



Towards EU climate neutrality

Progress, policy gaps and opportunities

Recommendations and Summary

Assessment Report 2024

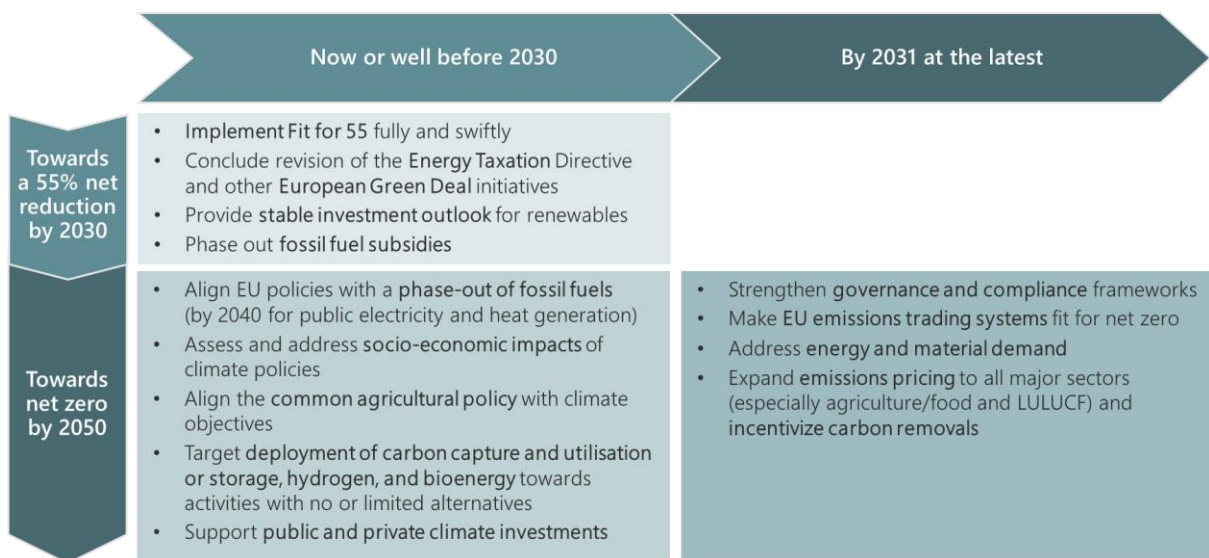
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Recommendations

The European Union (EU) is committed to reducing its greenhouse gas (GHG) emissions to net zero by 2050 at the latest and to aiming to achieve net-negative emissions thereafter. To ensure the EU and its Member States remain on track to meet their climate objectives, the European Climate Law foresees a regular assessment of progress made towards them, together with an assessment of whether EU and national measures are consistent with the climate neutrality objective. This process should be supported by the best available and most relevant scientific evidence, including reports from the European Scientific Advisory Board on Climate Change (hereafter “the Advisory Board”). With this report, the Advisory Board presents its recommendations for achieving the EU’s climate targets, as shown in Figure 1 and further detailed below.

Figure 1 Overview of the Advisory Board’s recommendations



Source: Advisory Board (2024)

1. Achieving the EU’s 2030 climate target: fully implement the Fit for 55 package and conclude outstanding European Green Deal initiatives

1.1 Fully and swiftly implement the Fit for 55 package

Key recommendation 1 - Member States should urgently adopt and implement national measures to increase the pace of emissions reductions and reverse the declining EU carbon sink in time. If necessary, the European Commission should take enforcement action to ensure that Member States’ updated national energy and climate plans (NECPs) fully comply with the requirements set out in the Governance Regulation.

The EU has substantially reduced its net GHG emissions since 2005. But the pace of reductions needs to increase considerably (to more than twice the average rate over 2005-2022) if the EU is to achieve its 2030 target (a net decrease in GHG emissions of at least 55% compared to 1990) and climate neutrality by 2050. Additional efforts are required in all sectors, especially in the land use, land use change and forestry (LULUCF) sector, where the carbon sink has decreased sharply since 2015.

With the European Green Deal and the Fit for 55 package, the EU has substantially strengthened its climate policies to bring about such an acceleration and reach its 2030 target, as a milestone towards climate neutrality.

Achieving the 2030 target depends on **rapid, robust and effective implementation of the Fit for 55 package**, in particular at the national level: central elements of the package – such as the Effort Sharing Regulation (ESR), the LULUCF Regulation, the Renewable Energy Directive (RED III) and the Energy Efficiency Directive (EED) set out general objectives, whose achievement primarily relies on ambitious national policies and measures.

