023, updated by 11 Member States in 2024, indicate that the policies and measures adopted and planned by Member States at the time of submission would deliver

net GHG emission reductions of 49% by 2030 ([b]). However, the ongoing updates to national energy and climate plans (NECPs) are expected to lead to additional emission reduction measures and contribute to closing the remaining gap from the current projections to the target. The EU is therefore likely on track to reach its net GHG emissions target in 2030.

The LULUCF sector acts as a net GHG sink in the EU; it removed an equivalent of 7% of the EU's annual GHG emissions in 2022 and thereby contributes to a reduction in the EU's net GHG emissions. However, the expectation is that it will be difficult to achieve the specific 2030 target on carbon removals in the LULUCF sector. While preliminary estimates suggest net GHG removals increased in 2023, the trend over the past 10 years is mostly going in the wrong direction and will have to be reversed. The latest Member State projections based on current and planned policies and measures fall well short of the target, indicating the EU is off track to reach its LULUCF target.

Both the emissions reduction and LULUCF targets have been agreed upon recently. In line with updates of the NECPs, Member States continue to implement further policies and measures to support their objectives in this area.

Climate change adaptation

The 8th EAP requires continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change.

The EU is likely not on track to meet the targets for the two monitoring targets for this 8th EAP priority objective by 2030. The two targets are about reducing the overall monetary losses from weather- and climate-related events, and decreasing the area impacted by drought and loss of vegetation productivity.

The latest Intergovernmental Panel on Climate Change assessment [(2)] reports project that many weather- and climate-related extreme events, such as floods, droughts and heatwaves, will become more frequent and severe in Europe and around the world. The first ever European Climate Risk Assessment [(3)] concluded that climate risks in Europe are accelerating, with several already at critical levels. The implementation of the EU and national climate change adaptation laws and strategies is expected to have a positive effect on Europe's adaptive capacity to deal with the impacts of climate change in the region but the rate at which we are adapting is not currently keeping pace with intensifying climate-related extreme weather events. It will be important to put in place comprehensive, integrated approaches to enhance adaptive capacity and to increase societal resilience against climate change.

A regenerative circular economy

The 8th EAP aims to move towards a regenerative circular economy that gives back to the planet more than it takes.

The EU is likely not on track to meet the targets of significantly decreasing the material footprint and the total amount of generated waste by 2030.

Economic growth has been a key driver behind the trends of both material footprint and total waste generation. Legislation already in place to prevent waste generation and to sustainably manage waste, including to recycle and use recycled materials, has only partially succeeded in decoupling raw material consumption and waste

([b]) This 49% projected reduction applies the EU climate target scope as defined in the European Climate Law, including net removals from the LULUCF sector as well as emissions from international aviation and maritime transport activities regulated under EU law. If EU domestic GHGs are considered on their own (excluding international transport), GHG emissions are projected to reduce by 51% by 2030.

generation from economic growth. Significant additional efforts to reduce the impact of EU consumption where necessary and to move further towards a circular economy are needed to reach the 2030 targets. Recently adopted legislation, such as the landmark Regulation on Ecodesign for Sustainable Products as well as the strengthened waste legislation, could ensure progress if implemented swiftly and comprehensively.

Zero pollution and a toxic-free environment

The 8th EAP pursues a zero pollution aim to achieve a toxic-free environment by 2030.

The EU remains on track to meet the 2030 target of reducing premature deaths from air pollution (measured by those attributed to fine particulate matter) by at least 55% compared to 2005 levels. Extrapolating the progress of the past 10 years shows that the target will be significantly overachieved in 2030. Projections by the European Commission also show that the target will be significantly overachieved if EU policies on air, climate and energy are adequately implemented. Despite the ongoing improvement, there were 239,000 premature deaths attributable to fine particulate matter in the EU in 2022.

The EU is likely not on track to meet the target on reducing by at least 50% nutrient losses into groundwater by 2030. This is due to lack of progress in reducing nutrient losses, especially from agriculture, despite legislation in place. Some progress is nevertheless expected by 2030 because of new initiatives under the European Green Deal, though this is likely to fall short of meeting the target.

Biodiversity and ecosystems

The 8th EAP aims to protect, preserve and restore Europe's biodiversity.

The EU is likely not on track to meet any of the four biodiversity and ecosystem-related monitoring targets selected for this priority objective by 2030. The targets are reversing the decline in populations of common birds, increasing the degree of connectivity in forest ecosystems, and legally protecting at least 30% of the EU's land area and at least 30% of the EU sea area by 2030.

A key reason is high pressure on land and sea use arising from socio-economic sectors such as agriculture, fisheries and urbanisation. To meet the targets, Member States must better implement existing legislation, take new measures to restore biodiversity and further mainstream biodiversity into other policies such as the common agricultural and fisheries policies. The adoption of the Regulation on Nature Restoration could prove to be a watershed moment for protecting and restoring biodiversity and ecosystems. However, this law needs to be fully implemented and enforced in all Member States and it is too early to assess what impact it may have. The outcomes will depend on the form and timing of restoration measures, as well as when these measures will have an impact.

Environmental and climate pressures related to EU production and consumption

The 8th EAP aims to promote environmental aspects of sustainability and significantly reduce key environmental and climate pressures related to the EU's production and consumption.

The EU is likely not on track to meet the 2030 targets to reduce primary and final energy consumption levels to 992.5 and 763 million tonnes of oil equivalent, nor to increase the share of collective passenger transport (buses, coaches and trains). The same is true for the target to reach at least 42.5% of energy from renewable

sources in gross final energy consumption, though the faster pace of decarbonising EU electricity supply observed recently provides an encouraging sign regarding the overall transformation of the EU energy system.

The targets on doubling the circular material use rate from 2005 levels and on reaching at least 25% of EU agricultural land under organic farming are not on track to be met by 2030.

A common denominator across all five indicator assessments is the extent of the required change, the high speed at which this needs to take place and the need for a deep transformation of the systems that underpin these five areas. Reducing consumption, energy and material needs, and enabling sustainable choices for consumption, energy use, food and mobility are key determinants of success.

Enabling conditions

To meet the priority objectives of the 8th EAP, many enabling conditions would need to be fulfilled.

The EU remains on track to meet the targets of increasing eco-innovation and environmental protection expenditure by 2030. It is expected that eco-innovation will increase further in the coming years, because the high ambition of the environment and climate objectives of the European Green Deal and its ensuing initiatives have created favourable conditions. Environmental protection expenditure is also expected to increase further in the coming years as additional resources have been made available to this effect in the EU budget, and in grants and loans under the EU Recovery and Resilience Facility.

It remains likely that EU is on track to meet the targets of increasing the shares of environmental taxes in total revenues from taxes and social contributions, and of green bonds in total issued bonds by 2030. The increased ambition and scope of emissions trading may contribute to a rise in the share of environmental taxes. However, whether this is sufficient to halt the persistent decrease in the overall share of environmental taxes is increasingly uncertain. Additionally, the EU's heightened environmental and climate ambition and improved framework conditions for sustainable finance may further increase the share of green bonds. While fewer green bonds were issued in 2023, this is likely a temporary phenomenon and green bonds are expected to continue making up and increasing share of total bonds in future years.

The EU is likely not on track to reduce the volume of structural fossil fuel subsidies in line with the 8th EAP ambition to phase them out without delay. At present, most EU countries lack concrete phase-out plans and fossil fuel subsidies increased sharply in 2022; this situation persisted to a large extent in 2023, with governments across the EU acting to ease the social impact of high energy prices in the context of the post-COVID recovery and Russia's invasion of Ukraine.

Living well within planetary boundaries

The 8th EAP requires that, by 2050 at the latest, EU citizens live well within the limits of the planet in a wellbeing economy.

The EU is on track to meet the targets of increasing the share of green economy and share of green employment in the whole economy by 2030. Ongoing implementation of the environment and climate policy of the European Green Deal will most likely further drive these shares up, as business and industry shift towards green business models.

The EU is not on track to meet the target of significantly decreasing the EU's consumption footprint by 2030. There is broad agreement in the scientific and policy community, supported by projections of the European Commission based on current consumption patterns and expected economic growth, that the EU will not reduce its consumption footprint in the coming years.

The targets to reach the 2050 EU goal of 'no net land take' and of reducing both water scarcity and environmental inequalities are likely not on track to be met by 2030. Projections show that built-up areas will expand in the EU by 2030, hampering the EU's prospects of achieving the 2050 'no net land take' goal. The impacts of climate change may further reduce water availability, making it challenging to reduce ongoing water scarcity in the coming years.

Finally, although income-related environmental inequalities associated with air pollution are an imperfect proxy for environmental inequalities, it is important to note that it seems unlikely that this indicator will show improvements in the coming years.

Changing prospects in terms of meeting targets

This annual report takes stock of progress towards the objectives of the 8th EAP, based on EEA assessments of the prospects of meeting the 28 targets by 2030. The changes over time in the assessed prospects are presented in Table ES.2.

In 2024, the only indicator assessed to have improved prospects of meeting the corresponding 2030 target was the energy consumption indicator. While the long-term historical trend indicates the EU is not yet on track to meet the targets on energy consumption, recent reductions are promising. If sustained until the end of this decade, the targets could be achieved. This highlights the importance of maintaining decisive action and sustaining this progress to put the EU on track. In light of this, the prospects of meeting the 2030 target are now assessed as ‘likely off track’ rather than ‘fully off track’.

While there were no changes in the assessed prospects for meeting any other indicators, only one year has passed since the first 8th EAP monitoring report. As such there has been insufficient time for many of the implemented actions to deliver results or for change to be meaningfully assessed. Nevertheless, the current assessments and limited progress demonstrate the need for decisive action to ensure the 8th EAP targets can be met by 2030; they point to the need for policy actions announced in the European Green Deal to be fully implemented.

Table ES.2 Changes in 8th EAP monitoring results, 2023-2024

8th EAP indicators	2023	2024	2025	2026	2027	2028	2029	2030
CLIMATE CHANGE MITIGATION								
Greenhouse gas (GHG) emissions								
GHG emissions from land use, land-use change and forestry								
CLIMATE CHANGE ADAPTATION								
Climate-related economic losses								
Drought impact on ecosystems								
A REGENERATIVE CIRCULAR ECONOMY								
Raw material consumption								
Total waste generation								
ZERO POLLUTION AND A TOXIC FREE ENVIRONMENT								
Premature deaths due to exposure to fine particulate matter								
Nitrates in groundwater								
BIODIVERSITY AND ECOSYSTEMS								
Designated terrestrial protected areas								
Designated marine protected areas								
Common bird index								
Forest connectivity								
ENVIRONMENTAL AND CLIMATE PRESSURES RELATED TO EU PRODUCTION AND CONSUMPTION								
Energy consumption								
Share of renewable energy in gross final energy consumption								
Circular material use rate								
Share of buses and trains in inland passenger transport								
Area under organic farming								

8th EAP indicators	2023	2024	2025	2026	2027	2028	2029	2030
ENABLING CONDITIONS								
Share of environmental taxes in total tax revenues	Likely on track	Likely on track						
Fossil fuel subsidies	Likely off track	Likely off track						
Environmental protection expenditure	On track	On track						
Share of green bonds in total issued bonds	Likely on track	Likely on track						
Eco-innovation index	On track	On track						
LIVING WELL, WITHIN PLANETARY BOUNDARIES								
Land take	Likely off track	Likely off track						
Water exploitation index plus	Likely off track	Likely off track						
Consumption footprint	Off track	Off track						
Employment in the environmental goods and services sector	On track	On track						
Gross value added of the environmental goods and services sector	On track	On track						
Environmental inequalities	Likely off track	Likely off track						

On track · Likely on track · Likely off track · Off track

In conclusion

The assessment of the prospects of meeting the 8th EAP priority objectives and associated 2030 targets point to the continued need for decisive and urgent action to protect and restore Europe's environment, mitigate climate change and better adapt to changing conditions. The EU has already transgressed several planetary boundaries [(4)] while climate risks in Europe are accelerating, with several of them already at critical levels.

Several of the 8th EAP targets reflect the heightened ambition of the environment and climate policy agreed under the European Green Deal. The targets relating to climate change mitigation and energy were adopted only recently, with Member States in the process of aligning their policy measures and ambitions with the updated objectives at EU level.

The extent and speed of the change required to meet the targets should not be ignored: several of the indicators point to the need for a rapid and significant increase in pace in the years leading to 2030, as compared to the pace over the past 10 years. Most indicators remain 'likely off track' or 'off track' to meet the targets by 2030,

with only one indicator assessment improving since the first monitoring report on progress towards the 8th EAP objectives. Many initiatives under the European Green Deal are yet to be implemented, making it too early to assess their full impact; however, the current assessments and limited progress demonstrate the need for urgent and decisive action to ensure the 8th EAP targets can be met by 2030.

The 2030 indicator outlook results related to the 8th EAP priority objective on 'environmental and climate change pressures related to EU production and consumption' are the most concerning. The pace of change for most of these indicators will have to increase substantially in the coming years. This points to the need for a deep transformation of Europe's energy, mobility, food and industrial systems, as well as our built environment.

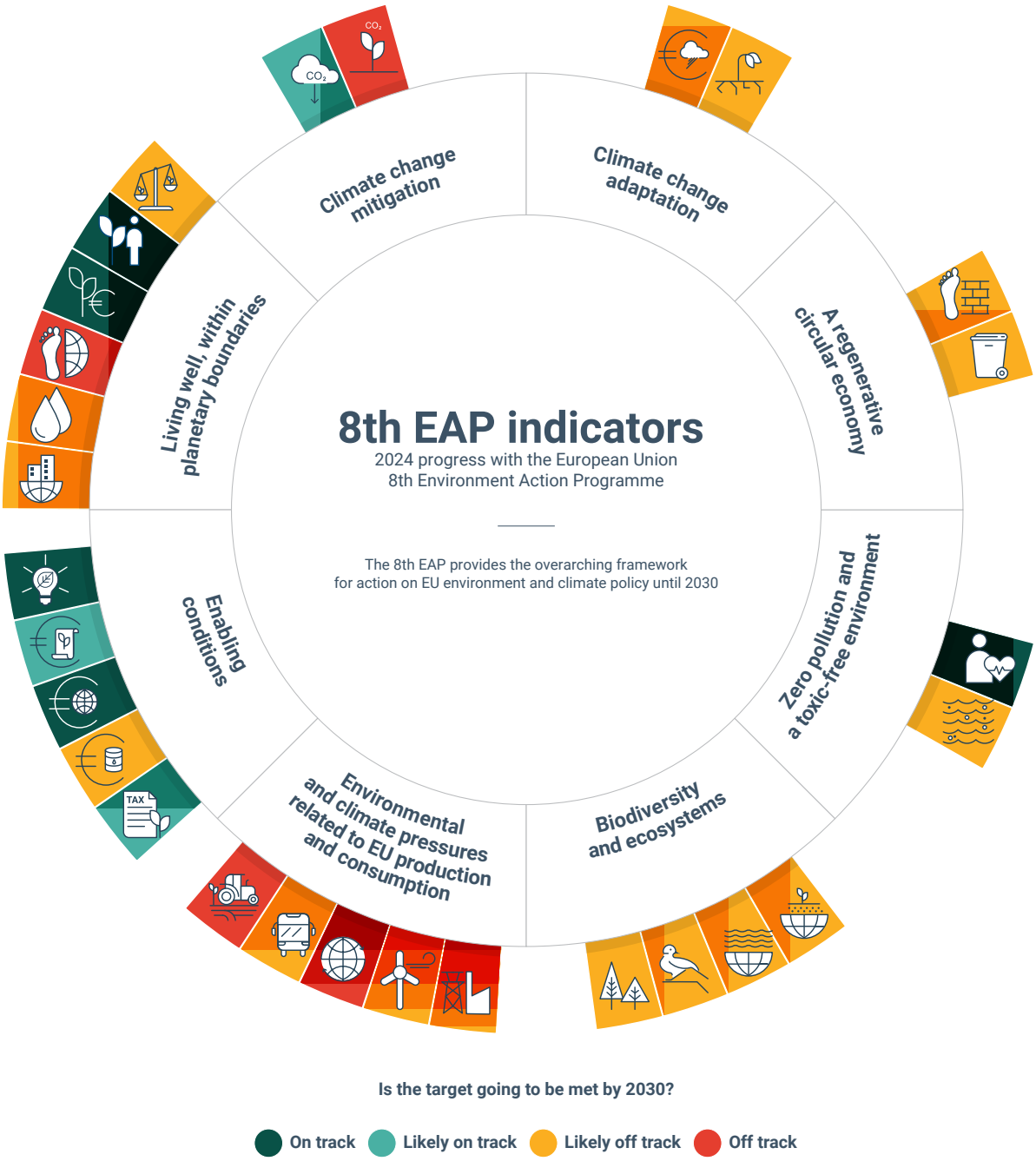
The 2030 indicator outlook results related to the 8th EAP 'enabling conditions' are the most positive. These do not, however, seem to have been enough to effect the necessary change towards meeting the 8th EAP priority objectives. The green transition requires unprecedented levels of investment, with current European Commission estimates pointing to annual additional investment needs in the period of 2021 to 2030 of more than EUR 620 billion to meet the objectives of the European Green Deal [(5)]. While significant, these additional investment needs are considerably lower than the costs of inaction. The future economic losses from coastal floods alone could potentially exceed EUR 1 trillion per year in the EU if no further action is taken [(3)]. Increases in the EU budget, the creation of the Recovery and Resilience Facility and implementation of the sustainable finance agenda are expected to trigger additional capital flows in Member States towards sustainable investment. However, it remains to be seen if this will be enough to fill the investment gap by 2030 and in particular if it will mobilise a significant volume of private capital to complement public flows. In addition, further action is needed to phase out fossil fuel and other environmentally harmful subsidies to ensure that green technology and green energy are cheaper than fossil fuel-based alternatives.

Overall, the 8th EAP monitoring assessment points to the continued and urgent need to strengthen the implementation of environmental legislation, and to bring forward additional policies and measures where needed. Examples include concrete goals to reduce our material footprint, beyond those related to waste collection and recycling, policies to drive the fundamental changes to consumption patterns which are required to bring consumption levels to within planetary boundaries [(6)] and policies to address the risks of climate change at the European level [(3)].

The ongoing mainstreaming of environmental and climate policies into other policy domains, such as industrial and agricultural policy, also remains crucial. The EU's transition to sustainability is unfolding during a time of polycrisis, bringing other priorities – namely competitiveness, security and fairness – to the forefront of policy discussions. It is essential to ensure that climate and environmental goals are anchored to these priorities and that they are recognised as complementary given the dependence of these priorities on a stable climate and healthy environment. This must be achieved as the EU economy and society transform towards sustainability [(7)].

This report will provide an annual snapshot of progress towards the targets associated with the 8th EAP headline indicators. The EEA will build on these results in its upcoming flagship publication *The European Environment - state and outlook,* due for publication in 2025. The report will assess the barriers to fundamental change hindering progress and the enablers of sustainability transitions that could support the EU to meet the ambitious goals of the 8th EAP.

Figure ES.1 **8th Environment Action Programme scoreboard, 2024**



Source: EEA.

8TH EAP THEMATIC PRIORITY OBJECTIVE

Climate change mitigation

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1 Climate change mitigation

Reducing greenhouse gas emissions and enhancing carbon removals

Addressing climate change is one of the defining challenges of our times. The European Green Deal was the blueprint for a transformational change to make Europe the world's first climate-neutral continent by 2050 through a just transition that leaves no one behind. The 8th Environment Action Programme (EAP) built on the Green Deal vision and emphasised the achievement of targets on greenhouse gas (GHG) emissions and carbon removal in the land use, land-use change and forestry sector (LULUCF).

To capture progress on climate change mitigation efforts, the European Commission's 8th EAP monitoring framework uses two indicators and corresponding 2030 targets:

- An indicator on total GHG emissions to monitor progress on achieving the target of reducing net EU GHG emissions to at least 55% below 1990 levels by 2030.
- An indicator on GHG emissions from LULUCF to monitor whether this sector will be able to remove an additional -42 million tonnes of CO_2 equivalent ($MtCO_2e$) from the atmosphere by 2030 ([c]), resulting in total net removal of -310$MtCO_2e$ ([d]).

The indicator assessment results are summarised further below. In 2023, the EU made significant progress with a sharp 8% year-on-year reduction in GHG emissions, bringing net GHG emission reductions to 37% below 1990 levels. The GHG projections that Member States submitted to the EEA in 2023, updated by 11 Member States in 2024, indicate that existing and planned policies and measures should deliver an aggregated 49% net reduction in GHG emissions, compared to 1990 levels, by 2030 ([e]). As Member States update their NECPs, they are expected to identify additional measures that close the gap to the 55% target as part of their implementation of the Fit for 55 package. In terms of progress towards meeting LULUCF target, while preliminary data for 2023 show an increase in the carbon sink, this follows a 10-year decreasing trend. Projections submitted to the EEA in 2023 and updated by 11 Member States in 2024 indicate that more ambitious measures are needed to reach the target by 2030.

([c]) As compared to the yearly average of net removals over the reference period 2016-2018.
([d]) The average yearly net removals for the years 2016, 2017 and 2018, as reported in the 2020 greenhouse gas inventory submission plus the additional -42$MtCO_2e$ net removals and total net removals of -310$MtCO_2e$ at the EU level. Any methodological adjustments in the inventory data reporting will be taken into account in the compliance check against the 2030 target.
([e]) If EU domestic GHGs are considered on their own (excluding international transport), GHG emissions are projected to fall by 51% by 2030.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

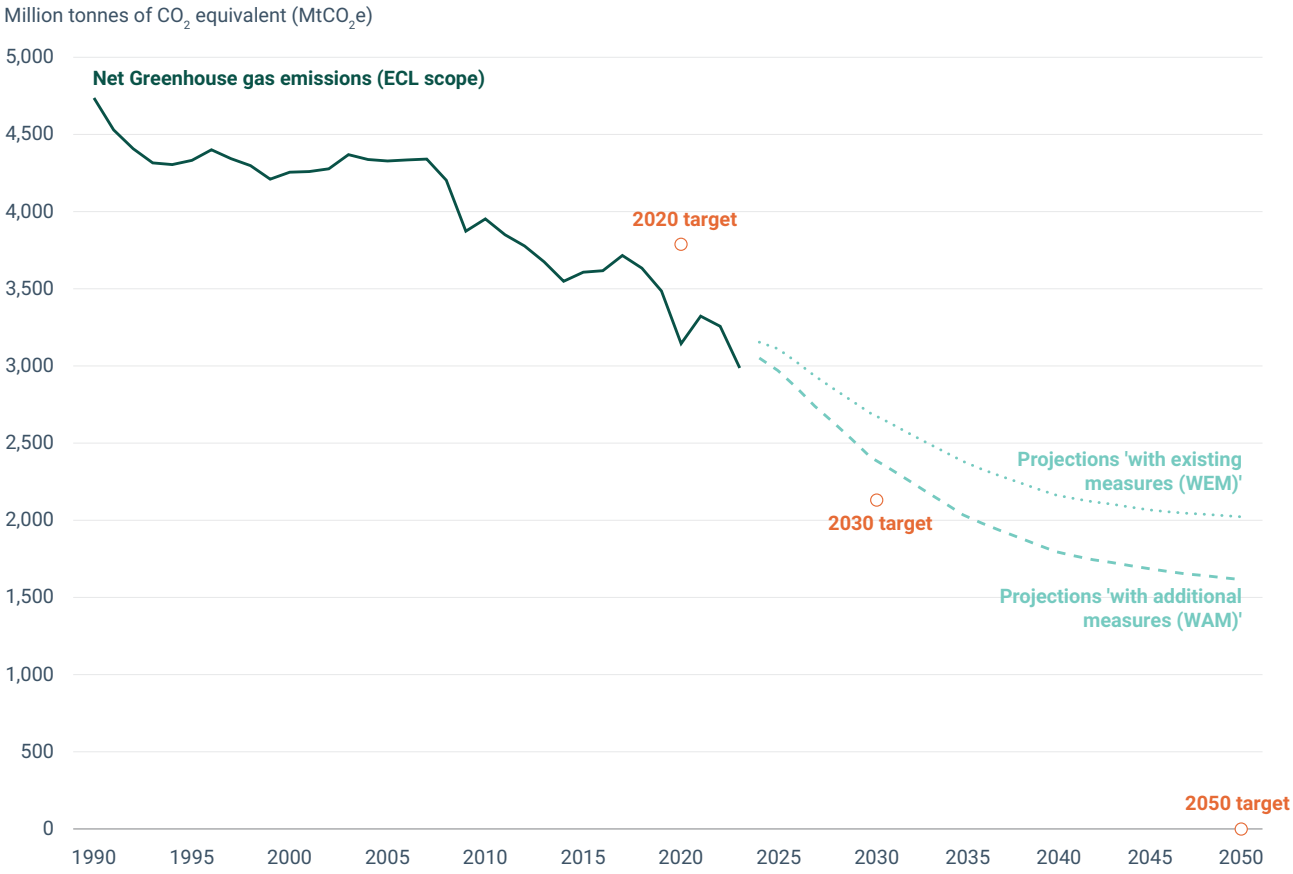
Methodology key		
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

1.1 Greenhouse gas emissions

Will the EU cut net GHG emissions by at least 55% by 2030 from 1990 levels?

Likely on track. In 2023, the EU made significant progress with a sharp 8% year-on-year reduction in GHG emissions, bringing net GHG emissions to 37% below 1990 levels. To close the remaining gap with the 2030 target, the legally binding measures under the Fit for 55 package create a framework to further accelerate emission reductions across all sectors. The latest aggregated projections indicate that policies and measures should result in net GHG reductions of 49% by 2030 but ongoing updates to NECPs can contribute to closing the remaining gap.

Figure 1.1 Progress towards achieving climate targets in the EU-27



Notes: In this figure, the EU total net greenhouse gas emissions refer to the emissions under the scope of the European Climate Law (ECL), taking into account emissions and removals from the land use, land use change and forestry sector (LULUCF) and GHG emissions from international aviation and maritime, as regulated by EU law.

