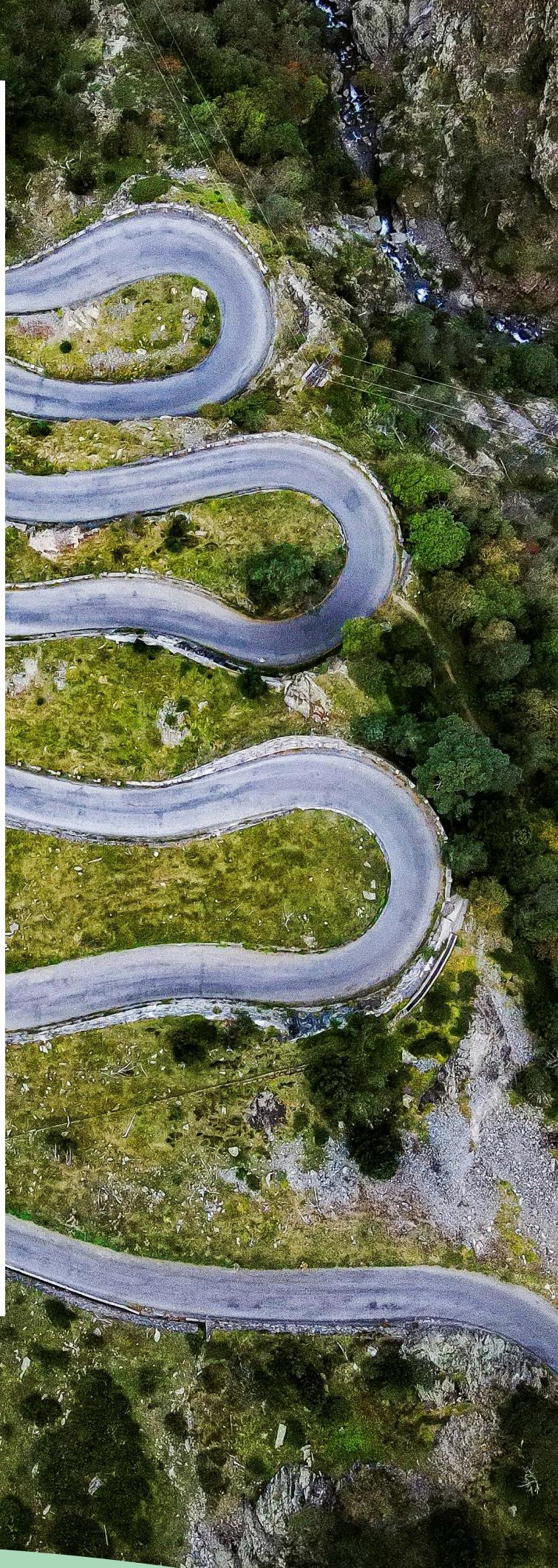


ABSTRACT

This report provides a comprehensive assessment of progress towards the European Green Deal (EGD), the European Union's transformative agenda for achieving climate neutrality by 2050. The analysis encompasses 154 quantifiable targets from 44 policy documents between 2019 and 2024 across key sectors such as climate, energy, circular economy, transport, agriculture and food, ecosystems and biodiversity, water, soil and air pollution.

The study shows that significant achievement has been delivered so far but progress needs to accelerate in many areas. As of mid-2024, 32 of the 154 targets are currently "on track" and 64 are identified as "acceleration needed" meaning that more progress is needed to meet the targets on time. Furthermore, 15 of the targets are found to be "not progressing" or "regressing", and for 43 of the targets no data is currently available. The timing of the binding policies, most of which have been recently agreed and are expected to deliver results in the coming years, is a significant factor influencing these assessments.

This report integrates all EGD actions and related policies, offering an assessment of the EU's green transition based on robust data and science. It identifies priority areas for intensified efforts to meet short-term implementation goals and contribute to the long-term ambition of a sustainable, fair, just, and climate-neutral Europe by 2050. This collective work serves as a benchmarking tool, providing scientifically grounded guidance for future EU policies and programmes.



Pyrénées
Photo by Sylvain Gilm on Unsplash

EXECUTIVE SUMMARY

The EU is striving to achieve climate neutrality by 2050 through a sustainable green transition. An unprecedented effort was started with the European Green Deal (EGD), a suite of new policies and amended legislation across seven thematic areas, aiming to drive progress towards a greener and more prosperous EU. By measuring progress against a range of agreed ambitions, this report provides a comprehensive, cross-cutting approach to understanding exactly where the EU stands in mid-2024. While implementation schedules for many of the EGD targets are still being put in place, the report monitors initial progress and identifies potential gaps, seeking to support the success of the green transition in the coming years.

As the European Commission's in-house research service, the Joint Research Centre (JRC) has conducted this analysis based on publicly available data, sound scientific knowledge and the most up-to-date trends. The report filters, distils and makes sense of the vast amount of information available both inside and outside the JRC, conveying it as clearly and transparently as possible.

This report presents a snapshot of the current status of EGD target implementation, providing an early assessment to benchmark progress towards the achievement of EGD goals. It does not evaluate the policies themselves and it is naturally framed by certain constraints. First, the number of targets per thematic area does not necessarily reflect their relative importance. Rather, the number of targets depends on various factors, such as the types of policy documents and the nature of the topics. The assessment of progress provides an overview of the current state of play but does not evaluate the relative impact of these targets in terms of environmental, social, or economic aspects, or policy timing. Second, the traffic light system used to assess the progress of targets incorporates, where possible, existing sectorial modelling exercises in the analysis, or assumes in certain cases a linear trajectory based on the most updated trends. This approach is in alignment with other reports such as Eurostat's Monitoring report on progress towards the Sustainable Development Goals (SDGs) in an EU context, the European Environment Agency (EEA) stocktake of the 8th Environment Action Programme, and the European Scientific Advisory Board on Climate Change's progress report of 2024. Third, a forward-looking approach would ideally involve complex scenario modelling, which is beyond the scope of this report. Nevertheless, the report establishes an important baseline against which to benchmark further progress.

The analysis encompasses 154 targets in total, from 44 key policy documents. Some are legally binding while others are non-binding. The inclusion of non-binding targets, such as those under the Biodiversity Strategy, supports comprehensive reporting across the EGD's full ambitions and is crucial for areas with limited legislation.

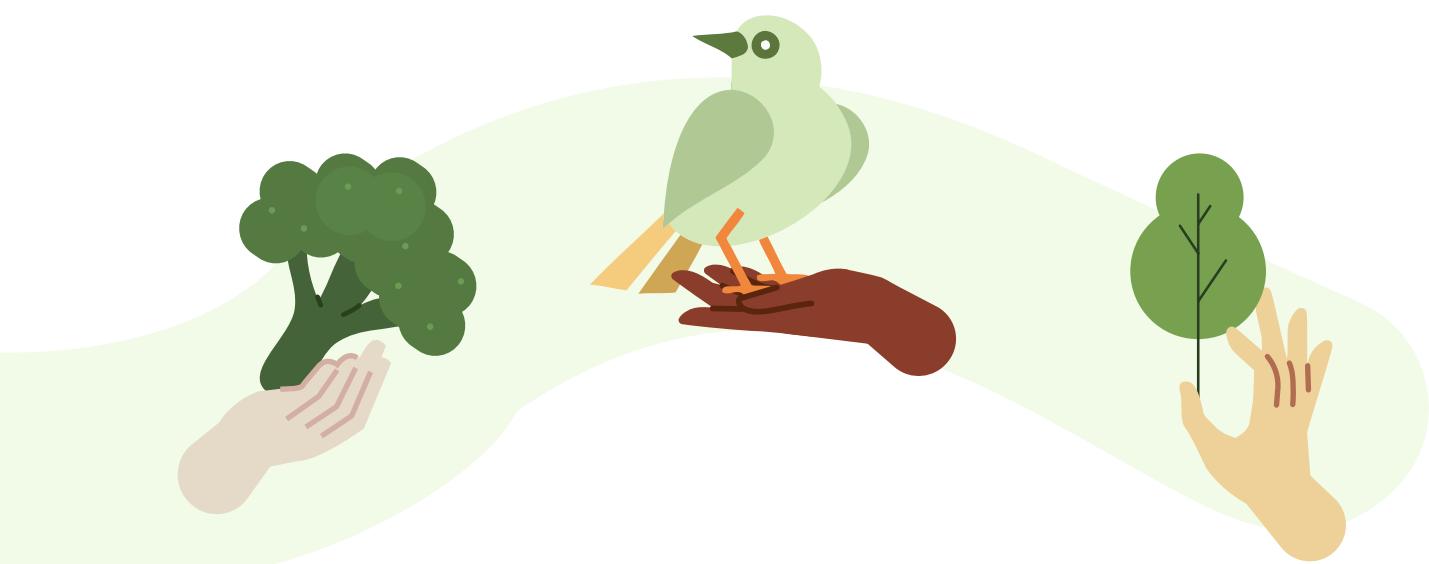


Progress has been made on 96 targets (62% of the total), of which 32 (21%) are on track to be met while for 64 targets (41%), the pace will need to be accelerated to meet the ambitions. For 15 targets (10%), the trend is either in reverse or stagnant, indicating the need to step up efforts to ensure their achievement. Data is not yet available for a further 43 targets (28%), but many of these are the products of recent policies whose effects will become clear in the coming years. These trends are confirmed when looking exclusively at the 87 identified legally binding targets (56% of the whole target set). A total of 42 are progressing to some extent. However, only 13 (15%) of these are progressing at the necessary speed to meet the EGD ambitions. Progress needs to accelerate on the other 29 (33%) to meet the final objectives. There are 12 targets (14%) for which the trend is either in reverse or stagnant. Data is not yet available for the remaining 33 targets (38%).

The report also identifies areas that may require additional effort to meet implementation of targets in the short term and contribute to climate neutrality in the long term. This report is unique in its scope, addressing all EGD actions and related policies in one integrated analysis. The work is split into thematic areas: climate ambition; clean, affordable and secure energy (including building and renovating in an energy- and resource-efficient way); industrial strategy for a clean and circular economy; sustainable and smart mobility; greening the Common Agricultural Policy and the ‘Farm to Fork’ Strategy; preserving and protecting biodiversity; and towards zero pollution for a toxic free environment.

For the purposes of this report, targets were drawn from policy documents covering the EGD time frame from December 2019 to mid-2024. The analysis focuses on quantifiable targets with thresholds to be achieved within a specific deadline. However, insights are also provided on broader objectives such as those in the Circular Economy Action Plan, the Sustainable and Smart Mobility Strategy, and the Sustainable Food System initiative. Commission services were extensively consulted, and 11 Directorates-General provided feedback (see acknowledgements).

The European Council, at its meeting in June 2024, reaffirmed the commitment of the European Union to ensuring the success of the green transition. Building on the “early assessment” of progress towards the targets proposed in this report, scientists at the JRC will continue to explore opportunities, address existing and emerging gaps, and consider the challenges facing the EU in achieving this transition. The JRC will also focus on identifying solutions, enabling conditions and best practices to support the successful implementation of the European Green Deal. This work aims to inform future EU policies and initiatives for a sustainable, fair, just and climate-neutral Europe.



01

Climate
ambition

Assessment of progress towards the targets

All thematic areas of the EGD directly contribute to the climate ambition. For this reason, only nine targets have been isolated for this area, setting clear trajectories for GHG reduction and contributions by sectors to reach

climate neutrality by 2050 at both the EU and Member State levels. Where available, historical trends, data sources and future projections are reported in Annex 1.

BINDING TARGETS

Targets	Assessment
<p><i>Reduce by at least 55% net GHG emissions compared to 1990 levels, by 2030</i> (<i>Intermediate 2040 Climate Target</i>) Achieve climate neutrality by 2050 <u>European Climate Law</u></p>	<p>The at least 55% economy-wide net reduction objective is enshrined in the Climate Law as an overall ambition at the EU level. Specific legislation covering different sectors translates this into sectoral ambition levels which cumulatively achieve the -55% target. This corresponds to greenhouse gas reductions of 62% in the existing ETS compared to 2005, a 40% reduction in ESR, (this is now complemented by 42% reduction target compared to 2005 in the newly established ETS2). With the aim of ensuring strong emissions reduction in other sectors, the overall contribution of the LULUCF sector to EU's economy-wide target of - 55% by 2030 is limited to a maximum of ~ 225 MtCO₂e/year. Achieving the LULUCF sector target of -310 MtCO₂e in 2030 will elevate the total EU GHG emission reduction to approximately 57% compared to 1990. The total net EU greenhouse gases emissions, including LULUCF, were reduced by 32.5% between 1990 and 2022 [21]. GHG emission reductions need to double in the current decade compared to the previous decades (see charts in the annexes).</p> <p>According to the Member States' own projections reported in 2023 under Article 18 of the Governance of the Energy Union Regulation, total EU emissions are expected to fall in 2030 by about 50% below the 1990 level when factoring in additional measures. This falls short of the at least 55% objective, but the Member States' projections do not accurately capture the evolution driven by EU-wide instruments such as the ETS.</p> <p>Reaching the -55 % objective further depends on delivery of ESR, which is not fully on track, as well as the related functioning of ETS2. In addition, the -55% objective assumes that the LULUCF sink is at least -225 MtCO₂e. The agreed LULUCF commitment of -310 MtCO₂e could even achieve -57%. However, the current development of the LULUCF sink is opposite to the targets, including natural disturbances that are expected to further increase with the ongoing climate change [27], [28]. If this negative development continues, the risk of not reaching the sink of -225 MtCO₂e cannot be ruled out.</p> <p>On the other hand, the implementation of the complete Fit for 55 legislative package is expected to reduce EU net greenhouse gas emissions by 57% by 2030, putting EU on track to exceed 2030 targets [29].</p> <p>On the way to climate neutrality by 2050, the Commission adopted a Communication [23] in February 2024 that launches the process of setting the 2040 climate target for the EU, in compliance with Art. 4.3 of the Climate Law. While 2040 targets are not yet set, it is clear that much of the transition to 2050 has to be realised by 2040. Based on the recommended emission reductions of 90-95 % by 2040 compared to 1990, of the European Scientific Advisory Board on Climate Change advised, the Commission has recommended a net 90% GHG reduction target for 2040.</p> <p>Both 2040 and 2050 targets require a much deeper transformation of the energy system, through large scale deployment of climate-neutral technologies that require high investment efforts with some technologies not yet deployed at market scale. While some of the current instruments will keep delivering reductions well beyond 2030 (notably the EU ETS but also CO₂ standards for vehicles, ReFuelEU Aviation, FuelEU Maritime and the Fluorinated gas (F-gas) Regulation), there will be a need to review, update and complete the legislative framework for the post-2030 period. This will include topics such as carbon capture, industrial carbon removals, and overall and sector specific emission reduction trajectories. In addition, larger emission reductions in difficult-to-abate sectors like agriculture will be needed, along with a larger role for carbon removals, including utilising land as a carbon sink.</p>

GHG Emissions

EU ETS. The contribution of the sectors covered by the existing EU Emission trading System (EU ETS) with respect to the EU Climate ambition should be of -62% compared to 2005 (increasing the linear emissions reduction factor from 2.2% per year up to 4.4%), by 2030

[Directive \(EU\) 2023/959](#)



The decreasing trajectory of the number of CO₂ emission allowances is expected to lead to -62% less CO₂ emission in 2030 compared to 2005 levels. EU ETS emissions fell by 47% between 2005 and 2022. The most important driver for the decrease in EU ETS emissions has been the power sector, due to a substantial increase in renewable electricity production (primarily wind and solar) at the expense of both coal and gas. The system covers the electricity sector, large industry, and since 2012, aviation (initially intra-European Economic Area, with an upcoming extension of scope). Since 1 January 2024, it has been expanded to include the maritime sector [30]. The 2023 greenhouse gas emission projections reported by the Member States to the EEA [15], [22] result in a reduction of ETS emissions of 55% to 59% (with existing measures – with additional measures projection) in the ETS sectors in 2030. While these projections are short of the 62% target, it is important to note that, the ETS being an EU-wide market-based (cap and trade) instrument, this objective is not directly addressed by Member States specific policies and cannot be consistently and comprehensively covered by the individual Member States GHG emission projections.

Given that the ETS instrument is established and operational, and that the necessary technologies are both available and affordable, it is anticipated that the target can be achieved.

ETS2. Contribution of the buildings and road transport sectors of 43% emission reductions by 2030 compared to 2005 and of the additional sectors, a combined cost-efficient contribution of 42% emission reductions by 2030 compared to 2005

[Directive \(EU\) 2023/959](#)



The ETS2 is a new EU-wide cap-and-trade economic instrument that covers the CO₂ emissions from the combustion of fuels in road transport, buildings, and other sectors (mainly smaller industries), excluding agriculture. Monitoring starts in 2025, with cap and trade applying from 2027. As such, it overlaps significantly with the ESR in terms of sectors covered, but important differences are that a) it is implemented at the EU level, rather than through Member State-specific policies, and b) it does not cover non-CO₂ emissions, many of which are from the hard-to-tackle agricultural sector.

Between 2005 and 2022, the emissions covered by the ETS 2 fell by 16% according to own estimates of the JRC. However, since the ETS2 instrument is newly implemented and official reporting by Member States is not yet available, the progress cannot currently be evaluated.

ESR. Increased national targets in line with an EU-wide reduction of 40% in the ESR sectors compared to 2005. Member States contribute to the overall EU reduction in 2030 with targets ranging from -10% to -50% below 2005 level (sectors: transport, buildings, agriculture and waste)

[Regulation \(EU\) 2023/857](#)



The current (2022) reduction is 17% relative to 2005, far from the 40% reduction target set for 2030. Between 2013 and 2020, Member States met or overachieved their ESR obligations- with the largest reductions in the buildings and small industry sectors. Emissions are expected to continue decreasing in the coming decade due to –among others- source control legislation, such as improved building standards, building renovations, CO₂ standards for road vehicles and EU policies on phasing down hydrofluorocarbons (HFC) and other fluorinated gases. Progress in the transport and building sectors faces different challenges. While transport emissions are regulated by EU-wide CO₂ emission standards for vehicles (which have a relatively fast turnover rate), renovating the building stock is a more challenging effort, primarily driven by Member States' policies. Therefore, Member States' projections for building emissions significantly lag behind the expected cost-effective rate of reduction [31].

Overall, EU emissions in the sectors covered by the ESR, according to 2023 Member States projections, are expected to fall by 27-32% (with existing and additional measures, respectively) by 2030 compared to 2005, i.e. 8 -13 percentage points below the 40% target for 2030, with only 6 Member States projected to (over-) achieve their targets [22].

Absolute emissions in the agriculture sector have stagnated since 2010, while agricultural aggregate output has increased, decreasing emission intensity of EU agricultural products by 13%.

Concerning emission reductions, current Member States' projections under the Governance Regulation foresee 2030 emissions with existing measures to be 373 MtCO₂e (or -3% compared to 2021) and 359 MtCO₂e (or -7 %) with additional measures. The 2030 'MIX (55 Euro/t CO₂e)' scenario, used to assess the Fit for 55 targets corresponds to a -7 % decline in the agricultural sector by 2030 compared to 2021, aligning with the Member States 'with additional measures' scenario. The current (2023-2027) CAP aims to contribute to climate mitigation, with Member State strategies outlined in their Strategic Plans. Estimates of the CAP 2023-2027 impact on emissions require detailed information on the implementation and effectiveness of farming practices from the CAP instruments, which are currently being evaluated.



GHG Emissions

Achieve an EU net greenhouse gas removal of 310 million tonnes CO₂ equivalent per year for the land use, land use change and forestry (LULUCF) sector, by 2030, and Member State-specific targets for 2030 summing up to -42 MtCO₂e increase in LULUCF sink between 2016-2018 and 2030.

[LULUCF Regulation](#)

No debit rule. For the period from 2021 to 2025, each Member State shall ensure that greenhouse gas emissions from the sector do not exceed greenhouse gas removals, calculated as the sum of total emissions and total removals on its territory in all the land accounting categories. The accounting benchmark for the EU is ca. -229 MtCO₂e/year for 2021-2025

[LULUCF Regulation](#)

MS specific targets. A budget for each Member State for the years 2026-2029, based on a linear trajectory between 2022 (as an average of 2021-2023) and 2030.

[LULUCF Regulation](#)

The revised LULUCF regulation sets a target of removing 310 MtCO₂e by 2030. The long-term EU forest sink is developing away from this target and jeopardising the fulfilment of the overall LULUCF sector target for 2030. Furthermore, natural disturbances are expected to increase with ongoing climate change, with potentially a further reduction of the carbon sink, making the situation even more difficult.