These measures should be included in Member States' NECPs which are currently being updated. So far, Member States have not sufficiently complied with their obligations regarding NECPs, both in terms of process and content. The European Commission's assessment of the draft updated NECPs found that their collective ambition was insufficient to achieve the EU's 2030 targets. Many draft updates did not include sufficient information or were submitted late, and not all Member States have set up permanent multi-level dialogues or conducted public consultations on their plans.

- Member States' updated NECPs, which must be submitted by 30 June 2024, should fully reflect the new EU legislative framework and demonstrate enough ambition to enable achievement of the EU's energy and climate objectives.
- All Member States must rapidly adopt and implement the updated NECPs' planned measures to have a chance of achieving the necessary emissions reductions in time.
- The European Commission should ensure the updated NECPs are fully compliant with the Governance Regulation, in terms of both their content and the process supporting their set-up and implementation, and take enforcement action if necessary.

1.2 Conclude pending legislative initiatives under the European Green Deal

Key recommendation 2 - The Advisory Board recommends that the EU adopts pending legislative initiatives aimed at supporting the required emissions reductions. This includes in particular the revision of the Energy Taxation Directive (ETD).

- To contribute to further emissions reductions, EU legislators should conclude the Fit for 55 package by adopting an ambitious revision of the ETD which would align energy taxation with the EU's climate objectives. In particular, the revision should set higher minimum tax rates for fossil fuels and remove environmentally harmful tax exemptions, such as for aviation, maritime and professional road transport fuels, as part of a full and urgent phase-out of fossil fuel subsidies (see key recommendation 4).
- Several initiatives could deliver additional emissions reductions but they have yet to be concluded. These include some launched or planned under the European Green Deal's sectoral strategies (e.g. the Farm to Fork Strategy, the Sustainable and Smart Mobility Strategy, the 2020 circular economy action plan (CEAP 2)), as well as a number of initiatives introduced after the Fit for 55 package (e.g. the revision of carbon dioxide (CO₂) emission performance standards for heavy-duty vehicles (HDVs) and the Net-Zero Industry Act). EU legislators should conclude the legislative process related to these initiatives, while maintaining a high level of environmental ambition.

Key recommendation 3 - Both EU and national policy-makers should provide a stable investment outlook for renewable energy by adopting pending legislation and implementing existing policies.

- Timely adoption and implementation of the electricity market reform, the Net-Zero Industry Act and the Critical Raw Materials Act should reinforce long-term investment signals to support the scale-

up in wind and solar photovoltaics (PV). These acts complement the REPowerEU plan, the RED III, the Trans-European Networks for Energy (TEN-E) regulation and the EU action plan for grids, which aim at overcoming key bottlenecks in the roll-out of renewable energy sources (RES), including inadequate electricity networks and administrative permitting. Mechanisms supporting RES need to be stable, offer a long-term market outlook, and find a balance between least-cost RES at scale and nurturing technological innovation. Better use of public funds will be key in this respect, e.g. through de-risking tools and tailored financing solutions (see key recommendation 11).

1.3 Phase out fossil fuel subsidies

Key recommendation 4 - The Advisory Board recommends urgently and fully phasing out fossil fuel subsidies in the EU, in line with existing commitments.

- Member States should fully and urgently phase out fossil fuel subsidies. In line with the 8th Environment Action Programme (8th EAP), they should set a deadline for phasing out such subsidies, and their updated NECPs should include a clear plan and timeline to achieve this.
- Fossil fuel subsidies supporting vulnerable households should be redirected towards well-targeted interventions that adequately address regressive effects while maintaining an incentive for energy savings and a shift towards RES.
- The EU rules affecting state aid for companies should become more consistent with EU climate goals and be brought in line with the Aarhus Convention, notably to safeguard public access to justice.

2. Towards climate neutrality by 2050: address remaining policy inconsistencies and gaps

Assuming swift and effective implementation of the European Green Deal, the Advisory Board has identified opportunities for further policy action to help the EU achieve climate neutrality. The recommendations below are primarily aimed at strengthening the EU policy framework post 2030. However, some of the actions suggested should start before then to reduce the risk of carbon lock-in, decrease the probability of abrupt changes in the EU economy, and help the EU exceed its 55% reduction target by 2030.