Source: EEA.

Relevance and policy target

- The reduction of net GHG emissions is vital to slow the rate of global warming and mitigate its impact on the environment and on human health.

- The EU is a frontrunner in climate ambition, with the European Climate Law setting binding targets to reduce net GHG emissions by at least 55% from 1990 levels by 2030 and to achieve climate neutrality by 2050 in the EU.

Indicator past trend (1990-2023): decrease ↓
Latest value (2023, preliminary estimates ([f])): 37% reduction relative to 1990

- Preliminary estimates indicate that, in 2023, net GHG emissions fell by a further 8% below 2022 levels. This marks the largest year-on-year emissions reduction of several decades, except for the COVID-impacted year of 2020, and it brings the estimated 2023 emissions to a level of 37% below 1990 levels.

- A reduction in net GHG emissions has taken place primarily within the past two decades, in line with the gradual strengthening of policies, and the EU surpassed its 2020 climate target.

- The decline since 1990 reflects a shift in energy production methods, with a sharply decreased use of coal and a steadily increasing share of renewable energy. In addition, improved energy efficiency resulted in a reduction in primary energy consumption, while technological innovation led to substantial decreases in GHG emissions linked to specific industrial production processes [8].

2030 outlook

- When looking to 2030, the 2023 emissions reduction is substantial. Comparing 2022 emissions with the 2030 target, an average annual emissions reduction of 141MtCO_2e is required; the estimated reduction achieved in 2023 was nearly twice as high. This trend needs to be sustained to 2030 and beyond for a successful trajectory towards climate neutrality.

- According to Member States' projections, as submitted in March 2023 and updated by 11 Member States in 2024 current national policies and measures, with additional planned measures, would deliver an aggregated 49% reduction in net emissions by 2030 when compared with 1990 levels. The ongoing update of the NECPs offer an opportunity to implement these measures.

- Furthermore, new EU-wide policy tools such as the emission trading system for fuels used in buildings, road transport and additional sectors offer additional incentives to reduce emissions.

- The adoption of crucial technologies is rapidly gaining momentum, illustrated by recent and very fast deployment of solar PV, heat pumps and electric cars [9, 10, 11]. If this trend continues, these technologies will contribute to the required acceleration in emission reduction.

- To meet the target, a significant increase in effort is needed across all sectors.

For more references and additional information see the full indicator version.

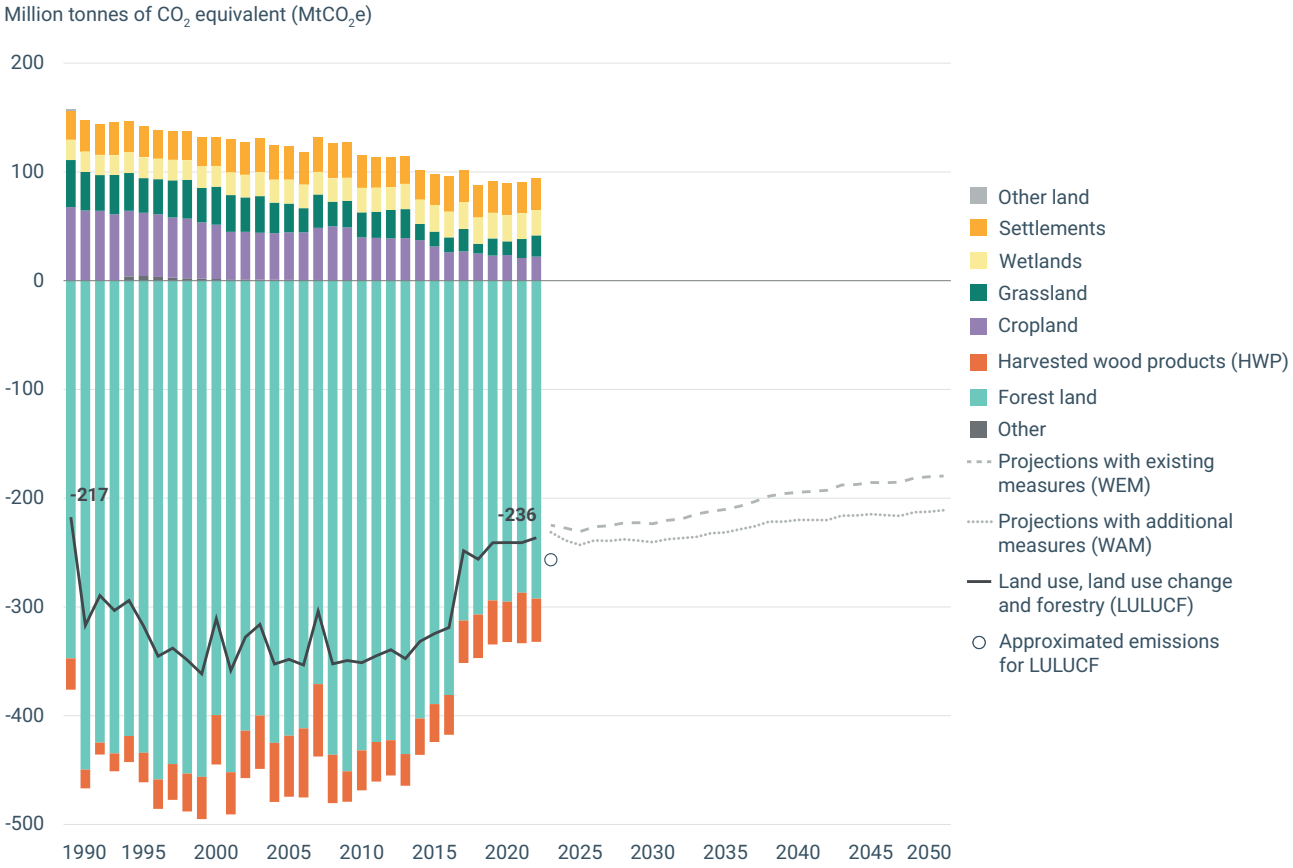
([f]) Based on aggregated GHG projections from March 2023, updated by some Member States in 2024, of the policies and measures that Member States had adopted and planned at the time of submission.

1.2 GHG emissions from land use, land-use change and forestry (LULUCF)

Will the EU increase net GHG removals from the LULUCF sector to -310 million tonnes CO_2 equivalent by 2030?

Off track. In the past 10 years, net GHG removal has decreased and Member States' projections show that the planned policies fall short of reaching the target.

Figure 1.2 **Greenhouse gas emissions and removals of the land use, land-use change and forestry sector plus projections, EU**



Source: EEA.

Relevance and policy target

- Mitigating climate change would need both a reduction in greenhouse gas emissions and their removal from the atmosphere to reach climate neutrality by 2050. The land use, land-use change and forestry (LULUCF) sector has the potential to contribute by removing CO_2 from the atmosphere and to reduce emissions in other sectors through substitution.

- The LULUCF Regulation [12] sets an EU-wide target to generate a further -42MtCO_2e of net removals in the land sector as compared to the average in 2016-2018. This will result in a total from the sector of -310 million tonnes of CO_2 equivalent (MtCO_2e) by 2030, corresponding to a removal target as reported in 2020.

Indicator past trend (2012-2022): decrease ↓
Latest value (2022, preliminary): -257 million tonnes of removed CO_2 equivalent

- In 2022, the EU's LULUCF sector accounted for the net removal of -236MtCO_2e, equal to 7% of the EU's total GHG emissions. CO_2e removal has decreased in the past 10 years instead of increasing. This was mainly because of increased harvest of wood, partly driven by increased salvage logging and ageing forests as well as the lower sequestration of carbon by ageing forests in some Member States. Nevertheless, preliminary estimates of removal show an increase to -257MtCO_2e for 2023 [13].

2030 outlook

- It is very unlikely that the target will be met unless additional fast-response mitigation measures are implemented.

- Reaching the target would require reversing the past trend. This is made challenging however by the combination of less carbon sequestration in forests as they age, increased harvesting levels, faster decomposition of dead organic matter in ecosystems driven by higher temperatures and other climate change impacts.

- Member State projections submitted in 2023 and 2024 that take into account existing and intended additional measures suggest that net removal will amount to -224 to -240MtCO_2e by 2030 [13]. This means at present, the EU is not on track to meet the net removal target of -310MtCO_2e by 2030.

- More ambitious removal measures must be implemented to breach the gap. Measures with additional mitigation potential include increased afforestation, decreased deforestation and improved forest management — such as reduction in the annual average of forest area affected by wildfires and biotic damage — reduced harvesting levels, rewetting of drained peatlands, improved crop rotation and improved grassland management. However, for many of the measures, there is a time lag between implementation of a mitigation measure and visibility of its impact.

For more references and additional information, including at country level, see the full indicator version.

8TH EAP THEMATIC PRIORITY OBJECTIVE

Climate change adaptation

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2 Climate change adaptation

Enhancing the capacity to adapt, strengthening resilience and reducing vulnerability to climate change

Climate change is happening already. Europe is the fastest warming continent in the world and climate risks are threatening its energy and food security, ecosystems, infrastructure, water resources, financial stability and people's health [3]. Beyond deploying measures to cut greenhouse gas (GHG) emissions and slow the pace of global warming, there is also a need for proactive preparation and adjustment to the effects of climate change such as sea level rise, water scarcity, more frequent and more severe floods, heatwaves and storms. The 8th Environment Action Programme (EAP), in line with the Paris Agreement and the EU Climate Law, requires continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change. The EU adaptation strategy aligns with these policies and aims to build resilience and ensure that the EU is well-prepared to manage the risks and adapt to the impacts of climate change.

The European Commission's 8th EAP monitoring framework includes two indicators and corresponding targets for 2030 to capture aspects of progress on climate change adaptation:

- An indicator on economic losses from weather- and climate-related extremes in the EU to monitor progress on achieving the target of reducing overall monetary losses from weather- and climate-related events.
- An indicator on drought impact on ecosystems to monitor whether the EU area affected by drought and loss of vegetation productivity will decrease.

The indicator assessment results are summarised below. Overall, it is projected that the EU is likely not on track to meet the ambition levels set for 2030 in relation to these two indicators. Past trends in both cases show a deterioration of the situation. In addition, the Intergovernmental Panel on Climate Change [14] predicts that many climate-related extreme events, such as droughts, will become more frequent and severe around the world. Many of the climate risks threatening the EU have already reached critical levels and could become catastrophic without urgent and decisive action [3]. Thus, it is important to put in place comprehensive, integrated approaches to mitigate future impacts and to increase the region's resilience against climate change.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

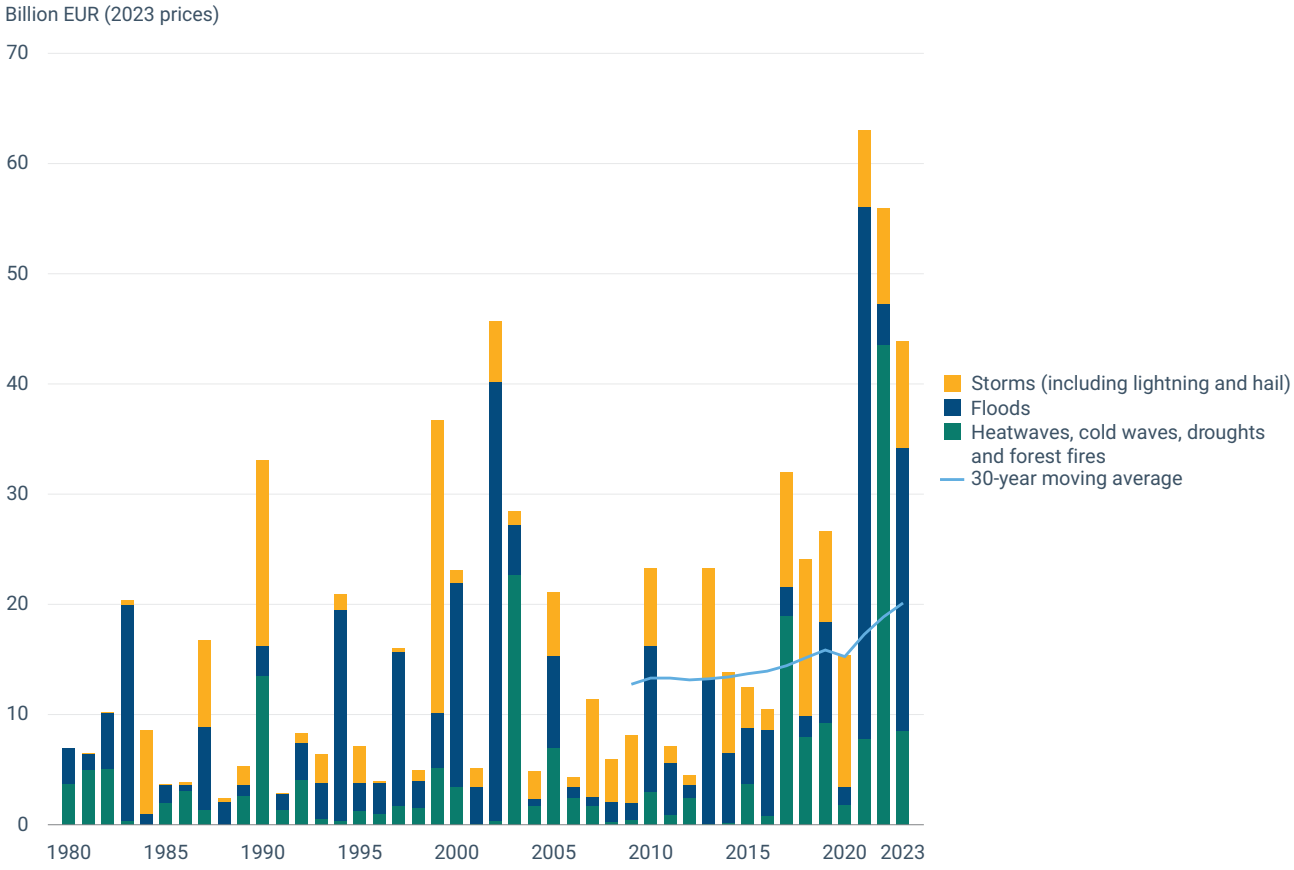
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

2.1 Economic losses from climate- and weather-related extremes

Will monetary losses from weather- and climate-related events fall in the coming years?

Likely off track. Weather- and climate-related extreme events are projected to intensify further, though full implementation of climate change adaptation policies at EU, national and local levels can limit the costs.

Figure 2.1 **Economic losses caused by weather- and climate-related extreme events, EU**



Sources: Risklayer; EEA.

Relevance and policy target

- Weather- and climate-related hazards, such as extreme temperature, heavy precipitation and droughts, pose risks to human health and the environment, and can lead to substantial economic losses.

- The EU Adaptation Strategy aims to build resilience and ensure the EU is well-prepared to manage these risks, and can adapt to the impacts of climate change. The EU aims, among other things, to ultimately reduce overall monetary losses from weather- and climate-related events.

Indicator past trend (2009-2023, 30-year moving average, in 2023 prices): increase ↑
Latest value (2023): EUR 43.9 billion (2023 prices)

- Between 1980 and 2023, the cost of weather- and climate-related extremes amounted to EUR 738 billion (2023 prices), of which EUR 43.9 billion (2023 prices) was in 2023. Hydrological events (floods) account for more than 40%, meteorological events (storms including lightning and hail) for almost 30% and climatological events (mostly heatwaves but also droughts, forest fires and cold waves) for almost 30% of total losses.

- There is high variability from year to year in the economic losses, making it difficult to analyse trends. However, statistical analysis (a 30-year moving average) indicates that losses have increased over time, with losses in 2021, 2022 and 2023 amongst the five highest over the entire 44-year time series.

2030 outlook

- The EU is likely not on track to reduce economic losses associated with extreme weather and climate events by 2030.

- The Intergovernmental Panel on Climate Change [(14)] predicts that weather- and climate-related extreme events will become more frequent and severe around the world because of climate change. This could affect multiple sectors and cause systemic failures across Europe, leading to greater economic losses. The first ever *European Climate Risk Assessment* concluded that climate risks in Europe are accelerating and several of the 36 key climate risks are already at critical levels and are of high urgency [(3)].

- The future cost of weather- and climate-related hazards depends not only on the frequency and severity of events but also on several other factors, such as the value and resilience of the assets [(15, 2)] and the envisaged climate adaptation measures [(16, 2)]. In Europe, climate-related extreme events are expected to intensify further while the pace of adaptation is not following the same speed [(3)].

- If fully implemented, the EU and the national adaptation strategies will contribute to limiting the economic costs of weather- and climate-related events. To do so, adaptation plans should ideally include a balanced set of measures, covering governance and institutional, economic and financial, physical and technological aspects, as well as nature-based solutions, knowledge and behavioural change [(17)].

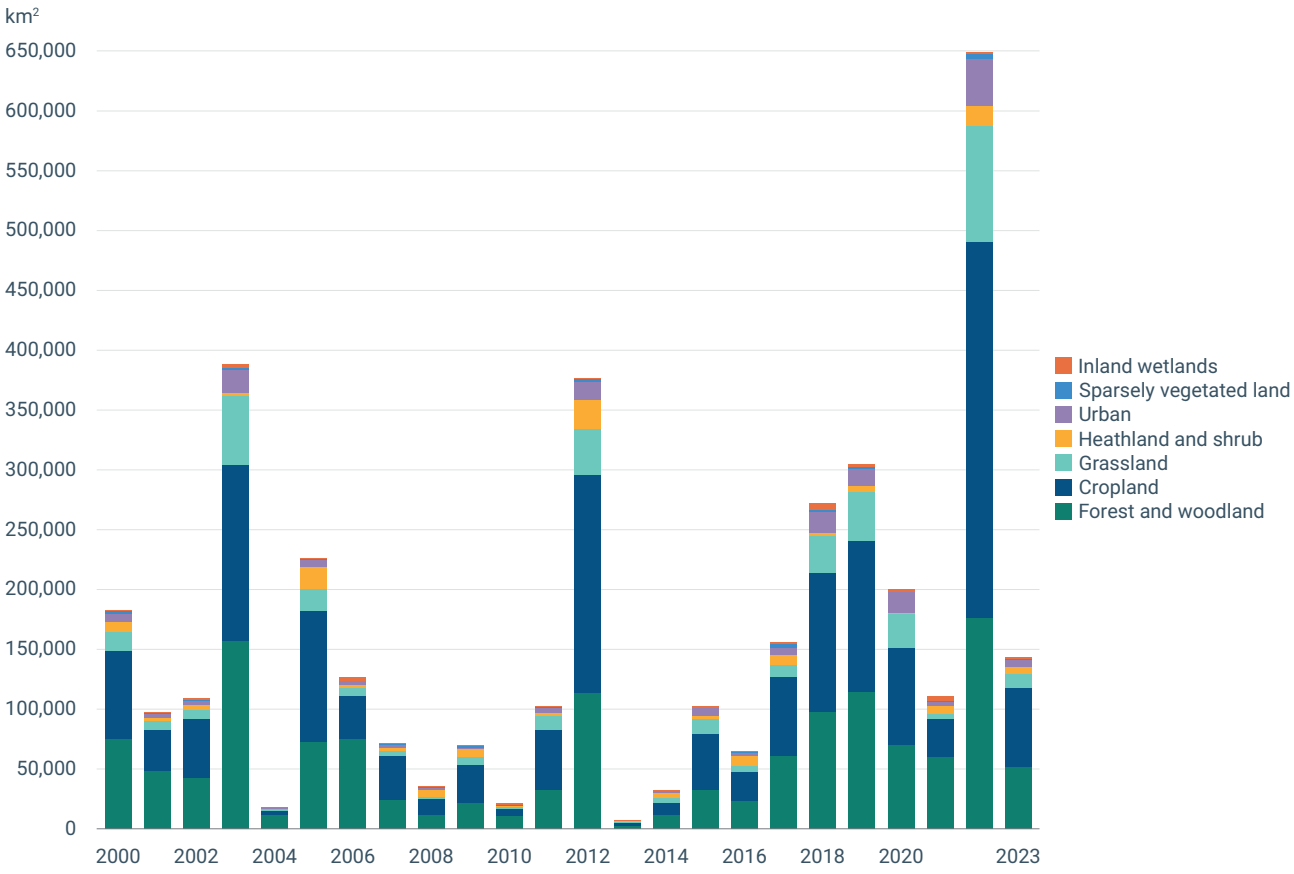
For more references and additional information, including at country level, see the full indicator version.

2.2 Drought impact on ecosystems

Will the area impacted by drought decrease in the coming years?

Likely off track. The magnitude of drought events is projected to increase and it is uncertain whether climate change adaptation strategies will be effectively implemented.

Figure 2.2 Annual area impacted by drought (km²), EU



Notes: The figure shows the annual area of land affected by drought in the 27 EU Member States (EU-27) from 2000 to 2023, by ecosystem type. That is, it shows the area in km² in which vegetation productivity was below the long-term average because of droughts in a 500m×500m grid cell each year.

Sources: EEA; Copernicus Land Monitoring Service and Copernicus Emergency Service.

Relevance and policy target

- Droughts hamper nature's ability to deliver a wide range of environmental, economic, social and biodiversity benefits. Droughts also impact the EU's ability to achieve its climate change mitigation [18, 19] and adaptation [20] aims. It is therefore important that the EU takes action to decrease impact severity and strengthen ecosystem resilience against climate change-related droughts.

Indicator past trend (2000-2023): increase ↑
Latest value (2023): 143,513km^2

- In 2023, the drought impact on European ecosystems eased after the devastating record 2022 drought, with 143,513km^2, or 3.5% of EU land, impacted by drought. The drought impacted area in 2023 was slightly larger than the 2000-2020 long-term average of ca. 141,000km^2 (3.5%) of EU land affected annually by droughts due to low precipitation, high evaporation and heatwaves fuelled by climate change.

- The largest two affected areas were croplands, contributing to crop failures, and forests, which sequester large amounts of carbon and provide important habitats for wildlife. There were also slight increases in the amounts of grasslands and wetlands impacted when compared to the long-term average. They are among the most biodiverse areas in the EU and have high carbon storage potential, making it important to ensure their preservation.

2030 outlook

- The EU is likely not on track to reduce drought-affected areas by 2030.

- The extent of drought-affected areas increased over the examined period. Due to climate change, the frequency and intensity of heatwaves is projected to increase [3, 21], whereas in the continental and Mediterranean regions, summer precipitation is projected to decrease [22].

- This means that drought-affected areas may not decrease by 2030 if EU and national wide adaptation strategies such as land management practices are not put in place in a timely manner to mitigate future impacts of droughts.

For more references and additional information, including at country level, see the full indicator version.

8TH EAP THEMATIC PRIORITY OBJECTIVE

A regenerative circular economy

3 A regenerative circular economy

A wellbeing economy that gives back to the planet more than it takes and accelerates the transition to a circular economy

A sustainable economy is a prerequisite to an economy of wellbeing. The EU adopted the circular economy action plan [23] in 2020 and aims to ensure that the resources it uses remain in the EU economy for as long as possible and that waste is prevented. Building on this, the 8th Environment Action Programme (EAP) [24] aims for a regenerative circular economy that gives back to the planet more than it takes.

In order to capture progress towards a regenerative circular economy, the European Commission 8th EAP monitoring framework [25] includes two indicators and corresponding targets for 2030:

- An indicator on raw material consumption to monitor whether the EU will significantly decrease its per capita material footprint.
- An indicator on total waste generation to monitor waste prevention efforts to significantly reduce per capita EU waste generation by 2030.

The indicator assessment results are summarised further below. In short, it seems that at present the EU may not meet the targets for these two indicators by 2030. Economic growth has so far been a key driver behind the trends in both cases. Legislation already in place to prevent waste generation and better manage waste, including recycling and re-using materials, has contributed to a limited decoupling of raw material consumption and waste generation from economic growth. Therefore, significant additional efforts to reduce consumption of natural resources and move further towards a circular economy would be needed to reach the 2030 targets.