In 2020, the gap between the reported LULUCF emissions in 2016-2018 and the target of -310 MtCO₂e for 2030 was -42 MtCO₂e for the EU. 2024 shows that this gap has now widened: instead of -42 MtCO₂e, the EU needs to improve its LULUCF sink by -80 MtCO₂e between 2022 and 2030 to meet the targets. The LULUCF targets will be difficult to achieve unless substantial changes in forest management are implemented very soon.

Assessing the distance to the target is difficult. Comparing purely the GHG reporting from countries for 2021 and 2022, to the accounting benchmark of -229 MtCO₂e determined by the delegated act, it looks like the EU is slightly exceeding the accounting benchmark. However, the recalculations of the inventories have increased the net sink historical time series reported by the Member States, and those recalculations will be considered in the accounting. Given the sharp decline of the forest sink driven by increasing harvest levels and natural disturbances, it is likely that the EU will face an overall accounting debit (i.e. not reaching the target) than a credit in the LULUCF sector as a whole.

The reporting for years 2026-2029 will be done in GHG inventories during 2028-2031.

The reporting for years 2026-2029 will be done in GHG inventories during 2028-2031.



GHG Removal

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets

Reduce methane emissions by 35 to 37% compared to 2005 levels, by 2030

[An EU Strategy to reduce methane emissions](#)

Assessment

Methane emissions were 497.15 MtCO₂e in 2005 and decreased to 394.37 MtCO₂e in 2022, making a reduction of about 20.67%. However, acceleration is needed to reach at least a 35% reduction by 2030.

The largest source of methane emissions in the EU is the agriculture sector, accounting for more than half of the total emissions, followed by the energy and waste sectors. Within agriculture, almost all methane emissions are from livestock: 80% of the total stems from enteric fermentation and 18% from manure management. Furthermore, the energy sector showed the highest decline in emissions, primarily due to the mitigation of fugitive emissions from fuels, including emissions from the extraction of solid fuels and those associated with oil and natural gas production and distribution.

Most methane emissions from the waste sector come from solid waste disposal.

GHG Emissions



Key messages

The economy-wide objective of at least 55% net emissions reductions compared to 1990 is enshrined in the Climate Law, but there is a risk of falling short of this target. Based on the analysis of the data and trends, the pace of EU GHG emission reduction should increase considerably in the current decade compared to the previous decades to achieve the 55% net reduction target.

Emissions reduction in the Effort Sharing Regulation (ESR) sectors, which include domestic transport (excluding aviation), buildings, agriculture, small industry, and waste, are ongoing but still far from reaching the 40% reduction target in 2030. The agriculture sector needs to further reduce its non-CO₂ GHG emissions to reach the ESR targets.

The revised LULUCF regulation sets a target of removing 310 MtCO₂e from the atmosphere in 2030, but the long-term EU forest sink is moving away from this target. Natural disturbances are expected to increase with ongoing climate change, putting a strain on areas designated for carbon removal.

Methane is the second most important greenhouse gas contributor to climate change, with a larger global warming potential than carbon dioxide. The EU has expanded on global efforts to encourage increasing methane abatement both as an element of climate action and energy security support. Acceleration is needed to reduce methane emissions in the energy, agriculture, and waste sectors, which account for almost all human-related methane emissions.

Implementation of EU climate legislation is underway in Member States, but many challenges persist. Member States need to develop concrete pathways to reach their national net removal targets in the LULUCF sector and to address the gaps in the Effort Sharing Regulation sectors. The new EU Emissions Trading System will provide further incentives to reach the Effort Sharing Regulation targets.

Fossil fuel subsidies remain a major obstacle to the EU climate ambitions and to the clean energy transition. As reported in the EU-wide assessment of the draft updated National Energy and Climate Plans [7], a collective effort by Member States is needed to set a clear timeline for their phase out.

Implementation at local level is key for climate ambitions. Possible challenges in implementing GHG emission reduction targets include insufficient community engagement and low public awareness, regional disparities and urban-rural gaps, social risks especially for most vulnerable citizens, and misalignment between local and regional policies and national or EU-level strategies, preventing cohesive climate action.

A photograph of a wind turbine at sunset. The sky is a warm orange and yellow. In the foreground, there's a dark, grassy hill. The wind turbine's tower and part of its blades are visible against the sky. Large, white, semi-transparent numbers '02' are overlaid on the left side of the image.

02

Clean, affordable and
secure energy

BINDING TARGETS

Targets

Assessment

Member States shall collectively ensure that the share of energy from renewable sources in the Union's gross final consumption of energy in 2030 is at least 42.5%.
[RED III \(Directive \(EU\) 2023/2413\)](#)



The amount of renewable fuels and renewable electricity supplied to the transport sector leads to a:
(i) *share of renewable energy within the final consumption of energy in the transport sector of at least 29 % by 2030; or*
(ii) *GHG intensity reduction of at least 14.5 % by 2030, compared to the baseline set out in Article 27(1), in accordance with an indicative trajectory set by the Member State.*
[RED III \(Directive \(EU\) 2023/2413\)](#)



By 2022, achieve 18% of the total increase in the share of energy from renewable sources between that Member State's binding 2020 national target, and its contribution to the 2030 target of the share of energy from renewable sources in gross final consumption of energy. Achieve 43% by 2025, 65% by 2027.
[RED III \(Directive \(EU\) 2023/2413\)](#)



Member States shall endeavour to increase the share of renewable sources in the amount of energy sources used for final energy and non-energy purposes in the industry sector by an indicative increase of at least 1.6 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030 [Indicative target]
[RED III \(Directive \(EU\) 2023/2413\)](#)



Member States shall set an indicative target for innovative renewable energy technology of at least 5% of newly installed renewable energy capacity by 2030.
[RED III \(Directive \(EU\) 2023/2413\)](#)



Each Member State shall increase the share of renewable energy in the heating and cooling sector by at least 0.8 percentage points as an annual average calculated for the period 2021 to 2025 and by at least 1.1 percentage points as an annual average calculated for the period 2026 to 2030, starting from the share of renewable energy in the sector in 2020.
[RED III \(Directive \(EU\) 2023/2413\)](#)



Member States shall ensure that the total final energy consumption of all public bodies combined is reduced by at least 1.9% each year, when compared to 2021.
[Directive \(EU\) 2023/1791](#)

In 2022, renewable energy represented 23.0 % of energy consumed in the EU, up from 21.9% in 2021. This EU-level target has not been translated into binding national contributions. The target is to be achieved jointly by all Member States, building on their coordinated and combined action. According to the EC assessment of the draft NECPs, the current drafts would lead to a share of 38.6-39.3% of renewables in the energy mix by 2030. Reaching the 2030 target of 42.5% (and even more so the aspirational target of 45%) will require a much faster growth in the coming years.

The share of energy from renewable sources used in transport in the EU reached 9.6 % in 2022, up from 9.1% in 2021. Acceleration is needed to reach the 2030 target. Following a sharp 13.5% drop in transport related GHG emissions between 2019 and 2020, due to the COVID-19 pandemic, according to European Environment Agency (EEA) data, they surged upwards (by 8.6%) between 2020 and 2021 from 720.2 to 782.1 Mt (million tonnes) and the EEA forecasts a further 2.7% increase for 2022, which would restore emission levels to above the 800-Mtonne threshold (803.2 Mt in 2022).

CO₂ emissions account for almost all transport related GHG emissions (98.9% in 2021) and far outstrip those of nitrous oxide (N₂O) (0.9% in CO₂ equivalent units) and methane (0.2% in CO₂ equivalent units).

Two Member States (Malta and Sweden) have already reached their 2030 target. 18 Member States have achieved the 2022 target of 18%. However, in 2021, 10 Member States experienced a decline in their share respect their 2020 value. This occurred as well for seven Member States in 2022; nevertheless, two of them have still met their 2022 targets despite the decrease. The EU jointly has reached the 2022 sub-target.



A 1.6 percentage point annual increase leads to a 26% share of renewables by 2030. The share of renewables in 2022 was 10.7%, an increase from 9.7% in 2020. In absolute values, this is an increase from 23.3 Mtoe in 2021 to 24.1 Mtoe in 2022. Acceleration is needed to reach the 2030 target.



Innovative technologies are defined as those that improve in at least one way comparable state-of-the-art renewable energy technologies or make exploitable a largely untapped renewable energy resource, involving a clear degree of risk, in technological, market or financial terms, which is higher than the risk generally associated with comparable non-innovative technologies or activities. According to the Association of European Renewable Energy Research Centers (EUREC) [73], the EU's industry is ready, in the right circumstances, to deploy innovative renewable energy technologies to a level likely to exceed 5%, including innovative technologies such as advanced photovoltaics, floating photovoltaics, concentrated solar power and solar thermal.

Renewable energy in the power system

Energy for heating and cooling makes up around half of the EU's total gross final energy consumption. The annual average increases would lead to a target of 32.48% share by 2030. In 2022, the share of energy from renewables in heating and cooling continued to rise, with the EU average standing at 24.8%, up 1.8 percentage points from 2021 (23.0%). However, the 2022 value is still below the expected annual average. In absolute terms, the gross final consumption of renewable energy for heating and cooling purposes in the EU has gradually increased over time, mostly due to the contribution of biomass and heat pumps. However, a major push is required to meet the 2030 target.

Sweden led the way when it came to renewables in heating and cooling, with a 69.3% share, followed by Estonia (65.4%). Both countries use mostly biomass and heat pumps. They are followed by Latvia (61.0%), which relies mostly on biomass.

14 Member States reported data on public buildings in their national energy and climate progress reports (NECPs). Missing data prevent drawing general conclusions or calculating aggregated data at the EU level. In terms of final energy, the short-term evolution indicates a general increase with some exceptions, such as the residential sector in Greece and Ireland. The first reporting deadline for EED is at the end of 2024.



Energy Efficiency

Member States shall collectively ensure a reduction of energy consumption of at least 11.7% in 2030 compared to the projections of the 2020 EU Reference Scenario so that the Union's final energy consumption amounts to no more than 763 Mtoe.

[Directive \(EU\) 2023/1791](#)



Member States shall make efforts to collectively contribute to the indicative Union primary energy consumption target amounting to no more than 992.5 Mtoe in 2030.

[Directive \(EU\) 2023/1791](#)



Member States are required to achieve cumulative end-use energy savings from 2021 to 2030, equivalent to new annual savings of at least 0.8% of final energy consumption in 2021-2023, at least 1.3% in 2024-2025, 1.5% in 2026-2027 and 1.9% in 2028-2030.

[Directive \(EU\) 2023/1791](#)



Each Member State shall ensure that at least 3% of the total floor area of heated and/or cooled buildings (of buildings which have a total useful floor area of over 250 m² and are not nearly-zero energy buildings) that are owned by public bodies is renovated each year to be transformed into at least nearly zero-energy buildings or zero-emission buildings in accordance with Article 9 of Directive 2010/31/EU.

[Directive \(EU\) 2023/1791](#)



Member States shall ensure that the average primary energy use of the entire residential building stock decreases by at least 16% compared to 2020 by 2030; and by at least 20-22% compared to 2020 by 2035

[EPBD \(Directive \(EU\) 2024/1275\)](#)



Member states will have to renovate 16% of worst-performing non-residential buildings by 2030 and, by 2033, the worst-performing 26% through minimum energy performance requirements.

[EPBD \(Directive \(EU\) 2024/1275\)](#)



The national measures will have to ensure that at least 55% of the decrease of the average primary energy use is achieved through the renovation of the worst-performing buildings.

[EPBD \(Directive \(EU\) 2024/1275\)](#)



Indicative target of at least a 49% share of energy from renewable sources in the building sector in the Union's final energy consumption in buildings in 2030.

[RED III \(Directive \(EU\) 2023/2413\)](#)



By 31 December 2025, each Member State shall agree to establish a framework for cooperation on joint projects with one or more other Member States for the production of renewable energy, subject to the following: by 31 December 2030, Member States shall endeavour to agree on establishing at least two joint projects; by 31 December 2033, Member States with an annual electricity consumption of more than 100 TWh shall endeavour to agree on establishing a third joint project.

[RED III \(Directive \(EU\) 2023/2413\)](#)



Final energy consumption reached 940 Mtoe in 2022, a 2.8% decrease compared with 2021. According to the EC assessment of the NECPs, the current Member States drafts pledges would lead to 5.8% energy efficiency improvements in 2030, compared to the target of 11.7%. Therefore, acceleration is needed to reach the 2030 target.

In 2022, primary energy consumption in the EU reached 1257 Mtoe, a 4.1% decrease compared with 2021, moving closer to the 2030 target.

Following the decline registered in 2020 due to the impact of the pandemic across sectors, EU primary energy consumption increased again in 2021. The year 2022 shows better results than in 2019, before the pandemic, when primary energy consumption was at 1354 Mtoe and 36.5% away from the target.

The 1257 Mtoe registered for primary energy consumption in 2022 was the second lowest level since 1990 (the first year for which data are available), and the lowest was in 2020 (1236 Mtoe).

According to the EC assessment of the NECPs, the current drafts would lead to a gap of 75 Mtoe from the 2030 target.

The directive requires EU countries to set indicative national energy efficiency targets based on final energy consumption contributions to meet the Union's target. This requirement is cumulative, meaning that Member States must sustain the annual savings achieved in one year over the following years, until the end of the obligation period in 2030.

Member States can spread the savings over the obligation period, as long as they achieve the required cumulative amount of savings at the end of the period. The progressive increase is equivalent to a flat rate of 1.49% over 2024-2030, which is almost a doubling of the current ambition level.

According to SWD(2023)646, several Member States did not reach their annual targets. Member States will have to step up their efforts to be able to meet the savings requirement in 2030.

EU residential consumption in 2022 was 242 Mtoe (reduced by -2.1% on average in EU Member States compared to 2020). Strong acceleration is needed to meet the 2030 target

Member States use different approaches to define their worst performing stock, such as energy class, age, energy consumption, as resulted by the analysis of the last long term building renovation strategies. In their NECPs, a total of 6 countries defined worst performance according the primary or final energy consumption in kWh/m², while no information was found in 12 other countries.

Member States use different approaches to define their worst performing stock, such as energy class, age, energy consumption, as resulted by the analysis of the last long term building renovation strategies. In the NECPs, a total of 6 countries defined worst performance according the primary or final energy consumption in kWh/m², while no information was found in 12 other countries. The fields on worst performing buildings have generally a lower completeness in the NECPs

No data available for buildings, only for the heating and cooling sector. From this data, the most reported fuels and technologies in 2021 per country are: biomass (21 countries), heat pumps (19), solar thermal systems (17), geothermal systems (12) and other decentralised renewable sources (8).

Joint projects allow for a cost-efficient deployment of renewable energy across Europe and contribute to market integration. Despite its potential, cooperation between Member States has been very limited, thus leading to suboptimal results in terms of efficiency in increasing renewable energy. There are a few projects under consideration and being planned, as well as some permitting and under construction. However, these are in localised areas across the EU and not homogeneously distributed between Member States.

A target of 15% electricity interconnection for 2030
[RED III \(Directive \(EU\) 2023/2413\)](#)

In 2021, 16 countries reported being on track to reach that target by 2030, or had already reached the target, but more interconnections are needed in some regions. Specifically, eight Member States have already met or are exceeding the EU target. Others commit in their draft NECPs to develop interconnections with neighbouring countries by investing in new transmission capacities and interconnectors, especially in regions that are historically dependent on a single supplier and now aim to improve diversification. Moreover, some Member States (e.g. EE, FI, IT and PT) plan to diversify their energy mix by carrying out joint hydrogen infrastructure projects [7]. Overall, Member States have made good efforts to increase cross-border capacity and the completion of various Projects of Common Interest should further improve the interconnectivity levels. Some Member States (CZ, IT, PT RO, SI, SE) are reporting delays in the completion of the projects in particular due to permitting issues. Still further efforts are required to meet the 2030 objectives, especially in terms of timely delivery of the planned cross-border projects [72].



Energy Infrastructure

Member States shall ensure that the contribution of renewable fuels of non-biological origin used for final energy and non-energy purposes shall be at least 42% of the hydrogen used for final energy and non-energy purposes in industry by 2030, and 60% by 2035.

[RED III \(Directive \(EU\) 2023/2413\)](#)

The use of renewable hydrogen in Europe was negligible up to 2023, including also in industrial processes.



Renewable Hydrogen

Reach energy neutrality in the wastewater treatment sector by 2045.

[Directive concerning urban wastewater](#)

There is a considerable potential for reducing fossil fuel-based energy use and GHG emissions in wastewater treatment and market incentives are increasingly attractive for investments in this direction. Member states should be required to ensure that the total annual energy used by all urban wastewater treatment plants on their territory treating a load of 10 000 population equivalent¹ and above does not exceed the production of energy from renewable sources.

¹ A number expressing the ratio of the sum of the pollution load in wastewater to the individual pollution load in household sewage produced by one person at the same time

Energy neutrality in wastewater

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets

Assessment

By 2030, the share of renewable energy in the electricity mix should double to 55-60%, and projections show a share of around 84% by 2050. The remaining gap should be covered by other low-carbon options.

[An EU Strategy for Energy System Integration](#)



In 2022, 39% of electricity was generated by renewables (38% in 2021), and in May 2022 wind and solar surpassed fossil fuels for the first time in EU electricity generation. The EU is on track to meet the lower end of the target for 2030 if the current acceleration rate is maintained.

Renewable energy in the power system

Reduce buildings' final energy consumption by 14%
[A Renovation Wave for Europe](#)

The reference value for 2015 is 374.5 Mtoe. The final energy consumption (FEC) increased in 2021 to 391.2, value obtained from adding FEC from service and residential buildings (129.4 and 261.8 Mtoe). In 2022, the FEC decreased to 364.1 Mtoe, with 121.6 Mtoe coming from service buildings and 242.4 from residential buildings. Consumptions decreased by 2.8% in the 2015-2022 period.



At least double the annual energy renovation rate of residential and non-residential buildings by 2030 and to foster deep energy renovations

[A Renovation Wave for Europe](#)

The weighted annual energy renovation rate in the EU is about 1%, rate should double to 2% to achieve the target. For residential buildings, the annual weighted energy renovation rate was estimated close to 1% within the EU (0.4-1.2% depending on the Member State), for the 2012-2016 period. As of 2021, the annual rate of deep renovation is only 0.2% for residential buildings and 0.3% for non-residential buildings.

Data on renovation rates in the NECPR are highly incomplete, with only seven Member States reporting in this field in 2023.



Energy Efficiency

Double the current deployment rate of individual heat pumps, resulting in a cumulative 10 million units by 2027 and 30 million units by 2030.

[REPowerEU](#)

Reduce buildings' energy consumption for heating and cooling by 18% compared to 2015 levels by 2030

[A Renovation Wave for Europe](#)

The deployment rate was 2.2 million heat pumps in 2021 and 3 million in 2022. There are nearly 20 million heat pumps installed in the EU as of 2022. The current rate is enough to reach the 2030 target.



Reduce buildings' greenhouse gas emissions by 60%, by 2030 (compared to 2015), and reach climate neutrality by 2050

[A Renovation Wave for Europe](#)

The reference value for 2015 is 234 Mtoe. In 2021, FEC for space heating and cooling buildings was 247.2 Mtoe, obtained from adding FEC for space heating residential + FEC for air conditioning residential (only electricity) + FEC for space heating services + FEC for air conditioning = $170.72 + 1.01 + 64.9 + 10.6 = 247.2$ Mtoe (data from [75]). Consumptions increased by 5.6% (2015-2021), instead of reducing.

Data for 2022 has not been published yet, however an estimate can be provided based on the 2015-2021 average share of services FEC for space heating and air conditioning to total services FEC (56%).

2022 FEC for space heating and cooling buildings = FEC for space heating residential + FEC for air conditioning residential (only electricity) + FEC for space heating and air conditioning services = $159.4 + 1.1 + 68.0 = 228$ Mtoe. Consumptions expected to decrease by 1.3% (2015-2022).



In 2015 buildings direct GHG emissions were 541 MtCO₂e, therefore the target value for 2030 is 216 MtCO₂e.