2.1 Remove policy inconsistencies

Key recommendation 5 - The EU policy framework should be made fully consistent with the climate neutrality objective and the phase-out of fossil fuels in the EU.

- The European Climate Law requires the European Commission to check that any draft measure or legislative proposal is consistent with EU climate goals. These checks have been done on many, but not all, relevant measures and proposals; they should apply to the delegated and implementing acts under the Fit for 55 package and the European Green Deal, as well as other measures such as climate-relevant state aid decisions and communications.
- EU policies should be better aligned with the 2050 climate neutrality objective, notably in the fields of energy infrastructure and markets (e.g. TEN-E and the internal energy market framework), finance (e.g. the EU Taxonomy), industrial emissions (e.g. the Industrial Emissions Directive) and competition (e.g. state aid rules).
- Practices within the EU policy framework, such as scenario-building for the planning and development of cross-border energy infrastructure, should be consistent with EU pathways to climate neutrality. According to these, fossil fuel use decreases sharply and is almost fully phased out from EU's public electricity and heat generation by 2040.

- The use of carbon capture technologies and hydrogen should not lead to fossil gas infrastructure lock-ins (see key recommendation 10).

2.2 Further improve existing policies

Key recommendation 6 - The Advisory Board recommends strengthening EU climate governance and compliance frameworks.

- The upcoming revisions of the Governance Regulation and the European Climate Law represent an opportunity to improve the existing governance framework for climate action in the EU. In particular, national long-term strategies (LTSs) should be subject to an iterative review process (like the current process with draft and final NECPs), and the link between LTSs and NECPs should be strengthened. The requirement to set up permanent multi-level energy and climate dialogues should be reinforced, and the establishment of national climate advisory bodies should be mandatory.
- The EU should also consider more effective compliance mechanisms, in particular for Member States' obligations to reduce emissions from sectors outside the EU Emissions Trading System for stationary installations and aviation (EU ETS), i.e. under the Effort Sharing and LULUCF Regulations.

Key recommendation 7 - The two EU emissions trading systems must be made fit for net zero.

- The functioning of the EU ETS when the emissions cap for stationary installations approaches or equals zero must be clarified shortly, including the potential role of carbon removals. The EU should also develop alternatives to free allocation to address the risk of carbon leakage for sectors not yet covered by the Carbon Border Adjustment Mechanism (CBAM), especially as the cap further reduces towards zero.
- The initial years of operation of the EU emissions trading system for buildings, road transport and additional sectors (EU ETS 2) should help inform future adjustments and design choices. After 2030, the system should aim for a carbon price signal high enough to incentivise emissions reductions in line with reaching EU climate neutrality, and for an increasing convergence of the carbon price between the two emissions trading systems. This should be accompanied by well-provisioned and targeted measures to address adverse socio-economic effects, based on a thorough analysis of the expected impacts (see key recommendation 8).

Key recommendation 8 - To ensure a just transition and effective implementation, EU policies should build on systematic impact assessments and *ex post* evaluations of the socio-economic aspects of climate policies and measures in specific contexts.

- More systematic and context-specific impact assessments and *ex post* evaluations (e.g. considering local and national needs) should help reinforce synergies between EU social and climate policies and improve climate policy narratives. They should also help design compensatory measures like the Social Climate Fund and the Just Transition Fund. Assessments should be transparent and include public consultations. By informing and engaging citizens and other stakeholders, consultations can increase public support for climate policies and measures.

Key recommendation 9 - The Advisory Board recommends providing stronger incentives for climate action in the agricultural sector and food system, including through the upcoming revision of the common agricultural policy (CAP).

- The CAP should be better aligned with EU climate goals. This could include (i) a standalone emissions reduction objective; (ii) moving towards mandatory good practices that support methane (CH₄) and nitrous oxide (N₂O) reductions and soil carbon increases; and (iii) shifting CAP support

- away from emission-intensive agricultural practices, including livestock production, and towards lower-emitting products, carbon removals, environmental services and economic diversification.
- In parallel, the EU should strengthen measures to encourage healthier, more plant-based diets, and develop a strategy for a just transition to a food system consistent with climate neutrality.
 - The EU should start preparations now with a view to extending the EU emissions pricing regime to the agricultural/food and LULUCF sectors to incentivise further climate action in these areas (see key recommendation 13).
 - The actions recommended (reforming the CAP, introducing emissions pricing and strengthening measures to encourage healthier, more sustainable diets) should be pursued in parallel and in a coherent manner to avoid conflicting policy signals. This would be consistent with the EU approach for other sectors, where carbon pricing is combined with other policy instruments such as minimum performance standards and subsidies.