The methodology used for determining the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

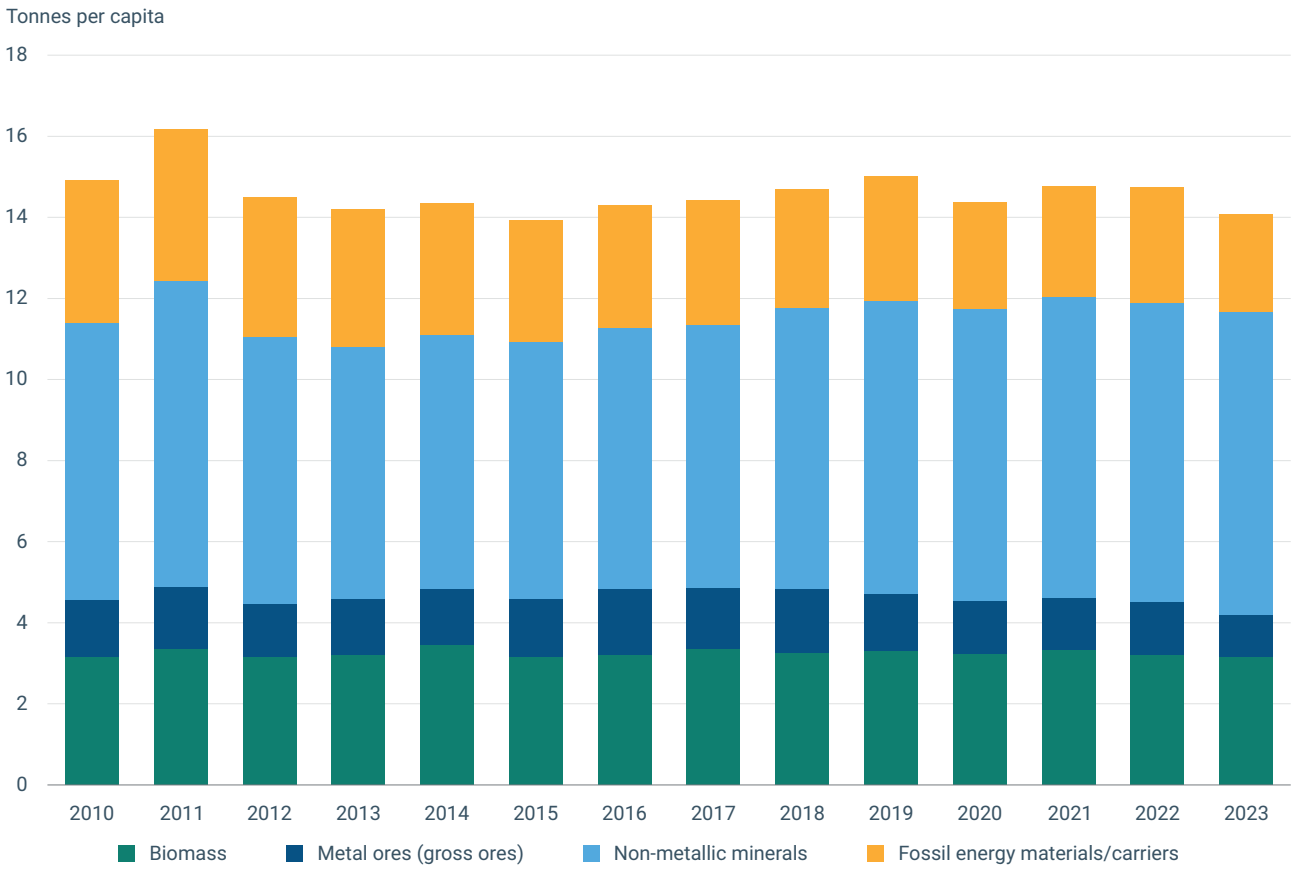
Will the objective be met by 2030?	
On track	There is a high degree of confidence that the objective will be met by 2030
Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
Off track	There is a high degree of confidence that the objective will not be met by 2030
Unclear	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

3.1 Raw material consumption (also known as material footprint)

Will those who live in the EU significantly decrease their material footprint in the coming years?

Likely off track. There has been no real decrease in this area since 2010 and some projections show increases in future demand for materials in the EU. While 2023 saw a sharp drop, it is uncertain if this drop will be sustained.

Figure 3.1 **EU material footprint, expressed in tonnes of raw material equivalent per capita**



Source: Eurostat.

Relevance and policy target

- The material footprint shows the amount of extraction, both inside and outside the EU, of raw material needed to produce the goods and services that EU residents consume.
- The 8th EAP aims to significantly decrease the EU's material footprint in order to safeguard precious natural resources and reduce the significant environmental and climate impacts from extraction and processing of these resources, such as biodiversity loss and climate change.

Indicator past trend (2010-2023): stable →
Latest value (2023): 14.1 tonnes of raw material equivalent per capita

- The EU's material footprint has decreased by 5.7% from 2010 to 2023. Estimates indicate that in 2023 it was 14.1 tonnes per capita. The extraction of non-metallic minerals (e.g. gravel and sand), which mainly serves the construction sector, accounts for about half of the material footprint and is largely responsible for the overall trend in the period 2010-2023.
- In 2023, the EU's material footprint decreased sharply by 4.5% compared to 2022, which was mainly driven by a decrease in the consumption of metals and fossil fuels. However, it remains to be seen if the more pronounced decrease in the consumption of metals, driven by the geopolitical response to the war in Ukraine, is a temporary or more permanent phenomenon.
- The EU's current material footprint is higher than the global average and exceeds the planet's 'safe operating space' for resource extraction. In other words, if the world were to consume resources at the level of the EU, it would exceed the capacity of the planet to provide these resources [26, 27].

2030 outlook

- The EU is likely not on track to significantly decrease its material footprint in the coming decade.
- There has been only limited progress in reducing the material consumption footprint over the years. While the recent sharp decrease is a positive development, this would need to be sustained to drive meaningful reductions; however, projections by the Organisation for Economic Cooperation and Development indicate that there will be an increase in future demand for materials in the EU [28].
- Moving towards a circular economy could decouple economic activity from raw material consumption by substituting raw materials with recovered materials. Overall, significant efforts are needed to reduce consumption and material extraction, and a switch to goods and services that require less material.

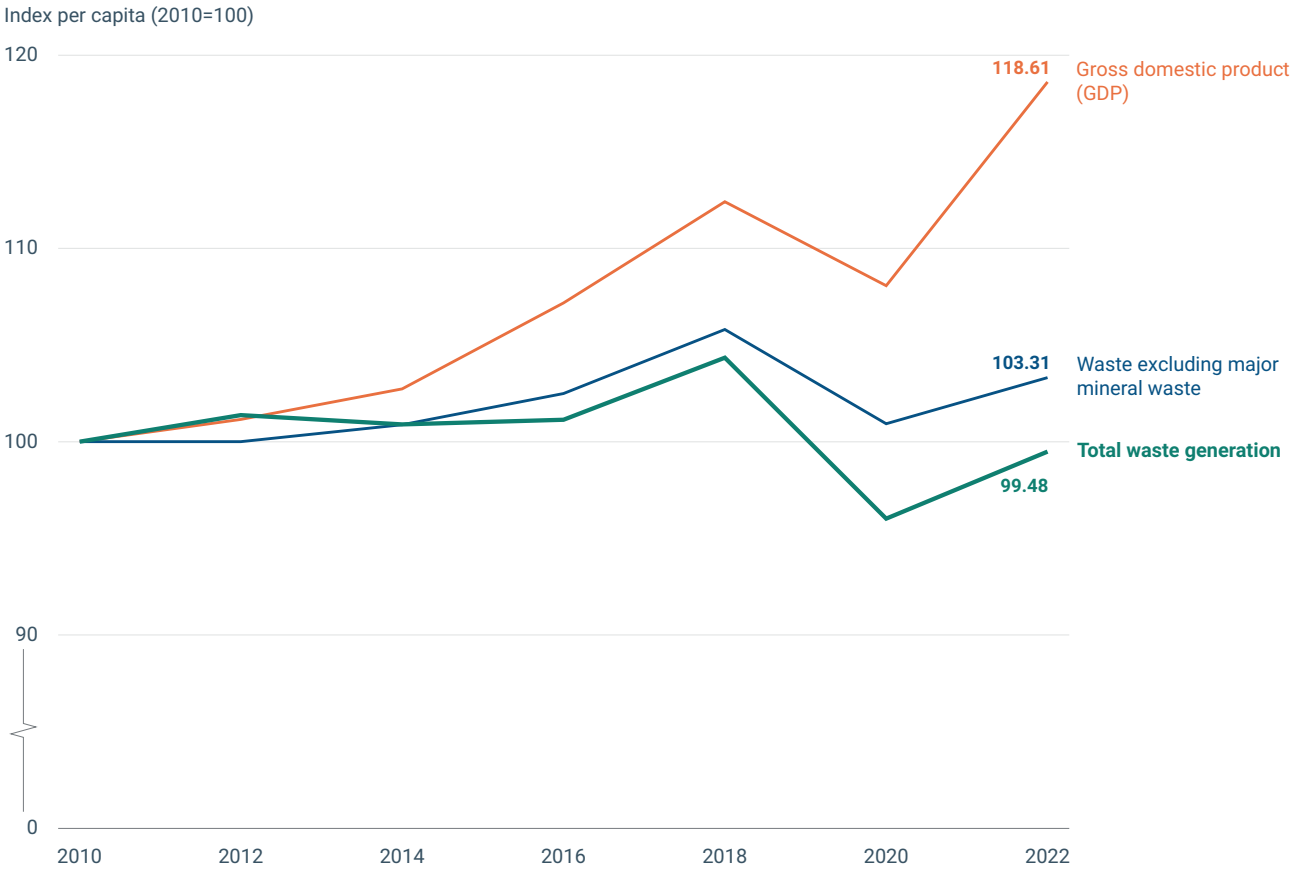
For more references and additional information, including at country level, see the full indicator version.

3.2 Total waste generation

Will those who live in the EU significantly reduce the total amount of waste they generate by 2030?

Likely off track. Historically, waste generation has closely followed economic growth trends, and economic growth is expected to be positive in the coming years. Policies in place can nevertheless limit the effect of economic growth on waste generation.

Figure 3.2 Waste generation and decoupling, EU



Source: Eurostat.

Relevance and policy target

- Reducing the generation of waste safeguards material and energy resources and reduces the environmental impacts associated with producing products and managing waste.
- The circular economy action plan aims to significantly reduce total waste in the EU by 2030.

Indicator past trend (2010-2022): stable →
Latest value (2022): 5.0 tonnes per capita

- Between 2010 and 2022, total waste generation in the EU decreased slightly, by 0.5% or 26kg per capita, to reach 5 tonnes per capita in 2022. Following a decline in waste generation in 2018-2020, driven by the COVID-19 pandemic and the ensuing economic slowdown, waste generation per capita increased to almost the same levels as in 2010.
- Although total waste generation remained stable, there were some variations in underlying waste streams. Sorting residues almost doubled in the 2010-2022 period (indicating increases in the collection of recyclable waste), while excavated soils and mineral waste, from construction and demolition, increased by more than 100kg per capita. This was largely offset by a decrease in the generation of other mineral waste, by around 400kg per capita over the same period.

2030 outlook

- It is unlikely but uncertain that per capita total waste generation will significantly decrease by 2030.
- Economic growth has been a key driver of waste generation trends [29] and EU GDP growth rates are projected to remain positive in the coming years [30]. Waste prevention and management policies currently in place could limit the causal relationship between GDP growth and waste generation [31].
- It would require substantial additional effort, in terms of implementing circular economy measures including waste prevention, to sustain the decrease in waste generation in the future. The Regulation on Ecodesign for Sustainable Products, which has now been adopted, calls for more durable, repairable and recyclable products and has the potential to directly improve the CMUR if implemented swiftly and comprehensively.

For more references and additional information, including at country level, see the full indicator version.

8TH EAP THEMATIC PRIORITY OBJECTIVE

Zero pollution and a toxic-free environment

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4 Zero pollution and a toxic-free environment

Pursuing zero pollution to achieve a toxic-free environment

EU citizens are already benefiting from years of successful environmental policies that have contained or reduced the emissions of key pollutants to the air, water and soil. However, pollution still harms human health and the environment. The 8th Environment Action Programme (EAP) pursues a zero pollution goal to achieve a toxic-free environment. The European Commission's zero pollution action plan, a key deliverable of the European Green Deal, underpins the implementation of the 8th EAP and includes actions to reduce pollution by 2030 and, by 2050, achieve levels that are no longer harmful to human health and natural ecosystems.

To capture progress on efforts to reduce pollution, the European Commission's 8th EAP monitoring framework includes two indicators and corresponding 2030 targets:

- An indicator on premature deaths attributed to exposure to fine particulate matter to monitor whether the EU will reduce such deaths by at least 55% compared to 2005 levels by 2030.
- An indicator on nitrates in groundwater to monitor whether the EU will reduce by at least 50% nutrient losses into safe groundwater resources by 2030.

The indicator assessment results are summarised further below. With the implementation of existing legislation and new legislation taking effect, a reduction in premature deaths attributed to fine particulate matter is expected to be sufficient to meet the 2030 target. For groundwater quality, it continues to appear likely that the EU is not on track to reduce nutrient losses to groundwater by 50% by 2030, due to lack of progress so far despite legislation that has been in place for several decades. Most of these losses result from excessive fertiliser use. Some progress is expected by 2030 thanks to extra initiatives under the European Green Deal.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

4.1 Premature deaths due to air pollution (exposure to fine particulate matter)

Will they be reduced by 55% from 2005 levels by 2030?

On track. The target will be overachieved and reach 64% if the trend of the past 17 years continues to 2030.

Figure 4.1 **Premature deaths attributable to exposure to fine particulate matter, EU**

Source: EEA.

Relevance and policy target

- Air pollution is a major cause of mortality and disease in Europe and is the largest environmental health risk [32]. Fine particulate matter ($PM_{2.5}$) is the air pollutant with the strongest evidence for adverse health outcomes [33].

- The European Commission's zero pollution action plan sets a target of reducing the health impacts of air pollution (estimated by the number of premature deaths attributable to $PM_{2.5}$) by at least 55% by 2030, compared to the 2005 level.

Indicator past trend (2005-2022): decrease ↓
Latest value (2022): 239,000 premature deaths attributable to exposure to fine particulate matter

- Between 2005 and 2022, the number of premature deaths in the EU attributable to exposure to $PM_{2.5}$ above the WHO air quality guideline of 5µg/m^3 fell by 45%. Despite ongoing improvement, there were 239,000 such deaths in the EU in 2022.

- The decline in premature mortality was the result of implementing EU and derived national and local policies to improve air quality and to reduce emissions of air pollutants. These policies succeeded in reducing $PM_{2.5}$ emissions from domestic heating, their main source, as well as from other sources such as industry and transport [34].

2030 outlook

- It is very likely that the 2030 55% zero pollution action plan reduction target will be met.

- The target will be exceeded and will reach 64% if the trend of the past 10 years continues to 2030.

- The Zero pollution outlook 2022, published by the European Commission Joint Research Centre, expects that the target will be overreached if the foreseen clean air measures, with the climate and energy polices of the Fit for 55 package, are implemented. The outlook predicts a reduction of 66% by 2030 if these conditions are met [35].

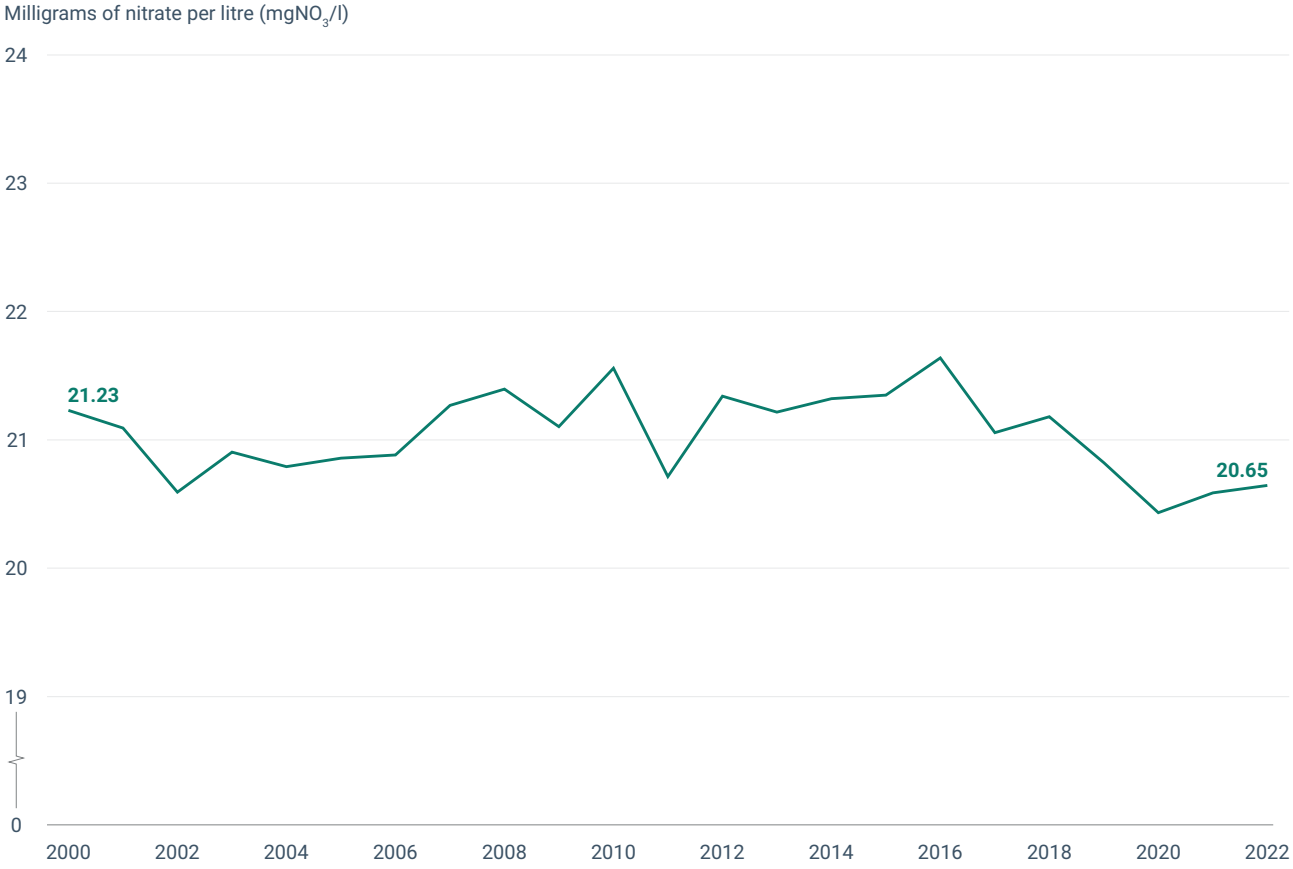
For more references and additional information, including at country level, see the full indicator version.

4.2 Nitrates in groundwater

Will nutrient losses into safe groundwater resources decrease by at least 50% by 2030?

Likely off track. There has not been significant change so far in the average nitrate concentrations in groundwater despite legislation being in place. However, some improvement is expected by 2030.

Figure 4.2 Nitrates in groundwater, EU



Source: EEA.

Relevance and policy target

- Nutrients such as nitrogen not absorbed by plants are lost to the environment. When present in excessive amounts, they become pollutants. This includes high levels of nitrate (NO_3) in groundwater, which poses a threat to the environment and to human health [36, 37].

- The European Green Deal, with its initiatives of the zero pollution action plan and the biodiversity and farm to fork strategies, set a goal for the EU to reduce nutrient losses to the environment (air, water and soil) by 50% by 2030.

- Several directives address nitrogen losses to the environment. The Water Framework Directive aims to ensure pollutant concentrations, including nitrates, should not exceed water quality standards. The drinking water and groundwater directives set the maximum allowable concentration for nitrate at 50mg NO_3/l to protect human health and drinking water resources.

Indicator past trend (2000-2022): stable →
Latest value (2022): 20.6 milligrams of average nitrate concentration per litre of groundwater

- Despite legislation in place addressing nutrient pollution, average NO_3 concentration in EU groundwater did not change significantly from 2000 to 2022, remaining at approximately 21mg NO_3/l. In the most recent analysis of groundwater concentrations reported under the nitrates directive covering the period 2016-2019, 14.1% of groundwater stations exceeded the maximum allowable concentration of 50mg NO_3/l which is comparable to the 13.1% observed in the previous reporting period of 2012-2015 [38].

- Mineral fertilisers and manure are the main sources of nitrate concentrations in EU groundwater. An estimated 80% of the nitrogen discharge to the EU aquatic environment comes from agriculture [36, 38].

2030 outlook

- It remains unlikely that nutrient losses to groundwater will decrease by 50% by 2030 across the EU. However, in recognition of the seriousness of the problem, the broad portfolio of measures under the European Green Deal and its Farm to Fork and Biodiversity strategies, zero pollution ambition and the European Climate Law [19], in combination with the new common agricultural policy (CAP, 2023-2027) [39], should lead to improvements.

- A recent analysis by the European Commission Joint Research Centre modelled the potential future impact of improvements in domestic wastewater treatment, reduction of nutrient emissions to air and measures under the CAP 2023-2027 needed to achieve the Biodiversity Strategy and Farm to Fork targets. In combination, these measures could reduce the nutrient load in European seas by about 30% for nitrogen and 20% for phosphorous, where the CAP measures are particularly relevant for groundwater. While these projected reductions are substantial, they are only an element of the target of 50% reduction in nutrient losses and on their own will not result in reaching the target [35].

For more references and additional information, including at country level, see the full indicator version.

8TH EAP THEMATIC PRIORITY OBJECTIVE

Biodiversity and ecosystems

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5 Biodiversity and ecosystems

Protecting and restoring terrestrial and marine biodiversity and ecosystems

Society and the economy depend on a healthy biodiversity. The EU biodiversity strategy for 2030, launched in 2020, aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet. The 8th Environment Action Programme (EAP) builds on the Biodiversity strategy and aims to protect, preserve and restore Europe's biodiversity by 2030 and beyond. These policies are all contributing to achieving the Global Biodiversity Framework in the EU.

To capture progress towards key objectives of biodiversity conservation and restoration, the European Commission's 8th EAP monitoring framework used four indicators and corresponding targets to be met by 2030:

- An indicator on the EU common bird index, to keep track of whether the decline of the population of common birds will reverse by 2030.
- Two indicators on designated terrestrial and marine protected areas to monitor whether overall coverage of protected areas will reach at least 30% of the EU's land and sea area by 2030.
- An indicator on EU forest connectivity to monitor whether the degree of forest connectivity will increase, with a view to creating and integrating ecological corridors and increasing climate change resilience.

The indicator assessment results are summarised further below. In summary, the EU is likely not on track to meet any of the four biodiversity and ecosystem-related monitoring targets selected for this priority objective by 2030. A common reason for this across the indicators is the high pressure on land and sea use from socio-economic sectors such as agriculture, fisheries and urbanisation. If the 2030 targets are to be met, Member States will need to make significant additional efforts to improve implementation, introduce new measures to restore biodiversity and further mainstream biodiversity into policies such as the common agricultural and fisheries policies. The adoption of the regulation on nature restoration could prove to be a watershed moment for restoring biodiversity and ecosystems, along with the benefits they provide. However, there will be a time lag between the implementation of measures and the final outcomes of improved biodiversity. The dashboard that tracks progress under the EU biodiversity strategy for 2030 points to a similar set of conclusions [(40)].

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

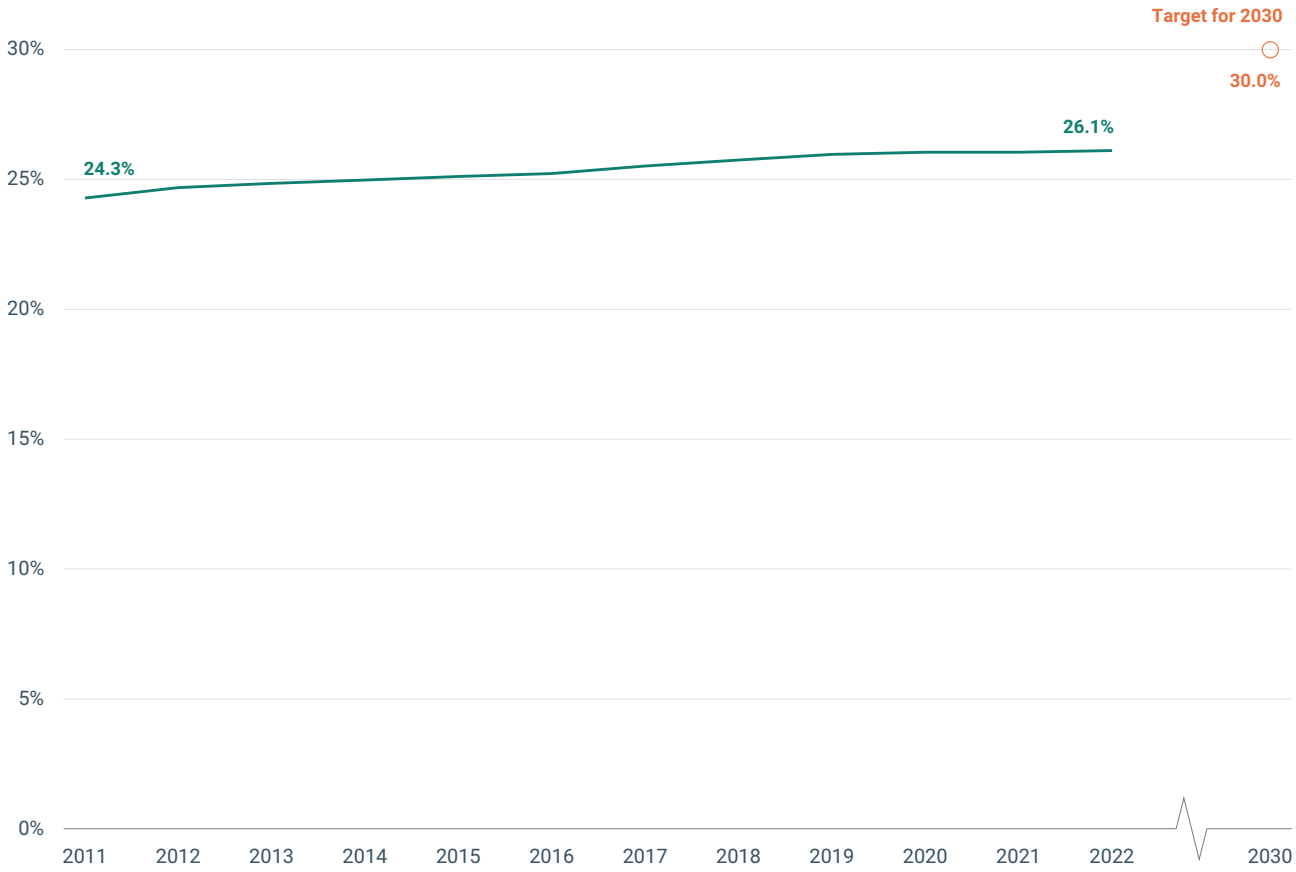
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

5.1 Designated terrestrial protected areas

Will at least 30% of the EU's land be legally designated as terrestrial protected areas by 2030?

Likely off track. The pace of progress has been slow over the past 10 years and will have to more than double to reach the 2030 target.

Figure 5.1 **Terrestrial protected area coverage, EU**



Sources: EEA; EuroGeographics.

Relevance and policy target

- Terrestrial protected areas benefit species, ecosystems and the environment overall, and contribute to human health and wellbeing. Protected areas provide economic and employment opportunities and have significant cultural value.
- The EU biodiversity strategy for 2030 sets the target of legally protecting and effectively managing a minimum of 30% of EU land.