European Climate Neutrality Observatory data shows past progress of 5 MtCO₂e between 2016 and 2021. To meet the target, the required annual change between 2021 and 2030 needs to be 7.5 times faster than the past rate of progress. Overall, buildings are responsible for about 40% of the EU's total energy consumption, and for 36% of its greenhouse gas emissions from energy (including indirect emissions). Buildings related emissions belonging to fossil fuelled district heating, electric heating and electricity use of heat pumps are covered by EU ETS, while the rest is covered by the ESR.



Energy Efficiency

Set up at least one renewables-based energy community in every municipality with a population higher than 10.000 by 2025

[EU Solar Energy Strategy](#)

For the 2010-2021 period, energy communities in the EU were still a niche in most national energy markets, with an estimated 9250 energy communities currently in operation across the EU and highly unbalanced distribution among Member States. More than half of these are located in Germany and almost 1000 are in the Netherlands. To date, however, a systematic and cross-country database on citizen-led initiatives and projects is lacking [74].



Bring online over 320 GW of solar photovoltaic by 2025 and almost 600 GW by 2030

[EU Solar Energy Strategy](#)

The EU solar generation capacity keeps increasing and reached, according to SolarPower Europe, an estimated 260 GW in 2023, 224 GWac (ac: alternating current) according to JRC estimates [75]. Compared to 177 GWac (ac: alternating current) in 2022. Based on the latest data, the 2025 target could be achieved.



Energy demand to be covered by solar heat and geothermal should at least triple (rate is currently at 1.5%)

[EU Solar Energy Strategy](#)

Share should be 4.5% by 2030. In 2021, the relative size of solar thermal in overall heat consumption was 0.687 TWh (0.1%), over the total of 651 TWh. According to EurObserv'ER, there was a 10% growth in 2022, while the required annual rate growth is 12% to reach the target.



Over this decade, the EU will need to install, on average, approximately 45 GW per year of PV to reach the share of 45% of energy coming from renewables set out in the REPowerEU Plan.

[EU Solar Energy Strategy](#)

The installations in 2023 are estimated at 56 GWp (about 47 GWac) growing from 41 GWp (about 34 GWac) in 2022. At this current rate, the target is met.



Solar Energy



Cumulative EU offshore goals of installed capacity: 60 GW by 2030 and 300 GW by 2050

[An EU offshore Renewable Energy Strategy](#)



In 2023, the cumulative installed capacity for wind offshore was on the order of 19 GW (it was 16.2 GW in 2022). Annual installation rate grew from 1.2 GW/year to around 3GW/year. A substantial increase is required in annual installations to reach 60 GW by 2030 (about twice the increase rate). Additionally, Member States have agreed to a new more ambitious non-binding target of reaching 111 GW by 2030 and 317 GW by 2050.

The strategy sets targets for an installed capacity of at least 1 GW of ocean energy by 2030 and 40 GW by 2050

[An EU offshore Renewable Energy Strategy](#)



In 2023, the EU Member States installed in the order of 700 kW of ocean energy (compared to 150 kW in 2022) and the cumulative ocean energy capacity in European sea basins is 43.8 MW. While there has been a positive increase in installations in the last year, the rate of annual installed capacity should still grow substantially to reach the 2030 target. Strong acceleration is needed.

Offshore Wind and Ocean Energy

REPowerEU sets a target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of renewable hydrogen imports by 2030.

[REPowerEU](#)



Around 30% of EU primary steel production is expected to be decarbonised on the basis of renewable hydrogen.

[REPowerEU](#)



In the first phase, from 2020 up to 2024, the strategic objective is to install at least 6 GW of renewable hydrogen electrolyzers in the EU. In the second phase, from 2025 up to 2030, the strategic objective is to install at least 40 GW of renewable hydrogen electrolyzers.

[A Hydrogen Strategy for a climate-neutral Europe](#)

European production capacity is not yet officially monitored, but there are estimates of production of around 23kTH₂/year, which is very far away from the target of 10 MtH₂/year. Imports are currently non-existent.

The use of renewable hydrogen in Europe is negligible at the moment. This also includes industrial processes. Several initiatives at the European level such as Projects of Common Interest (PCIs), Important Projects of Common European Interest (IPCEIs), and the Hydrogen Bank, are expected to kick-start production of renewable hydrogen at scale. Several of the financed initiatives are targeting the production of green steel and currently Europe has the highest number of projects aimed at using renewable hydrogen for the production of steel.

Initiatives are ongoing and deployment of electrolyzers is increasing, but it is unlikely that the target of deploying 6 GW of hydrogen generation capacity will be reached by the end of 2024.



Renewable hydrogen

Implementation challenges

Note: This section reports on the main challenges to implementing the Clean and affordable energy targets at Member State and local (sub-national) levels. It grounds on an extensive review of the *Environmental Implementation Reviews* (EIR), the *Communication (and accompanying documents) on the EU wide assessment of the draft updated National Energy and Climate Plans (NECPs)* (COM(2023) 796) [7], and sectorial reporting. Due to the transversal nature of the topic, related challenges might also regard climate ambitions (Thematic Area 1). This section will be expanded providing a focus on selected enablers to possibly overcome challenges and boost the achievement of the Clean and Affordable energy targets in the follow-up of this report.

The EU needs to continue ensuring affordable, reliable, and accessible energy for households, while enhancing its industrial and economic competitiveness by supporting investments in clean technologies. Given all the challenges identified in the assessment of draft NECPs and the EIR, the Commission will place a stronger focus on research, innovation and competitiveness, including preparing a

skilled workforce [76].

The recently launched clean transition dialogues with industry will be a vital tool for implementing legislation and addressing bottlenecks, such as investment barriers and skills shortages. A thorough assessment of investment needs, currently lacking in the NECPs, must be backed by concrete measures to attract private finance. The bulk of investment necessary to reach the

Key messages

In recent years, the EU has accelerated its clean energy transition, diversified supplies, and focused on energy savings. Several energy targets are currently assessed as needing more acceleration following the increased ambition and raised binding targets for 2030. Achieving the new 2030 EU overarching target of 42.5% share of energy from renewable sources will require a significant investment in renewable energy infrastructure, scaling up the production of renewable hydrogen, and reinforcing Europe's power grids to integrate more clean energy.

The Net-Zero Industry Act creates a regulatory framework that simplifies planning and permitting for renewables deployment while the EU Action Plan for Grids will expand and upgrade the EU power grids to accommodate the expected increase in electricity consumption and the growth in generation capacity of renewables.

Wind and solar, which first surpassed fossil fuels in EU electricity generation in May 2022, further consolidated the trend in 2023. The EU has become a global leader in offshore wind, exporting equipment and expertise around the world. Nevertheless, there is a need to accelerate investment in offshore wind, as well as ocean energies, to meet the 2030 targets. Solar is the fastest growing energy source in the EU.

Acceleration is needed to uptake renewable hydrogen in industry and transport by 2030, as well as to create an optimum and dedicated infrastructure for hydrogen, and an efficient hydrogen market.

The latest Energy Efficiency Directive revision established 'energy efficiency first' as a fundamental principle of EU energy policy, meaning that energy efficiency must be considered by EU countries in all relevant policy and major investment decisions taken in the energy and non-energy sectors.



Photo by Benjamin Jopen on Unsplash

OS

Circular economy

Assessment of progress towards the targets

The report has identified 35 quantifiable targets for this thematic area, while 2 targets are aspirational (only included in the Annex 3). Where available, historic trends, data sources and future projections are also reported in Annex 3. In the case of batteries, besides targets strictly related to material efficiency (i.e. collection, recycling, recycled content and materials recovery), four additional requirements (e.g. on performances during use phase, on life cycle carbon footprint) bring a full life cycle perspective to the regulation (see Annex 3). The quantifiable targets have been classified into: (i)

targets from legal acts (14); (ii) targets from legislative proposals (18); and (iii) targets from communications (3).

Overall, 11 targets are on track to be achieved, while progress at either the EU or Member State level needs to be accelerated for 13 targets. In addition, 2 targets are currently not on track to be achieved or are expected to be hardly achievable. These relate to the CEAP targets on circular material use rate and reduction of municipal waste. The distance to target has not been assessed for 9 targets, because no data is currently available and/or assessment methodologies have yet to be developed. For 4 binding targets related to batteries, an expert judgement indicates if these targets are considered feasible or realistically achievable.

BINDING TARGETS

Targets	Assessment
<p><i>Producers of starting, lighting and ignition batteries, industrial batteries and electric vehicle batteries or, where appointed in accordance with Article 57(1), producer responsibility organisations, shall take back, free of charge and without an obligation on the end-user to buy a new battery, nor to have bought the battery from them, and shall ensure that all waste starting, lighting and ignition batteries, waste industrial batteries and waste electric vehicle batteries regardless of their nature, chemical composition, condition, brand, or origin of the respective category that they have made available on the market for the first time in the territory of that Member State are collected separately.</i></p> <p>Regulation (EU) 2023/1542</p>	<p>Currently, there is no official monitoring system in place and therefore it is not possible to assess if the target will be reached.</p> <p></p>
<p><i>Producers of portable batteries or, where appointed in accordance with Article 57(1), producer responsibility organisations, shall attain, and maintain durably, at least the following collection targets for waste portable batteries:</i></p> <ul style="list-style-type: none">- 45% by 31 December 2023;- 63% by 31 December 2027;- 73% by 31 December 2030. <p>Regulation (EU) 2023/1542</p>	<p>The calculation methodology is under development and these targets will be updated accordingly, whilst maintaining the same level of ambition.</p> <p>Currently, there is no robust data to assess the distance to the targets (e.g. due to new types of batteries entering in the markets, longer lifetime of batteries, new applications).</p> <p>Assuming the ambition of the targets, attention might be paid in the implementation phase at Member State level.</p> <p></p>
<p><i>Producers of LMT batteries or, where appointed in accordance with Article 57(1), producer responsibility organisations, shall attain, and maintain durably, at least the following collection targets of waste LMT batteries:</i></p> <ul style="list-style-type: none">- 51% by 31 December 2028;- 61% by 31 December 2031. <p>Regulation (EU) 2023/1542</p>	<p>The calculation methodology is under development and these targets will be updated accordingly, whilst maintaining the same level of ambition.</p> <p>Considering that light means of transport batteries represent a new market and collection systems need to be adapted, currently it is not possible to assess whether these ambitious targets are reachable or not.</p> <p></p>
<p><i>For industrial batteries with a capacity greater than 2kWh, except those with exclusively external storage, electric vehicle batteries and starting, lighting and ignition batteries that contain cobalt, lead, lithium or nickel in active materials, the minimum recycled content percentage for each battery model per year and per manufacturing plant shall be:</i></p> <p><i>From 18 August 2031, 16% cobalt; 85% lead; 6% lithium; and 6% nickel;</i></p> <p><i>From 18 August 2036, 26% cobalt; 85% lead; 12% lithium; and 15% nickel.</i></p> <p>Regulation (EU) 2023/1542</p>	<p>The assessment methodology is under development. Therefore, it is not possible to assess whether all producers will be able to reach these targets.</p> <p>JRC internal calculations show that these targets are in principle feasible, although significant changes in the industrial production systems are needed.</p> <p></p>

Batteries

Any natural or legal person that places on the market products incorporating portable batteries shall ensure that those batteries are readily removable and replaceable by the end-user at any time during the lifetime of the product. That obligation shall only apply to entire batteries and not to individual cells or other parts included in such batteries.

[Regulation \(EU\) 2023/1542](#)

Recycling shall achieve at least the following targets for recycling efficiency:

No later than 31 December 2025

- 75% by average weight of lead-acid batteries;
 - 80% by average weight of nickel-cadmium batteries
 - 50% by average weight of other waste batteries
- No later than 31 December 2030*
- 80% by average weight of lead-acid batteries;

[Regulation \(EU\) 2023/1542](#)

Recycling shall achieve at least the following targets for recycling efficiency:

- No later than 31 December 2025, 65% by average weight of lithium-based batteries;
- No later than 31 December 2030, 70% by average weight of lithium-based batteries.

[Regulation \(EU\) 2023/1542](#)

All recycling shall achieve at least the following targets for recovery of materials:

- No later than 31 December 2027, 90% for cobalt, copper, lead, nickel;
- No later than 31 December 2031, 95% for cobalt, copper, lead, nickel;

[Regulation \(EU\) 2023/1542](#)

All recycling shall achieve at least the following targets for recovery of materials, 50% for lithium, no later than 31 December 2027; and 80% for lithium no later than 31 December 2031.

[Regulation \(EU\) 2023/1542](#)

This target is ambitious with a very wide coverage of products, many of which are expected to be redesigned in order to be compliant. However, high uncertainty on distance to target lies with existence of derogations and the challenge to establish them at product-specific level. The Delegated Acts expected to specify derogations are not yet in place. Verification and procedures to accept/reject derogation applications will also need to be defined in the Delegated Acts.



Based on current draft guidance for calculation and verification rules for recycling efficiency, the targets for lead-acid, nickel-cadmium and other waste batteries are feasible.

Since, for lead-acid batteries, the battery chemistry and related recycling technologies are fully mature and efficient. For both nickel-cadmium and other waste batteries, it will be important to monitor the performances due to the evolving market for these chemistries.



The 2025 target for lithium-based batteries is in principle feasible, however due to the increasing diversity of lithium-based batteries on the market, it is important to closely monitor the performance towards the target. Furthermore, there are some improvement opportunities when data is available, recycling systems are established and when the target is revised by 2027.



Based on the current draft guidance for the calculation and verification rules for material recovery, the targets for cobalt, copper, lead and nickel are feasible.



Based on the current draft guidance for the calculation and verification rules, the target for lithium is in principle feasible. Significant investments in lithium recycling systems are required.



Batteries

Disclaimer: To construct reliable annual trends for monitoring purposes, a methodology and systematic EU-level knowledge system must be established for each material. This includes determining which products and trade codes to consider, the content and production data, and how to aggregate information in the supply chain. This can build on the EC's Raw Materials Information System, with interactions on related policy support developments from across the EC services.

By 2030, Union extraction capacity should be able of extracting the ores, minerals or concentrates needed to produce at least 10% of the Union's annual consumption of strategic raw materials, to the extent possible in light of the Union's reserves.

[Regulation \(EU\) 2024/1252](#)

The historical time trends (2011-2022) for EU self-sufficiency at extraction phase for the 16 strategic materials can be extracted based on data from [121], [122] and [123]. Results show that:

- In 2022, cobalt, copper, lithium and nickel were above the benchmark of 10%, while their trends have been stably above the benchmark (i.e. copper and nickel) or increased slightly in the period 2011-2022 (i.e. cobalt and lithium)¹.
- For bismuth, boron, gallium, germanium, magnesium, natural graphite, titanium, platinum group metals, heavy rare earth elements and light rare earth elements, the EU's self-sufficiency has always been below 2%.
- Between 2016 and 2022, the EU's self-sufficiency for manganese was below the benchmark, with values ranging from 4 to 10% in the time frame 2016-2022.

¹ Due to high volatility on the data for tungsten (only two date points available from EC studies), this material is not included in the analysis.



By 2030, Union processing capacity, including for all intermediate processing steps, should be able of producing at least 40% of the Union's annual consumption of strategic raw materials.

[Regulation \(EU\) 2024/1252](#)

The historical time trends (2011-2022) for the EU self-sufficiency at processing phase for the 16 strategic materials can be extracted based on data from [121] and [122] and [123]. Results show that:

- The EU's self-sufficiency for copper, cobalt and germanium was above the benchmark in 2022. For copper, this value has been stably above 80% in the period 2011-2022. For cobalt and germanium, the trend was fluctuating and more unstable, but increasing in between 2018 and 2022.
- The EU's self-sufficiency was below the benchmark in 2022 for bismuth, boron, gallium and platinum group metals, with gallium showing a drastic decrease from 2011 (100%) to 2022 (2%).
- The EU has no self-sufficiency to process lithium, magnesium, natural graphite, titanium, and both heavy and light rare earth elements, while there is no sufficient data available for tungsten, nickel and manganese.



Critical Raw Materials

By 2030, Union recycling capacity, including for all intermediate recycling steps, should be able of producing at least 25% of the Union's annual consumption of strategic raw materials and should be able of recycling significantly increasing amounts of each strategic raw material from waste.

[Regulation \(EU\) 2024/1252](#)

Diversify the Union's imports of strategic raw materials with a view to ensuring that, by 2030, the Union's annual consumption of each strategic raw material at any relevant stage of processing can rely on imports from several third countries or from overseas countries or territories (OCTs) and that no third country accounts for more than 65% of the Union's annual consumption of such a strategic raw material.

[Regulation \(EU\) 2024/1252](#)

By 2030, manufacturing capacity in the Union of the strategic net-zero technologies listed in the Annex approaches or reaches a benchmark of at least 40% of the Union's annual deployment needs.

[Net Zero Industry Act](#)

The historical trends of the recycling capacity for strategic materials can be assessed by looking at the evolution of the End-of-Life Recycling Input Rate of strategic materials over time. Out of 16 strategic materials, the recycling capacity:

- was above the 25% benchmark in 2022 for two materials (copper and tungsten),
- was between 22% and 5% in 2022 for eight materials groups (cobalt, magnesium, manganese, nickel, titanium, platinum group metals, and both heavy and light rare earth elements)
- was below 5% for six materials (bismuth, boron, gallium, germanium, lithium and natural graphite)

Half of the 16 strategic raw materials have values above the 65% target, therefore there is a low diversification of sourcing countries. These include bismuth, gallium, lithium, magnesium, platinum group metals, and both heavy and light rare earth elements.



Critical Raw Materials



NON-BINDING TARGETS (FROM PROPOSALS)

Targets

Assessment

All packaging shall be recyclable

[Proposal on packaging and packaging waste](#)



Member States shall take measures to achieve a sustained reduction in the consumption of lightweight plastic carrier bags on their territory. A sustained reduction is achieved if the annual consumption does not exceed 40 lightweight plastic carrier bags per person, or the equivalent target in weight, by 31 December 2025, and subsequently by 31 December in each year thereafter.

[Proposal on packaging and packaging waste](#)

Criteria and assessment methodology under development



Each Member State shall reduce the packaging waste generated per capita, as compared to the packaging waste generated per capita in 2018 as reported to the Commission in accordance with Decision 2005/270/EC by 5% by 2030; 10% by 2035; 15% by 2040

[Proposal on packaging and packaging waste](#)

Data are only available for 18 Member States, 12 Member States have already achieved the 2025 target. The 6 other Member States that are have not met the target yet have indicated a clear drop from 2018 plastic bag consumption values, suggesting that these Member States are on track to reach the 2025 target. Currently, data are not available for the following 9 Member States: Bulgaria, Denmark, Estonia, Greece, Italy, Malta, Netherlands, Romania and Finland [124].



Member States shall take the necessary measures to attain the recycling targets of 65% by weight of all packaging waste generated by 31 December 2025; and of 70% by weight of all packaging waste generated by 31 December 2030.

[Proposal on packaging and packaging waste](#)

On average, the packaging waste generated increased from 157 kg per person in 2011 to 178 kg per person in 2020. Most Member States have reported a steady growth in packaging waste generation per capita in the period of 2011-2020, particularly Romania, Bulgaria, Croatia, Hungary, Poland and Czechia [99]. Currently, none of the Member States is on track to reach the packaging waste reduction targets. However, the newly agreed Plastic and Packaging Waste Regulation intends to bend the currently observed stagnant or upward trend of packaging waste generation through a number of measures, in particular binding reuse and refill requirements.



Member States shall take the necessary measures to attain a recycling target of 50% of plastic by weight of plastic contained in packaging waste generated by 31 December 2025; and of 55% by weight of plastic in packaging waste generated by 31 December 2030.

[Proposal on packaging and packaging waste](#)

For all packaging at the EU level², the 2025 recycling rate target is feasible. However, 10 Member States are at risk of missing the 2025 target, including Bulgaria, Croatia, Cyprus, Greece, Hungary, Lithuania, Malta, Poland, Romania and Slovakia [125].



Plastic is the most critical packaging category for which the targets are clearly above current levels of recycling. 19 Member States are at risk of missing the 2025 target, including Austria, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia and Spain [125].



² EU-level, based on a weighted average between Member State population and recycling rate percentage.

Plastic and other packaging

Member States shall take the necessary measures to attain a recycling target of 25% of wood by weight of wood contained in packaging waste generated by 31 December 2025 and of 30% by 31 December 2030.