Key recommendation 10 - The deployment of carbon capture and utilisation/storage (CCU/CCS), hydrogen, and bioenergy should be targeted towards activities with no or limited alternative mitigation options.

- CCU/CCS, indirect electrification through the use of hydrogen, and the use of bioenergy are less efficient or have higher sustainability risks compared to other mitigation pathways such as energy efficiency improvements and direct electrification. EU policies in support of CCU/CCS, hydrogen and bioenergy should be better targeted towards applications with no or very limited other mitigation options.

Key recommendation 11 - The EU should take further policy action to drive the required increase in public and private investments in climate mitigation.

- The reporting methodology under the Multiannual Financial Framework (MFF) (i.e. 7-year EU budget) should be improved to track more accurately EU expenditures that contribute to climate action, and to identify spending on potentially harmful activities.
- The EU should consider continuing the common debt approach under the current Recovery and Resilience Facility (RRF) beyond 2026 to increase investors' certainty and boost EU public investment in climate action.
- To boost private investments, the supply of bankable climate mitigation projects must be increased. To this end, policies should address technology-specific risks and funding gaps by speeding up permitting, removing regulatory uncertainties, and providing tailored financing incentives and solutions where investments are not yet profitable with the current carbon price trajectory.

2.3 Develop new policies

Key recommendation 12 - The Advisory Board recommends pursuing more ambitious reductions in energy and material demand through new and strengthened policies.

- EU policies should incentivise more vigorously the reduction of energy and material demand (in mobility, housing, material use and diets), both through efficiency improvements and behavioural changes. To enable this, policies should establish structures and introduce end-use innovations which increase the quality, affordability and convenience of lower-emissions products and services. The European Green Deal sectoral strategies have several initiatives which could contribute to this (e.g. a legislative framework of sustainable food systems, a regulation on railway infrastructure and

revision of the Combined Transport Directive, mandatory green public procurement requirements), but these remain to be proposed/adopted (see key recommendation 2).

Key recommendation 13 - The Advisory Board recommends expanding the EU GHG pricing regime to all major sectors (including agricultural/food, LULUCF and upstream fossil fuel operations) and providing EU-level incentives for carbon removals.

- The EU should start preparations now with a view to introducing pricing instruments in the agricultural/food and LULUCF sectors, in order to incentivise emissions reductions and carbon removals. Such instruments should reflect the specific characteristics of these sectors, including the technical complexity of measuring emissions and removals, attributing them to land management and mitigation actions, the differences in the permanence of various natural removals and the risk of international leakage. Their impact – in particular on small farms and farms in vulnerable regions – should be assessed *ex ante*, and potentially adverse economic, social and environmental impacts should be addressed to ensure a just and fair transition. This could be done in different ways directly targeting the problems at hand. The CAP budget or revenues from such pricing mechanisms could be used to finance redistributive measures, and to support climate mitigation and adaptation efforts. The EU carbon removal certification framework (CRCF), which is currently being developed, could serve as a first step towards a robust monitoring, reporting and verification system for such instruments.
- The EU should address upstream emissions from fossil fuel extraction and handling, both domestically and related to imported fossil fuels. Building on the Methane Regulation, it should consider expanding the EU ETS to fugitive emissions from domestic fossil fuel operations, and in parallel introduce a border adjustment mechanism for upstream GHG emissions from fossil fuel imports. Pricing upstream emissions from fossil fuels would also contribute to the necessary phase-out of fossil fuels in the EU (see key recommendation 5).

Summary

Context and objectives of the report

Under the European Climate Law, the EU should regularly track progress towards its climate objectives and assess whether its policies are consistent with achieving these goals

The Paris Agreement sets out the goal of strengthening the global response to the threat of climate change by holding global warming to well below 2° C and pursuing efforts to limit it to 1.5°C, relative to pre-industrial levels. As its contribution to this goal, the EU is legally committed, under the European Climate Law, to reduce its GHG emissions to net zero by 2050 at the latest, and to aim to achieve negative emissions thereafter. The law also sets the intermediate target of reducing net GHG emissions by at least 55% by 2030 compared to 1990 levels.