Indicator past trend (2011-2022): increase ↑
Latest value (2022): 26.1%

- Over the 2011-2022 period, protected EU land increased from 24.3% to 26.1%. This was mainly driven by designations to fulfil the Natura 2000 network requirements — a network of protected areas designated under the EU birds and habitats directives — and to a lesser extent by complementary national designations [41].
- Overall slow progress reflects the high pressure on land use, such as from agriculture intensification, transport, urban development, and increasing competition for land for producing renewable energy and biofuels.

2030 outlook

- It is likely that the EU is not on track to meet the 2030 target.
- The overall area of the EU reported as protected has steadily increased since 2011, by 1.8%, but progress in recent years has stalled. The rate at which areas are designated as protected will need to more than double compared to that of the past 10 years if the target is to be met by 2030.
- The designation of protected areas is not in itself a guarantee of biodiversity protection. It will be important to manage the sites effectively and in a way that ensures spatial and functional connectivity between them.

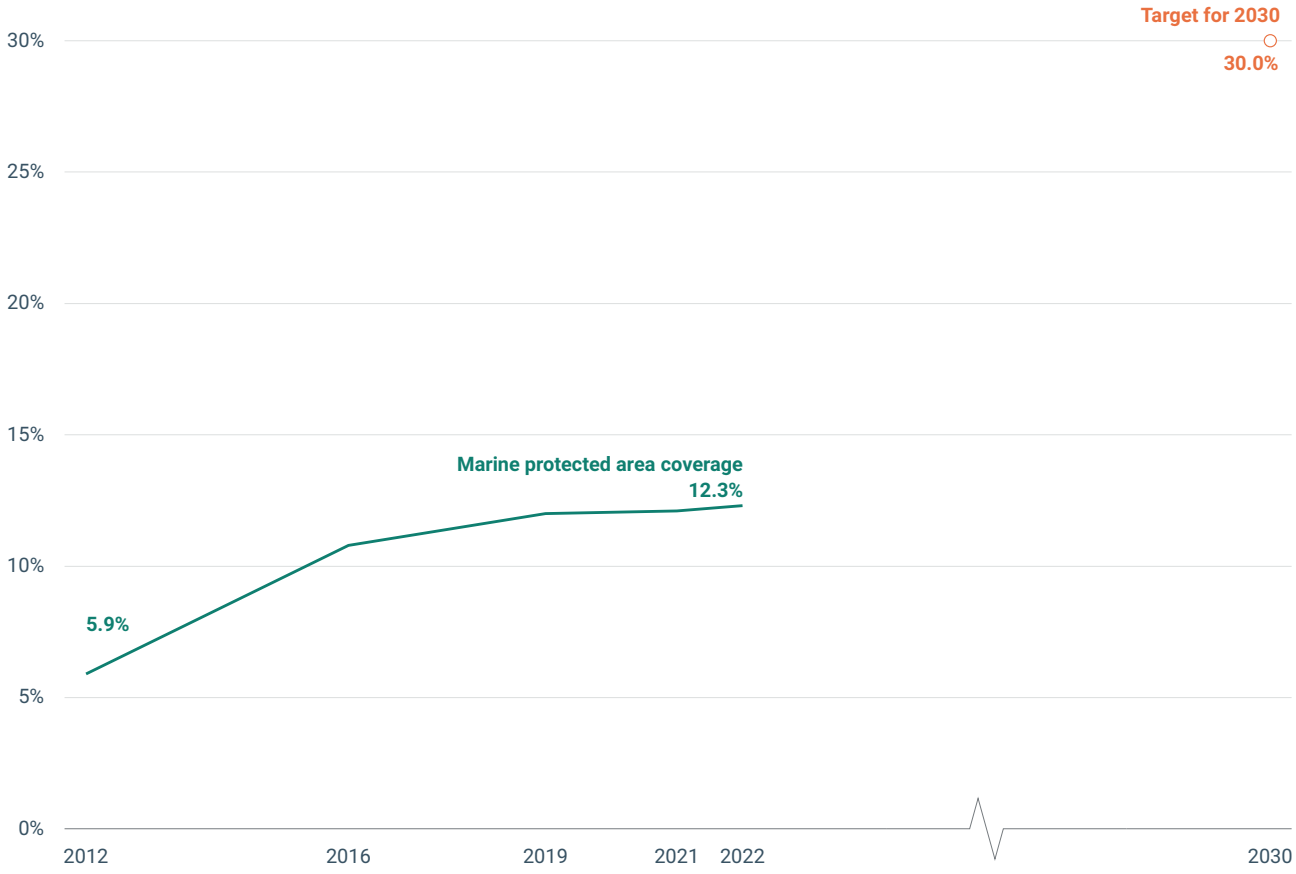
For more references and additional information, including at country level, see the full indicator version.

5.2 Designated marine protected areas

Will at least 30% of the EU's sea areas be legally designated as marine protected areas by 2030?

Likely off track. Despite fast progress over the years, the pace will have to increase by almost 30% to reach the 2030 target. Pledges for additional designations submitted by Member States in 2023 will determine the prospects of achieving the target.

Figure 5.2 Marine protected area coverage, EU



Sources: EEA; HELCOM Secretariat; OSPAR Commission; SPA RAC (SPAMI Barcelona Convention).

Relevance and policy target

- Marine protected areas (MPAs) play a key role in maintaining biodiversity and conserving coastal and marine ecosystems. They also provide significant economic and societal benefits and support local livelihoods.
- The EU biodiversity strategy for 2030 set the target that, by 2030, at least 30% of the EU sea area should be legally protected and well managed.

Indicator past trend (2012-2022): increase ↑
Latest value (2022): 12.3%

- Over the last decade, the total area covered by MPAs in the EU has increased substantially — from 5.9% in 2012 to 12.3% in 2022. This increase is mainly due to the expansion of the Natura 2000 network — a network of protected areas designated under the EU birds and habitats directives — while complementary national designations have also contributed [(42)].

2030 outlook

- The EU is likely not on track to meet the 2030 target.
- The starting point is low and, in order to meet the target, the annual rate of increase would need to jump by almost 30% compared to that observed since 2010.
- To be effective, new MPA designations need to be defined based on sound scientific analysis; these need to ensure ecological representativity, coherence and connectivity and that all MPAs are well managed.

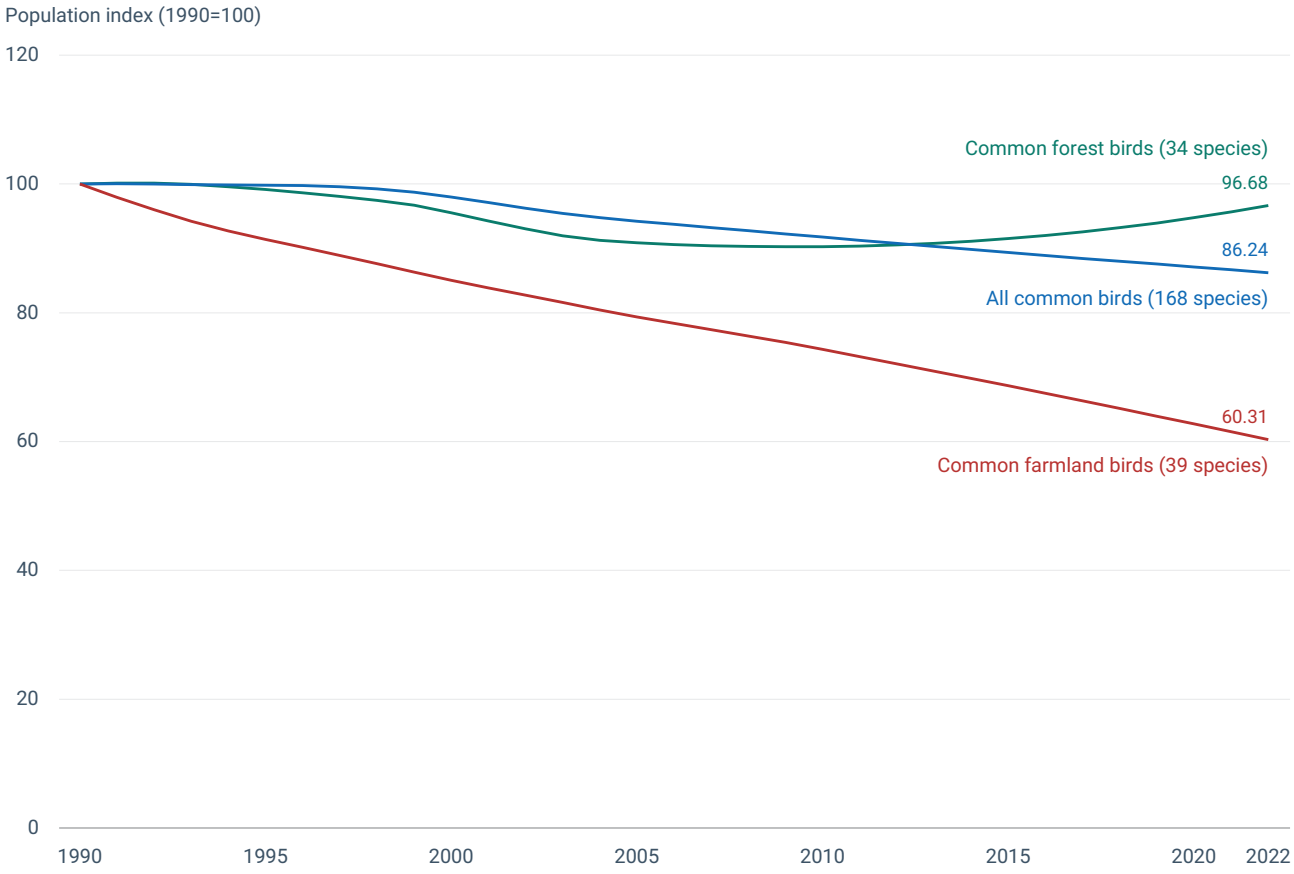
For more references and additional information, including at country level, see the full indicator version.

5.3 Common birds

Will the decline in the population of common birds reverse by 2030?

Likely off track. There has been a steady decline in the population of all common birds, which is unlikely to be reversed by 2030.

Figure 5.3 Common bird index in the EU



Sources: European Bird Census Council; BirdLife International; Royal Society for the Protection of Birds; Czech Society for Ornithology; EEA.

Relevance and policy target

- Common birds are sensitive to environmental pressures. Their population numbers can reflect changes in ecosystems and other animal and plant populations, making them good indicators of biodiversity and environment health.

- The EU biodiversity strategy for 2030 aims to put Europe's biodiversity on a path to recovery by 2030. The EU Regulation on Nature Restoration paves the way for the restoration of a broad range of ecosystems, with obligations to achieve increases in the indices for farmland and forest bird populations.

Indicator past trend (1990-2022): decrease ↓
Latest value (2022): 86 (1990=100)

- The common birds index shows a 14% decline in the 1990-2022 period. The decline in common farmland birds over the same period was much more pronounced at 40%, while the common forest bird index decreased by 3%.

- The decline is mainly caused by intensive agricultural management and land use change [43]. Other factors that have adverse effects on the recovery of common bird populations include climate change [44], increasing competition for land for producing renewable energy and biofuels [45, 46, 47] and illegal killing.

2030 outlook

- It is unlikely that the steady decline in the population of common birds can be reversed by 2030. The regulation on nature restoration could prove to be a watershed moment but the form and timing of restoration measures, as well as when these will have an impact, remain uncertain.

- To ensure the recovery of common birds, Member States will need to strengthen the implementation of existing biodiversity conservation and restoration policies and design new ones. EU policies such as the CAP need to include more effective and ambitious measures to halt biodiversity loss and encourage Member States to make full use of the biodiversity support opportunities available under the CAP [48].

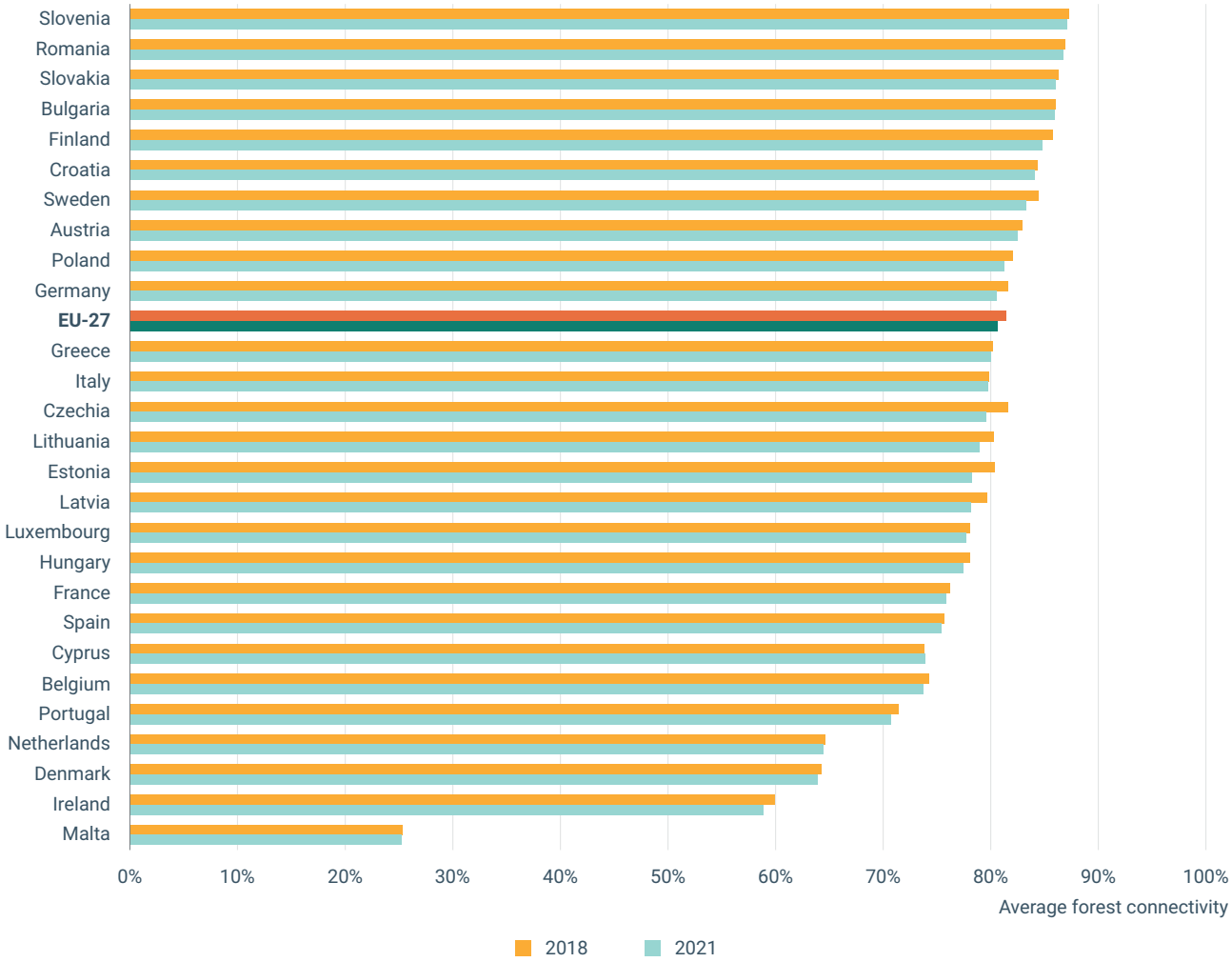
For more references and additional information, including at country level, see the full indicator version.

5.4 Forest connectivity

Will the degree of connectivity in forest ecosystems increase in the coming years?

Likely off track. The potential positive effects on forest connectivity of measures undertaken under the EU forest and biodiversity strategies and the Regulation on Nature Restoration will take a long time to bear fruit. In contrast actions which break forest connectivity can have immediate effects.

Figure 5.4 **Change in average forest connectivity in EU member states between 2018 and 2021**



Notes: The data presented here have changed compared to the same figure in last year's report. They are now limited to the high-resolution forest type layer from the Copernicus Land Monitoring Service (CLMS), excluding small woody features; this makes it possible to present estimates for 2018 and 2021.

Sources: EEA (methodology: Joint Research Centre).

Relevance and policy target

- Increasing the connectivity of forested landscapes is a key measure towards improving biodiversity and the ecological functions of forests [49]. Forest connectivity is promoted by the EU Regulation on Nature Restoration, the forest strategy for 2030 and the biodiversity strategy for 2030, which include a pledge to plant at least 3 billion additional trees by 2030.

Indicator past trend (2018-2021): decrease ↓
Latest value for forest connectivity (2021): 80.6%

- In 2021, the EU average for forest connectivity ([9]) was 80.6%, a decrease of 0.8% compared to 2018.
- Average forest connectivity was stable (less than 0.1% change) in four countries. Almost all other countries saw a decrease in average forest connectivity, with decreases of more than 1.5% in Estonia, Czechia and Latvia due to logging, partly related to storms and bark beetle outbreaks.
- Historically, forests have become fragmented because of conversion to cropland and pastures, urbanisation and infrastructure developments [50, 51]. Storms, forest fires and pests have also contributed to fragmenting forest cover.

2030 outlook

- The EU is likely not on track to improve forest connectivity by 2030 [52].
- Full and timely implementation of the EU Regulation on Nature Restoration, forest and biodiversity strategies will have positive effects on forest connectivity. They will promote biodiversity-friendly afforestation, reforestation and the restoration of forest ecosystems. However, the effects of most of these measures will only become apparent after 2030 because of the time lag between actions in the field and improved connectivity.
- On the other hand, actions increasing forest fragmentation — such as deforestation, storms, wildfires and pests — can have immediate effects. Measures to prevent and mitigate these phenomena as well as to increase forest resilience may reduce the risk of connectivity being lost due to natural hazards, which will likely intensify with climate change.

For more references and additional information, including at country level, see the full indicator version.

([9]) This indicates that on average 80.6% of the 10 hectare area surrounding a 100m² forest pixel was covered by forest or other woody features. The indicator is calculated only on cells of the grid covered by or adjacent to forest land.

8TH EAP THEMATIC PRIORITY OBJECTIVE

Environmental and climate pressures related to EU production and consumption

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6 Environmental and climate pressures related to EU production and consumption

Reducing environmental and climate change pressures, and moving towards environmental sustainability

Promoting environmental aspects of sustainability, and significantly reducing key environmental and climate pressures related to the European Union's production and consumption, is key to the success of EU's environment and climate policy. The EU's 8th Environment Action Programme (EAP) recognised this and made it one of its priority objectives to be met by 2030.

In order to capture progress towards this objective, the European Commission's 8th EAP monitoring framework includes five indicators and corresponding 2030 targets:

- An indicator on energy consumption to monitor whether the EU will reduce primary and final energy consumption levels to 992.5 and 763 million tonnes respectively of oil equivalent by 2030.
- An indicator on renewable energy sources to monitor whether the EU will increase the share of renewable energy sources in gross final energy consumption to at least 42.5% by 2030.
- An indicator on circular material use rate to monitor whether the EU share of recycled material in overall material use will double by 2030 compared to 2020.
- An indicator on public transport to monitor whether there will be an increase in the share of buses and trains in inland passenger transport in the EU.
- An indicator on organic farming to monitor whether the share of the EU's agricultural land that is organically farmed increases to at least a quarter by 2030.

The indicator assessment results are summarised further below. In summary, despite observed progress, the prospects of meeting the corresponding 2030 targets are, at present, not good. A common denominator across all five indicators is the extent of the required change, the speed at which this needs to take place and the need for a deep transformation of the systems that underpin these five areas if the targets are to be met by 2030. In addition, reducing consumption, energy and material needs and enabling sustainable choices for consumption, energy use, food and mobility would be key determinants in succeeding with meeting the targets.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

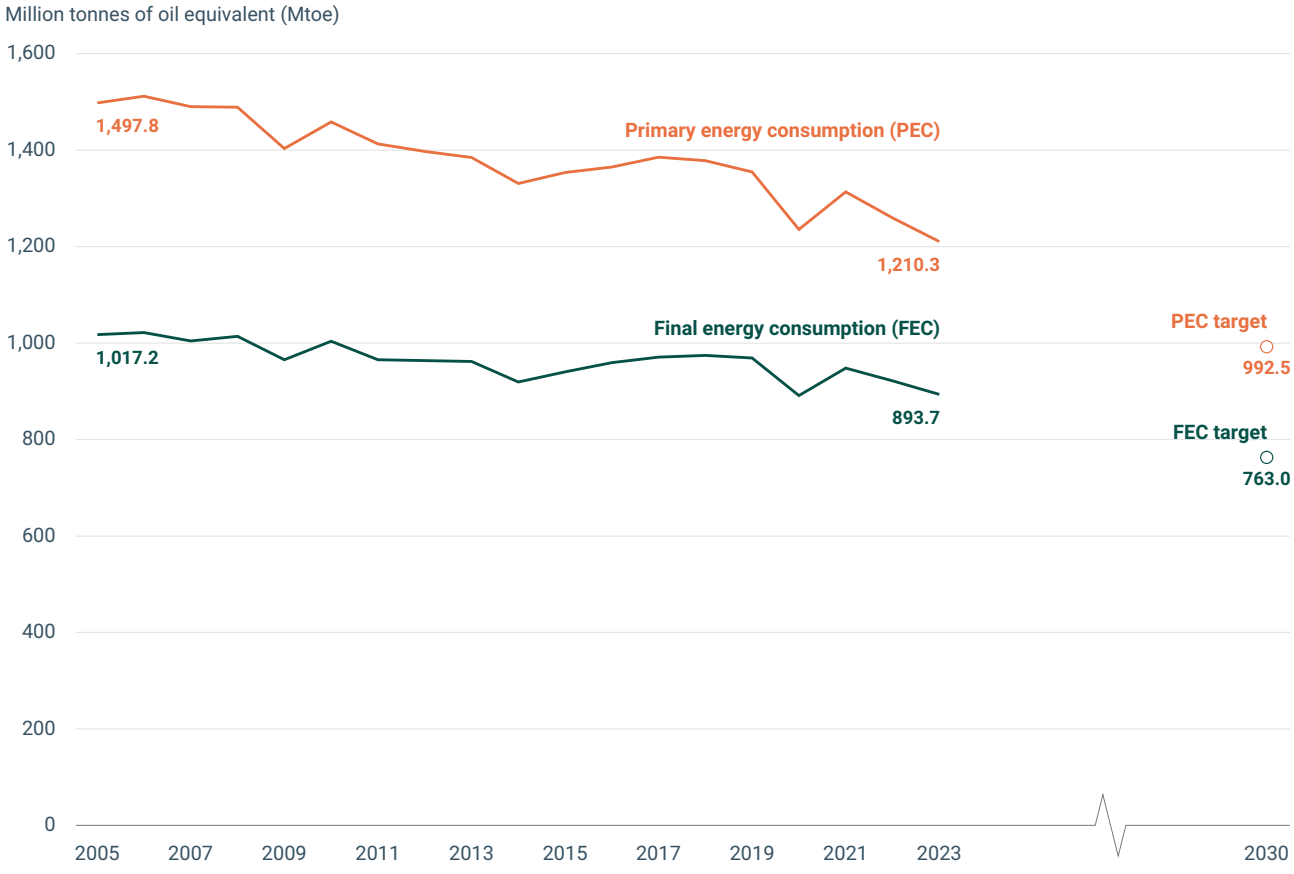
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

6.1 Energy consumption

Will primary and final energy consumption levels fall to 992.5 and 763 million tonnes of oil equivalent respectively by 2030?

Likely off track. Recent reductions in both primary and final energy consumption offer some grounds for optimism, with the rate observed over the past 3 years, if sustained to 2030, suggesting that targets could be achieved. This highlights the importance of maintaining decisive action to put the EU on track to meet both the primary and final energy consumption targets.

Figure 6.1 Primary and final energy consumption, EU



Sources: EEA; Eurostat.

Relevance and policy target

- Reducing energy consumption reduces associated costs, decreases energy dependence, and reduces the environmental and climate impacts of energy supply and use.
- The EU has a binding target to bring final energy consumption (FEC) levels down to 763 million tonnes of oil equivalent (Mtoe) by 2030 [(53)]. FEC is the energy consumed by end users such as households and transport.
- The EU also aims to reduce by 2030 the levels of primary energy consumption (PEC) to no more than 992.5Mtoe [(53)]. PEC represents the total energy demand within a country, including losses through the production and distribution of the energy to end users.

Indicator past trend (2005-2023): decrease ↓
Latest value (2023): FEC: 894 million tonnes oil equivalent (Mtoe), PEC: 1,210Mtoe

- Over the 2005-2023 period, FEC fell by 12% and PEC by 19%.
- The ongoing substitution of fossil fuels and nuclear energy by the typically more efficient renewable energy in electricity generation, coupled with improvements in energy transformation processes, have contributed significantly to the observed reduction in PEC.
- Energy saving and energy efficiency measures, structural changes towards less energy-intensive industries and gradually warmer winters because of climate change were the main reasons behind the decrease of FEC.

2030 outlook

- The EU is likely not on track to meet the 2030 PEC and FEC targets.
- The long-term historical trend indicates the EU is not yet on track to meet the targets. However, recent figures give grounds for some optimism with three consecutive years of promising reductions in both PEC and FEC. This rate of reduction would need to be sustained through to the end of this decade for the targets to be met, highlighting the importance of maintaining decisive action at the national and EU level.
- A continued deep and fast transformation of the energy sector is necessary if the targets are to be met. To maximise benefits, new measures will be needed to empower users to operate in response to the system's needs. Member States are expected to further develop their policies and measures in updated NECPs and these may include pathways to address the energy efficiency shortfall.