[Proposal on packaging and packaging waste](#)



Member States shall take the necessary measures to attain a recycling target of 70% of ferrous metals by weight of ferrous metals contained in packaging waste generated by 31 December 2025 and of 80% by 31 December 2030

[Proposal on packaging and packaging waste](#)



Member States shall take the necessary measures to attain a recycling target of 50% of aluminium by weight of aluminium contained in packaging waste generated by 31 December 2025 and of 60% by 31 December 2030

[Proposal on packaging and packaging waste](#)



Member States shall take the necessary measures to attain a recycling target of 70% of glass by weight of glass contained in packaging waste generated by 31 December 2025 and of 75% by 31 December 2030

[Proposal on packaging and packaging waste](#)



Member States shall take the necessary measures to attain a recycling target of 75% of paper and cardboard by weight of paper and cardboard contained in packaging waste generated by 31 December 2025 and of 85% by 31 December 2030

[Proposal on packaging and packaging waste](#)



The plastic part in packaging shall contain the following minimum percentage of recycled content recovered from post-consumer plastic waste, per unit of packaging:

From 1 January 2030

- (i) 30% for contact sensitive packaging made from polyethylene terephthalate (PET) as major component;
- (ii) 10% for contact sensitive made from plastic materials other than PET, except single use plastic bottles;
- (iii) 30% for single use plastic beverage bottles;
- (iv) 35% for other plastic packaging

From 1 January 2040

- (v) 50% for contact sensitive plastic packaging, except single use plastic beverage bottles;
- (vi) 65% for single use plastic beverage bottles;
- (vii) 65% for other plastic packaging

[Proposal on packaging and packaging waste](#)



Reduce the generation of food waste in processing and manufacturing by 10% in comparison to the amount generated in 2020

[Proposal amending Directive 2008/98/EC on waste](#)



Reduce the generation of food waste per capita, jointly in retail and other distribution of food, in restaurants and food services and in households, by 30% in comparison to the amount generated in 2020

[Proposal amending Directive 2008/98/EC on waste](#)



Food Waste

Each vehicle belonging to a vehicle type that is type-approved as of [the first day of the month following 72 months after the date of entry into force of this Regulation] under Regulation (EU) 2018/858 shall be constructed so that it is:

- (a) reusable/recyclable to a minimum of 85% by mass;
- (b) reusable/recoverable to a minimum of 95 % by mass.

[Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles](#)



For wooden packaging at the EU level², the recycling rates are very feasible or have already been achieved. Nonetheless, Croatia and Malta are at risk of missing the 2025 target [125].

Considering the high recycling rates for metallic packaging at the EU level², the 2025 and 2030 recycling targets seem achievable. However, 5 Member States are at risk of missing the 2025 target, including Croatia, Denmark, Malta, Portugal and Romania [125].

Similarly for aluminium, the high recycling rates registered for metallic packaging suggest that both recycling targets are achievable, at least at the EU level². Nonetheless, 9 Member States are at risk of missing the 2025 target, including Croatia, Cyprus, Czechia, Greece, Malta, Portugal, Romania, Slovakia and Spain [125].

For glass packaging, at least at the EU level², the recycling rate targets are very feasible or have already been achieved. Several Member States are at risk of missing the 2025 target, including Bulgaria, Croatia, Cyprus, Greece, Hungary, Lithuania, Malta, Poland, Portugal and Romania [125].

For paper and cardboard packaging, at least at the EU level², the recycling rate targets are very feasible or have already been achieved. Nonetheless, Croatia, Malta, Slovakia and Spain are at risk of missing the 2025 target [125].

² EU-level, based on a weighted average between Member State population and recycling rate percentage.

Currently, there are no official statistics on the recycled content in plastic packaging, due to the lack of EU guidelines on calculating and reporting recycled content. As of 2022, there is no recycled content in food-contact (non-PET) plastic packaging, 20% in PET packaging and 14% for other plastic packaging [126], [127]. These recycled content rates are still far away from the 2030 targets of 10%, 30% and 35% for each plastic packaging category, respectively.

Data for these targets is only available for 2020 and for 2021 in Eurostat, therefore it is still early to define a clear trend. However, based on the analysis performed in the impact assessment of the Proposal for a Directive amending Directive 2008/98/EC on waste [108], it is possible to estimate that the target is feasible, but progress needs to accelerate to reach the target value.

Plastic and other packaging

The feasibility of the target depends on the calculation method and related data. As stated in the impact assessment study, while substantial progress has been made since 2000 to reach the 85% recycling/reuse target set out in the ELV Directive, a large share of materials, in particular automotive shredder residue, is sent to landfills or incinerated (i.e. not valorised) [128].

Vehicles circularity

The plastic contained in each vehicle type that is type-approved as of [the first day of the month following 72 months after the date of entry into force of the Regulation] under Regulation (EU) 2018/858 shall contain a minimum of 25 % of plastic recycled by weight from post-consumer plastic waste.

[Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles](#)

At least 25% of the target set out in the first subparagraph shall be achieved by including plastics recycled from end-of-life vehicles in the vehicle type concerned.

[Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles](#)

Member States shall ensure that the following targets are met by the waste management operators:

- (a) the reuse and recovery, as calculated together, shall be a minimum of 95 %, by average weight per vehicle, excluding batteries, and year;*
- (b) the reuse and recycling, as calculated together, shall be a minimum of 85 %, by average weight per vehicle, excluding batteries, and year.*

[Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles](#)

Member States shall ensure that waste management operators achieve a yearly target for the recycling of plastics of at least 30 % of the total weight of plastics contained in the vehicles delivered to the waste management operators.

[Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles](#)

Although the calculation method has not been defined, the JRC assumes that these ambitious targets are in principle reachable (also based on [129]). JRC highlights that they require significant changes in the industrial production systems both in the production and uptake of high-quality recycled plastics.



Although the calculation method has not been defined, JRC assumes that this feature of the targets is in principle reachable. JRC highlights that they require significant innovations in the industrial production systems both in the production and uptake of high-quality recycled plastics, in particular in the area of end-of-life vehicle collection and treatment and wide deployment of post-shredder sorting technologies.



The targets should in principle be reached [129], especially if other incentives on demand for recycled materials (See article 6) promote the wide deployment of post-shredder sorting technologies.



The targets should in principle be reached, especially if other incentives on demand of recycled plastics (See article 6) promote the wide deployment of post-shredder sorting technologies.



Vehicles circularity

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets

Halve the amount of residual (non-recycled) municipal waste by 2030³

[A new Circular Economy Action Plan](#)

³ For this target, 2020 was assumed as the reference year, since the new CEAP was published in March 2020. This target is also recalled in the 'Zero Pollution Action Plan'.

Double EU's circular material use rate in the coming decade

[A new Circular Economy Action Plan](#)

Assessment

The target aims at halving the amount of residual municipal waste by 2030. Assuming as a reference year the 2020, the residual municipal waste should be reduced from 119 to 59.5 Mtonnes.

Looking at historical trends, the amount of residual municipal waste decreased by only 5% in the time frame 2012–2021 and slightly increased in the last seven years (2015–2021, +2.6%). Despite increasing recycling levels, the amount of waste generated is increasing at a higher pace [130].



This target aims to increase the circular material use rate (CMUR) from 11.7% in 2020 to 23.4% in 2030. At the EU level, this target has been steady since 2010, registering an increase of less than 1 percentage point [131]. As such, there is a stagnation in the pace of improvement of the CMUR indicator. At the Member State level, CMUR shows a high variability with values ranging from 0.6 to 27.5% in 2022.



Circular Economy

At least 20% of the carbon used in the chemical and plastic products should be from sustainable non-fossil sources by 2030, in full consideration of the EU's biodiversity and circular economy objectives and of the upcoming policy framework for bio-based, biodegradable and compostable plastics.

[Communication on Sustainable Carbon Cycles](#)

The current lack of data does not allow to assess the status of this target.



Sustainable carbon cycles

Key messages

Overall, 37 targets have been identified, of which 35 are quantifiable and two are aspirational. The current legally binding targets (13) are those included in the Battery Regulation and in the Critical Raw Materials Act. For batteries, these focus on collection, material recovery, recycling efficiency and recycled content. For strategic raw materials, the targets address the diversification of suppliers and increasing the EU's extraction, processing and recycling capacities. Most quantifiable targets can be found in legislative proposals, which are not yet adopted (19). These focus on recycling and recovery of plastic and other packaging, food waste reduction and the circularity of end-of-life vehicles.

Legally binding targets on the recycling and recovery of lead acid and nickel-cadmium batteries appear to be more achievable compared to other battery types. Progress on battery collection targets cannot be estimated, due to the lack of standardised calculation methods and recent data.

Acceleration will be needed to meet the benchmarks of the recently adopted Critical Raw Materials Act for the EU extraction, processing and recycling capacity of strategic minerals, and to achieve supply diversification.

Under the 2020 Circular Economy Action Plan, several policy initiatives have been proposed and/or adopted to improve the circularity and environmental performance of products, to protect and empower consumers against greenwashing and to increase repairability. However, most legally binding targets are still focused on recycling and material recovery, rather than waste prevention (e.g. reuse) and preparing for reuse (e.g. repair). As such, future legislative framework reviews and updates could consider this.

The pace of progress is sufficient to achieve recycling targets for wood, ferrous metals, aluminium, glass, paper and cardboard packaging. Despite the results achieved so far, more effort is needed to meet the targets for packaging waste and food waste reduction as well as those for recycling and recycled content in plastic packaging.

New policy measures, including possible new targets, may be needed to reduce the generation of waste electric and electronic equipment and construction and demolition waste or to improve the return of materials and products from these categories to the economy.

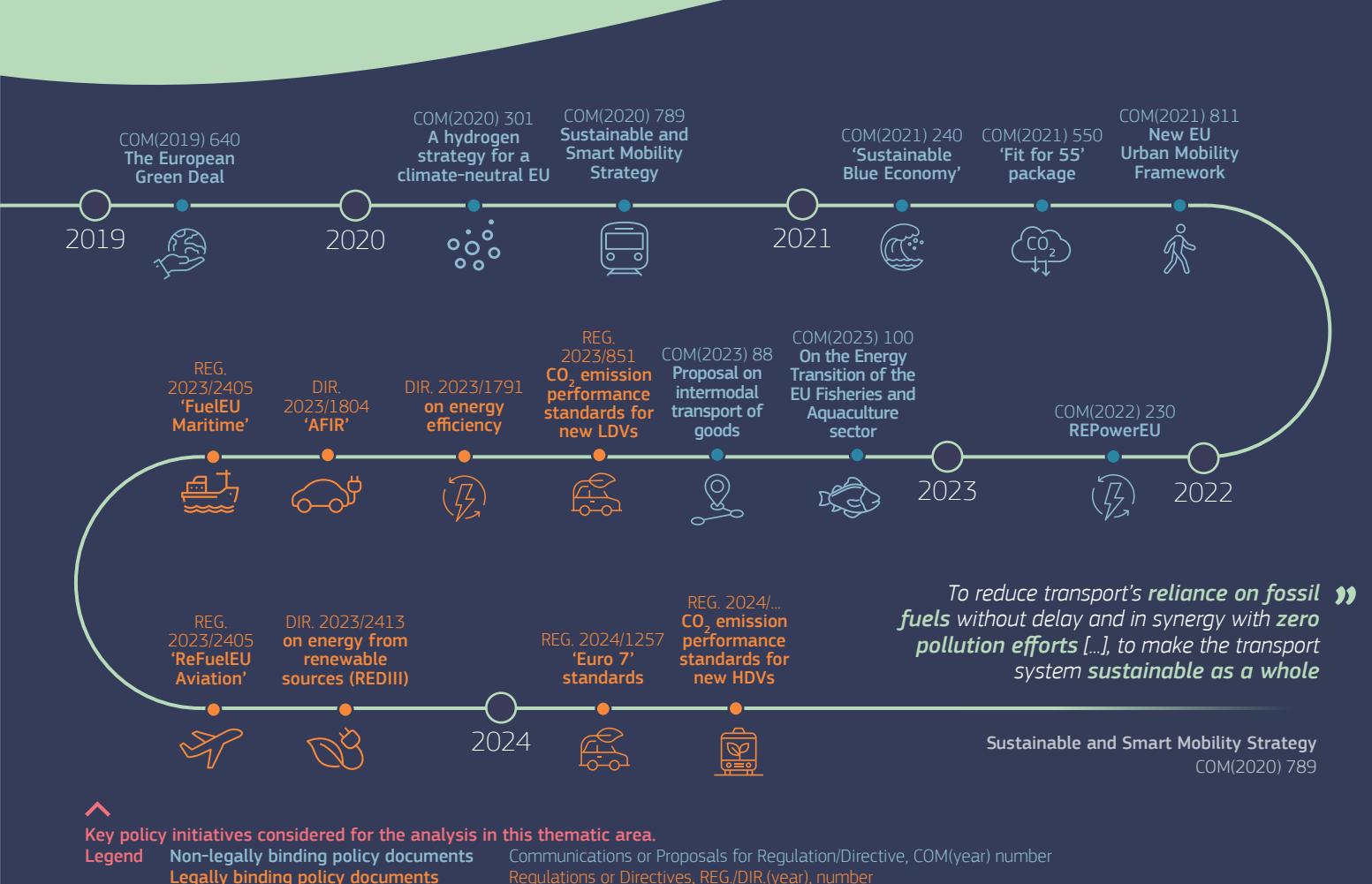
No progress has been made to reduce EU's consumption footprint, keep EU resource consumption within planetary boundaries, increase the circular material use rate, or reduce waste generation (apart from that seen during the pandemic). Furthermore, little progress has been made on decoupling economic growth from resource use.

Monitoring progress can play a role in supporting the implementation of circular policies. Therefore, improving data availability on material and waste flows, as well as harmonising indicators and targets for monitoring and assessing circular practices, is key.

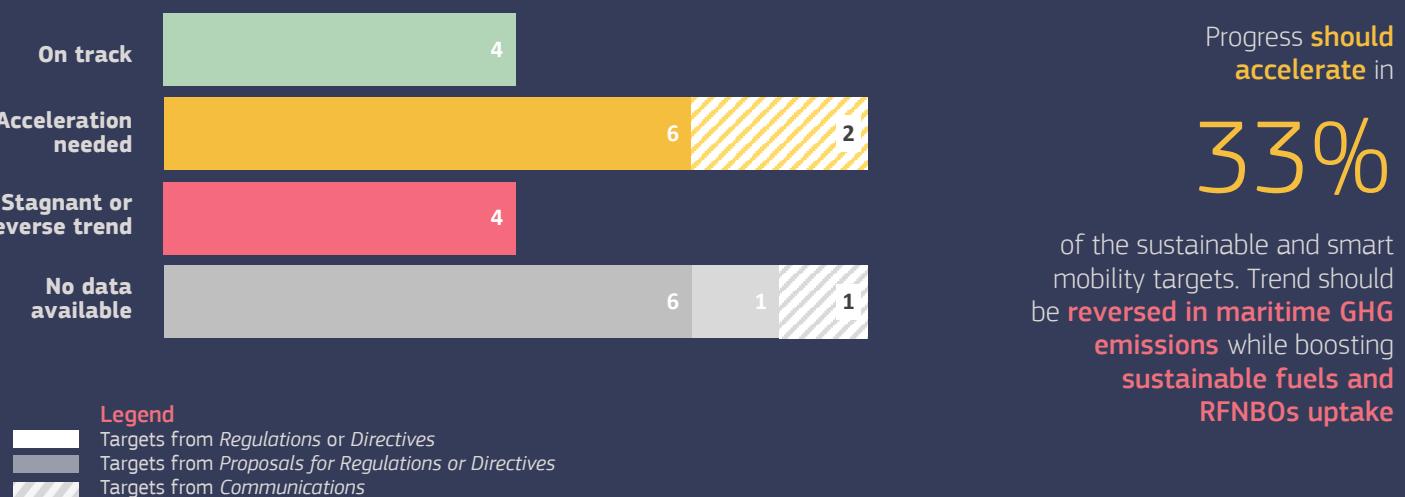
ON

4

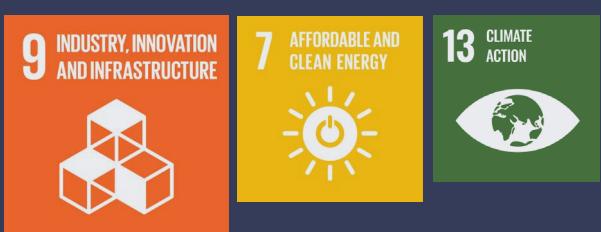
Sustainable and smart mobility



Progress towards the targets



Contribution to the 2030 Agenda



Targets of this thematic area contribute to 2030 Agenda targets **13.2 (climate change measure integration)** and **9.1 (sustainable infrastructure)**. They also foster SDG **7.2 (renewable energy)**, **7.3 (energy efficiency)** and **9.4 (sustainable industry and infrastructure)**.

Assessment of progress towards the targets

This section provides an overview of 24 targets identified as relevant for this thematic area. They are divided into legally binding targets from legal acts, targets from legislative proposals for regulations and

directives, and targets from communications that are not legally binding. Where available, historical trends, data sources and future projections are reported in Annex 4.

BINDING TARGETS

Targets	Assessment	
<p><i>Member States shall ensure that, by 31 December 2030, at least one publicly accessible hydrogen refuelling station is deployed in each urban node.</i></p> <p>Regulation (EU) 2023/1804</p>	<p>The extent of the urban nodes equipped with publicly accessible hydrogen refuelling stations is mostly localised in the central-northern EU (see TENtec Interactive Map Viewer). The number of Hydrogen refuelling stations is steadily increasing in the EU. The Alternative Fuels Infrastructure Regulation sets the minimum goals for hydrogen refuelling stations deployment until 2030, which should significantly increase from the current 200 operational stations (see Clean Hydrogen Monitor 2023, p. 145)</p>	
<p><i>Member States shall ensure that, by 31 December 2030, publicly accessible hydrogen refuelling stations with a total capacity of at least 1 tonne per day, and equipped with at least a 700 bar dispenser, are deployed at least every 200 km along the TEN-T (Trans-European Transport Network) core network</i></p> <p>Regulation (EU) 2023/1804</p>		
<p><i>The yearly average GHG intensity of the energy used on board by a ship during a reporting period shall be reduced, compared to the reference value (91.16 gCO₂ e/MJ) by: 2% from 1 January 2025; 6% from 1 January 2030; 14.5% from 1 January 2035; 31% from 1 January 2040; 62% from 1 January 2045; 80% from 1 January 2050.</i></p> <p>Regulation (EU) 2023/1805</p>	<p>EU shipping emissions increased by 5.6% in 2021 from the previous year, rebounding from the COVID-19 induced slump of 2020. The target for 2025 seems unlikely to be reached. The EEA projections suggest that, even with measures currently planned in the Member States, emissions from domestic navigation are projected to remain relatively stable in the coming years. International maritime transport emissions are projected to continue increasing.</p>	
<p><i>Each Member State shall set an obligation on fuel suppliers to ensure that: (B) the combined share of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX and of renewable fuels of non-biological origin in the energy supplied to the transport sector is at least 1% in 2025 and 5.5% in 2030, of which a share of at least 1 percentage point is from renewable fuels of non-biological origin in 2030.</i></p> <p>Directive (EU) 2023/2413</p>	<p>According to EurObserv'ER [155] the contribution of advanced biofuels already reached 1% in 2022 (indicative data). The target for 2025 has already been reached. Nevertheless, the sub-target for RFNBO of 1 percentage point for 2030 is not on track as of 2022 data, but the uptake of RFNBO is expected to grow in the coming years, providing enough time to reach the 2030 target.</p>	
<p><i>The share of biofuels and biogas produced from the feedstock listed in Part B of Annex IX in the energy content of fuels and electricity supplied to the transport sector shall, except in Cyprus and Malta, be limited to 1.7%.</i></p> <p>Directive (EU) 2023/2413</p>	<p>The EU share (including Cyprus and Malta) was 1.28% in 2021, it increased to 1.35% in 2022. This target is currently on track.</p>	
<p><i>Achieve an annual production of sustainable biomethane of 35 billion cubic meters by 2030</i></p> <p>Directive (EU) 2023/2413</p>	<p>In 2021, the total biomethane production in the EU was 3.5 billion cubic meters, produced in about 1300 biomethane plants. Production increased in 2022 to reach 4.2 bcm. In order to reach 35 billion cubic meters, an estimate of 5000 additional plants are required.</p>	
<p><i>Member States with maritime ports shall endeavour to ensure that as of 2030 the share of renewable fuels of non-biological origin (RFNBOs) in the total amount of energy supplied to the maritime transport sector is at least 1.2%.</i></p> <p>Directive (EU) 2023/2413</p>	<p>Synthetic fuels are not available on the market and conversion pathways are at early technology development levels, facing major techno-economic challenges. E-fuels facilities are still at the demo-scale, with only a few plants currently operated at the EU level [156]. RFNBOs is a promising solution for hard-to-electrify sectors, such as the maritime one. However, a market for maritime RFNBO is currently yet to develop. Regulation (EU) 2023/1805 also introduces a combination of measures to ensure the support to the uptake of sustainable RFNBOs. The deal also set a 2% renewable fuels usage target as of 2034 if the Commission reports that in 2031 RFNBO will amount to less than 1% in fuel mix.</p>	

Aviation fuel suppliers shall also ensure that Sustainable Aviation Fuel (SAF) made available to aircraft operators at each Union airport will be at least 2% from 2025, 6% from 2030, 20% from 2035, 34% from 2040, 42% from 2045 and 70% from 2050.