On 12 December 2023, a comprehensive assessment of the progress made by the global community towards the goals of the Paris Agreement – the first global stocktake – was concluded at the 28th Conference of the Parties under the UN FCCC in Dubai. This process resulted in a call for accelerated action, recognising the need for deep, rapid and sustained emissions reductions in line with 1.5°C pathways. Similarly, to ensure the EU remains on track to meet its climate objectives, the European Climate Law foresees a regular stocktake of progress towards the law's objectives, including an assessment of whether EU measures are consistent with these goals.

The EU has significantly strengthened its climate policies (primarily through the Fit for 55 package) to reach its 2030 target and to respond to new challenges posed by a rapidly changing international environment. Achieving climate neutrality by 2050 will require further development of climate policies.

To achieve its 55% reduction target by 2030, the EU has significantly revised its climate policy framework in the past 3 years, primarily through the Fit for 55 package. In addition, the European Commission launched several sectoral strategies and actions to achieve further GHG emissions reductions. These include the Sustainable and Smart Mobility Strategy, the Farm to Fork Strategy, the Biodiversity and Forest Strategies, and the CEAP 2.

In parallel, several developments in the socio-economic and geopolitical context in which the EU is pursuing its climate objectives have provided strong arguments to accelerate the transition, to reduce the EU's dependence on imported fossil fuels and to strengthen its position to benefit from clean energy and the industries of the future:

- The 2020-2021 COVID-19 pandemic and the 2021-2022 energy crisis resulting from Russia's war of aggression against Ukraine resulted in distorted supply chains, high inflation and greater attention to security, including supply of energy and raw materials. The economic slowdown and large support measures in the context of the pandemic, as well as the energy crisis, have reduced EU Member States' fiscal leeway. Furthermore, higher interest rates have increased financing costs.
- The global race for green investments has accelerated with the US Inflation Reduction Act and due to strategic rivalry with China, leading to a re-evaluation of China's dominance in key strategic sectors and products which threatens the EU's long-term competitiveness and resilience.

In response to these developments, measures have been introduced at the EU level to enhance economic and security-related elements of the climate transition, such as the REPowerEU plan and the Green Deal

Industrial Plan. Member States have also put in place a range of policies that will shape future GHG emissions trends in the EU.

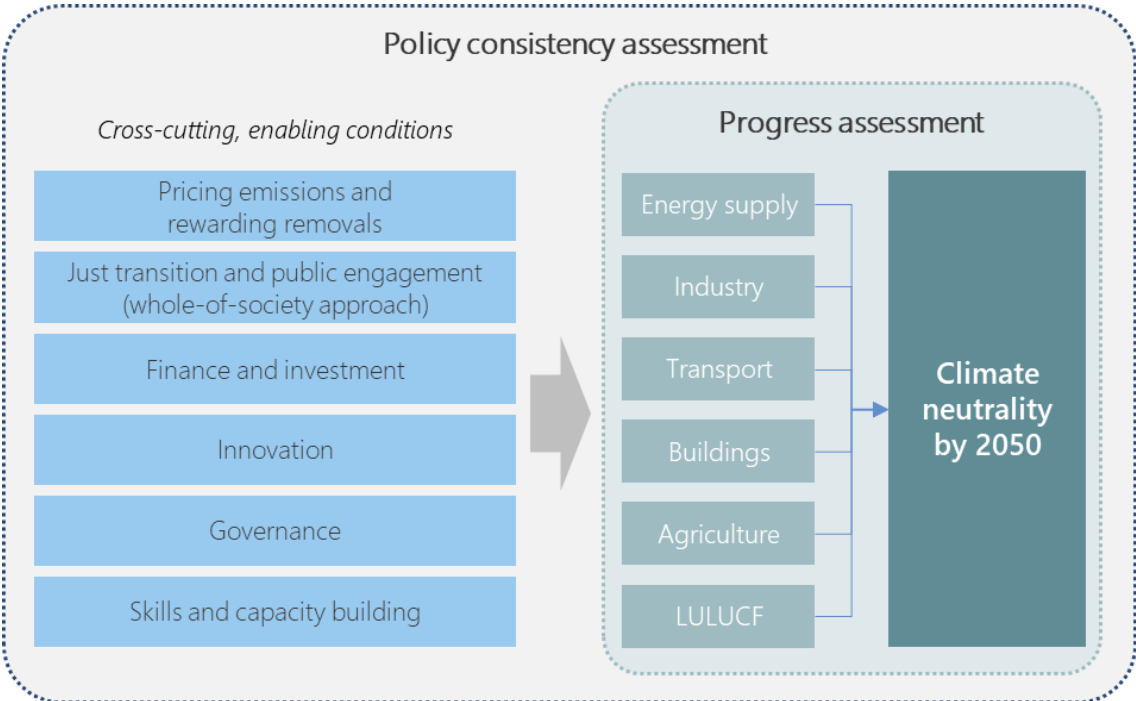
In the context of this strengthened EU climate policy framework, this report aims to provide the EU with scientific advice on policy actions that can support the achievement of climate neutrality by 2050 at the latest.