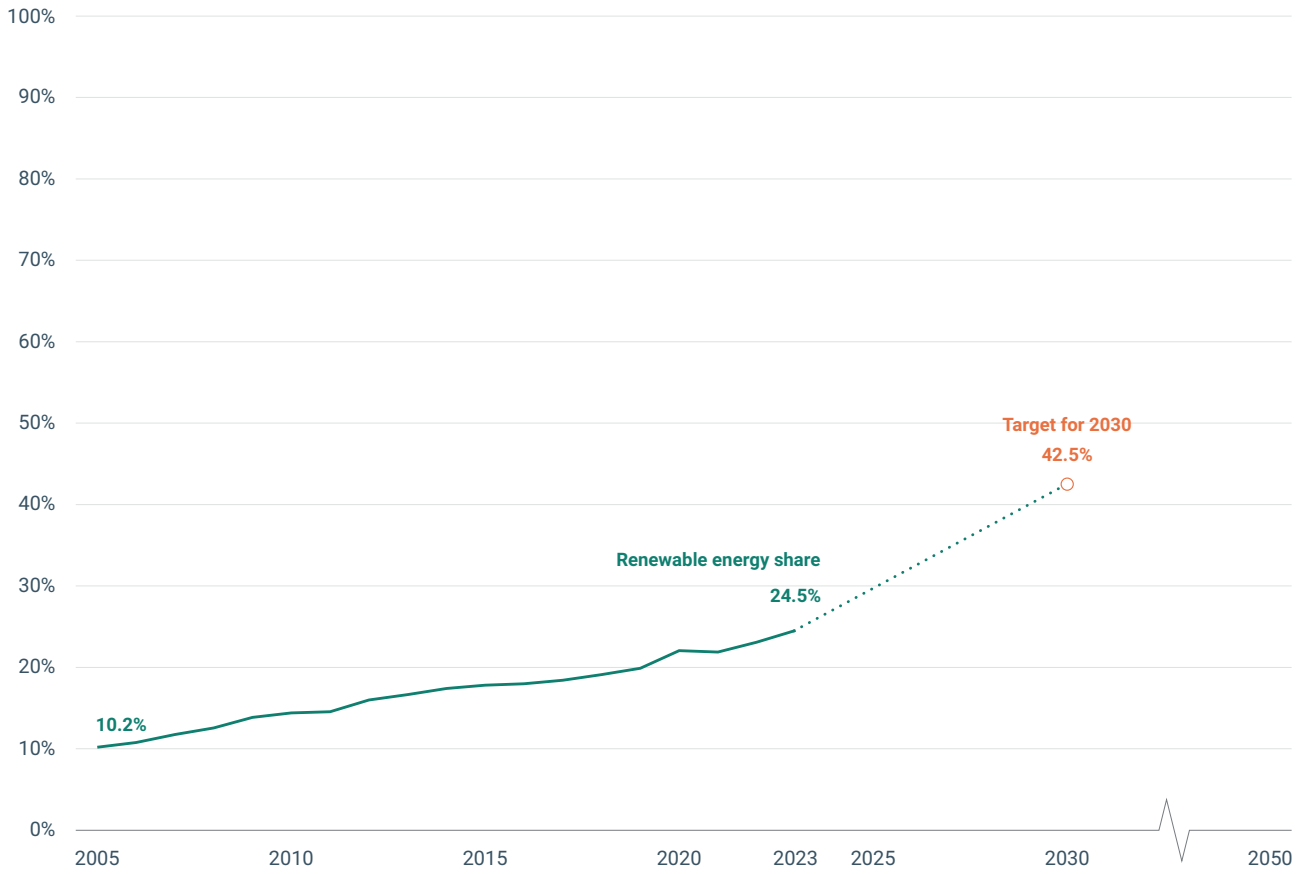
For more references and additional information, including at country level, see the full indicator version.

6.2 Renewable energy sources

Will the share of renewable energy in gross final energy consumption reach at least 42.5% by 2030?

Likely off track. Requires more than double the average annual rate of growth from now until 2030 compared to that of the past 10 years. Recent rapid deployment of some renewable energy technologies, in particular solar and wind electricity supply as well as heat pumps, provides for some optimism in meeting the 2030 target.

Figure 6.2 **Share of renewable energy in gross final energy consumption, EU**



Sources: Eurostat; EEA.

Relevance and policy target

- An increase in the use of renewable energy has multiple benefits for society, such as mitigating climate change, reducing the emission of air pollutants and improving energy security.

- The revised Renewable Energy Directive increases the binding target from 32% to a minimum 42.5% share of renewables in EU energy consumption by 2030, with the aim of achieving 45% [54].

Indicator past trend (2005-2023): increase ↑
Latest value (2023): 24.5%

- The EU's renewable energy share has more than doubled between 2005 and 2023, reaching 24.5% in 2023, according to early estimates by the EEA. Progress so far is attributed to dedicated policies and support schemes, as well as the improved economic competitiveness of renewable energy sources.

- The fastest deployment of renewables in 2023 continued to occur in the power sector, with 45.3% of all electricity generated from renewable sources. This was followed by the heating and cooling sector (26.2%) and transport (10.8%).

- In 2023, solid, gaseous and liquid biomass resources remained the most significant sources in the renewable energy mix; they accounted for half of all renewable energy consumption. Wind (17%), hydro power (13%) and solar photovoltaics (9%) were next three largest renewable energy sources, followed closely by heat pumps and liquid biofuels (both with an 8% share of all renewable energy use).

2030 outlook

- The EU is likely not on track to meet its target by 2030. In order to reach the target the average rate of growth of the share of renewable energy sources in the years up to 2030 would need to be more than double the rate observed over the past 10 years.

- Nevertheless, modelling from the IEA [55] and Ember [56] indicates that reaching the new 42.5% target might be feasible if fast and decisive action is taken to promote renewables and reduce energy consumption. The surprisingly rapid deployment of technologies such as solar photovoltaic and heat pumps in recent years also provides some optimism.

- A deep transformation of the European energy system encompassing all sectors would be needed within this decade if the target is to be met.

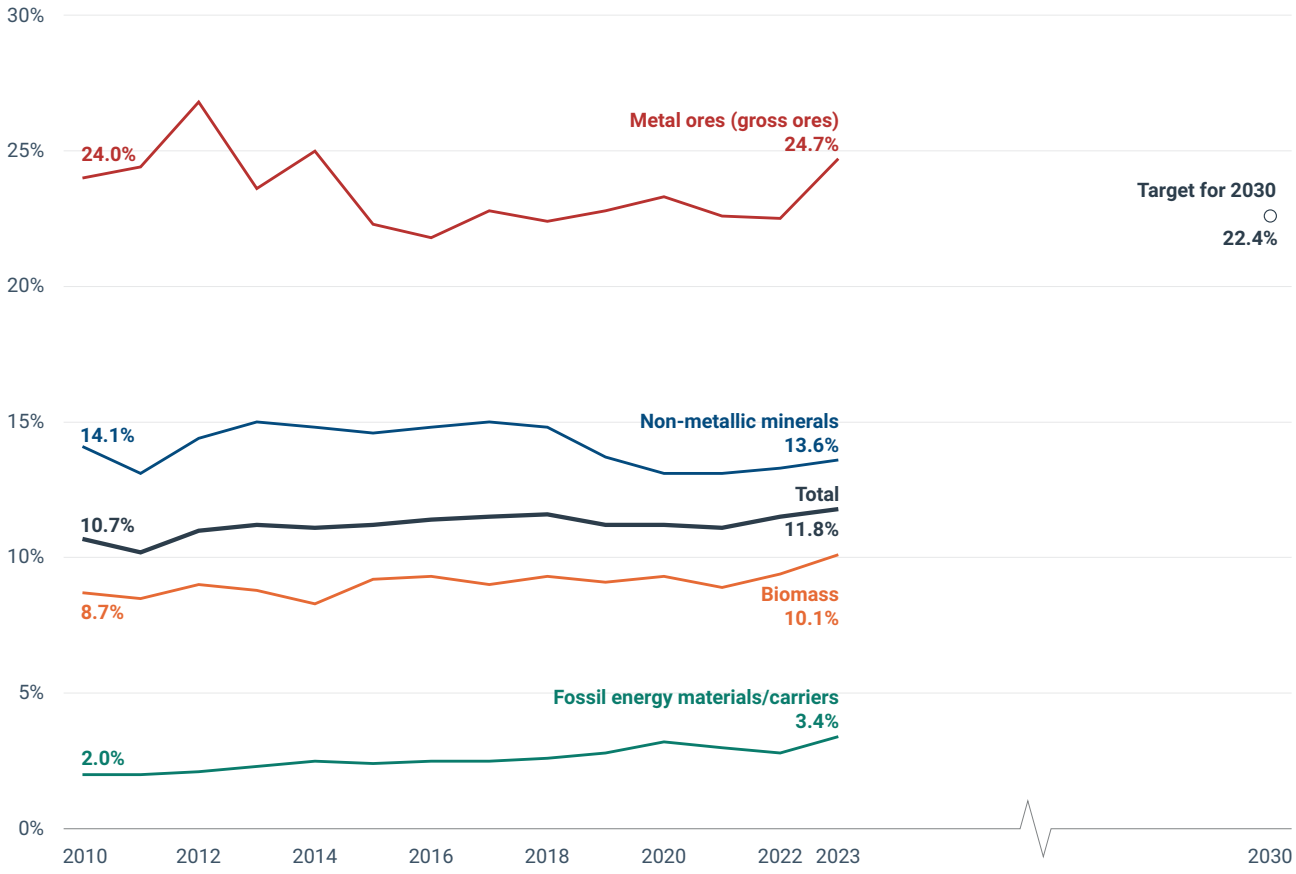
For more references and additional information, including at country level, see the full indicator version.

6.3 Circular material use

Will the rate of circular material use double by 2030 from 2020 levels?

Off track. Meeting the target requires an average annual increase of 1.5%, twice the increase achieved over the entire past decade. Past progress has been very slow and projections indicate that there will be an increased demand for materials in the EU by 2030.

Figure 6.3 **Circular material use rate in the EU and breakdown by material group between 2010 and 2023**



Source: Eurostat.

Relevance and policy target

- The circular material use rate (CMUR) measures the share of material recovered and fed back into the economy in overall material use. Increasing the CMUR — whether by increasing the amount of recycled waste or decreasing the amount of primary material used — would reduce the amount of primary material extracted for production and the associated negative impacts on the environment and climate. It would also improve the EU's strategic autonomy by reducing reliance on primary resources, including imported materials.

- The EU circular economy action plan aims to double the CMUR by 2030 compared to 2020.

Indicator past trend (2010-2023): increase ↑
Latest value (2023): 11.8%

- The CMUR increased from 10.8% in 2010 to 11.8% in 2023, mainly due to increases in the amount of waste recycled. Domestic material consumption has remained relatively stable.

- Non-metallic minerals account for more than 50% of total material consumption. The other material group categories are biomass, metal ores and fossil energy materials/carriers.

2030 outlook

- Meeting the target of doubling the CMUR would require an increase from 11.8% in 2023 to 22.4% by 2030 ([h]); this would necessitate an annual increase equivalent to twice the increase achieved over the entire past decade. This is very unlikely given how small the increase in the CMUR was in the previous decade and projections by the OECD predicting increased future demand for virgin materials in the EU by 2030 [28].

- Reaching the 2030 target would require both significantly reducing material consumption and substantially boosting recycling. Reducing the use of the bigger material groups — non-metallic minerals and metals — has a greater potential for increasing the CMUR. However, since not all material groups have the same environmental consequences, to maximise environmental benefits, measures should also focus on reducing consumption of fossil energy materials and increasing the sustainability of biomass production [57]. The recently adopted Regulation on Ecodesign for Sustainable Products calls for more durable, repairable and recyclable products and has the potential to directly improve the CMUR if implemented swiftly and comprehensively.

For more references and additional information, including at country level, see the full indicator version.

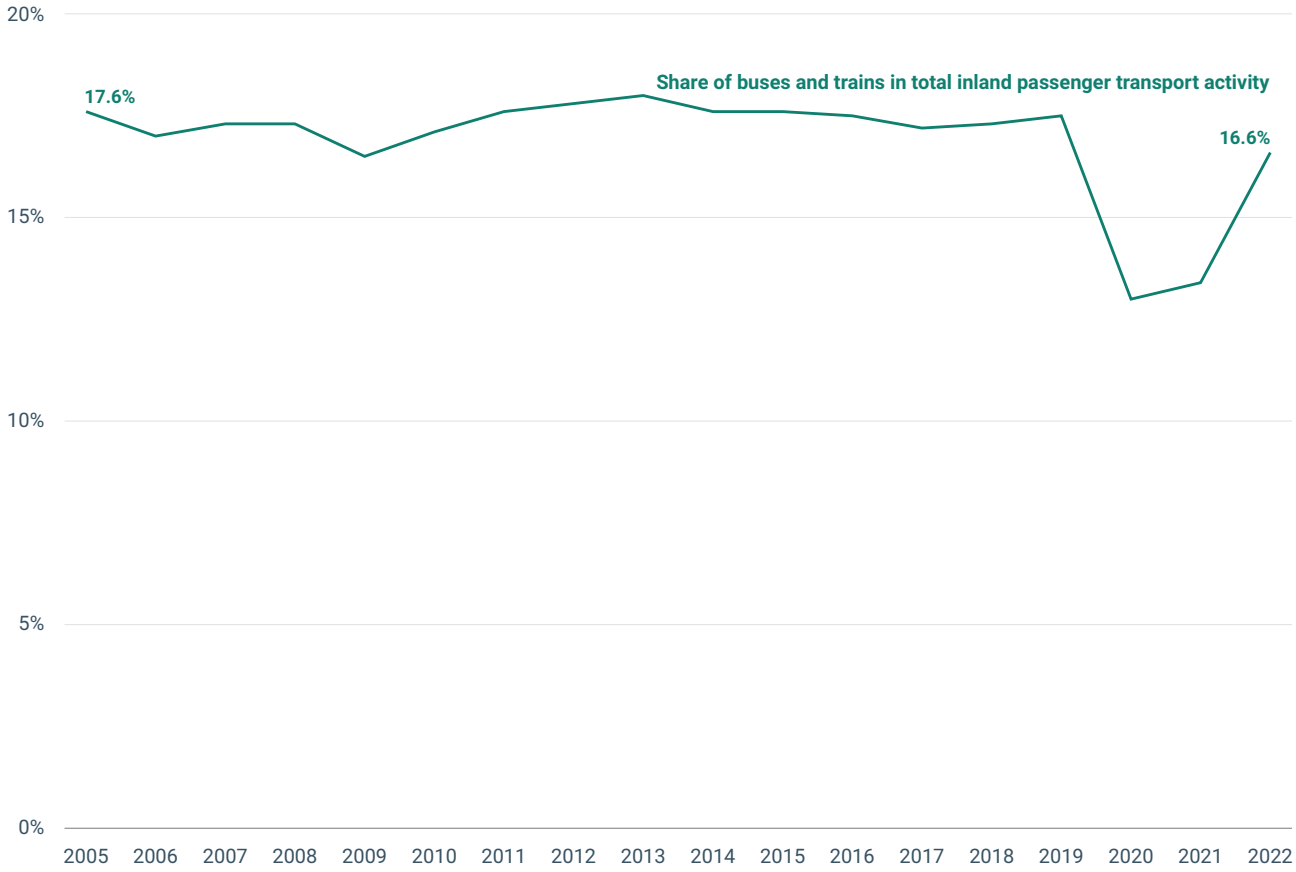
([h]) Following a downward revision of the 2020 estimates by Eurostat for the rate of circular material use, an increase to 22.4% by 2030 would now be required to meet the target of doubling the rate.

6.4 Buses and trains

Will the share of collective transport modes (buses and trains) in inland passenger transport increase in the coming years?

Likely off track. There has not been any real progress in shifting a larger share of passengers to the more sustainable transport modes provided by public transport and there is currently no comprehensive policy framework to promote such a shift.

Figure 6.4 **Share of buses and trains in total inland passenger transport activity, EU**



Source: Eurostat.

Relevance and policy target

- Promoting sustainable and more efficient transport modes such as collective passenger transport reduces greenhouse gas emissions and other environmental pressures such as air pollution and noise [58]. The European Commission's sustainable and smart mobility strategy of the European Green Deal called for decisive action to decarbonise transport and increase passenger use of public transport such as buses and trains.

Past trend (2005-2022): stable →
Latest value (2022): 16.6%

- From 2005 to 2019, the share of collective transport in total inland passenger transport remained relatively constant at 17%.

- While the share fell sharply in 2020, mainly due to travel restrictions and changed mobility habits brought about by the COVID-19 pandemic and its aftermath [59], by 2022 it had nearly recovered to pre-pandemic levels, reaching 16.6%.

2030 outlook

- The EU has adopted a number of policies and initiatives, like the revised TEN-T Regulation and the New EU Urban Mobility Framework. These have been further supported by the Commission recommendation to Member States to support cities in preparing, monitoring and implementing their sustainable urban mobility plans. Despite this, there has been a persistent lack of progress in recent years and the EU is likely not on track to deliver a modal shift towards public transport in the coming years.

- Decisive action to encourage the use of public transport would be needed to achieve this objective. This would require changes in the way Europeans commute and travel, and in the way European cities are planned. In addition to increased availability and reliability of public transport, reduction of public transport ticket prices and introduction of digital solutions that promote intermodality and integrated ticketing, investments and funding are also needed to finance safe, clean and modern infrastructure to ensure access to public transport for all [60].

- Although public transport is a matter of subsidiarity and a responsibility of the national/regional/local level, there are several policy and legislative actions at EU level that aim to promote the use of active and collective modes of transport. These include the New EU Urban Mobility Framework and the adoption of the European Declaration on Cycling.

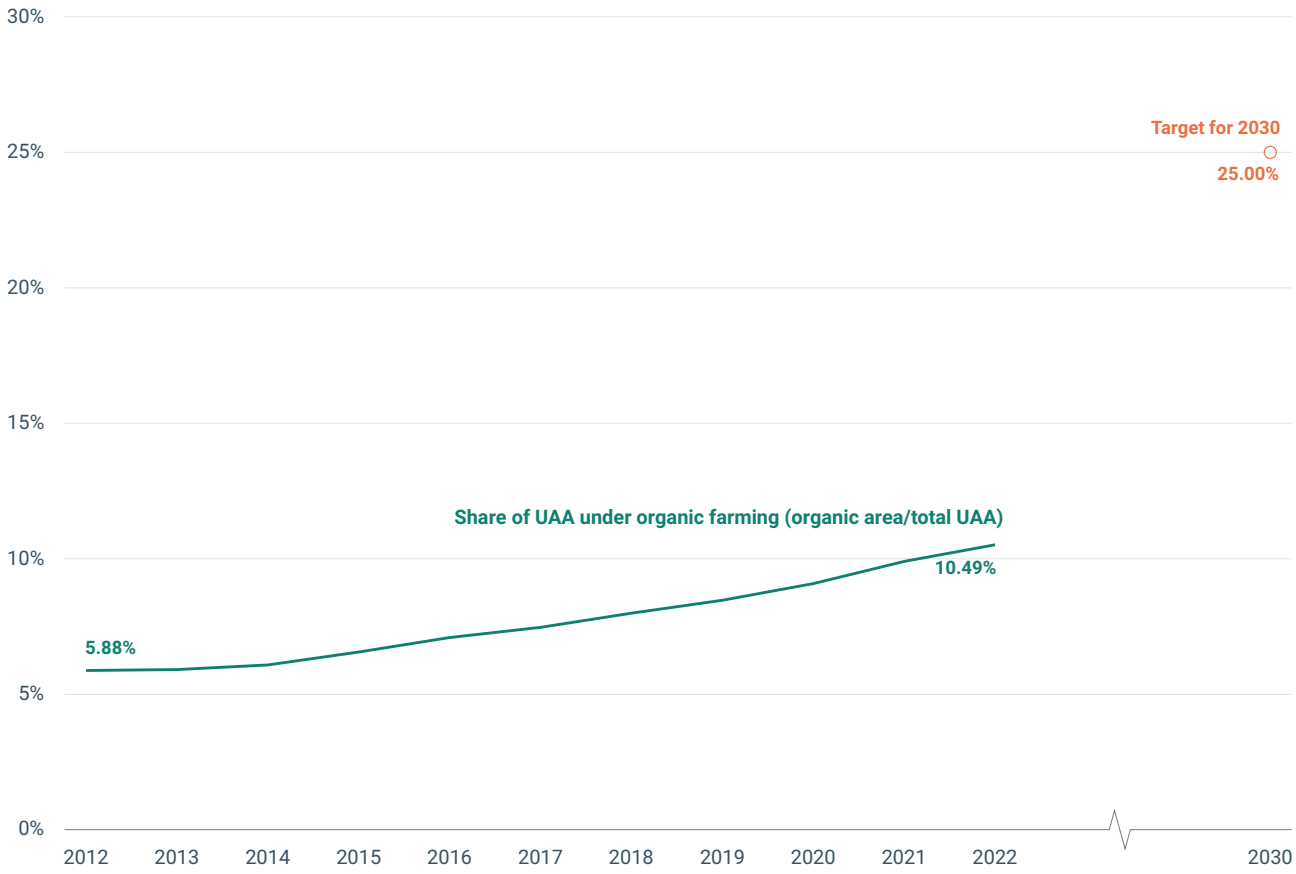
For more references and additional information, including at country level, see the full indicator version.

6.5 Organic farming

Will the share of organic farming expand to at least 25% of EU agricultural land by 2030?

Off track. Current policies in place and public support will most likely increase the share of organic farming but not sufficiently to meet the target. Meeting the target requires the pace in the increase of the share to almost double compared to that of the last decade.

Figure 6.5 **Share of utilised agricultural area used for organic farming, EU**



Sources: Eurostat.

Relevance and policy target

- Organic farming produces food using natural substances and processes, which benefits biodiversity, soil health, water quality and animal welfare.
- The European Green Deal and its strategies on biodiversity and farm to fork aim to have at least 25% of EU agricultural land organically farmed by 2030.

Indicator past trend (2012-2022): increase ↑
Latest value (2022): 10.5%

- Organic farming has been continuously increasing since 2012 and reached 10.5% of the EU's utilised agricultural area, equivalent to 16.9 million hectares, as a result of dedicated measures and a growing demand for organic products.

2030 outlook

- The EU is not on track to meet the 25% target by 2030. For this to happen, the annual rate of increase of the organic farming share will have to increase from 6% to 10.1% (almost double) in 2022-2030 compared to that of 2012-2022.
- Currently, a continued increase in the share of organic farming is expected by 2030, driven inter alia by increasing policy support through the common agricultural policy (2023-2027) [39] and initiatives under the EU Action Plan for the Development of Organic Production [61].
- However, the gaps in current EU and national policies and short- and medium-term decrease in demand for organic products due to unfavorable economic conditions point to a share of organic farming area lower than 25% in 2030 [62, 63, 64, 65].
- To reach the target, accelerated development and implementation of coherent policies with increased ambitions need to support a fundamental transformation of food production and consumption systems.

For more references and additional information, including at country level, see the full indicator version.

8TH EAP

Enabling conditions

7 Enabling conditions

Conditions enabling achievement of the 8th Environment Action Programme priorities

The 8th Environment Action Programme (EAP) set out six 2030 environment -and climate change-related priority objectives and an objective of living well within planetary boundaries by 2050 at the latest. To meet these objectives, many enabling conditions need to be in place to foster system change towards and green and socially fair transition.

The European Commission's 8th EAP monitoring framework includes five indicators and corresponding 2030 targets to capture aspects of progress related to conditions that enable the fulfilment of the 8th EAP objectives:

- An indicator on environmental taxes to monitor whether there will be an increase in the EU share of environmental taxes in total tax revenues in the EU.
- An indicator on EU fossil fuel subsidies to monitor progress towards phasing out fossil fuel subsidies, without delay.
- An indicator on environmental protection expenditure to monitor whether EU spending on preventing, reducing and eliminating pollution as well as other environmental degradation will increase.
- An indicator on green bonds to monitor if the share of green bonds in the total issued bonds will increase in the EU.
- An indicator on the eco-innovation index to monitor if eco-innovation will increase in the EU.

The indicator assessment results are summarised further below. In short, it is unlikely but uncertain that fossil fuel subsidies will decrease in the coming years. Developments in all other indicators are, however, moving towards meeting the 2030 targets. The high environmental and climate ambition of the European Green Deal and its initiatives is a key driver of these positive developments. Nevertheless, these do not seem to be enough at present, with many initiatives yet to be implemented, to produce the desired results in environmental protection and climate change.