[Regulation \(EU\) 2023/2405](#)

Of the SAF targets reported above, synthetic aviation fuels should represent a minimum share of 1.2% from 2030, 5% from 2035, 10% from 2034, 15% from 2045, and 35% from 2050.

[Regulation \(EU\) 2023/2405](#)

The yearly quantity of aviation fuel uplifted by a given aircraft operator at a given Union airport shall be at least 90% of the yearly aviation fuel required, to avoid tankering practices which would bring additional emissions from extra weight.

[Regulation \(EU\) 2023/2405](#)

Several plants are being built to produce sustainable aviation fuels and sustainable aviation fuels are tested by companies. The contribution of aviation fuels is practically negligible currently. No sustainable biofuel use was reported in Eurostat in aviation in 2021.



Synthetic fuels are not available on the market, conversion pathways are at early technology development levels, facing major techno-economic challenges.



No data available.



Renewable and low-carbon fuels

Member States shall ensure that, at the end of each year, the following power output targets are met cumulatively: (a) for each light-duty battery electric vehicle registered in their territory, a total power output of at least 1.3 kW is provided through publicly accessible recharging stations; and (b) for each light-duty plug-in hybrid vehicle registered in their territory, a total power output of at least 0.80 kW is provided through publicly accessible recharging stations.

[Regulation \(EU\) 2023/1804](#)

Member States shall ensure that along the TEN-T core and comprehensive network, publicly accessible recharging pools dedicated to light-duty vehicles deployed in each direction of travel with a maximum distance of 60 km in-between them offering a power output of at least 600kW and including at least one recharging point with an individual power output of at least 150 kW.

[Regulation \(EU\) 2023/1804](#)

Member States shall ensure that, by 31 December 2030 (with intermediate 2025 and 2027 targets), along the TEN-T core road network, publicly accessible recharging pools dedicated to heavy-duty electric vehicles are deployed in each direction of travel with a maximum distance of 60 km between them [...] Along the TEN-T comprehensive road network, recharging pools dedicated to heavy-duty electric vehicles are deployed in each direction of travel with a maximum distance of 100 km between them and each recharging pool offers a power output of at least 1.500 kW and includes at least one recharging point with an individual power output of at least 350 kW.

[Regulation \(EU\) 2023/1804](#)

Based on charging infrastructure data from Eco-Movement 2022 and estimates of electric vehicles on the roads, most Member States are already compliant with this fleet-based target (see [European Alternative Fuels Observatory – Target tracker](#)). Research also highlights that the total power output needed per electric vehicle (including battery electric vehicles and plug-in hybrid vehicles) is highly dependent on the share of electric cars and vans on the road, with AFIR targets on cumulative power outputs per vehicle being sufficient in the long term (when a rise in the market share of battery electric vehicles and plug-in hybrid vehicles is expected) [157].



The target supports the vision of 3 million charging points by 2030 under the Sustainable and Smart Mobility strategy. As of mid-2024, around 730.000 charging points are available in the EU (see [TENtec Interactive Map Viewer](#)). According to the [EC Dashboard towards zero-emission vehicle](#), around 60% of charging points in the EU are concentrated in three EU countries (Germany, France, Netherlands), while Eastern EU is lagging behind. To meet the 3 million charging points ambition, around 400.000 new points need to be installed annually, with a significant gap with respect to the 153.000 new public charging points installed in 2023 [158].



Despite the lack of specific data regarding recharging pools for heavy-duty electric vehicles, the extent of the TEN-T network served by high voltage recharging points stays so far limited to central Europe, with significant infrastructure improvement needed in Southern and Eastern EU, alongside the core and comprehensive networks (see [TENtec Interactive Map Viewer](#)).



By 31 December 2030, in each safe and secure parking area at least four publicly accessible recharging stations dedicated to heavy-duty electric vehicles with an individual power output of at least 100 kW are deployed.

[Regulation \(EU\) 2023/1804](#)

The extent of the TEN-T network equipped with safe and secure parking complying with the target is localised in central-northern EU (see [TENtec Interactive Map Viewer](#)). However, data available is not updated and it is not possible to assess whether the current number of secure parking areas for heavy-duty electric vehicles and the speed of installation is sufficient to reach the 2030 target.



By 31 December 2030, in each urban node publicly accessible recharging points dedicated to heavy-duty electric vehicles with an aggregated power output of at least 1 800 kW are deployed, provided by recharging stations with an individual power output of at least 150 kW.

[Regulation \(EU\) 2023/1804](#)

No data available.



Electric Vehicle Infrastructure

Member States shall ensure that, at all airports of the TEN-T core network and TEN-T comprehensive network, the provision of electricity supply to stationary aircraft is ensured by 31 December 2029, at all aircraft remote stands used for commercial air transport operations to embark or disembark passengers or to load or unload goods

[Regulation \(EU\) 2023/1804](#)

No data available.



Member States shall ensure that a minimum shore-side electricity supply for seagoing container ships and seagoing passenger ships is provided in TEN-T maritime ports. To that end, by 31 December 2029 TEN-T core and comprehensive maritime ports [...] are equipped to provide each year shore-side electricity supply for at least 90 % of the total number of port calls of seagoing container ships above 5.000 gross tonnes that are moored at the quayside at the maritime port concerned and 90% of the total number of port calls of seagoing ro-ro passenger ships above 5.000 gross tonnes and seagoing high-speed passenger craft above 5.000 gross tonnes that are moored at the quayside at the maritime port concerned

[Regulation \(EU\) 2023/1804](#)

No data available.



Member States shall ensure that at least one installation providing shore-side electricity supply to inland waterway vessels is deployed at all TEN-T core inland waterway ports by 1 January 2025; at least one installation providing shore-side electricity supply to inland waterway vessels is deployed at all TEN-T comprehensive inland waterway ports by 1 January 2030.

[Regulation \(EU\) 2023/1804](#)

No data available



The average CO₂ emissions of the Union fleet of new heavy-duty motor vehicles [...], off-road vehicles and off-road special purpose vehicles shall be reduced by the following percentages compared to the average CO₂ emissions of the reporting period of the year 2019:

- (a) 15% for vehicle sub-groups 4-UD, 4-RD, 4-LH, 5-RD, 5-LH, 9-RD, 9-LH, 10-RD and 10-LH for the reporting periods of the years 2025 to 2029;
- (b) 45% for all vehicle sub-groups other than vocational vehicles for the reporting periods of the years 2030 to 2034;
- (c) 65% for all vehicle sub-groups for the reporting periods of the years 2035 to 2039;
- (d) 90% for all vehicle sub-groups for the reporting periods of the year 2040 onwards

[Regulation \(EU\) 2024/1610](#)

The average specific CO₂ emissions of new heavy-duty vehicles in groups 4, 5, 9 and 10 has decreased by 0.55%, from 52.75g/t.km in 2019 to 52.45g/t.km in 2020. The rate of decrease is therefore slow and acceleration is needed to achieve the targets.



For [...] “urban buses” manufacturers shall comply with the 90% (in the reporting period 2030-2034) and 100% (as from 2035) minimum shares in their fleet of new heavy-duty vehicles

[Regulation \(EU\) 2024/1610](#)

Following the Regulation, due to the technical readiness of urban buses and the need to improve urban air quality, this target supports the need to have a mandatory minimum share of new zero-emission urban buses. According to the European Automobile Manufacturers' Association (ACEA) and Rabobank, the whole EU bus fleet consists of around 715.000-750.000 vehicles, with city buses representing around 215.000 units (around 30%). Looking at city buses only, there has been a steady decrease in the number of new city buses fuelled by Diesel since 2016, increasingly being replaced by electric vehicles. A market growth average close to 18% could help achieve the 2030 target. This is feasible, given the 2020-2023 market trend (source: Rabobank). It should be finally noted that a collapse of the diesel buses market is unlikely (e.g. due to the need in rural areas), and new electrically chargeable buses accounted for 12.7% in the total EU bus market in 2022, making up only 1.4% of total buses on EU roads (source: ACEA).



Decarbonisation of road transport





NON-BINDING TARGETS (FROM PROPOSALS)

Targets

Reduce the average door-to-door cost of combined transport operations by at least 10% within 7 years
[Proposal for a Directive to support framework for intermodal transport of goods](#)

Assessment

No available data.



Intermodality

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets

Cut the emissions of transport sector by 90% by 2050 relative to 1990.
[Sustainable and Smart Mobility Strategy](#)

Assessment

Following six years of steady growth in greenhouse gas emissions from the EU's transport sector, transport emissions dropped substantially in 2020 because of reduced activity during the COVID-19 pandemic. In 2022 they were still 6% below 2019 levels. However, Eurostat quarterly GHG emission data shows that this rebound continued in 2023. According to the Report "Towards EU climate neutrality: progress, policy gaps and opportunities" by the European Scientific Advisory Board on Climate Change, the average rate of emission reduction since 2005 (-2 MtCO₂e per year) should be more than 10 times higher (-26 MtCO₂e per year in 2023-2030) to be consistent with the trajectories towards the overall 2030 net GHG emission reduction target by the EU Climate Law. When considering the 90% reduction objective for transport GHG emissions by 2050, the average rate of emission reduction should be higher (-31 MtCO₂e in 2031-2050).



Zero-emission in urban logistics
[The new EU Urban Mobility Framework](#)

Although it has been estimated that urban freight is an important traffic component (10% to 15% of vehicle equivalent miles) and is responsible for 20% to 25% of urban transport related CO₂ emissions [159], [160], there is no sufficient data to assess the trend.



GHG Emissions

EU fisheries are encouraged to continue the positive trend, as observed for the period 2009-2019, towards reducing fuel intensity by reducing the fossil-fuel consumption per kg of landed product for at least an additional 15% for the period 2019-2030.

[Energy Transition of the EU Fisheries and Aquaculture sector](#)

The Communication notes that "Fisheries and aquaculture operators began reducing their energy intensity between 2009 and 2014, but the progress they made has stagnated in recent years. Therefore, there is a need to accelerate the energy transition". In turn, this statement grounds on the JRC science for policy report "The 2022 Annual Economic Report on the EU Fishing Fleet" [161] by the Scientific, Technical and Economic Committee for Fisheries, assessing that the sector fuel intensity (i.e. fuel consumption per tonne landed) dropped by more than 15% between 2009 and 2014, but that this trend has stagnated since then.



Fuel intensity in fisheries

Key messages

Reducing net GHG emissions by 90% will be highly challenging, considering the average rate of emissions reduction since 2005. Achieving this goal will require a reduction pace that is 10 times higher up to 2030. The recently adopted regulations ETS2, AFIR and CO₂ emission performance standards, as part of the Fit-for-55 package, will be key to achieving this goal.

The successful decarbonisation of road transport requires a robust capillary infrastructure for alternative fuels. Renewable hydrogen and electric charger infrastructure deployment must accelerate. Based on available data, tripling the number of new electric charging stations compared to 2023 is required to meet the ambition of 3 million charging points. Currently, 60% of stations are installed in three countries only (Germany, France and the Netherlands). Member States are urged to implement the Alternative Fuel Infrastructure Regulation swiftly.

Advanced sustainable biofuel and biogas will play their role in decarbonising the EU aviation and maritime transport sectors, progress in this area is sufficient to meet the requirements. Renewable fuels of non-biological origin (RFNBOs) are a promising solution for these hard-to-electrify sectors, although the market is still developing. The recently adopted RED III and FuelEU Maritime are expected to boost this sector.

Urban transport contributes to around 23% of the EU's transport-related GHG emissions. The electrification of the urban bus fleet is happening fast and the EU is likely to meet the target of 90% of new electric urban buses in 2030. However, electric buses still represent a small proportion of the entire EU fleet. Furthermore, the CO₂ emissions from heavy-duty vehicles must decrease more rapidly to meet the ambitions. Increased efforts in promoting cycling, as outlined in the European Declaration on Cycling, can make a strong contribution to sustainable urban transport.

The quality and accessibility of public transport must improve. The design and implementation of Sustainable Urban Mobility Plans (SUMPs) is key, but effective governance, monitoring, and technical skills are needed.

Member States should support urban areas in the implementation of SUMPs and links with national and EU funding schemes. Furthermore, data is missing in many transport-related areas (e.g. traffic, people flow, implementation of AFIR and pollution), these data are essential for the assessment of progress.

05

Greening the CAP
'Farm to Fork' Strategy

Assessment of progress towards the targets

The EGD proposes a new and inclusive growth strategy, which highlights the need for a holistic and cross-sectoral approach. In this context, the F2F strategy introduces a more integrated approach in food policy, highlighting the inextricable links between healthy people, healthy societies and a healthy planet. The main objective of this integrated approach is to accelerate the transition towards a general sustainability of the EU food system, respecting the planetary boundaries and welfare of society.

Within the F2F Strategy, some quantitative targets are established, complemented by aspirational objectives to steer EU food system actors and policymakers towards sustainable food systems.

The present report considers the seven quantifiable targets defined within the F2F Strategy to assess progress towards the EGD. However, these relate only to a few food system domains, focusing mainly on primary production. To provide a more holistic picture of

the EU food system, additional information is provided on other domains relevant to the sustainability of the EU food system by using selected indicators and assessing the entire supply chain, even though these aspects may not be specifically addressed by EU-level initiatives.

To monitor the transition towards sustainable food systems, the JRC, in cooperation with stakeholders, developed the EU Food System Monitoring Framework (JRC Publications Repository - [EU food system monitoring framework. From concepts to indicators](#) and [Annex 5](#)). The framework provides a systemic perspective and comprises of the three sustainability dimensions (environmental, economic and social), 12 thematic areas, and 38 domains. It aims to measure the progress towards the explicit targets and the high-level objectives of the F2F strategy, as well as sustainability goals embedded in other policy instruments. Where available, historical trends, data sources and future projections are reported in Annex 5. Specific selected indicators are published on the [EU Food System Monitoring Dashboard](#).

NON-BINDING TARGETS (FROM THE COMMUNICATION ON FARM TO FORK)

Targets	Assessment
<p><i>Reduce overall EU sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030.</i></p> <p><i>Target in Common with Biodiversity Strategy (see Thematic Area 6) and Zero Pollution Action Plan (see Thematic Area 7)</i></p>	<p>Indicator: Sales of antimicrobials for food producing animals (Source: EMA). According to the 13th European Surveillance of Veterinary Antimicrobial Consumption report, the overall sales of antimicrobials for use in food-producing animals within the EU have fallen between 2018 and 2022 by 28.3%. During this period, the overall EU sales have thus reached more than half of the reduction target, which shows that the target can be achieved by 2030.</p> <p>Antimicrobials</p>
<p><i>Reduce by 50% the use and risk of chemical pesticides</i></p> <p><i>Target in Common with Biodiversity Strategy (see Thematic Area 6) and Zero Pollution Action Plan (see Thematic Area 7)</i></p>	<p>Indicator: Use and risk of chemical pesticides (Source: DG SANTE). According to data published by DG SANTE, the use and risk of chemical pesticides decreased by 33 % between the baseline period of 2015–2017 and 2021. The use and risk of chemical pesticides shows a decrease of 6% from 2020 to 2021. These overall downward trends show that the target can be achieved by 2030¹. [182]</p> <p><small>¹ It should be noted that the current EU-wide indicator, which applies risk weightings to four different groups of chemical pesticides and is based on pesticide sales, is not considered scientifically robust by some. This indicator is based on a similar harmonised risk indicator, which, according to the European legislation (Commission Directive (EU) 2019/782), is considered hazard-based. This is due to the absence of statistics on the use of plant protection products needed to develop a risk indicator. The Commission is committed to developing more sophisticated indicators in future, such as improved weightings that take hazard properties into account in a more granular way or by using EU-level data on pesticide usage when it becomes available. An example of such an improvement is the new risk indicator assessing the toxicity of pesticide residues in soil from samples collected under the LUCAS Soil Pesticide survey coordinated by JRC. According to this indicator, in 2018, 14% of sites in the EU were at risk of negative effects on soil organisms due to pesticide residues. The analysis of samples from 2022 is currently ongoing and will shed light on the EU's progress towards pesticide risk reductions. This indicator is relevant to only one compartment (soil) but is just one of many being examined for usefulness and relevance. .</small></p> <p>Pollution</p>



Reduce by 50% the use of more hazardous pesticides
Target in Common with Biodiversity Strategy (see Thematic Area 6) and Zero Pollution Action Plan (see Thematic Area 7)



Indicator: Use of more hazardous pesticides (Source: DG SANTE).

According to data published by DG SANTE, the use of more hazardous pesticides fell by 21 % between the baseline period of 2015–2017 and 2021. The use of more hazardous pesticides shows an increase of 5% from 2020 to 2021. Achievement of the 50% reduction target by 2030 remains challenging.

It should be noted that while this indicator intends to monitor the use of the more hazardous pesticides, it does not take into account the exposure and hence the impact they might have on the environment and human health. In the future, this indicator could be complemented with a risk indicator showing changes in the actual risks².

² Options include better grouping of substances, group weighting reflecting substances' toxicities, standardisation of sales data with recommended application rates and utilisation of pesticide use data instead of the sales data as the basis for a new indicator



Reduce nutrient losses by at least 50%, while ensuring that there is no deterioration in soil fertility.

Indicator: Nitrate in groundwater (Source: EEA).

The EU aggregate for nitrate content in groundwater based on 18 Member States shows a positive trend (−0.7% annual growth rate) between 2015 and 2020. However, this slight reduction is still far away from the 50% aimed by 2030. It should be noted that the long-term trend (2005–2020) for the EU aggregate was rather stagnant (0.003% annual growth rate).



Pollution

Increase organic farming with the aim to achieve at least 25% of total farmland under organic farming by 2030

Target in Common with Biodiversity Strategy (see Thematic Area 6)

Indicator: Area under organic farming (% of the total utilised agricultural area) (Source: Eurostat). Moderate progress rate, but not enough to reach the target by 2030. The compound annual growth rate (CAGR) is 6.7% per year observed i.e. an increase from 5.6% to 9.1% (2012–2020), while 9.3% per year would be required to meet the target.



Land and soil

*Reduce food waste. Prevent food loss and waste. Halve per capita food waste at retail and consumer levels**

*See also Directive (EU) 2018/851 on waste with a target on food waste reduction of 30% by 2025

Indicator: Food Waste (Source: Eurostat). It should be noted that at the moment only two data points are available, 2020 and 2021, therefore, it is still early to define a clear trend. The Member States should report on food waste every year, using primary data at least once every four years. Based on the analysis performed in the impact assessment of the Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste, this target was not deemed to be feasible to achieve [108]. In the proposal the target has been redefined with a reduction of food consumption by 30% at retail and consumption level, plus a reduction of 10% in manufacturing (see Thematic Area 3).



Food waste

Digitalisation and knowledge transfer. Ensure access to fast broadband to all farmers and all rural areas to achieve the objective of 100% access by 2025 (enabler for jobs, businesses, investments, improvement in quality of life in rural areas and enabler to mainstream precision farming and use of artificial intelligence)

Indicator: Rural next generation access (NGA) broadband coverage, as a % of households (Source: DG DIGIT).

Next generation access broadband availability has significantly improved over the past decade, with the percentage of households having access increasing from 18% of rural households in 2013 to 73% in 2022. However, the objective of achieving 100% coverage by 2025 is at risk at the current pace. Most Member States remain above the EU average of 73%. However, despite showing growth in the last decade, some Member States such as France (2013: 16%, 2022: 59%), Poland (2013: 18%, 2022: 40%), and Croatia (2013: >1%, 2022: 52%), still lag behind.