The European Commission estimated additional investment needs of approximately EUR 620 billion per year from 2021 to 2030 [(66)] to deliver on the environmental and climate change objectives of the European Green Deal and of REPowerEU. Increases in the EU budget, the creation of the Recovery and Resilience Facility, which aims to support the EU recovery from the COVID-19 pandemic, and the implementation of the sustainable finance framework [(67)] are all expected to trigger additional capital flows in Member States towards sustainable investment. It remains to be seen, however, if these will be enough to fill the investment gap by 2030. Looking forward, it is crucial that investment is raised from the private sector, to complement public investment in the green transition.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

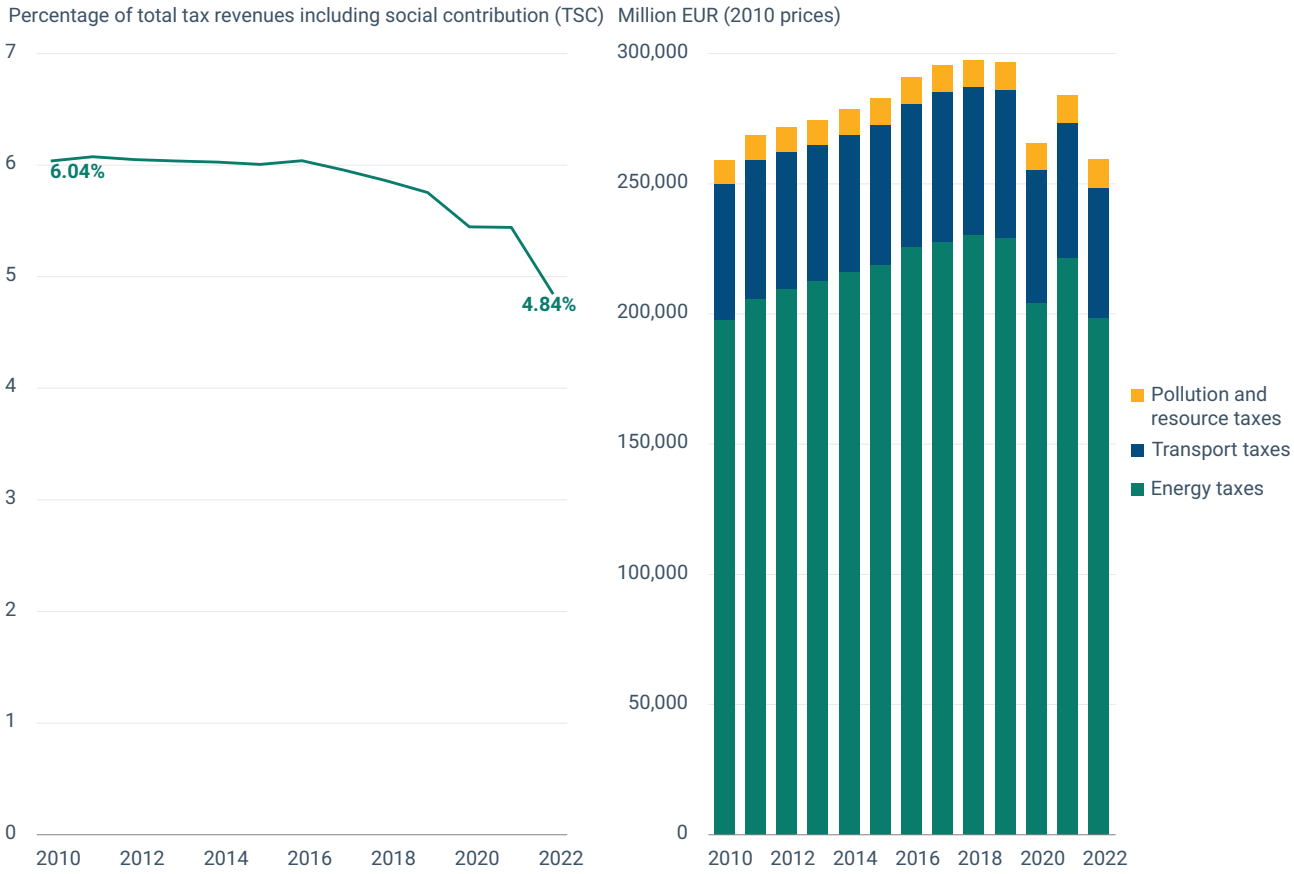
Methodology key		
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

7.1 Environmental taxes

Will the share of environmental taxes in total revenues from taxes and social contributions increase in the coming years?

Likely on track. Environmental taxes, including revenues from carbon pricing, could make up a larger share of total tax revenues towards 2030 as a result of the increased ambition and scope of emissions trading. Whether this is sufficient to halt the persistent decrease in the overall share of environmental taxes is increasingly uncertain. Revenues from energy taxation may decline further as future greenhouse gas emissions reductions erode the tax base.

Figure 7.1 **Revenue from environmental taxes in the 27 EU Member States, in terms of absolute revenue and as a share (%) of total tax revenue including social contributions (TSC)**



Notes: Values were deflated to 2010 prices by the EEA using the Eurostat 2010 GDP deflator. In Eurostat's statistics on environmental taxation, government revenues from the auctioning of emissions permits, such as those from the EU ETS, are classified as tax receipts in the national accounts. However, it should be noted that the EU ETS is not a tax, but a market-based environmental measure designed with the prime objective to reduce carbon emissions and provide a financial incentive to polluters to reduce emissions. The carbon price is determined by the market and is based on demand and supply fundamentals, hence, revenue raising is not the primary objective of the ETS.

Source: Eurostat.

Relevance and policy target

- Environmental taxes provide price signals and incentives to producers and consumers to pollute less and use resources carefully. Making polluters pay is at the core of EU environmental policy [(68)].

Indicator past trend (2010-2021): decrease ↓
Latest value (2022): 4.8%

- The share of environmental taxes as a proportion of total tax revenues dropped from 6% in 2010 to 4.8% in 2022. This decline can be attributed to the social and political challenges that governments face when maintaining or applying environmental taxes that increase the price of basic goods and services, such as food and energy. The social impact has been exacerbated in recent years as prices have risen sharply due to inflation. In addition, revenue declines as taxes successfully deter spending on unsustainable goods over time.

2030 outlook

- The recently heightened ambition and augmented scope of the EU's emissions trading system suggests EU ETS revenue, included in this indicator, may increase by 2030 [(69)].

- This implies the EU could increase environmental taxes as a share of total tax revenue by 2030, however this is increasingly uncertain.

- Environmental taxes as a share of total taxes have persistently declined and fell sharply in 2022. It is unclear if and to what extent environmental taxes will rebound, or whether the expected revenue from the EU ETS will be sufficient to offset this drop in future. In the long run, revenue from the EU ETS is also expected to reach a peak and then decline as more stringent GHG emission reduction requirements are introduced and drive down emissions. Progress in the EU's transition to a climate- neutral and green economy, while positive, will also erode the environmental tax base.

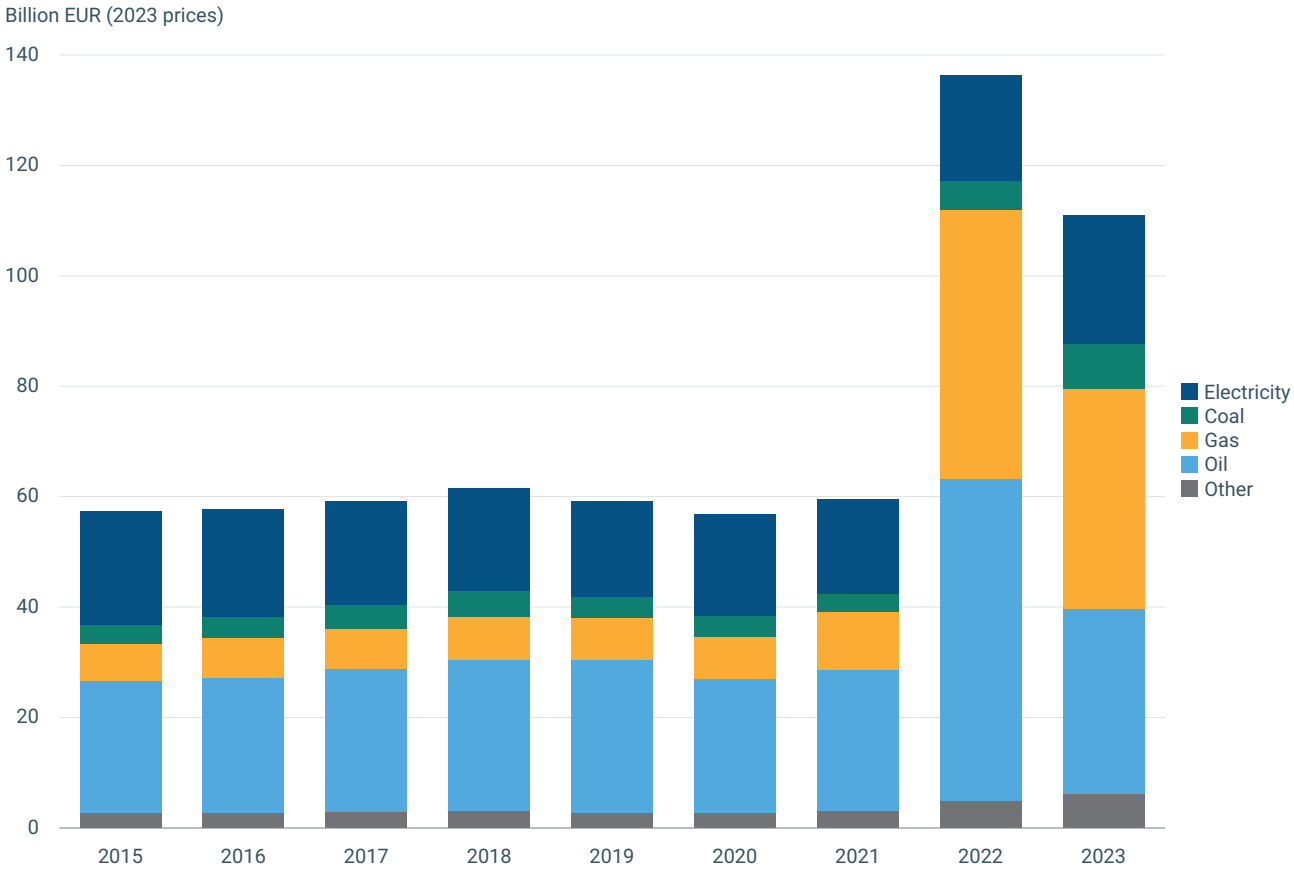
For more references and additional information, including at country level, see the full indicator version.

7.2 Fossil fuel subsidies

Will fossil fuel subsidies be reduced in the coming years with a view to phasing them out without delay?

Likely off track. A large number of fossil fuel subsidies are expected to be phased out by 2030 but many of these represent short-term crisis measures rather than longer-term structural ones. There is a lack of concrete plans to phase out the remaining structural fossil fuel subsidies in most EU countries.

Figure 7.2 Fossil fuel subsidies in EU Member States (in 2023 prices)



Notes: All monetary values are expressed in 2023 prices. Data for 2023 are provisional as fossil fuel subsidy figures (about 7% of total) are still under evaluation, with 2022 data used as a proxy.

Source: European Commission.

Relevance and policy target

- Fossil fuels are non-renewable sources of energy, and their production and use contribute significantly to climate change and pollution.
- In line with international commitments, the 8th EAP calls for a phase-out of subsidies to fossil fuels such as coal, gas and oil without delay.

Indicator past trend (2015-2022, in 2023 prices): stable (2015-2021) →, increase (2021-2023) ↑
Latest value (2023, preliminary, 2023 prices): EUR 111 billion

- Fossil fuel subsidies remained more or less stable at around EUR 57-62 billion (2023 prices) over the 2015-2021 period, with almost half of the subsidies supporting oil and more than a quarter supporting natural gas.
- An increase in fossil fuel subsidies of almost 120% occurred between 2021 and 2022 in response to the high energy prices driven by the Russian invasion of Ukraine [70]. The strong subsidy support continued in 2023, although at a lower level (EUR 111bn), as many of the crisis measures were prolonged despite the significant decrease in fossil energy prices.

2030 outlook

- The EU is likely not on track to make much progress in phasing out structural fossil fuel subsidies by 2030.
- The sharp rise in subsidies in 2022, which has largely continued into 2023, is considered temporary, as 43% of total fossil fuel subsidies in 2023 are set to end before 2025 [71].
- While a significant number of fossil fuel subsidies are due to be phased out by 2030, they are largely subsidies which were put in place as short-term crisis measures rather than long-term structural ones. There is a lack of concrete phase-out plans to phase out the significant remaining part of fossil fuel subsidies in most EU countries [70].

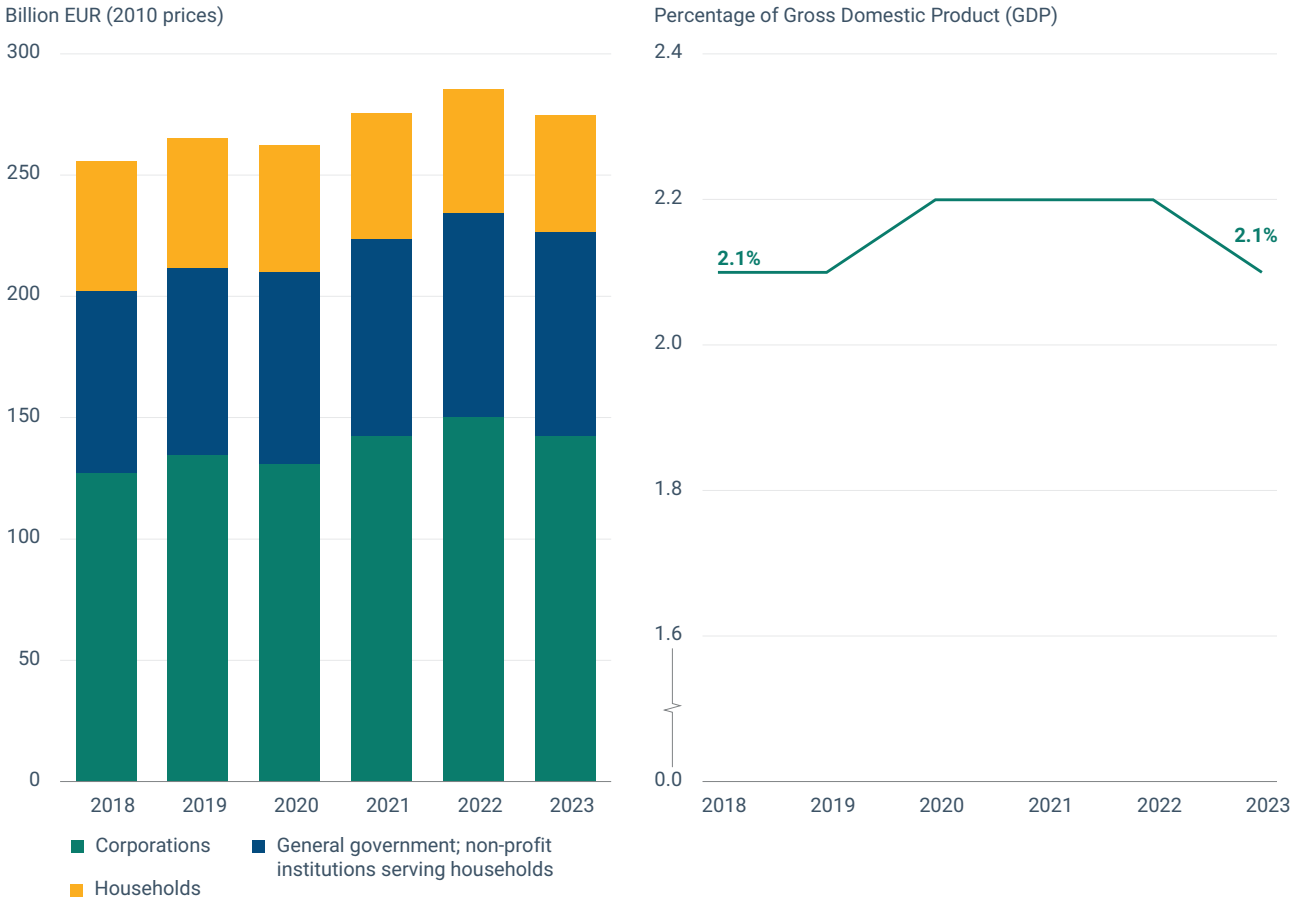
For more references and additional information, including at country level, see the full indicator version.

7.3 Environmental protection expenditure

Will it increase in the coming years?

On track. While 2023 saw a small real terms decrease in expenditure on environmental protection, additional resources have been made available in the EU budget, and in grants and loans under the EU Recovery and Resilience Facility.

Figure 7.3 **Environmental protection expenditure by institutional sector, EU**



Notes: Values were deflated to 2010 prices by the EEA using the Eurostat 2010 GDP deflator.

Source: Eurostat.

Relevance and policy target

- The environmental protection expenditure captures expenditure related mainly to pollution abatement, protection of biodiversity, management of wastewater and waste, environmental research and development. Environmental protection expenditure only partly captures expenditure related to climate change and to the circular economy ([i]) [72].

- The EU must increase environment and climate-related expenditure and therefore also environmental protection expenditure in order to meet the objectives of the European Green Deal.

Indicator past trend (2018-2023, in 2010 prices): increase ↑
Latest value (2023): EUR 275 billion

- In real terms (2010 prices), environmental protection expenditure increased in the EU by 7% between 2018 and 2023 and totalled EUR 275bn in 2023 (EUR 360bn in current prices). Most of this has been spent on waste management and wastewater treatment activities. Additionally, operating costs swallow up most of the environmental protection expenditure and only around 19% was spent on investments in 2023 (EUR 51bn) [73].

- The share of environmental protection expenditure as a proportion of GDP remained relatively stable at around 2% over the 2018-2023 period but declined from 2.2% in 2022 to 2.1% in 2023.

2030 outlook

- Environmental protection expenditure is on track to increase in the coming years, as additional resources — funding, loans, guarantees — have been made available to this effect through increases in the EU budget, the NextGenerationEU recovery plan and sustainable finance actions [74, 75, 76].

- Nevertheless, the European Commission estimates that an additional investment of EUR 77 billion per year is necessary from 2021-2030 to achieve the environmental objectives for the areas covered under the environmental protection expenditure [77]. It is too early to know if the additional resources will trigger the necessary capital flows to fill the investment gap by 2030.

For more references and additional information, including at country level, see the full indicator version.

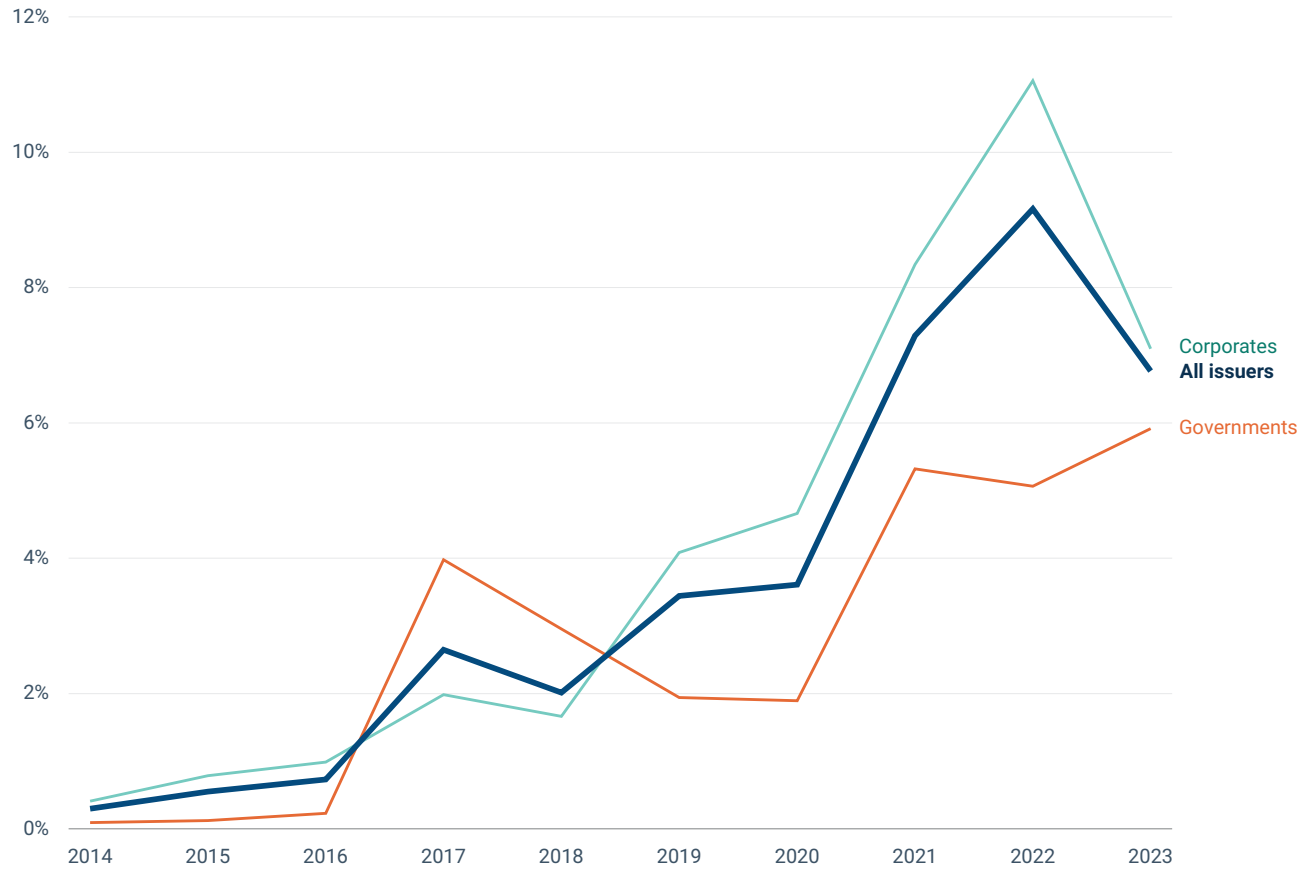
([i]) This does not capture expenditure on the production of renewable energy sources, energy efficiency in general or climate adaptation. However, it now includes expenditure on clean transport (vehicles and charging systems) as directly contributing to reducing air pollution.

7.4 Green bonds

Will the share of green bonds in total issued bonds increase in the coming years?

Likely on track. The issuance of green bonds as a share of total bonds is likely to increase because of the ambitious environmental and climate goals set out in the European Green Deal.

Figure 7.4 **Green bonds as a percentage of total bonds issued by corporates (corporate bonds), by governments (sovereign bonds), and by both corporations and governments, EU**



Note: Data are presented for bonds with a maturity of over one year, across the EU-27 for the period 2014-2023. Bonds issued by supranational and sub-national entities are not included.

Source: European Securities and Markets Authority (ESMA), based on data owned by Refinitiv. Percentages are calculated by EEA.

Relevance and policy target

- Green bonds are used to finance green projects, assets or specific business activities that address environment and climate change issues.
- The European Green Deal underlines the need to redirect capital flows to green investments, which can be achieved through issuing green bonds, among others.

Indicator past trend (2014-2023): increase ↑
Latest value (2023): 6.8%

- The share of green bonds as a proportion of total bonds issued by corporations and governments increased in the EU from 0.3% in 2014 to 6.8% in 2023. The issuance of green bonds by both corporations and governments increased over this period, although at different rates.
- The long-term increase reflects the increasing demand from investors for financing green projects and activities and the growing interest within the financial sector in offering financial instruments that support sustainability goals.
- While the long-term trend shows an increase, the share of bonds issued as green bonds fell in 2023 compared to 2022 due to a significant drop in green bonds issued by corporations.

2030 outlook

- While the share of bonds issued as green bonds fell in 2023, it remains likely, albeit uncertain, that green bonds are on track to account for a growing share of the bonds market in the coming years.
- The demand for green bonds will remain high — driven, amongst other things, by the ambitious environmental and climate objectives of the European Green Deal. The Commission intends to issue more green bonds to fund the NextGenerationEU recovery plan [(78)]. Conditions for sustainable finance are also improving. The European green bond standard, which became available to all issuers in December 2024, and the EU taxonomy for sustainable activities aim to boost sustainable investment. These developments indicate green bonds are likely to account for a growing share of total bonds in the future.

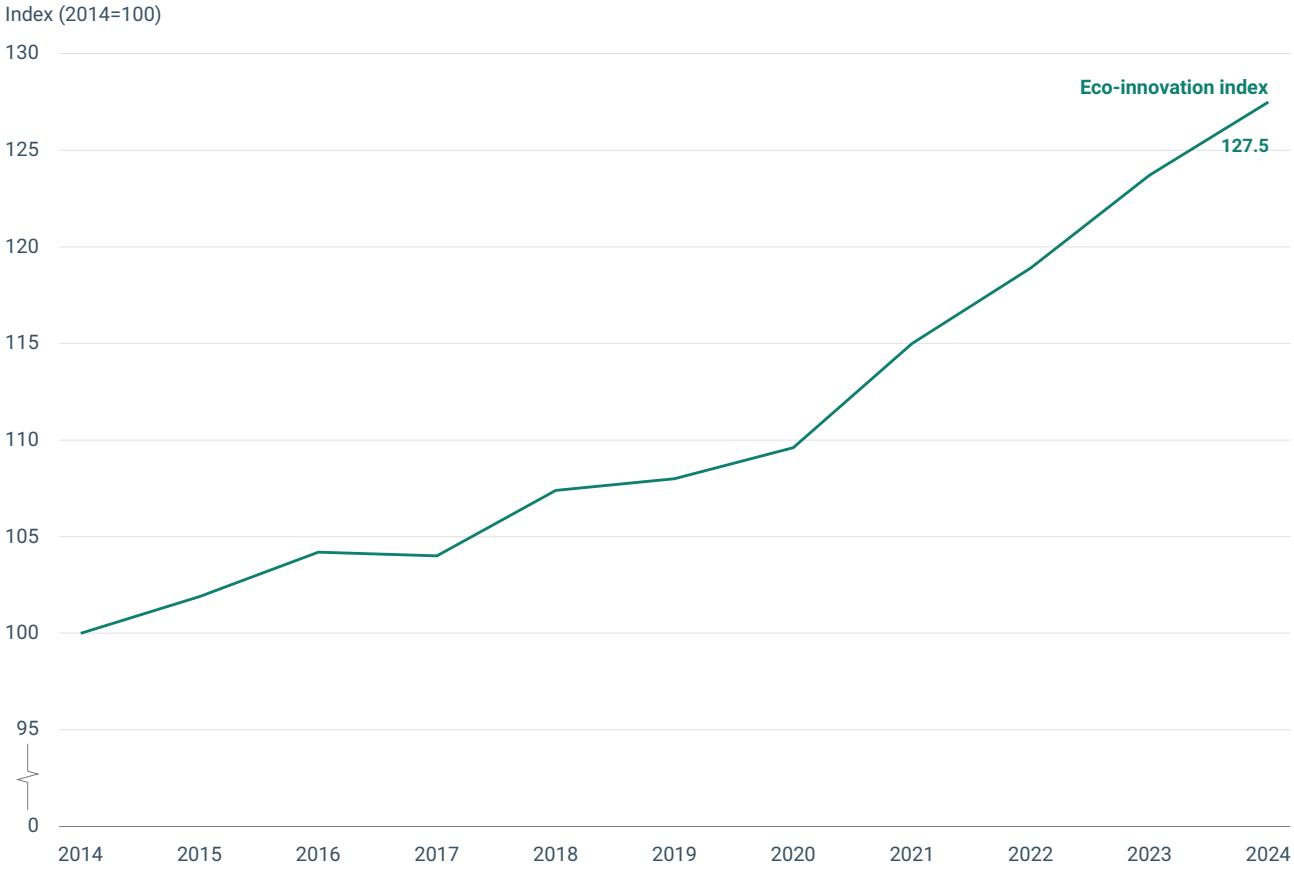
For more references and additional information, including at country level, see the full indicator version.

7.5 Eco-innovation

Will eco-innovation increase in the coming years?

On track. The ambitious environmental and climate objectives of the European Green Deal and associated initiatives create favourable conditions for more eco-innovation towards 2030.

Figure 7.5 **Eco-innovation index, EU-27, 2014-2024 (2014=100)**



Source: European Commission.

Relevance and policy target

- Eco-innovation is any innovation that reduces impacts on the environment, increases resilience to environmental pressures or uses natural resources more efficiently [(79)].
- Eco-innovation is essential to achieving a transition to the carbon-neutral and sustainable economy as set out in the European Green Deal.

Indicator past trend (2014-2024): increase ↑
Latest value (2024): 128 (2014=100)

- The European Commission eco-innovation index shows an increase of 28% from 2014 to 2024, mainly driven by improvements in various aspects of resource efficiency [(80)].

2030 outlook

- It is very likely that there will be further increases in the eco-innovation index in the coming years.
- This is because of the continuous increase over the years and because of the high ambition of the environmental and climate objectives of the European Green Deal and its ensuing initiatives, which will most likely drive further progress in eco-innovation [(80)].

For more references and additional information, including at country level, see the full indicator version.

8TH EAP LONG TERM PRIORITY OBJECTIVE
Living well, within planetary boundaries

8 Living well, within planetary boundaries

Our societies and economies depend on a healthy planet. The EU and the world have already transgressed several planetary boundaries [26, 27, 81]. The EU's 8th Environment Action Programme (EAP) requires that by 2050 at the latest, EU citizens live well within the limits of the planet in a wellbeing economy.

To capture progress towards aspects of this long-term objective, the European Commission's 8th EAP monitoring framework includes six indicators and corresponding 2030 targets:

- An indicator on land take to monitor whether the EU will meet its goal of no net land take by 2050.
- An indicator on water scarcity conditions to monitor whether the EU will reduce water scarcity.
- An indicator on the consumption footprint to monitor whether the EU will significantly reduce the environmental impact of its consumption to bring it within planetary boundaries as soon as possible.
- Two indicators on employment and gross value added of the environmental goods and services sector to monitor whether the share of the green economy and green employment in the whole economy will increase in the EU.
- An indicator on environmental inequalities to monitor whether the EU will reduce environmental inequalities and ensure a fair transition. In the absence of an available indicator that covers all environmental inequalities, an indicator on income-related environmental inequalities associated with exposure to air pollution (fine particulate matter) has been used as a proxy, albeit an imperfect one.

The indicator assessment results are summarised further below. The EU is on track to meet the 2030 targets related to the green economy and green employment indicators. This is because the need to fulfil the significant ambitions of the environmental and climate policy in the European Green Deal in the context of the EU's ongoing green transition will very likely increase the EU's green economy and green jobs.

On the other hand, the prospects of meeting by 2030 the objectives associated with the remaining indicators are not good. The EU is off track to meet the consumption footprint target by 2030. Projections by the European Commission [82] show that based on current consumption patterns and expected economic growth, the EU will not reduce its footprint in the coming years. The total footprint is mainly driven by food consumption patterns, housing and mobility.

The targets on land take, water scarcity and environmental inequalities are likely not on track to be met by 2030. Projections show that built-up areas will expand in the EU by 2030, hampering the prospects of achieving the 2050 'no net land take' goal. The pressure of climate change may reduce water availability further, making it challenging to reduce ongoing water scarcity problems in the coming years. Finally, although the income-related environmental inequalities associated with air pollution are an imperfect proxy of environmental inequalities, it is, nevertheless, important to note that it seems unlikely that this indicator will show improvements.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

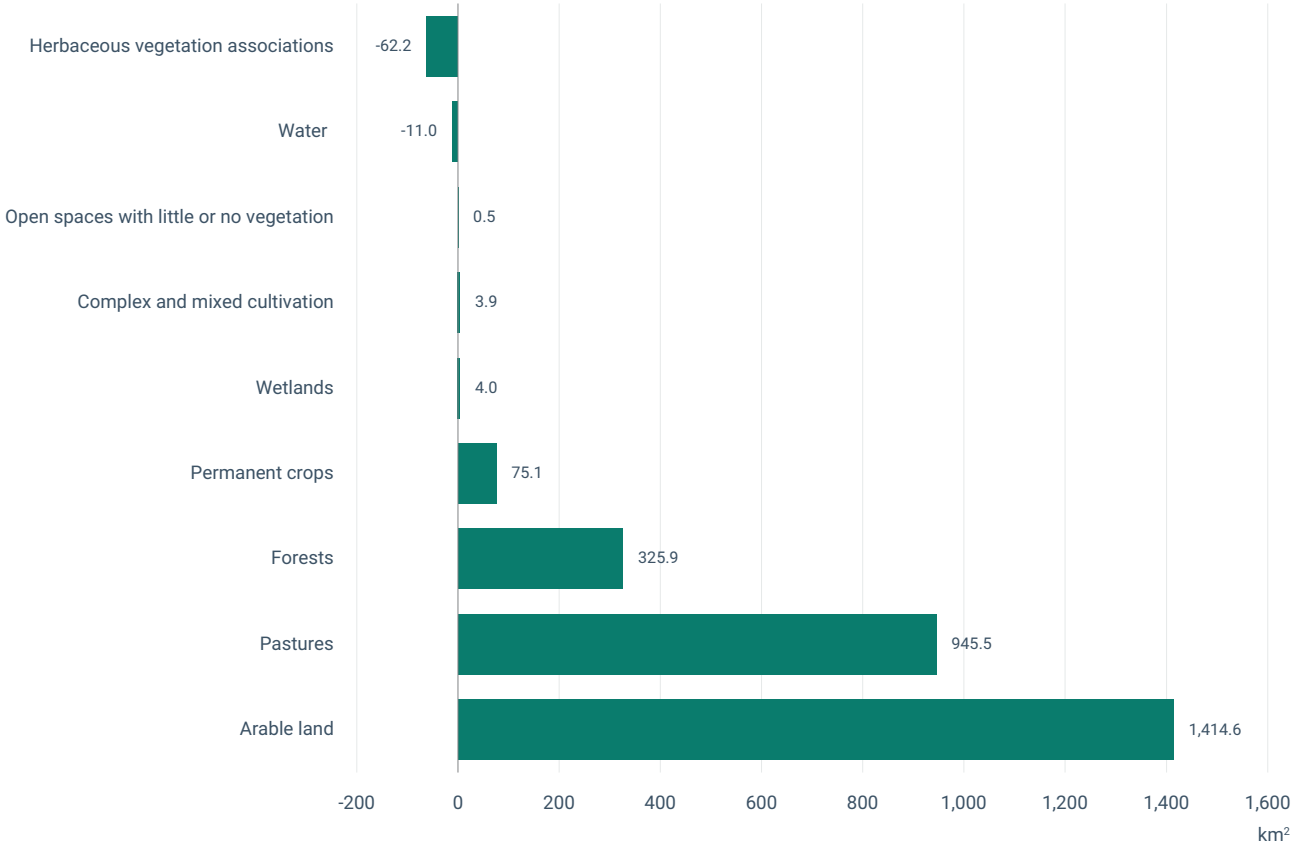
Methodology key		
Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

8.1 Land take

Will the EU achieve the goal of no net land take by 2050?

Likely off track. Projections indicate a likely expansion of built-up areas in the coming years. In addition, it is currently unclear how the drivers of land take will evolve and whether reconverting artificial surfaces to natural and semi-natural land will increase sufficiently.

Figure 8.1 **Net land take in cities and commuting zones, EU**



Sources: EEA; Copernicus Land Monitoring Service.

Relevance and policy target

- Land take entails the conversion of natural or semi-natural land to artificial land. This impairs the valuable ecological functions of land such as carbon sequestration and makes ecosystems less resilient. It can also impact the quality of life through diminished land functions (e.g. lost protection from floods and increased urban temperature when the soil is sealed) and direct loss of natural areas for relaxation and outdoor activities.

- The soil strategy for 2030 reconfirmed the aim of 'no net land take by 2050'.

Indicator past trend (2012-2018): unclear
Latest value (2012-2018 which is one assessment period): 450km^2 annual average

- In Europe, most land take occurs in cities and commuting zones, which are the areas this indicator focuses on. Between 2012 and 2018, net land take in the EU in these zones was on average 450km^2 annually.

- The taken land was mostly cropland and pasture, followed by forest. Major drivers of land take include population growth, the need for transport infrastructure, cultural preferences and economic growth [(83)].

2030 outlook

- For the EU to reach its aim of 'no net land take by 2050', there need to be significant reductions in net land take over the years. At present, the EU is likely not on track.

- It is unclear how the main drivers of land take will change and whether reconverting artificial surfaces to land will increase sufficiently in the future. Current projections by the European Commission Joint Research Centre indicate a likely expansion of built-up areas in the coming years [(84)].

- Discouraging diffuse urban expansion while promoting compact, multi-storey city planning with better land-use efficiency and the re-naturalisation of land instead would be an important means to reduce land take rate and reach the 2050 goal [(83)].

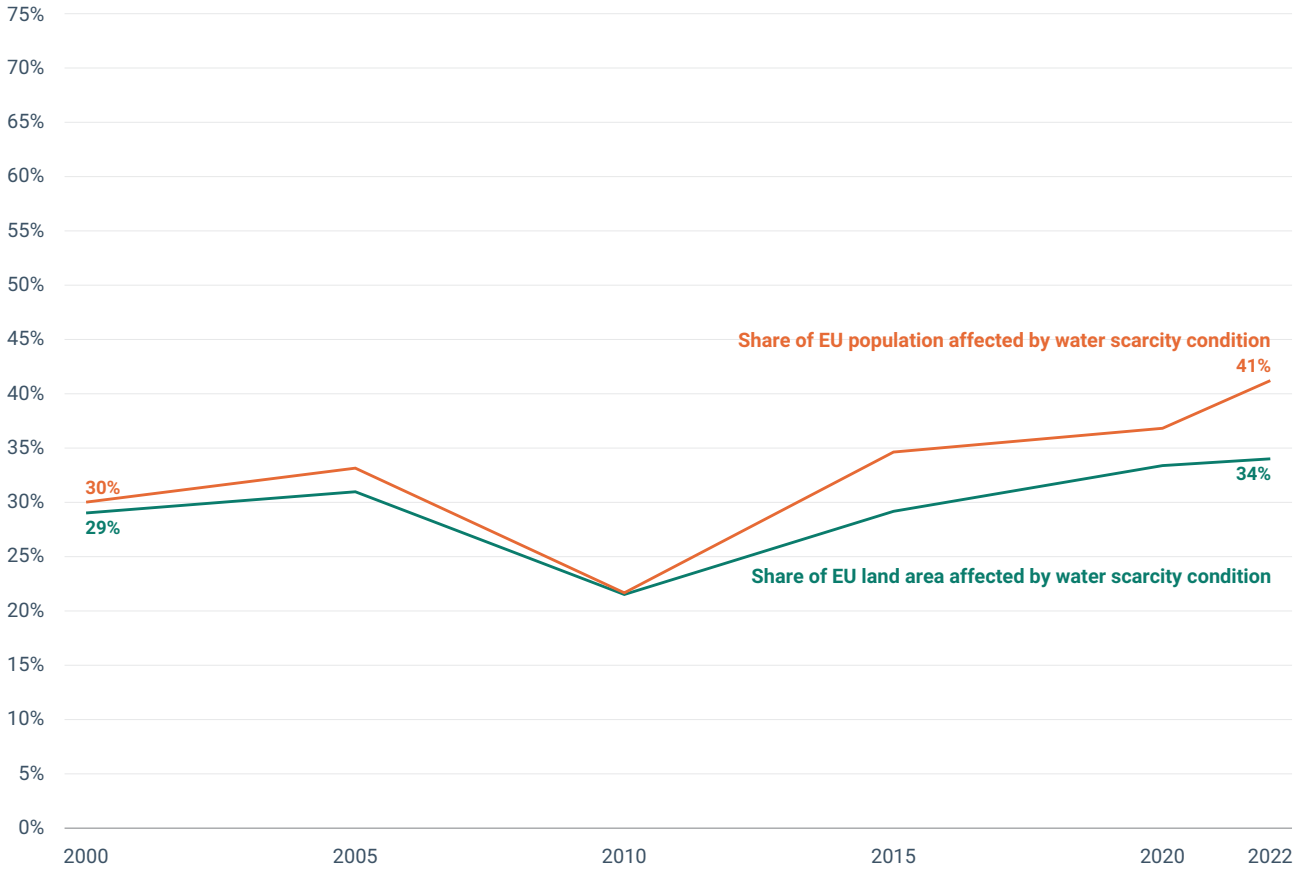
For more references and additional information, including at country level, see the full indicator version.

8.2 Water scarcity

Will the EU land area affected by water scarcity decrease in the coming years?

Likely off track. There has been no progress so far while climate change may further reduce water availability.

Figure 8.2 **Share of land area affected by water scarcity conditions , EU**



Sources: EEA; Eurostat; OECD; Joint Research Centre; Ecrins.

Relevance and policy target

- Freshwater resources are essential for human health, nature, and the functioning of economies and societies.
- The EU water framework directive requires Member States to promote the sustainable use of water and protect available water resources.
- The EU adaptation strategy seeks to develop and roll-out adaptation solutions that, among other goals, aim to safeguard the availability of fresh water.
- The Commission has announced in its political guidelines for 2024–2029 a new European water resilience strategy that aims to safeguard the availability of freshwater for citizens, nature and the economy, while also enhancing adaptation to climate change impacts, such as flooding and water scarcity.

Indicator past trend (2000-2022): stable →
Latest value (2022): 34%

- The EU land area affected by water scarcity conditions remained relatively stable over the 2000-2022 period. In 2022, it affected 34% of the EU territory in at least one season. Although total water abstraction reduced by 19% over the period, water availability also decreased because of climate change impact.
- While water scarcity is more prevalent in southern Europe, it extends to river basins across the EU, in particular in eastern and western Europe [(85)].

2030 outlook

- The EU is likely not on track to reduce water scarcity by 2030. There has been no progress so far on this issue and climate change may reduce water availability further because of rising temperatures and more frequent drought events [(86)].
- Additional effort is needed to ensure sustainable water use.

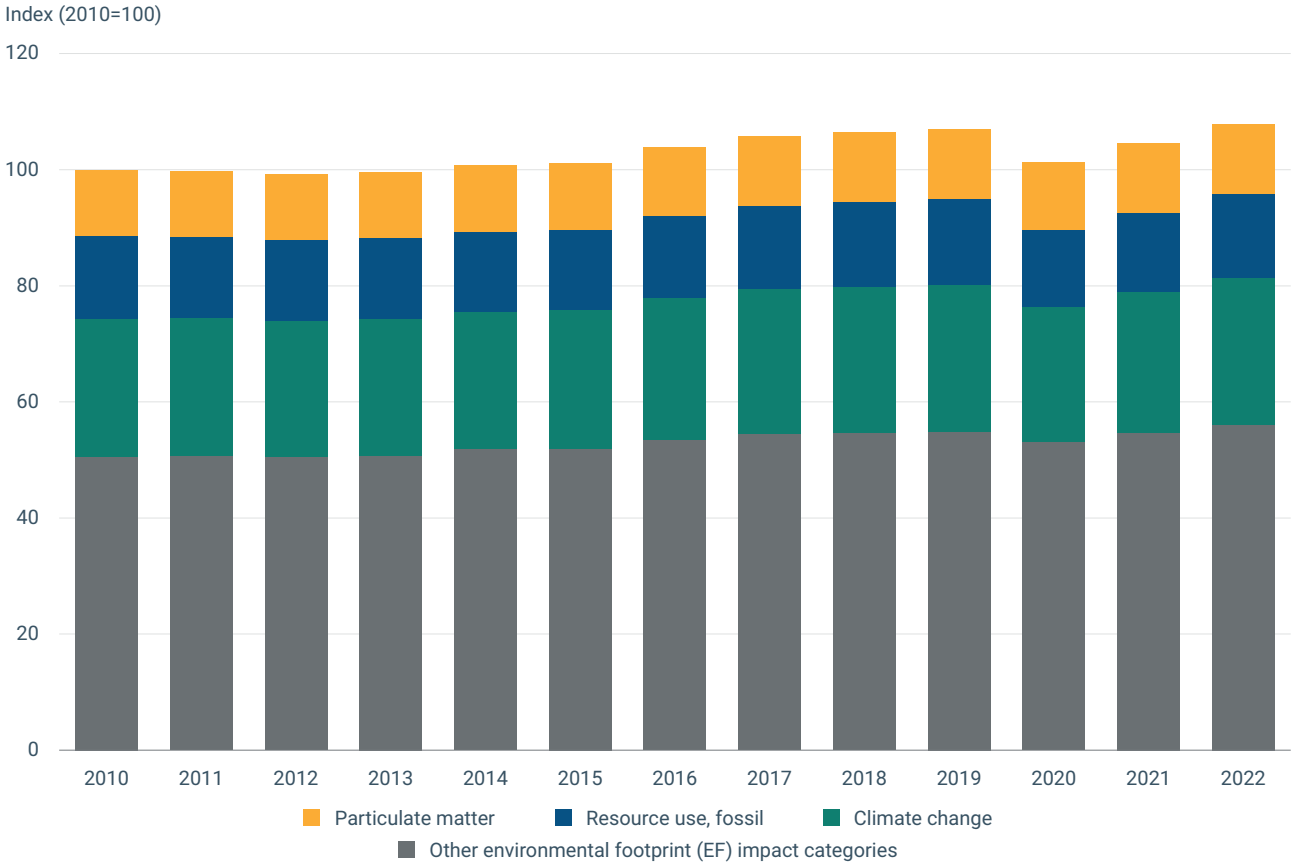
For more references and additional information, including at country level, see the full indicator version.

8.3 Consumption footprint

Will the EU significantly reduce its consumption footprint in the coming years?

Off track. The EU consumption footprint is projected to increase further by 2030 based on current consumption patterns and expected economic growth.

Figure 8.3 **EU consumption footprint, broken down by impact category**



Source: Joint Research Center (JRC).

Relevance and policy target

- The EU consumption footprint represents the environmental and climate change-related impacts of the consumption of goods and services by EU residents, irrespective of whether they are produced within or outside the EU.
- The 8th EAP calls for a significant reduction of the EU's consumption footprint to bring it within planetary boundaries as soon as possible.

Indicator past trend (2010-2022): increase ↑
Latest value (2022): 108 (2010=100)

- From 2010 to 2022, the consumption footprint increased by around 8%. Climate change, the use of fossil resources and the release of particulate matter were, across the years, consistently the three largest contributors to the environmental and climate change-related impact of the consumption footprint. Together, they accounted for about 50% of the overall impact.
- Overall, the environmental impact of EU citizen's consumption is considered high. Scientific evidence increasingly suggests that, based on current consumption footprint levels, the EU exceeds its fair share of planetary boundaries for five environmental impact categories, including particulate matter, climate change and resource use [(27)].

2030 outlook

- The EU is not on track to meet its aim to reduce its consumption footprint significantly by 2030.
- The European Commission Joint Research Centre predicts that the EU's consumption footprint will increase further by 2030 based on current consumption patterns, in terms of both quantity and type of products consumed, and expected economic growth [(35)].
- Switching to less environmentally harmful products and services and addressing unsustainable consumption patterns is necessary to reduce the consumption footprint and bring the impacts of consumption within planetary boundaries.
- Increasing product circularity by making products more durable, repairable and recyclable, as called for in the recently adopted Regulation on the Ecodesign for Sustainable Products, could be an effective way to address our consumption footprint.

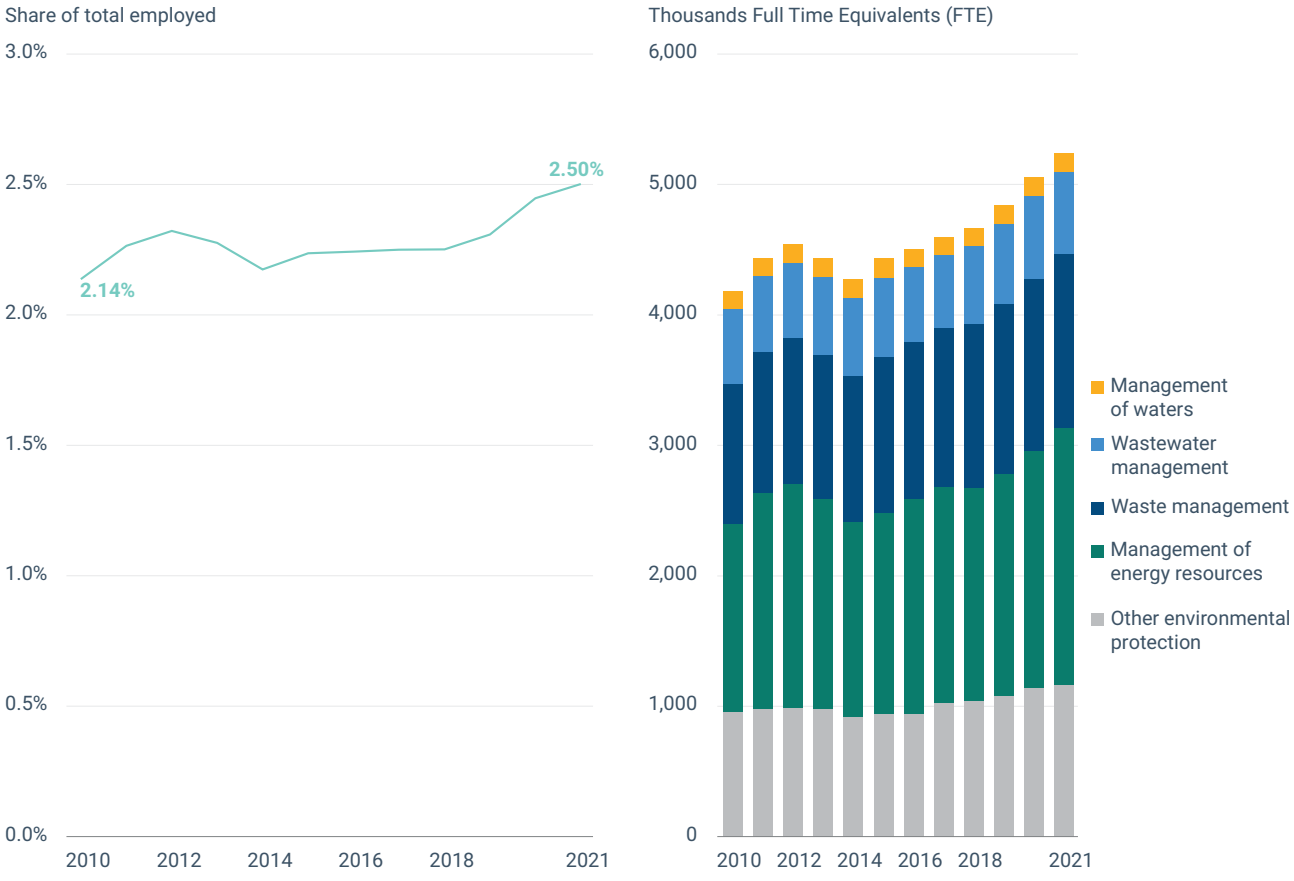
For more references and additional information, including at country level, see the full indicator version.

8.4 Green employment

Will the share of green employment in the whole economy increase in the coming years?

On track. The ongoing green transition of the EU's economy driven by the environmental and climate objectives of the European Green Deal will further increase this trend towards 2030.

Figure 8.4 **Employment in the EU's environmental goods and services sector by domain**



Source: Eurostat.

Relevance and policy target

- Green employment is the employment created in the EU's environmental economy, also known as the green economy. This is the part of the economy that produces goods and services used in environmental protection and resource management activities.

- The European Green Deal aims for a green transition of the EU's economy and for the EU to become carbon neutral by 2050. The transition will require more green jobs and related skills.

Indicator past trend (2010-2021): increase ↑
Latest value (2021): 2.5%

- Employment in the green economy grew more quickly than employment in the whole economy in the EU in the last decade: it represented 2.1% of total EU employment in 2010 and 2.5% in 2021, reaching 5.2 million full-time equivalent employees in 2021. This was mainly because of job creation related to renewable energy, energy efficiency and waste management.

2030 outlook

- The share of green employment in the EU economy is on track to rise in the coming years.

- The policies, measures and investments the EU is putting in place to support the green transition will create more green jobs by 2030, particularly those related to circular economy principles and moving towards a low-carbon economy [23, 87]. The Net Zero Industry Act aims in part to help develop a sizeable and skilled workforce in EU supply-chains for net zero-technologies, which will also boost green employment in the EU [88].