Technology and digitalisation

THEMATIC FOCUS

A broader perspective. Selected indicators for additional food system domains

In order to track progress, from a more holistic food system angle, this report also considers selected indicators related to additional domains relevant to the sustainability of the EU food system, in addition to the seven quantitative targets presented above. Such proposed indicators are derived from the Food System Monitoring Framework (JRC Publications Repository - [EU food system monitoring framework. From concepts to indicators](#)) and specific selected indicators are available on the [EU Food System Monitoring Dashboard](#).

GHG Emissions

Ensure that agriculture, fisheries and aquaculture, and the food value chain contribute to the target of reducing net greenhouse gas emissions to at least 55% below 1990 levels by 2030 and to the achievement of the objective for a climate-neutral Union in 2050. The trend (from 1990 to 2018) of this indicator for the EU 27 countries covering the GHG emissions from the entire food value chain (from production to consumption within the EU territory) is in the desired direction to contribute to the 55% net reduction and climate neutrality targets set by the EC for all economic sectors in the EU combined. However, the lack of current data, and the unpredictability of certain components of the GHG food system emission indicator (as temporal or geographical changes in LULUC), make the prediction to 2030 very uncertain. In 2018 (the last recorded year in the time series) the total EU GHG food system emissions represented 85.86% of the GHG food system emissions in 1990. **Indicator: GHG food system emissions (Source: JRC EDGAR Food).**



Sustainable use of resources

Water: Preserving freshwater, boosting water reuse in agriculture.

Overall, using a 3-year moving average, the EU has seen a 14% improvement in the Water Exploitation Index (WEI+) compared to 2011. This improvement was observed in 14 Member States. However, further improvements are necessary.

Efforts are needed to reduce the inequality in total water use as a percentage of the renewable freshwater resources between Member States, especially in the Mediterranean area. (Renewable freshwater resources in the WEI+ index are computed considering mainly a change in the water storage capacity (groundwater and surface water) of a given territory. For example, Cyprus had a WEI+ of 113% in 2019, in contrast to France's 2.8%. Seven Member States recorded a WEI+ score of less than 1, indicating that their water storage capacity exceeded their consumption. **Indicator: Water use in agriculture (Water exploitation index, plus - WEI+) (Source: EEA).**

Aquatic living resources: Increase sustainable fishing and aquaculture. Bring fish stocks to sustainable levels. Significant increase in organic aquaculture. This is the objective of the CFP to ensure that fishing and aquaculture are environmentally sustainable and managed in a manner consistent with the objectives of achieving economic, social and employment benefits. This indicator shows the modelled average ratio of fishing mortality to its associated reference point (FMSY or its proxy) over time since 2003. It monitors the trend of F/FMSY at the level of European waters (Northeast Atlantic, Mediterranean and Black Sea). The aim is to have a decreasing trend (as the starting point was 1.56) and to reach the lowest possible level below 1. A downward trend was observed throughout the time series, thus showing an improvement in the sustainable exploitation of fish stocks. Although the indicator in 2021 stands at 0.88, lower values are expected in case of full sustainable exploitation since some stocks are still overfished (F>FMSY). **Indicator: Fishing pressure relative to maximum sustainable yield (trends in F/FMSY) (Source: JRC).**

Energy: Increase renewable energy in the agriculture and food sector. Adopt energy efficiency solutions in the agriculture and food sector, by reducing energy consumption. Overall, there has been an increase in energy consumption for both agriculture and forestry, as well as the overall food industry, by 7.4 % and 13.5% respectively compared to 2011. The annual rate of increase is 0.8% for agriculture and forestry and 1.7% for the food industry. Across Europe, these two sectors have consumed 54.32 million tonnes of oil equivalent, evenly split between them. France and Germany lead in total energy consumption. For the overall food industry, there has been a noticeable decrease of 1% in France, while Germany experienced an increase of 5.8% compared to 2011. In agriculture and forestry, France and the Netherlands lead in energy consumption, with increases of 1.3% and 9.9%, respectively. Consequently, efforts are required to enhance energy efficiency and achieve the objective of reducing energy consumption at the EU level.



Indicator: Final energy consumption in agriculture, forestry and food industry (Source: Eurostat).

Biodiversity

Biodiversity conservation and restoration of natural resources: Protect the environment and restore natural resources. Preserve biodiversity and reduce biodiversity loss. The impacts on global species richness due to the supply chain of food products consumed in the EU (produced either in the EU or in other world regions) have increased during the last decade. This results from increasing food consumption, as well as increasing consumption of animal-based products. Main drivers of biodiversity loss are associated to land use and climate change impacts. Observed trends in consumption patterns are not expected to change to an extent to revert this trend by 2030.

Indicator: Consumption Footprint - Food (biodiversity loss) (Source: JRC).

Genetic biodiversity of food production systems: Secure and ensure access to a range of quality seeds for plant varieties in order to adapt to the pressures of climate change. The FAO progress assessment of SDG indicator 2.5.1.a, for the period 1995-2021, observes a global trend of improvement in Europe, with a slowdown in improvement particularly in the last five years. **Indicator:** Number of plant genetic resources for food and agriculture secured in either medium- or long-term conservation facilities (Source: FAO).

Cross-cutting environmental

Circular economy: Scale-up and promote sustainable and socially responsible production methods and circular business models in food processing and retail. No adequate indicator is available at the moment to assess this objective.



Consumption footprint: Reduce the environmental and climate footprint of the EU food system, operating within planetary boundaries. Reduce the EU's contribution to global deforestation and forest degradation. According to JRC study [183], the EU food system is transgressing several planetary boundaries including climate change and those related to novel entities (particulate matter, freshwater ecotoxicity). The Consumption Footprint related to food consumption has shown an increasing trend since 2010, with the consumption of animal-based products dominating the impacts (around 70%). This increasing trend was common for most of the Member States (20 out of 27) [184].

Indicator: Consumption Footprint (Food) (Source: JRC).



Income distribution: Ensure fair income and salaries. Improve income of primary producers to ensure their sustainable livelihood.

This indicator compares agricultural income to average wages in the economy and provides an estimate of the average income opportunities that a person would have outside of agriculture. It has increased from 31% to 52% between 2005 and 2021 at the EU level, reflecting a CAGR of 3% in this time frame. However, there are discrepancies among Member States. While in certain Member States, such as Hungary and France, farmers' income compared to other wages in the economy has grown more than the EU average, in other Member States like Italy and Belgium, have remained below the EU average or have shown a decreasing trend (e.g. Estonia and Austria). In addition, although the average farm income per worker in the EU has steadily increased over the past decade (by 56% from 2013 to 2021), income levels do not only vary significantly across EU countries, but also across the farming sector and farm size. In particular, farm economic size significantly influences income as higher costs per hectare associated with larger farms are compensated by higher production, leading to greater overall profitability. **Indicator: Farmers income compared to wages in the rest of the economy (Source: DG AGRI).**

Sectorial growth: Help farmers and fishers to strengthen their position in the supply chain and to capture a fair share of the added value of sustainable production. This indicator measures the economic contribution in the agriculture, fishing and aquaculture, as well as the food, beverage, and tobacco sectors. The food, beverage, and tobacco sectors constitute the largest portion of the overall agri-food value chain (over 50%), followed by the agriculture sector. The total value added in the food and agriculture sectors has increased from 340K in 2008 to 433.5K in 2020 in the EU, with a CAGR of 2%. The compound growth in the manufactured food sector has been higher (2.5%) than the growth in the agriculture sector (1.5%). **Indicator: Value added along the food chain (Source: JRC).**

Market power and business structure: Improve agricultural rules that strengthen the position of farmers (e.g. producers of products with geographical indications), their cooperatives and producer organisations in the food supply chain. This indicator is important to assess the level of investment and development in the agricultural sector. Among Member States, the level of gross fixed capital formation varies. Most Member States surpass the EU average. While countries such as France and Germany have the highest capital formation in agriculture, some Member States lag behind e.g. Czechia, Bulgaria and Estonia. In the EU, gross fixed capital formation in agriculture has increased from EUR 44 Billion in 2005 to EUR 68 Billion in 2022, corresponding to a CAGR of 2.8% and a 55% percentage increase. The growth rates also vary across Member States. As expected, the countries with highest capital formation show limited growth trend e.g. Germany, while the highest growth rates are observed in countries that had lower starting values e.g. Romania, Bulgaria. **Indicator: Gross fixed capital formation in agriculture (Source: DG AGRI).**

Price: Preserve the price affordability of food. The annual average of food prices, indexed to 2015, has increased from 80% (2005) to 125% (2022), an average yearly inflation of almost 2.5%. Since 2015, food prices have risen by 25%, and the biggest increase has taken place in 2022. **Indicator: Consumer food inflation (Source: Eurostat).**

Trade: Foster the competitiveness of the EU supply sector. The EU agri-food trade balance has shown stable growth over the last twenty years, despite a marginal decrease in 2022. It has reached a record level in 2023, with a total surplus of EUR 70.1 billion. While the overall agri-food trade balance shows a surplus, there are variations at the category level. The EU has a trade deficit in several product categories, with the most significant deficits observed in oilseeds and protein crops, and some fruits and nuts. The surplus is spread across product categories, driven mainly by cereal preparations, dairy products, and wine.

Indicator: Agricultural and food products trade balance (Source: Eurostat).

Transport & Infrastructure

Transport, accessibility and infrastructure: Create shorter supply chains will support reducing dependence on long-haul transportation. There have been almost no changes in the number of tonnes transported across difference distance categories. Since 2013, approximately 30% of the freight of food products, beverages and tobacco has been transported less than 50 km, and another 30% has been transported between 50 and 150 km. Between 2013 and 2021, the tonnes per kilometre transported for all activities related to the food system (agriculture, fisheries, food manufacturing, trade and services) have increased by 9%, although the tonnes per kilometre transported in the food and beverages manufacturing sector decreased by 5%. [Indicator: Annual road freight transport by distance class. \(Source: Eurostat\)](#).

Fair, inclusive and ethical food system

Employment and working conditions: Create new job opportunities. Improve working conditions, ensure occupation health and safety. This indicator gives total employment in agriculture, the food industry and food services in absolute terms and also as a share of total employment. The employment in the food sector by economic activity has decreased over the last decade, from 8,474 (in 2013) to 6,326 (in 2022) million persons. During this period the mean annual decrease was 2.88% based on CAGR calculation, therefore around 25% of the employment moved out from the food sector in almost a decade. The share of total employment has also decreased, from 5% (in 2013) to 3% (in 2022). This negative trend indicates a move away from the objective, which aims at creating new job opportunities in the food sector. [Indicator: Employment by economic activity \(Source: Eurostat\)](#).

Social protection and poverty: Ensure fair, inclusive and ethical value chains. Ensure workers' social protection and housing conditions; promote socially responsible production methods; Mitigate the socio-economic consequences impacting the food chain and ensure that the key principles enshrined in the European Pillar of Social Rights are respected, especially when it comes to precarious, seasonal and undeclared workers. No adequate indicator is available at the moment to assess this objective.

Animal welfare: Promote better animal welfare to improve animal health and food quality. No adequate indicator is available at the moment to assess this objective.

Food environment

Food messaging: Provide food information and labelling to empower consumers to make informed, healthy and sustainable food choices. Strengthen educational messages on the importance of healthy nutrition, sustainable food production and consumption, and reducing food waste. No adequate indicator is available at the moment to assess this objective.

Food availability: Improve availability of sustainable food. Ensure that the healthy option is always the easiest one. Ensure food supply. The ratio plant to total protein supply indicator is derived from FAO supply data. The closer the value is to 1, the higher the contribution of plant-based sources to protein supply; the average of the previous three years is taken to reduce error variation. This indicator examines the contribution of plant food sources to total protein (animal and plant) supply and can inform on the transition towards more plant-based food diets based on food supply data. Since 2012, a slight decrease has been observed across most EU countries (between 1 and 5%). The average ratio for the EU region has slightly decreased from 0.42 to 0.40 between 2012 and 2020. This change indicates that a transition towards increased supply of plant-based foods in the EU remains a challenge, possibly linked to a slow progress in the transition towards more plant-based diets in the region. [Indicator: Ratio plant to total protein supply \(Source: FAO\)](#).

Food affordability: Ensure affordability to sufficient, nutritious and sustainable food. The percentage of population who cannot afford a healthy diet is reported by FAO and the World Bank for global monitoring. A healthy diet is considered unaffordable when its cost exceeds 52% of income per capita per day. This percentage accounts for a portion of income that can be credibly reserved for food, based on observations that the population in low-income countries spend, on average, 52% of their income on food. The estimated proportion of the population who cannot afford a healthy diet in Europe has dropped 40% from 2.5% in 2017 to 1.5% in 2021. Across EU countries, values ranged between <1% for several countries and 7% in Romania in 2021. The indicator does not account for non-food spending and likely underestimates food affordability issues in the context of the EU region. **Indicator: Percent of the population who cannot afford a healthy diet in the EU (Source: FAO).**

Properties of food: Increase reformulation of food products in line with guidelines for healthy and sustainable diets. No adequate indicator is available at the moment to assess this objective.

Nutrition and health

Nutrition and healthy, sustainable diets: Move to healthier and more sustainable diets. EU diets are poorly aligned with dietary recommendations, as none of the EU Member States is on track to meet the dietary-related guidelines. In the EU, no country fulfils simultaneously the recommendations for healthy food consumption [185]: the consumption of fruit, vegetables, legumes, whole grains nuts and seeds as well as milk and fish is lower than the recommended intake levels (when compared to either national food based dietary guidelines [186] or World Health Organization (WHO) and EAT-Lancet recommendations [187], [188]), while the consumption of red meat is above.

However, at the moment there is no adequate indicator available to assess the progress on this objective. The lack of regular, consistent and methodologically harmonised surveys across the EU Member States challenges the coverage and the comparability of such data, being an important gap for the use of these indicators. To overcome the lack of regularity and timeliness of the data, the development of food consumption indicators using data from national dietary surveys to monitor dietary components of healthy diets is being explored.

Health impact of diets: Reversing of the rise in overweight and obesity rates across the EU by 2030. The indicator as reported in Eurostat indicates that the proportion of overweight adults in the EU has slightly increased from 51% in 2014 to 53% in 2019. Reversing the prevalence of overweight in the EU remains a public health challenge considering the negative trends observed.

Indicator: Obesity rate by body mass index (Source: Eurostat).

Food security: Ensuring food security and access to quality, safe, sustainable, nutritious food for all. In 2022, the FAO estimated that 7.8% of the population in Europe experienced moderate or severe food insecurity. Among EU countries, values for 2022 ranged between 2% in Italy and 19% in Romania. Analysis of the trends indicate prevalence of food insecurity has slightly improved until 2019 but reversed in the last years.

Indicator: Prevalence of moderate or severe food insecurity in the EU population (Source: FAO).

Resilience



Preparedness, shock resilience, adaptation and transformation: Strengthen the resilience of the EU food system. Build up resilience to climate change, possible future diseases and pandemics. Increasing the sustainability of food producers will ultimately increase their resilience. In the absence of agreed categories and calculation methodology, currently, the resilience of food system cannot be described with a single indicator.

Key messages

- The EU food system provides food to over more than 450 million people in the EU and many more around the world, contributing to the EU's economic development and employment.
- While it is a competitive and diversified sector, the EU food system faces challenges regarding the environment, health, society and economy. A system approach is needed to tackle these challenges, encompassing all sustainability dimensions and involved actors.
- To achieve the overall 55% net GHG reduction target in the EU by 2030, further efforts are also needed in the food system. Progress is ongoing but is hindered by data gaps and the unpredictability of certain components of the GHG food system emissions indicator.
- Meeting reduction targets for more hazardous pesticides and nutrient losses remains challenging and requires acceleration.
- Available data indicate that further efforts are necessary in particular to expand the area of organic farming, reduce fishing pressure, and address issues related to food waste reduction.
- While overall productivity in the agrifood sector has grown, also energy consumption in agriculture, forestry, and the food industry has increased, necessitating improved energy efficiency.
- The consumption footprint of food showed an increasing trend, primarily driven by animal-based products (despite recent decreasing trends of pro-capita consumption for bovine and pig meat). The EU food system contributed to the transgression of some planetary boundaries.
- The agrifood sector, mainly primary production, shows a structural reduction in employment, indicating that there is still work to be done in creating new job opportunities and reducing socio-economic disparities. Next Generation Access broadband availability in rural areas has significantly improved; however, acceleration is needed to achieve the objective of 100% coverage by 2025.
- The EU faces public health challenges from unhealthy diets, including high rates of overweight, obesity, and non-communicable diseases, which pose significant health and economic burdens. Addressing these issues alongside the transition to more sustainable diets requires creating food environments that offer more affordable healthy and sustainable food choices, particularly for low-income groups, to improve health and ensure food security.
- The CAP Strategic Plans are designed to implement the CAP objectives while contributing to the EU's climate ambitions and the Farm to Fork and Biodiversity goals. Achieving these goals will require addressing socio-economic disparities, ensuring wider technological innovation uptake and full consistency with quantitative EU GHG reduction targets, fostering climate resilience, and behavioural change. A concerted effort is needed to enable low-emissions agriculture, combining policy ambition, community engagement, and support for vulnerable actors.

A honeybee sips nectar from a lavender flower
Photo by David Clode on Unsplash

06

Preserving and protecting
biodiversity

Assessment of progress towards the targets

This section provides an overview of the assessment for the 33 targets identified as relevant for this thematic area. They are extracted from the 'Nature Restoration Law' regulation as well as from communications. Where available, historical trends, data sources and future projections are reported in Annex 6.

Note 1. Many targets from the Nature Restoration Law appear to lack the indicators or data necessary to quantify the state of progress towards the target. The NRL allows, in principle, Member States to use data sets alternative to the EU-level ones. These data sets will have to be scrutinised in the National Restoration Plans drafting process, and if deemed appropriate, Member States will be allowed to use them. Currently, such information is not available.

Note 2. Considering that specific Biodiversity Strategy targets have been turned into binding targets by the Nature Restoration Law, they have been merged and reported in the related table to avoid double counting.

Note 3. The numbering of the Biodiversity Strategy targets make reference to the [EU Biodiversity Strategy Dashboard](#).

BINDING TARGETS

Targets	Assessment
<p><u>Terrestrial ecosystems</u>. Member States shall put in place [...] measures [...] to jointly cover, as a Union target, throughout the areas and ecosystems [...] defined in Art. 2, by 2030, at least 20% of land areas in need of restoration and, by 2050, all ecosystems in need of restoration.</p> <p>'Nature Restoration Law'</p>	<p>Data on restoration has not been systematically collected at the EU level yet.</p> <p></p>
<p><u>Marine ecosystems</u>. Member States shall put in place [...] measures [...] to jointly cover, as a Union target, throughout the areas and ecosystems [...] defined in Art. 2, by 2030, at least 20% of sea areas in need of restoration and, by 2050, all ecosystems in need of restoration.</p> <p>'Nature Restoration Law'</p>	<p>Data on restoration has not been systematically collected at the EU level yet. The EU has reached 12% of Marine Protected Areas (MPA), with less than 1% being strictly protected. The target could be partially achieved if the NRL is immediately implemented (including a clear financial system), along with the targets of the Biodiversity Strategy (i.e. 30% MPA and 10% strictly protected areas), and if Member States react in a timely manner. The complete achievement of the target also depends on the restoration methods used and the specific marine ecosystems to be restored. The recovery period length varies with the marine habitats targeted for restoration. In addition, Member States face several other challenges in implementing these strategies [205]. The actual implementation of the Biodiversity Strategy target on effective marine protected areas (30% overall and 10% strictly protected by 2030), through passive restoration methods, as well as the other directives such as the Water Framework Directive and the Marine Strategy Framework Directive, and the 2023 Marine Action Plan would contribute to achieving this target.</p> <p></p>
<p><u>Terrestrial, coastal and freshwater ecosystems</u>. Member States shall put in place the restoration measures [...] to improve to good condition areas of habitat types listed in Annex I which are not in good condition. Such measures shall be in place: (a) on at least 30% by 2030 of the total area of all habitat types listed in Annex I that is not in good condition [...], and (b) on at least 60 % by 2040 and on at least 90% by 2050.</p> <p>'Nature Restoration Law'</p>	<p>Protected areas do not necessarily mean that they have a restoration programme. Currently, data on the extension of areas under restoration is not available at the EU level.</p> <p></p>
<p><u>Terrestrial, coastal and freshwater ecosystems</u>. Member States shall put in place the restoration measures [...] to re-establish the habitat types listed in Annex I in areas not covered by those habitat types with the aim to reach their favourable reference area. Such measures shall be in place on areas representing at least 30% of the additional overall surface needed to reach the total favourable reference area of each group of habitat types listed in Annex I [...] by 2030, at least 60% by 2040, and 100 % by 2050.</p> <p>'Nature Restoration Law'</p>	<p>Data on the extension of areas under restoration measures are not yet available at the EU level.</p> <p></p>

Habitats Restoration

Terrestrial, coastal and freshwater ecosystems.