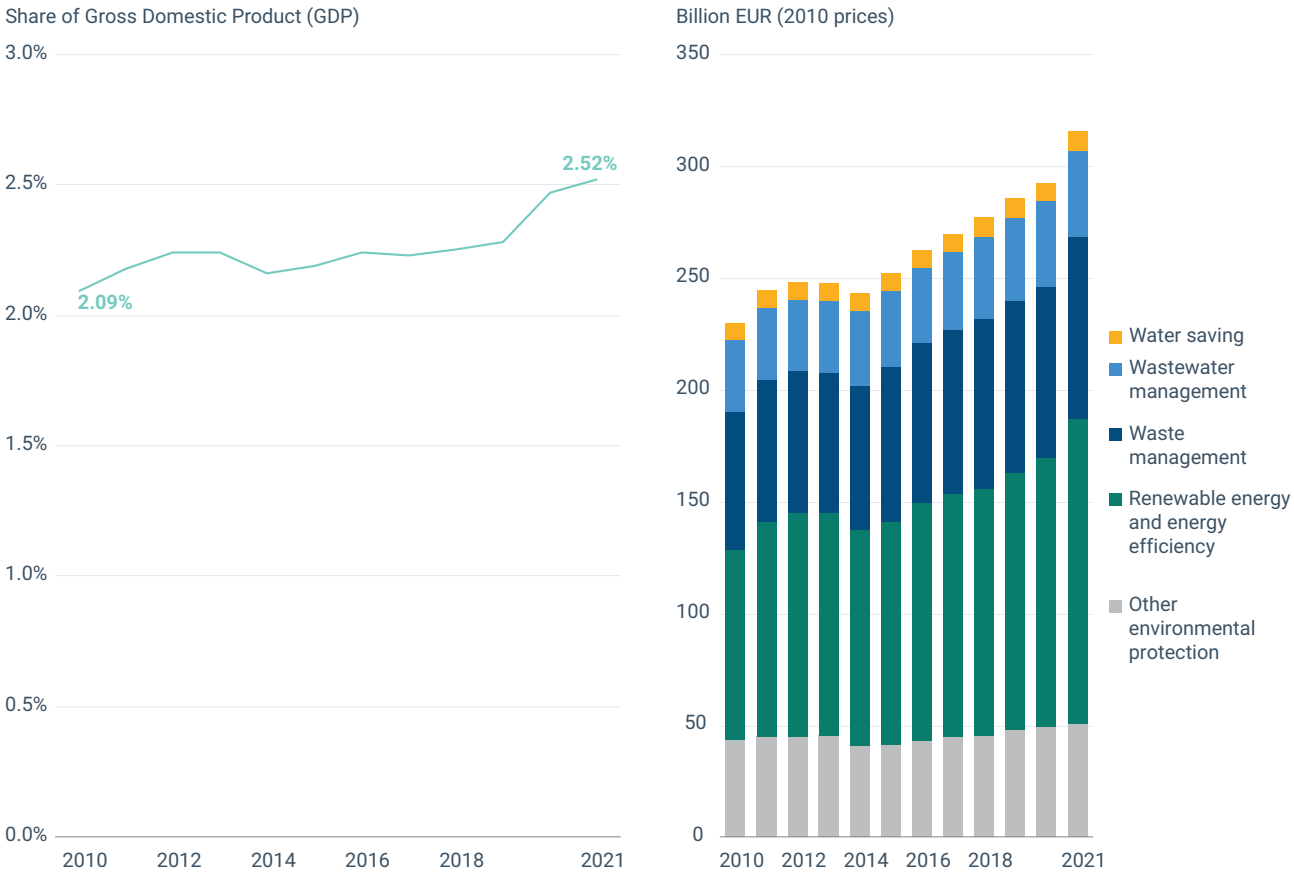
For more references and additional information, including at country level, see the full indicator version.

8.5 Green economy

Will the share of the green economy in the whole economy increase in the coming years?

On track. The ongoing green transition of the EU's economy is driven by the environmental and climate objectives of the European Green Deal.

Figure 8.5 **Gross value added of the EU's environmental goods and services sector by domain**



Source: Eurostat.

Relevance and policy target

- The green economy, also known as the environmental economy, is the part of the economy that produces goods and services used in environmental protection and resource management activities.

- The European Green Deal aims towards a green transition of the EU's economy and for the EU to become carbon neutral by 2050. This will need more economic activities related to environmental protection and resource management.

Indicator past trend (2010-2021): increase ↑
Latest value (2021): 2.5%

- The contribution of the added value of the EU green economy to the overall EU economy increased from 2.1% in 2010 to 2.5% in 2021 and reached just over EUR 315 billion (2010 prices) in 2021. This rise was mainly caused by significant increases in green economy activities related to resource management (renewable energy sources and energy efficiency) and waste management.

2030 outlook

- The contribution of the green economy to the EU GDP is on track to increase in the coming years, to fulfil the high level of ambition of the environmental and climate policy of the European Green Deal.

- Increases are expected particularly in relation to applying circular economy principles and to moving towards a low-carbon economy (e.g. increased output from renewable energy resources and energy efficiency improvements) [89, 90]. Furthermore, additional financial resources have been made available at EU level to support the expansion of the EU green economy [75, 91]. The Net Zero Industry Act will also boost the competitiveness of EU industry and increase economic activity within the EU [92].

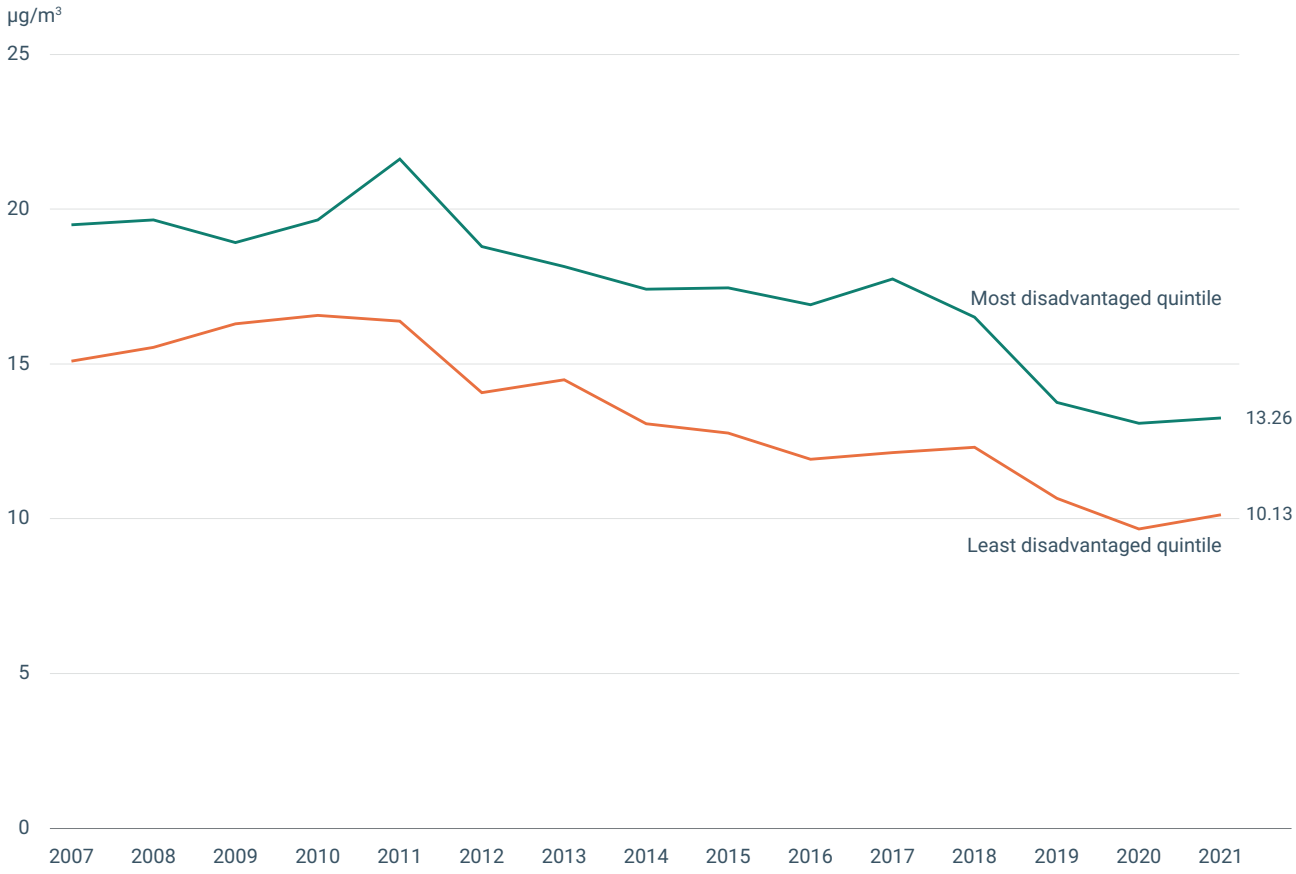
For more references and additional information, including at country level, see the full indicator version.

8.6 Environmental inequalities

Will environmental inequalities decrease in the coming years?

Likely off track. When it comes to air pollution, which is the scope of the currently available indicator, there has been no progress so far and there are no dedicated policies, at present, to address these environmental inequalities.

Figure 8.6 **Ratio of $PM_{2.5}$ population weighted concentrations: most deprived (i.e. poorest) quintile divided by least deprived (i.e. richest) quintile**



Note: Data relate to NUTS3 regions in the EU-27 from 2007 to 2021 as measured by GDP per capita at purchasing power standard.

Sources: EEA; Eurostat.

Relevance and policy target

- EU environmental policies have brought great benefits to EU citizens, for example, in terms of reduced pollution levels. However, questions remain as to whether these benefits or the ongoing impacts are distributed equitably within the EU.
- The 8th EAP specified that measures taken in the EU to protect the environment be carried out in a socially fair and inclusive way.
- Air pollution poses the greatest environmental risk to health in Europe [93] and fine particulate matter ($PM_{2.5}$) causes more attributable premature deaths in Europe than any other ambient air pollutant [93, 94]. Monitoring $PM_{2.5}$ levels is therefore considered a useful approach to exploring income-related inequalities in the distribution of the health impacts of air pollution and more broadly of environmental risks.

Indicator past trend (2007-2021): stable →
Latest value (2021): 1.31 ratio of population-weighted concentrations of $PM_{2.5}$ in the quintiles of the EU NUTS3 regions with the lowest per capita GDP (in purchasing power standard) relative to those in the most per capita GDP

- Despite improving trends in air pollution — measured as population-weighted concentrations of $PM_{2.5}$ in both the 20% highest per capita GDP and the 20% lowest per capita GDP regions (NUTS3) of the EU over the 2007-2021 period — inequalities remain. Levels of $PM_{2.5}$ are consistently higher by around one third in the poorest regions.
- Exposure at NUTS3 level is an imperfect proxy for actual inequalities in air pollution exposure, as it does not capture inequalities within each of the NUTS3 regions. No Europe-wide data on GDP exists at a level smaller than NUTS3.

2030 outlook

- With the past trend indicating no progress in reducing the environmental inequalities associated with air pollution, and in the absence of dedicated policies addressing such environmental inequalities, it is, at present, the EU is likely not on track to make progress in the coming years on reducing environmental inequalities, at least those related to air pollution.

For more references and for additional information see the full indicator version.

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Annex 1 Key elements of the 8th Environment Action Programme decision

This annex outlines key elements of the 8th Environment Action Programme (EAP) decision in relation to the 8th EAP priority objectives, enabling conditions, monitoring framework and governance, 8th EAP mid-term review and evaluation.

8th EAP priority objectives

Article 2 of the 8th EAP lays down the 8th EAP long-term priority objective and the six thematic priority objectives as follows.

Article 2(1) outlines the **long-term priority objective** of the 8th EAP of **living well within the planetary boundaries**: 'The 8th EAP shall have the long-term priority objective that by 2050 at the latest, people live well, within the planetary boundaries in a well-being economy where nothing is wasted, growth is regenerative, climate neutrality in the Union has been achieved and inequalities have been significantly reduced. A healthy environment underpins the well-being of all people and is an environment in which biodiversity is conserved, ecosystems thrive, and nature is protected and restored, leading to increased resilience to climate change, weather- and climate-related disasters and other environmental risks. The Union sets the pace for ensuring the prosperity of present and future generations globally, guided by intergenerational responsibility.'

Article 2(2) outlines the **six thematic priority objectives** of the 8th EAP that address: a) **climate change mitigation**, b) **climate change adaptation**, c) a **regenerative circular economy**, d) **zero pollution and a toxic-free environment**, e) **biodiversity and ecosystems** and f) **environmental and climate pressures related to EU production and consumption**.

More specifically, it stipulates that: 'The 8th EAP shall have the following six interlinked thematic priority objectives for the period up to 31 December 2030:

(a) swift and predictable reduction of greenhouse gas emissions and, at the same time, enhancement of removals by natural sinks in the Union to attain the 2030 greenhouse gas emission reduction target as laid down in Regulation (EU) 2021/1119, in line with the Union's climate and environment objectives, whilst ensuring a just transition that leaves no one behind;

(b) continuous progress in enhancing and mainstreaming adaptive capacity, including on the basis of ecosystem approaches, strengthening resilience and adaptation and reducing the vulnerability of the environment, society and all sectors of the economy to climate change, while improving prevention of, and preparedness for, weather- and climate-related disasters;

(c) advancing towards a wellbeing economy that gives back to the planet more than it takes and accelerating the transition to a non-toxic circular economy, where growth is regenerative, resources are used efficiently and sustainably, and the waste hierarchy is applied;

(d) pursuing zero pollution, including in relation to harmful chemicals, in order to achieve a toxic-free environment, including for air, water and soil, as well as in relation to light and noise pollution, and protecting the health and wellbeing of people, animals and ecosystems from environment-related risks and negative impacts; Key elements of the 8th Environment Action Programme decision 110;

(e) protecting, preserving and restoring marine and terrestrial biodiversity and the biodiversity of inland waters inside and outside protected areas by, inter alia, halting and reversing biodiversity loss and improving the state of ecosystems and their functions and the services they provide, and by improving the state of the environment, in particular air, water and soil, as well as by combating desertification and soil degradation;

(f) promoting environmental aspects of sustainability and significantly reducing key environmental and climate pressures related to the Union's production and consumption, in particular in the areas of energy, industry, buildings and infrastructure, mobility, tourism, international trade and the food system.'

8th EAP enabling conditions

Article 3 of the 8th EAP identifies the enabling conditions necessary to attain the 8th EAP priority objectives. These conditions address mainly issues of environment and climate policy implementation, funding, financing and integration into other policies.

Article 3 requests that the conditions are put in place 'to ensure that social inequalities resulting from climate- and environmental-related impacts and policies are minimised'.

It requires the 'strengthening of environmentally positive incentives as well as phasing out environmentally harmful subsidies, in particular fossil fuel subsidies without delay'.

Finally, it requires 'strengthening of the environmental knowledge base' and 'developing and consolidating the knowledge base, inter alia, on the requirements for systemic change'.

Article 3 includes many more enabling conditions. The conditions above are the most relevant from the perspective of the 8th EAP monitoring framework and the indicators that were selected by the European Commission for the annual 8th EAP monitoring.

8th EAP monitoring framework and governance

Article 4 establishes a monitoring framework to measure the progress of the Union and its Member States towards the attainment of the priority objectives of the 8th EAP and a governance mechanism to ensure attainment of those priority objectives.

Article 4(1) provides the overall aim of the 8th EAP monitoring: 'The Commission, supported by the European Environment Agency (EEA) and the European Chemicals Agency (ECHA), without prejudice to their independence, shall monitor, assess and report on the progress of the Union and the Member States with regard to attaining the priority objectives set out in Article 2, on an annual basis, taking into consideration the enabling conditions laid down in Article 3 and the overall goal of achieving systemic change. The information that results from that monitoring, assessment and reporting shall be made publicly available and easily accessible.'

Articles 4(2) and 4(3) detail further the aim of the 8th EAP monitoring and its ingredients:

'The monitoring, assessment and reporting referred to in paragraph 1 shall aim to facilitate high-level strategic political communication. Following a consultation process with all relevant stakeholders, the Commission shall, by 2 May 2022, present

a monitoring framework, based on a limited number of headline indicators, which include, where available, systemic indicators that address, inter alia, Key elements of the 8th Environment Action Programme decision 111 environmental social and environmental-economic nexus. The list of headline indicators shall remain stable to ensure accountability. …' (Article 4(2)).

'The monitoring and assessment referred to in paragraph 1 … shall be based on a methodology that enables, where possible, measurement of distance to targets in relation to the priority objectives set out in Article 2 and selected headline indicators.' (Article 4(3)).

Article 4(4) outlines the annual governance of the 8th EAP monitoring: 'The European Parliament, the Council and the Commission shall take account of, and exchange views annually on, the assessment referred to in paragraph 1 as well as actions taken and possible future actions.'

Article 4(5) outlines the tasks that the EEA and the ECHA shall perform in order to support the Commission to improve the availability and relevance of data, indicators and knowledge.

Upon adoption of the 8th EAP Decision, the EEA and the European Commission agreed that the EEA, in support to the 8th EAP monitoring, will prepare annual progress reports with regard to attaining the priority objectives while taking into consideration the enabling conditions and the overall goal of achieving systemic change. The EEA will do this annually and on the basis of the 28 8th EAP headline indicators and corresponding targets, which the European Commission outlined in its 8th EAP monitoring framework communication.

8th EAP mid-term review

Article 5 of the 8th EAP Decision details the 8th EAP mid-term review process and potential follow-up.

The European Commission shall carry out the mid-term review of the 8th EAP progress by 31 March 2024. This shall be based on the 8th EAP progress assessments outlined in Article 4(1) and any other relevant findings. Where appropriate, the Commission shall propose changes to the headline indicators referred to in Article 4(2) in light of the outcome of the mid-term review.

'The Commission shall present, where appropriate, a legislative proposal to add an annex to the 8th EAP, for the period after 2025, containing a list of actions with a view to reaching' the 8th EAP thematic priority objectives, as well as a timeline for the respective actions.

8th EAP evaluation

Article 6 of the 8th EAP stipulates that 'by 31 March 2029, the Commission shall carry out an evaluation of the 8th EAP followed, if appropriate, by a legislative proposal for the next environmental action programme by 31 December 2029'.

Annex 2 EEA methodology to assess the outlook of meeting the 2030 targets of the 8th EAP monitoring communication of the European Commission

The methodology is specific to the 8th EAP headline indicators and the corresponding 2030 8th EAP targets, which were published in the 8th EAP monitoring framework communication of the European Commission. It does not assess progress towards the priority objectives as such of the 8th EAP Decision.

This methodology addresses only how to assess the outlook of meeting the 8th EAP monitoring targets by 2030 and not how to assess the past trends of the 8th EAP headline indicators.

Key principles

1. The assessment is done at the level of each of the 8th EAP headline indicators and of their corresponding 8th EAP monitoring target that should be met by 2030 – see list of indicators and targets in pages 5-8 of the 8th EAP monitoring framework communication.

2. The methodology assumes correlation between the trend of the indicator with the prospects of meeting the corresponding target.

3. The methodology can assess progress towards both quantitative and qualitative objectives. 70% of the targets in the 8th EAP monitoring framework communication are qualitative.

4. The methodology allows a choice of methods to reflect the best available evidence as well as combining methods.

Outlook assessment methodology

5. In general, the assessment of the outlook of meeting one of the 28 8th EAP targets outlined in the 8th EAP monitoring framework communication by 2030 is based on some combination of:

- **Modelled estimates of future developments (if available)**. This method takes precedence over any other method if the projections are officially reported (e.g. legally binding official national projections) and reflect the current policy landscape, and the scope and timeframe accurately match those of the indicator.

  Often these conditions are not fully met, in which case such information is not used alone but combined with other methods.

- **Indicator-based trends observed over the previous years**. Indicator past trends do not reflect the current and foreseeable economic and policy context; they only reflect the past context. This method is therefore usually used in combination with other methods. As we move closer to 2030 (i.e. in future 8th EAP monitoring reports) the more this method will weigh in since significant changes in the context will be less likely.

- **'Distance to target' assessments (if available)**. If a required path is already included in a directive, as in the old renewable energy directive (which prescribed the expected biannual increase of the share of renewable energy sources in gross energy consumption), the distance from that path at a given year determines the assessment of the prospects. It is unclear if any upcoming legislation will prescribe such pathways. More generally, if there is a quantitative target, the comparison of the annual observed growth rate of the latest 10 years (e.g. 2011 2021) and of the required annual growth rate of the remaining years (e.g. 2021-2030) to achieve the target by 2030 will inform the assessment alone or in combination with other relevant information.

- **Expert consideration of available knowledge, information and methods**. Expert consideration is used to:

    - determine the method or combination of methods, if in doubt; determine the strength of evidence;

    - use additional evidence and information, for instance from studies, impact assessments, national plans and programmes, modelling, results from other relevant monitoring mechanisms (such as zero pollution, circular economy, climate and energy, biodiversity) and interpret this in context of the assessment's scope and timeframe;

    - take into account EU policy developments and, if appropriate, the geopolitical and socio-economic context. The methodology errs on the side of caution when it comes to such considerations. For instance, only EU policy developments that reached adoption and for which there is evidence of an expected outcome by 2030 are usually taken into account.

6. Each indicator assessment is quality assured through a **consultation process**. The process is specific to each indicator and involves in all cases the following experts and networks:

- **EEA experts** – several EEA experts review the assessment.

- **Eionet** – each indicator is reviewed by the relevant Eionet group(s).

- **European Commission and EU agencies** – each indicator is reviewed by the relevant European Commission services and EU agencies.

Assessment result

7. On the basis of points 1-6 above, the EEA assesses the outlook of meeting the 28 8th EAP targets published in the 8th EAP monitoring framework communication by 2030, by assigning the outlook to one of the following five classes:

Will the objective be met by 2030?		
	On track	There is a high degree of confidence that the objective will be met by 2030
	Likely on track	The objective appears likely to be met by 2030 but there is a low degree of confidence
	Likely off track	The objective appears unlikely to be met by 2030 but there is a low degree of confidence
	Off track	There is a high degree of confidence that the objective will not be met by 2030
?	**Unclear**	The prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

Assigning dark green or dark red means there is high degree of certainty over the expected outcome by 2030, i.e. a different outcome would be considered surprising. It requires robust, well-established evidence, preferably numerical, and/or consensus to substantiate the assessment outcome. Examples of such robust evidence include official projections (e.g. legally binding national projections) and results of well accepted studies that can be interpreted in context of the indicator's scope and timeframe.

Assigning light green or orange indicates that the balance of evidence points to a certain direction but with some uncertainty. The methodology errs on the side of caution — i.e. if the level of confidence in the outcome is not very high, light colours are assigned.

European Environment Agency

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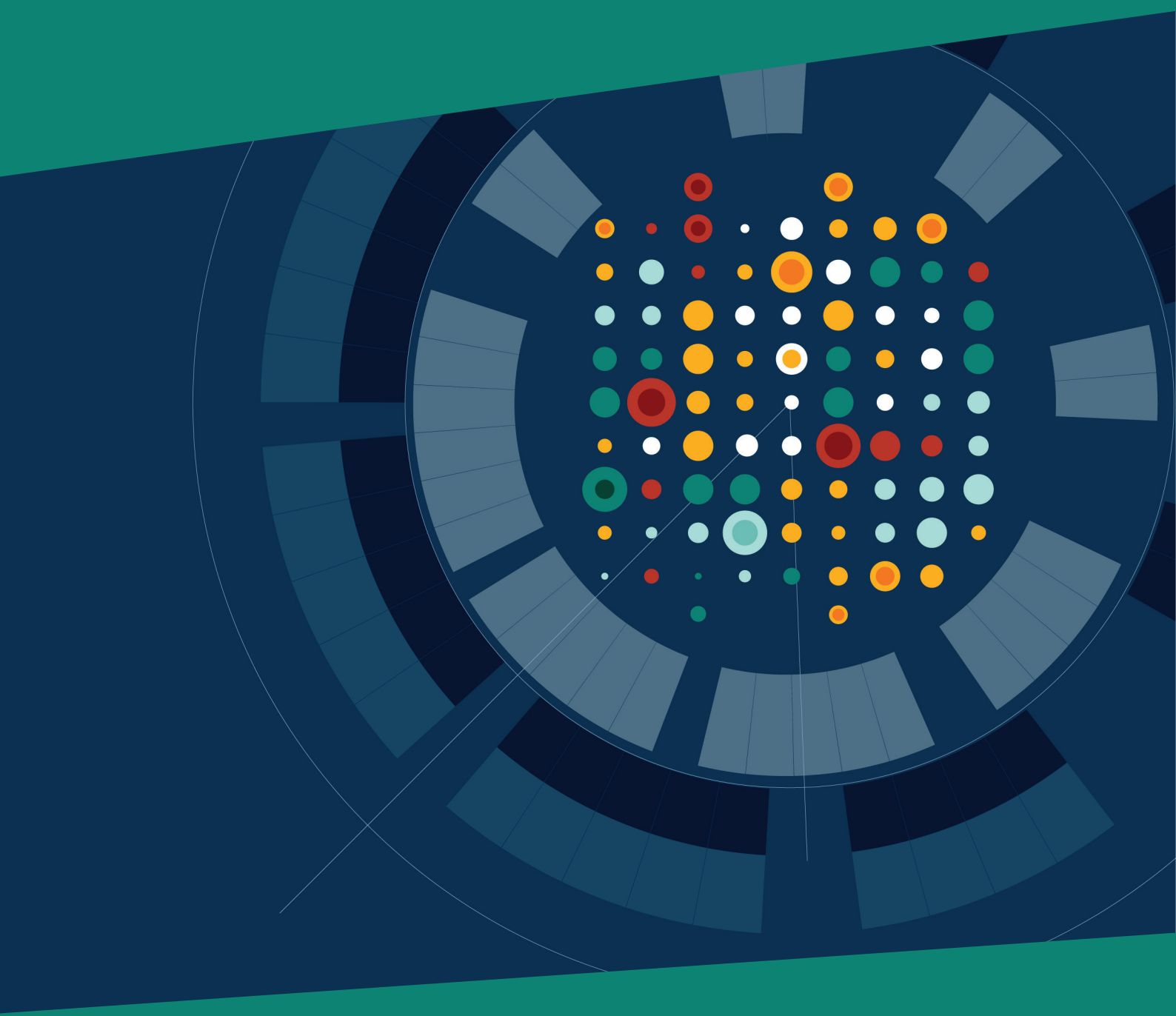

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