Member States shall put in place the restoration measures for the terrestrial, coastal and freshwater habitats of the species listed in Annexes II, IV and V to Directive 92/43/EEC and of the terrestrial, coastal and freshwater habitats of wild birds covered by Directive 2009/147/EC [...] to improve the quality and quantity of those habitats, including by re-establishing them, and to enhance connectivity, until sufficient quality and quantity of those habitats is achieved.

'Nature Restoration Law'



Terrestrial, coastal and freshwater ecosystems.

Member States shall ensure that condition is known for at least 90% of the area distributed overall habitat types listed in Annex I by 2030 and 100% by 2040.

'Nature Restoration Law'



Terrestrial, coastal and freshwater ecosystems.

Member States shall ensure that there is: (a) an increase of habitat area in good condition for habitat types listed in Annex I until at least 90% is in good condition and until the favourable reference area for each habitat type in each biogeographic region of the Member State concerned is reached; (b) an increasing trend towards the sufficient quality and quantity of the terrestrial, coastal and freshwater habitats of the species referred to in Annexes II, IV and V to Directive 92/43/EEC and of the species covered by Directive 2009/147/EC.

'Nature Restoration Law'



Natural connectivity of rivers and natural functions of the related floodplains.

Member States shall make an inventory of artificial barriers and remove them to connectivity of surface waters and, taking into account their socio-economic functions, identify the barriers that need to be removed to contribute to the achievement of the restoration targets set out in Article 4 of this Regulation and of the objective of restoring at least 25.000 km of rivers into free-flowing rivers in the Union.

'Nature Restoration Law'

(Parallel target of the Biodiversity Strategy: "11. At least 25.000 km of free-flowing rivers are restored")



Marine ecosystems. Member States shall put in place the restoration measures [...] to improve [...] areas of habitat types listed in Annex II which are not in good condition. Such measures shall be in place: (a) on at least 30% by 2030 of the total area of groups 1–6 of habitat types listed in Annex II [...]; (b) on at least 60% by 2040 and on at least 90% by 2050 of the area of each of the groups 1–6 of habitat types listed in Annex II [...]; (c) on at least two thirds of the percentage, referred to in point (d), by 2040 of the area of group 7 of habitat types listed in Annex II [...]

'Nature Restoration Law'



The EU has reached only 12% of MPA, with less than 1% being strictly protected. In addition, for sea bird species connectivity, it is important to align the BDS and the REPowerEU targets. For habitat connectivity, it is crucial to develop a useful indicator in time for Member States' reporting. Because of the recent approval of the Nature Restoration Law, not enough data is available yet.

Considering the last report on the conservation status and trends in conservation status of marina habitats, a significant percentage of their status remains unknown [206]. Member States should implement more effective monitoring program to assess the status of marine habitats to achieve this target.

The EU has reached so far 26% terrestrial protected area and 12% of MPA.

The JRC and the EEA are developing an indicator to characterise the number of free-flowing rivers, no data is available yet.

The EU has reached only 12% of MPA, with less than 1% being strictly protected. The target could be partially achieved if the NRL is immediately implemented (including a clear financial system), along with the targets of the Biodiversity Strategy (i.e. 30% MPA and 10% strictly protected areas), and if Member States react in a timely manner.

The complete achievement of the target is strictly dependent on the restoration methods and selected marine ecosystems to be restored. The timescale of the recovery period varies as diverse are the marine habitats to restore. Beyond this there are other challenges that Member States have to face [205].

The actual implementation of the BDS target on effective marine protected areas (30% overall and 10% strictly protected by 2030), through passive restoration method, as well as the other directives (e.g. WFD and MSFD), and the 2023 Marine Action Plan would contribute to achieve this target.

Regarding the condition and restoration, there are only two ways to judge this: (a) comparison with old large fully protected MPA, and (b) the use of indicators, some of which still need to be developed. There is no data on how impacted most areas are, but indicators such as present fishing activities altering food webs, or bottom trawling and dredging destroying benthic habitats, would contribute to the final assessment. However, the precautionary principle should be applied, assuming marine ecosystems everywhere are impacted unless evidence suggests otherwise.

Habitats Restoration

Marine ecosystems. Member States shall put in place the restoration measures that are necessary to re-establish the habitat types of groups 1–6 listed in Annex II in areas not covered by those habitat types with the aim to reach their favourable reference area. Such measures shall be in place on areas representing at least 30% of the additional overall surface needed to reach the total favourable reference area of each group of habitat types, as quantified in the national restoration plan referred to in Article 12, by 2030, at least 60% of that surface by 2040, and 100% of that surface by 2050.

['Nature Restoration Law'](#)

Considering the last report on the conservation status and trend in conservation status of marine habitats, most of the marine areas are between categories UNFAVOURABLE (U1/U2) and UNKNOWN (XX) status.

There are some examples of restoration measures already put in place across European Sea, but without an immediate implementation of NRL, as well as other directives (e.g. BDBS, WFD, MSFD), the EGD target would not be achieved

Additional observation: As mentioned before, marine restoration can be achieved passively by no take MPA. Therefore, the increase in area that is fully protected would be a reasonable indicator of restoration. To the best of available knowledge, there is no evidence that part-protection works. Evidence of recovered species usually appear within five years but full recovery e.g. of urchin-kelp trophic cascades, may take 20 years. Since restoration is by definition a return to fully natural conditions, partly protected areas do not qualify as restoration.



Regarding the condition and restoration of marine areas, there are only two ways to judge this: (a) comparison with old, large fully protected MPA, and (b) the use of indicators, some of which still need to be developed. There is no data on how impacted most areas are, but indicators such as current fishing activities altering food webs, or bottom trawling and dredging destroying benthic habitats, would contribute to the final assessment. However, the precautionary principle should be applied, assuming marine ecosystems everywhere are impacted unless evidence suggests otherwise.

Marine ecosystems. Member States shall ensure, by 2030 at the latest, that the condition is known for at least 50% of the area distributed over all habitat types listed in groups 1–6 of Annex II. The condition of all areas of groups 1–6 of habitat types listed in Annex II shall be known by 2040. Member States shall also ensure, by 2040 at the latest, that the condition is known for at least 50% of the area distributed over all habitat types listed in group 7 of Annex II. The condition of all areas of group 7 of habitat types listed in Annex II shall be known by 2050.

['Nature Restoration Law'](#)

In the last report on the conservation status and trend in conservation status of marine habitats, there is still a quite important percentage of marine environments with UNKNOWN status (either XX or U1/U2) [206]. Member States should implement more effective monitoring programmes to assess the status of marine habitats in order to achieve the EGD target.



Habitats Restoration

By 2030, Member States shall ensure that there is no net loss in the total national area of urban green space, and of urban tree canopy cover in urban ecosystem areas. Member States may exclude from that total national area the urban ecosystem areas in which the share of urban green space in the urban centres and urban clusters exceeds 45% and the share of urban tree canopy cover therein exceeds 10%.

['Nature Restoration Law'](#)

Recent EU-wide data to measure this target according to the reference year of the regulation is not available yet. However, national data from Member States might be available



Member States shall achieve thereafter an increasing trend in the total national area of urban green space, including through the integration of urban green space into buildings and infrastructure, in urban ecosystem areas, determined in accordance with Article 14(4), measured every six years after 31 December 2030, until a satisfactory level identified in accordance with Article 14(5) is reached.

['Nature Restoration Law'](#)

Data on urban green space is not yet available, nor is the implementing act that provides a methodology to identify satisfactory levels.



Member States shall achieve, in each urban ecosystem area, determined in accordance with Article 14(4), an increasing trend of urban tree canopy cover, measured every six years after 31 December 2030, until the satisfactory level identified in accordance with Article 14(5) is reached.

['Nature Restoration Law'](#)

Data on tree canopy cover is not yet available, nor is the implementing act that provides a methodology to identify satisfactory levels.



Member States shall, by putting in place in a timely manner appropriate and effective measures, improve pollinator diversity and reverse the decline of pollinator populations at the latest by 2030 and thereafter achieve an increasing trend of pollinator populations, measured at least every six years from 2030, until satisfactory levels are achieved, as set in accordance with Article 14(5).

['Nature Restoration Law'](#)

Parallel target of the Biodiversity Strategy: "5. The decline of pollinators is reversed"

Urban Ecosystems

Based on trends in the grassland butterfly index, pollinators are still declining. Another indicator that would include more pollinators is under development to better characterise the decline of pollinators.



Pollinators

Member States shall achieve an increasing trend at national level of at least six out of seven of the following indicators in forest ecosystems, as further set out in Annex VI, chosen on the basis of their ability to demonstrate the enhancement of biodiversity of forest ecosystems within the Member States concerned: (a) standing deadwood (b) lying deadwood (c) share of forests with uneven-aged structure (d) forest connectivity (e) stock of organic carbon (f) share of forests dominated by native tree species (g) tree species diversity.

'Nature Restoration Law'

Member States shall achieve an increasing trend at national level of the common forest bird index, as further set out in Annex VI, measured in the period from the date of entry into force of this Regulation until 31 December 2030, and every six years thereafter, until the satisfactory levels identified in accordance with Article 11(3) are reached

'Nature Restoration Law'

Parallel target of the Biodiversity Strategy: "4. By 2030, significant areas of degraded and carbon-rich ecosystems are restored. Habitats and species show no deterioration in conservation trends and status; and at least 30% reach favourable conservation status or at least show a positive trend"

When identifying and implementing the restoration measures to meet the objectives and obligations set out in Articles 4, 6, 7, 8, 9 and 10, Member States shall aim to contribute to the commitment of planting at least three billion additional trees by 2030 at Union level.

'Nature Restoration Law'

Parallel target of the Biodiversity Strategy: "9. Three billion trees are planted in the EU, in full respect of ecological principles"

New target, data not yet available



After a steady decline over the period 1992-2010, common forest bird populations have stopped deteriorating and started showing some signs of recovery since 2010 [2], [207], [208]. Next data points for the common forest bird index will be crucial to confirm this recent increasing trend.



At the time of writing (mid-2024), over 23.000.000 trees have been planted since 2021 (see the [Live Status Counter for EU dashboard](#)). The pace of new trees planted has to massively speed up to reach the target by 2030.



Forests ecosystems

Member States shall put in place measures which shall aim to achieve an increasing trend at national level of at least two out of the three following indicators in agricultural ecosystems, as further specified in Annex IV, measured in the period from the date of entry into force of this Regulation until 31 December 2030, and every six years thereafter, until the satisfactory levels, identified in accordance with Article 14(5), are reached: (a) grassland butterfly index; (b) stock of organic carbon in cropland mineral soils; (c) share of agricultural land with high-diversity landscape features.

'Nature Restoration Law'

Member States shall put in place restoration measures which shall aim to ensure that the common farmland bird index at national level based on the species specified in Annex V reaches the following levels: (a) 110 by 2030, 120 by 2040 and 130 by 2050, for Member States listed in Annex V with historically more depleted populations of farmland birds; (b) 105 by 2030, 110 by 2040 and 115 by 2050, for Member States listed in Annex V with historically less depleted populations of farmland birds.

'Nature Restoration Law'

Member States shall put in place measures which shall aim to restore organic soils in agricultural use constituting drained peatlands. Those measures shall be in place on at least: (a) 30% of such areas by 2030, of which at least a quarter shall be rewetted; (b) 40% of such areas by 2040, of which at least a third shall be rewetted; (c) 50% of such areas by 2050, of which at least a third shall be rewetted.

'Nature Restoration Law'

At the moment the trend in the grassland butterfly index is still declining. The carbon stocks in EU agricultural soils have declined by 0.75% in the period 2009-2018 based on measured LUCAS data. So at the moment at least 2 out of three indicators are moving against the desired direction [199].



The common farmland bird index is steadily decreasing [207], [208].



The EU Soil Observatory (EUSO) established [196], [197] that over 60% of the EU land is affected by soil degradation. This is considered an underestimation due to the lack of data currently available.



Agricultural ecosystems

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets	Assessment	
<p><i>1. Legally protect a minimum of 30% of the EU's land area and of 30% of the EU's sea area</i></p> <p>Biodiversity Strategy</p>	<p>The 26% of EU's land area is covered by protected areas, including 18.6% by Natura 2000 designated protected areas and 17.3% by nationally designated protected areas. If the designation of protected areas continues at the rate seen in the past decade (1.7 percentage points increase since 2011), the target will not be met [209].</p>	
<p><i>2.a Strictly protect at least a third of the EU's protected areas</i></p> <p>Biodiversity Strategy</p>	<p>12% of EU's sea area is currently covered by protected areas, including 9% by Natura 2000 designated protected areas and 4.5% by nationally designated protected areas.</p>	
<p><i>2.b Strictly protect all remaining EU primary and old-growth forests</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the New EU Forest Strategy</p>	<p>Indicators are missing to check whether the EU is on track or not. Seven out of the nine actions set in the EU BDS to foster biodiversity protection in the EU still need to be implemented by 2030, but they all appear on track so far. Member States did not report official information reported to EEA. An independent scientific assessment [210] shows that currently only 3.5 % of protected areas are strictly protected.</p>	
	Habitats protection	
<p><i>9. Three billion trees are planted in the EU, in full respect of ecological principles</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the 'Nature Restoration Law'</p>	<p>The target has been welcomed and endorsed by the European Council, which is key for this target. The Commission issued Guidelines [211] for defining, mapping, monitoring and strictly protecting EU Primary and Old-Growth Forests in 2023. However, there is still a lack of a clear, uniform definition of what constitutes primary and old-growth forests. As a result, while it is likely that the target will be met, it remains unclear whether all forests that should be protected will actually receive protection.</p>	
	Forests ecosystems	
<p><i>4. By 2030, significant areas of degraded and carbon-rich ecosystems are restored. Habitats and species show no deterioration in conservation trends and status; and at least 30% reach favourable conservation status or at least show a positive trend.</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the 'Nature Restoration Law'</p>	<p>See table above.</p>	
<p><i>11. At least 25.000 km of free-flowing rivers are restored</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the 'Nature Restoration Law'</p>	<p>See table above.</p>	
	Habitats restoration	
<p><i>5. The decline of pollinators is reversed</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the 'Nature Restoration Law'</p>	<p>See table above.</p>	
	Pollinators	
<p><i>7. At least 10% of agricultural area is under high-diversity landscape features</i></p> <p>Biodiversity Strategy</p>	<p>The JRC has developed an indicator [212] to monitor progress in the share of agricultural area covered by landscape features, showing that currently, at the EU level, 5.6% of agricultural land is covered by landscape features. However, this indicator does not capture high-diversity landscape features and no temporal trend is available, so at this stage no conclusion can be made regarding the likelihood to reach the target.</p>	
<p><i>8. At least 25% of agricultural land is under organic farming management, and the uptake of agro-ecological practise is significantly increased</i></p> <p>Biodiversity Strategy</p> <p>Target in common with the Farm to Fork Strategy, already assessed in Thematic Area 5.</p>	<p>Indicator: Area under organic farming (% of the total utilised agricultural area) (Source: Eurostat). Moderate progress rate, but not enough to reach the target by 2030. The compound annual growth rate (CAGR) is 6.7% per year observed i.e. an increase from 5.6% to 9.1% (2012-2020), while 9.3% per year would be required to meet the target.</p>	
	Agricultural ecosystems	

6. The risk and use of chemical pesticides is reduced by 50%, and the use of more hazardous pesticides is reduced by 50%

Biodiversity Strategy

Target in common with the Farm to Fork Strategy and already assessed in Thematic Area 5

Indicator: Use and risk of chemical pesticides (Source: DG SANTE).

According to a trend analysis by DG SANTE, the use and risk of chemical pesticides decreased by 14% between the baseline period of 2015–2017 and 2020. The use and risk of chemical pesticides shows a decrease of 6% from 2020, and an overall decrease in the first four years of observation of 33% from the baseline period of 2015–2017. These overall downward trends shows that the first part of the target can be achieved by 2030 [182]. On the other side, according to data published by DG SANTE, the use of more hazardous pesticides fell by 21% between the baseline period of 2015–2017 and 2021. The use of more hazardous pesticides shows an increase of 5% from 2020 to 2021. Achievement of the 50% reduction target by 2030 remains challenging. It should be noted, while this indicator intends to monitor the use of the more hazardous pesticides, it does not take into account the exposure and hence the impact they might have on the environment and human health. In the future, this indicator should be complemented with a risk indicator showing changes in the actual risks.



¹It should be noted that the current EU-wide indicator, which applies risk weightings to four different groups of chemical pesticides and is based on pesticide sales, is not considered scientifically robust by some. This indicator is based on a similar harmonised risk indicator, which, according to the European legislation (Commission Directive (EU) 2019/782), is considered hazard-based. This is due to the absence of statistics on the use of plant protection products needed to develop a risk indicator. The Commission is committed to developing more sophisticated indicators in future, such as improved weightings that take hazard properties into account in a more granular way or by using EU-level data on pesticide usage when it becomes available. An example of such an improvement is the new risk indicator assessing the toxicity of pesticide residues in soil from samples collected under the LUCAS Soil Pesticide survey coordinated by JRC. According to this indicator, in 2018, 14% of sites in the EU were at risk of negative effects on soil organisms due to pesticide residues. The analysis of samples from 2022 is currently ongoing and will shed light on the EU's progress towards pesticide risk reductions. This indicator is relevant to only one compartment (soil) but is just one of many being examined for usefulness and relevance. .



13. The losses of nutrients from fertilisers are reduced by 50%, resulting in the reduction of the use of fertilisers by at least 20%*

Biodiversity Strategy

See also assessment in Thematic Area 7

The average river nitrate concentration in Europe decreased steadily over the period 1992–2009 but has levelled off since then. Agriculture remains the main contributor to nitrogen pollution, but the EU Nitrates Directive and national measures have contributed to lower concentrations. However, the apparent stabilisation in recent years calls for further measures.

Pesticides and fertilisers

12. There is a 50% reduction in the number of Red List species threatened by Invasive Alien Species (IAS)

Biodiversity Strategy

The expected acceleration in the number of alien species introductions and establishment due to global trade (including web trade), travel, and climate change, can lead to increased adverse impacts on biodiversity and ecosystems, human health and the economy. The Regulation (EU) 1143/2014 (IAS Regulation) includes a set of measures to be taken across the EU in relation to IAS, aiming to prevent, minimise and mitigate their adverse impacts. The implementation is underpinned by EASIN (European Alien Species Information Network), which also hosts the European early warning system on IAS of Union concern. The actions fostered by the EU biodiversity Strategy for 2030 aim at stepping up the IAS Regulation and other relevant legislation and international agreements with the objective of managing established IAS, decreasing the number of Red List species they threaten.



Invasive Alien Species

14. Cities with at least 20.000 inhabitants have an ambitious Urban Greening Plan

Biodiversity Strategy

No data is yet available.



Urban Ecosystems

Reach no net land take
[EU Soil Strategy for 2030](#)

Over the 2012–2018 period, the majority (78%) of the net land take happened in commuting zones. The net land take in urban areas during 2012–2018 amounted to 2.696 km², corresponding to 450km² annually. 1 415km² or 47% of all land take took place in arable lands, impacting food security, carbon sequestration and the maintaining of biodiversity. The second largest land take took place in pastures – a loss of 945km² or 36% of all land take. Pastures are among Europe's most important biodiversity hotspots and soil carbon sinks.



Soil

In accordance with the CFP, it is crucial to continue and accelerate the work of rebuilding and keeping fish stocks above MSY levels (Maximum Sustainable Yield)
['Fisheries and Ocean Pact'](#)

In the Northeast Atlantic (both EU and non-EU waters), stock status has significantly improved from 2003 to 2021, but still an important share of stocks is overexploited.



Fisheries and Aquacultures

biodiversity in urban environments is often linked to the implementation of Nature Based Solutions, redesigning public spaces to improve traffic congestion (see thematic trea 4), resilience and adaptability. It involves finding a balance between development programmes, private interests, and allocating areas for improving soil permeability, enhancing green/blue infrastructures and biodiversity while mitigating Urban Heat Islands [213]. However, individual or group interests and priorities might prevail over sustainability criteria, which are also seldom consistently included in the early stages

of design processes [214], [215]. In turn, this might be hampered by pressures from the housing market [216], siloed municipal/regional departments, non-flexible regulatory plans, and urban/regional legislative frameworks (working with mechanisms of “minimum” quantitative standards), difficulties in assessing and communicating economic, social, and environmental values of ecosystem services, a shortage of skills, and insufficient monitoring, report, and verification [35].

Key messages

- The EGD's biodiversity targets aim to protect and restore biodiversity across all EU ecosystems. The implementation of the EU Biodiversity Strategy is driving transformative change and reinforcing the EU's role in global conservation efforts.
- The adopted Nature Restoration Law is a key legal instrument to fulfil the objectives of the EU Biodiversity Strategy, focusing on species and ecosystem restoration. Not only will it make a positive impact on species and ecosystems restoration, but it will also promote data collection for better monitoring and policy implementation.
- Biodiversity targets have a broad scope in the EGD, requiring multiple indicators to assess progress. While some data is available, more is needed for a comprehensive evaluation. Meanwhile, ecosystem restoration and protection remain crucial for progress toward EGD targets.
- The EU Biodiversity and Soil strategies aim to reduce soil contamination, land take and erosion, particularly in agricultural areas. Despite improvements, EU soil data reveals issues, such as expanding contamination and shrinking carbon sinks.
- The EU Forest strategy is expected to accelerate the protection and restoration of EU forests, with the remaining 3% of primary and old-growth forests to be strictly protected by 2029.
- Biodiversity preservation supports human well-being and is strongly connected to food systems and zero-pollution efforts. Protecting biodiversity also helps mitigate risks like new diseases, food shortages, floods, and droughts. Despite progress, biodiversity still continues to decline due to human activities. Funding is insufficient for mitigating the effects, and data gaps persist. EU policy instruments have not been fully adopted by Member States.
- Biodiversity is linked to ecosystem management, especially in the agriculture and forestry sectors. Forest management, which impacts 80% of EU forests, is crucial for forest ecosystem and biodiversity conditions. Agricultural intensification contributes to biodiversity and ecosystem degradation (in particular, the decline of pollinators and soil erosion), while healthy ecosystems are essential for food security. The decline of pollinators can have a huge economic and productivity impact on agriculture.

O/

Towards a zero pollution
for a toxic free environment

Assessment of progress towards the targets

The ZPAP has pushed for a number of new legislative acts or updates to longstanding policies (as in the case of water and air policies). The approach adopted to update the environmental legislation results in very complex and technical new obligations and requirements for Member States and sector operators to comply with data collection and reporting on the updated pollutants list. In order to provide a full picture in line with other chapters but limit the extent of the analysis, the overarching targets have been summed up for policies in one entry for each of them. However,

further details on specific pollutant lists, values and thresholds can be retrieved in specific policy documents. As such, this section provides the assessment for the 14 quantifiable targets identified as relevant for this thematic area. The following overview is divided into (i) legally binding targets from legal acts, and non-legally binding targets from (ii) legislative proposals for directives, and (iii) communications of the Commission. Where available, historical trends, data sources and future projections are reported in Annex 7.

BINDING TARGETS

Targets

Assessment

Member States shall take the measures necessary to ensure that water intended for human consumption is wholesome and clean, by meeting several requirements related to micro-organisms and parasites which constitute a potential danger to human health and quality standards recalled in the Directive.

[Directive 2020/2184 \('Drinking Water Directive'\)](#)

The level of access to clean drinking water in Europe is high according to the [WASH database](#) by the WHO and UNICEF. However, [as reported by the EEA](#), the levels of treatment and accessibility are lower in rural areas than in urban locations. Disparities in access to safe drinking water among ethnic groups in Europe emerged as well. The revised Drinking Water Directive includes additional parameters than the 46 microbiological, chemical and indicator parameters of the first Drinking Water Directive. The new parameters include per- and polyfluorinated compounds and bisphenol A, setting limit values for their presence in drinking water. As of the end of 2022, EU level data on drinking water quality were still limited, with the latest data available dating from 2011 and 2013. The new directive also foresees a watch list mechanism for emerging pollutants.

The Directive's Impact Assessment includes the calculation of the "SAPEA" Population Potentially at Health Risk indicator, estimating the share of the population that could potentially suffer from health problems because of the presence of contaminants in drinking water. According to the indicator, in 2015, 22.7 million people were potentially at health risk due to non-safe drinking water, equivalent to 4 % of the EU population. The revised Directive is expected to positively impact drinking water quality. However, estimated data for 2015 is not sufficient to assess the status of drinking water quality with respect to its evolution over time and new additional parameters by the revised directive, as confirmed by the EEA. Member States have started complying with the reporting requirements in 2023.



The Water Reuse Regulation aim to encourage and facilitate water reuse in the EU by harmonised minimum water quality requirements for the safe reuse of treated urban wastewaters in agricultural irrigation. Further requirements are set for monitoring, risk management, transparency and permits on production and supply of reclaimed water for agricultural irrigation

[Regulation 2020/741 \('Water reuse Regulation'\)](#)

Before the introduction of the Regulation, the EU was not equipped with a legislative framework for water reuse. More than 40,000 million m³ of wastewater is treated in the EU every year but only the 2.4% is further treated to be reused. As of April 2024, water reuse for agricultural irrigation is allowed in most Member States. Some Member States, where freshwater resources are abundant and irrigation demand is low, have planned not to allow water reuse for irrigation in their countries. Some Member States have not yet made a final decision, as resource and infrastructure costs still are being evaluated
(source: [WISE Freshwater website](#)).



Water quality

The Industrial Emissions Directive (IED) aims at preventing or reducing emissions from large industrial installations and intensive farming into the environment. The revised IED includes new provisions related to resource, energy and water efficiency and to the reduction of use and emissions of hazardous substances. The scope has been widened to include metal mining, batteries giga-factories, waste landfills and intensive farming. The revised IED contains also a set of measures to facilitate and accelerate the uptake of innovative techniques by industry.

[Directive 2024/1785 on Industrial Emissions and the landfill of waste](#)

The IED is a key instrument to support the transition of the EU industry towards a climate neutral, clean and circular economy. The revised legislation will lead to a considerable reduction of pollution from industry and level the playing field. For example, it is expected to deliver, latest by 2050, up to 40% additional reduction of key air pollutants.



Industrial Emissions

The Ambient Air Quality Directives set EU air quality standards for 12 air pollutants that Member States must not exceed: sulphur dioxide, nitrogen dioxide, nitrogen oxides, fine particulate matter, ozone, benzene, lead, carbon monoxide, arsenic, cadmium, nickel, and benzo(a)pyrene. With the revised Ambient Air Quality Directive, the annual limit value for the main pollutant – fine particulate matter – will be cut by more than half.

[Directive on ambient air quality and cleaner air for Europe](#)



In the European Union, air pollution is the single largest environmental health risk, causing cardiovascular and respiratory diseases that lead to the loss of healthy years of life and, in the most serious cases, premature deaths (about 240 000 reported in the European Union (EU) for 2021). Although emissions of air pollutants have been reduced over recent decades (primarily as a result of legislation), air quality remains a major concern in many parts of Europe. Air quality limits set by EU legislation for particulate matter, nitrogen dioxide and ozone continue to be exceeded, especially in many urban areas.

Air Quality

The revised Urban Wastewater Treatment Directive (UWWTD) extends the scope of the 1991 UWWTD to improve and maintain access to sanitation for all, in particular for vulnerable and marginalised groups, while aligning with the ZPAP and EGD climate and energy objectives.

This will be ensured by a number of new obligations on secondary treatment, now extended to all agglomerations with at least 1 000 population equivalent , by 2035. Member States will ensure the application of:

- Tertiary treatment, for the removal of nitrogen and phosphorus (by 2039)
- Quaternary treatment, for the removal of a broad spectrum of micropollutants (by 2045)

These apply to larger plants of 150 000 p.e. (and above, with intermediate targets).

[Directive concerning urban wastewater treatment](#)

Access to sanitation. There is a positive trend in the access to basic sanitation and connection to secondary wastewater treatment. Overall, the share of population without a bath, shower, or indoor flushing toilet in their household decreased from 2.2% in 2015 to 1.5% in 2020 [234]. However, in some Member States, there were still high shares of the population without access to basic sanitary facilities in 2020. The share of the EU population connected to secondary wastewater treatment has also increased continuously since 2000, reaching 81.1% in 2020 [234]. The revision of the Urban Wastewater Treatment Directive aims to bring additional improvements not only for water quality, but also for access to sanitation [235].

Secondary treatment. Small agglomerations constitute a significant pressure on 11% of the EU's surface water bodies [236]. Currently, the situation varies across the EU, with some Member States requesting all urban wastewater to be treated and others having set standards for small agglomerations beyond the requirements set in Directive 91/271/EEC [237].



Tertiary treatment. In many cases, nitrogen and phosphorus are well removed from wastewater, but there are still regions where additional removal could bring a significant benefit to the environment. In many cases, the costs of additional removal are well below the benefits that could be achieved, and some wastewater treatment plants operate already beyond the requirements of Directive 91/271/EEC. The revision of the Directive aims to push nutrient removal further by imposing stricter standards. This would also contribute indirectly to the reduction of GHG emissions.

Quaternary treatment. While secondary and tertiary wastewater treatment is being implemented compliant with Directive 91/271/EEC, several chemical micropollutants escape treatment plants and contribute to pollution of the receiving waters (e.g. pharmaceuticals and ingredients in personal care products). The revision of the Directive aims to require quaternary treatment for all larger plants, also based on an extended producer responsibility scheme that would help finance the corresponding treatment costs.

Water Quality

NON-BINDING TARGETS (FROM PROPOSALS)

Targets

By means of an updated and harmonised list of pollutants affecting surface and groundwater, updated existing quality standards, new monitoring requirements, improved and more accessible data, and a more flexible framework for addressing pollutants of emerging concerns, the proposal aims at setting new high standards for a series of chemical substances of concern to address chemical pollution in water.

[Proposal for a Directive amending the Water Framework Directive, the Groundwater Directive, and the Environmental Quality Standards Directive](#)

Assessment

Micro-pollutants pose a significant challenge. The necessity of removing them at wastewater treatment facilities increases treatment costs, and complete removal is not always feasible. The proposal encourages more proactive measures upstream by reducing emissions at their source. By avoiding water pollution, the proposal will also benefit the potential for water reuse. The enhanced watch list mechanism requiring Member States to monitor new substances, will enable the Commission, with the support of the European Chemicals Agency and the Member States, to determine the need for additional or stricter quality standards. More frequent reporting of actual monitoring data, and its analysis by the EEA, will provide the EU Institutions, Member States, and the general public with a more precise and current understanding of the status of surface and groundwater bodies in the EU. The analysis of more regular monitoring and status data will effectively feed into the broader Zero Pollution Monitoring and Outlook framework.



Water Quality

NON-BINDING TARGETS (FROM COMMUNICATIONS)

Targets

Assessment

Improve air quality to reduce the number of premature deaths caused by air pollution by 55% by 2030 (2030 target contributing to the 2050 ambition of a toxic-free environment)

[Towards Zero Pollution for Air, Water and Soil](#)

Improve water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%), by 2030

(2030 target contributing to the 2050 ambition of a toxic-free environment)

[Towards Zero Pollution for Air, Water and Soil](#)

Reduce by 25% the EU ecosystems where air pollution threatens biodiversity, by 2030 (compared to 2005) (2030 target contributing to the 2050 ambition of a toxic-free environment)

[Towards Zero Pollution for Air, Water and Soil](#)

Reduce the share of people chronically disturbed by transport noise by 30%, by 2030 (compared to 2017) (2030 target contributing to the 2050 ambition of a toxic-free environment)

[Towards Zero Pollution for Air, Water and Soil](#)

As a result of the revision to the new Ambient Air Quality Directive, it is likely that reductions by over 70%, compared to 2005 levels, can be achieved by 2030. Source: Zero Pollution Outlook [218].



Concentration of plastic litter at sea: 14% reduction of plastic litter (in 8% of the basin surface of the Mediterranean Sea and 44% of all beaches) with a total ban on single-use-plastic items. Source: Zero Pollution Outlook [218].



Microplastics concentration in soils is expected to increase, mainly due to the incorporation through the disposal of the sewage sludge and other agricultural practices such as plastics greenhouse, mulching films, drip irrigation, polymer-controlled release fertilisers and silage films. However, there is no harmonised methodology for their identification and quantification, and one should still be developed. The current database on soil pollution with plastics is still poor and no good prediction could be done. The EU has taken measures to combat microplastic pollution on all fronts (e.g. ban of certain single-use plastic products, restriction of intentionally produced microplastics and reduction of plastic pellet loss), aiming at reducing microplastic releases to the environment by 30% by 2030.



Current and proposed EU policies do not appear sufficient to enable the EU to reduce the area of EU ecosystems under threat from air pollution by 25% in 2030 compared to 2005. Nonetheless, with the implementation of the recently revised of the Ambient Air Quality Directives, this target could be achieved. Source: Zero Pollution Outlook [218].



Current estimates show that the number will not decline by more than 19% by 2030. Source: Zero Pollution Outlook [218].



Environmental Pollution

Note: Additional targets from the Soil Strategy are in TA6 or in Annex (non-quantifiable targets)

Improve soil quality by reducing nutrient losses and chemical pesticides' use by 50%, by 2030

[EU Soil Strategy for 2030](#)

Considering soil quality and pesticides, reduction of (more hazardous) pesticide concentration in soil due to increased organic farming (as well as other agricultural practices) and other farm-to-fork objectives. Under current legal limitations (28 kg of copper per hectare over 7 years), a potential risk of increased organic farming could be an accumulation of copper in soil.



Considering water quality and nutrient losses, there is a possible reduction of nutrient inputs into marine ecosystems: nitrogen 32%, phosphorous 17%. 50% reduction of nutrient input could be achieved in four out of ten examined regions for nitrogen and in two out of ten for phosphorous. Source: Zero Pollution Outlook [218].



Considering water quality and chemical pesticides, and in particular chemicals load (diuron and terbutylazine, as examples of low- and high-persistence chemicals, respectively) in water: 56% reduction in pesticides concentration can be achieved in shelf seas, 12% in open seas, depending on the persistence of the pesticide. Source: Zero Pollution Outlook [218].

Having all soils in healthy condition by 2050

[EU Soil Strategy for 2030](#)

The EU Soil Health Assessment (see [EUSO Dashboard](#)) estimated that 60-70% of EU soils are not in healthy condition, in accordance also with other reports [196], [238]. 25% of the EU soils and 33% of EU Agricultural soils have soil erosion rates higher than sustainability ones. Soil erosion has decreased by around 10% in the period 2000-2016, but future trends are alarming due to climate change. Soil loss by water erosion is projected to increase by 13-22.5 % in EU and UK by 2050.



Key messages

This thematic area focuses on environmental objectives related to pollution and its effects on human health and ecosystems quality, including air pollution, transport noise, nutrient loss, antimicrobials, waste generation, plastic litter, and microplastic generation.

Progress has been achieved in reducing air pollution, leading to a significant decrease in air pollution-related deaths. Moreover, the EU is on track to cut the use and risk of chemical pesticides by 50%, as well as a reduction in antimicrobial sales for farmed animals and aquaculture by 2021.

The implementation of the recently agreed Ambient Air Quality Directives is expected to reduce the area of EU ecosystems under threat from air pollution by 25% in 2030 compared to 2005.

Progress is slower in other areas, such as noise, which is not expected to decline by more than 19% by 2030.

Similarly, concerning water quality, the input of nutrients into water, the chemical load and the concentration of plastic litter at sea are reducing at a low pace and acceleration is needed in order to reach the target of a 50% reduction by 2030.

Aligning longstanding water policies with the Zero Pollution and EGD ambitions required a number of updates to legislative frameworks. These updates will result in revised lists of pollutants that Member States will be required to monitor and report on in coming years. They are also expected to enhance data quality, thereby facilitating the monitoring of the Zero Pollution Action Plan.

Additional efforts will be needed to reach the EU's ambitions of significantly reducing waste generation and ensuring that all soils are in a healthy condition. Waste generation experienced a reduction as a result of the pandemic-related economic slowdown. The future trends for soils are alarming, with climate change exacerbating erosion.

Emerging pollution concerns, such as microplastics in the environment, still lack data for a thorough assessment of expected progress by 2030.



Photo by Ivan Bandura on Unsplash

List of abbreviations and definitions

ACEA	European Automobile Manufacturers' Association
AFI	Alternative Fuel Infrastructure
AFIR	Alternative Fuel Infrastructure Regulation
BDS	Biodiversity Strategy
BEV	Battery electric vehicle
CAP	Common Agricultural Policy
CAGR	Compound Annual Growth Rate
CBAM	Carbon Border Adjustment Mechanism
CCS	Carbon Capture and Storage
CDW	Construction and demolition waste
CE	Circular Economy
CEAP	Circular Economy Action Plan
CEMF	Circular Economy Monitoring Framework
CFP	Common Fisheries Policies
CLP	Classification, Labelling and Packaging
CMUR	Circular material use rate
CoR	Committee of Regions
CO	Carbon monoxide
CO₂	Carbon dioxide
CO₂e	CO ₂ equivalent
CRMA	Critical Raw Materials Act
CRMs	Critical Raw Materials
CSPs	CAP Strategic Plans
CSS	Chemicals Strategy for Sustainability
EAP	Environment Action Programme
EC	European Commission
EEA	European Environment Agency
EED	Energy Efficiency Directive
EFSCM	European Food Security Crisis preparedness and response Mechanism
EGD	European Green Deal
EIR	Environmental Implementation Review
EP	European Parliament
EPBD	Energy Performance of Buildings Directive
ERDF	European Regional Development Fund
ESABCC	European Scientific Advisory Board on Climate Change
ESR	Effort Sharing Regulation
ETS	Emission Trading System
EU	European Union
EUREC	The Association of European Renewable Energy Research Centers
FMSY	Fishing pressure relative to maximum sustainable yield
F-GAS	Fluorinated gases
F2F	Farm-to-Fork

FAO	Food and Agriculture Organization of the United Nations
FEC	Final Energy Consumption
FS	Food System
FSFS	Framework for Sustainable Food Systems
GHG	Greenhouse Gas
GDP	Gross Domestic Product
HEV	Hybrid Electric Vehicle
HFC	Hydrofluorocarbons
IAS	Invasive Alien Species
IED	Industrial Emissions Directive
IEPR	Industrial Emissions Portal Regulation
ILUC	Indirect Land Use Change
INCITE	Innovation Centre for Industrial Transformation and Emissions
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPCEI	Important Projects of Common European Interest
JRC	Joint Research Centre
LRAs	Local and Regional Authorities
LUCAS	Land Use and Coverage Area frame Survey
LULUCF	Land Use Land Use Change and Forestry
MPA	Marine Protected Areas
MSFD	Marine Strategy Framework Directive
MSY	Maximum sustainable yield
Mtoe	Millions of Tonnes of Oil Equivalent
N₂O	Nitrous oxide
NECPs	National energy and climate plans
NECPRs	National energy and climate progress reports
NGO	Non-governmental organisation
NH₃	Ammonia
NIR	National Implementation Report
NMVOC	Non-Methane Volatile Organic Compound
NO_x	Nitric oxide (NO) and nitrogen dioxide (NO ₂)
NRL	Nature Restoration Law
NZIA	Net Zero Industry Act
PCIs	Projects of Common Interest
PEMS	Portable Emissions Measurement Systems
PET	Polyethylene terephthalate
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RED	Renewable Energy Directive
RFNBO	Renewable Fuels of Non-Biological Origin
SAF	Sustainable Aviation Fuels
SAPEA	Science Advice for Policy by European Academies
SDGs	Sustainable Development Goals
SUMP	Sustainable Urban Mobility Plan
TEN-E	Trans-European Networks for Energy
TEN-T	Trans-European Transport Network
TENtec	European Commission's information system set up to coordinate and support the TEN-T
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
UWWTD	Urban Wastewater Treatment Directive

VAT	Value Added Tax
WASH	Water Supply, Sanitation and Hygiene
WEEE	Waste Electric and Electronic Equipment
WEI+	Water Exploitation Index Plus
WFD	Water Framework Directive
WHO	World Health Organization
WISE	Water Information System for Europe
WLTP	Worldwide harmonised Light-duty vehicles Test Protocol
ZPAP	Zero Pollution Action Plan
ZPMO	Zero Pollution Monitoring and Outlook