With this report, the European Scientific Advisory Board on Climate Change (hereafter Advisory Board) aims to advise EU policy-makers on how to make the EU's policies and measures 'fit for net zero', by flagging up areas for improvement and gaps in the current framework. To that end, it assesses the progress made towards the EU's climate objectives, as well as the consistency of EU policies with the climate neutrality objective. Where sufficient scientific evidence is available, it also puts forward recommendations to address these gaps. By doing so, the Advisory Board aims to provide an independent input to the stocktake process established at EU level under the European Climate Law, in complement to existing assessments by the European Environment Agency (EEA, the annual Trends and Projections reports (EEA, 2023p)) and the European Commission (the Climate Action Progress Report (EC, 2023ax)).

This report is an integral part of the Advisory Board's effort to provide scientific advice on existing and proposed EU measures and their consistency with the EU's climate objectives, and to identify actions and opportunities to successfully achieve these targets, in line with the mandate set out in the European Climate Law (EU, 2021c).

The report provides a first general assessment of progress and policy consistency in different sectors (energy supply, industry, transport, buildings, agriculture and LULUCF) and for cross-cutting issues (pricing of emissions and rewarding removals, just transition and public engagement, finance and investments, innovation, governance, and skills and capacity building) (see Figure 2 below). All recommendations include explanations of the evidence and rationale supporting them.

Figure 2 Scope of the progress and policy consistency assessment



Source: Advisory Board (2024).

Given the broad scope of an analysis addressing progress towards meeting climate objectives in the EU, the Advisory Board chose to limit its assessment to the EU level and did not include specific Member State-level analysis. Progress and consistency of policies with climate objectives at the national level are regularly assessed by the European Commission and other stakeholders, such as national climate advisory bodies established in certain Member States ⁽¹⁾.

In addition to objectives on climate mitigation, the European Climate Law sets out an obligation for the relevant EU institutions and Member States to ensure continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change. Although climate adaptation is not specifically covered in this report, the Advisory Board highlights its importance both as a critical issue on its own and because of potential synergies between adaptation and mitigation measures.

Analytical approach

For each of the six sectors covered by the analysis (see Chapters 4-9 of the report), the Advisory Board performed the following two main tasks:

1. An assessment of **progress**, based on the analysis of relevant indicators and their comparison with indicative benchmarks.
2. An assessment of the **consistency** of relevant existing or recently adopted policies in each sector with the EU's climate objectives, starting from the assessed progress and based on a thorough review of recent scientific and expert findings.

To assess progress across the different sectors, the Advisory Board identified 76 indicators specific to the different sectors. It then compared historical trends with indicative benchmarks for 2030 and 2050 derived from existing EU targets and objectives, as well as European Commission scenarios and other scientific scenarios used by the Advisory Board to prepare its recommendations for the determination of an EU-wide 2040 climate target and a GHG budget for 2030-2050 (ESABCC, 2023b).

For its assessment of policy consistency in the different sectors, the Advisory Board assessed whether EU policies are (or can be expected to be) sufficiently driving the required changes to deliver the necessary GHG emissions reductions. This assessment led to identifying four main types of gaps or inconsistencies: **policy gaps** (no policies in place to address the required change), **ambition gaps** (the policies in place are not ambitious enough to deliver the required change), **implementation gaps** (policies are not implemented adequately), and **policy inconsistencies** (policies provide counterproductive incentives).

The assessment was based on a thorough review of recent scientific findings, reports and data from international organisations (such as the International Energy Agency (IEA)) and from European institutions (e.g. European Court of Auditors (ECA), European Commission and its Joint Research Centre (JRC)). The Advisory Board also considered insights from reports and data from non-governmental organisations, think tanks and industry, provided they were underpinned by robust and credible analysis. Given the difficulties inherent to the *ex ante* assessment of impacts of newly adopted policies, some level of judgement was involved in translating the available evidence into expectations of gaps. The sources used are referenced throughout the report.

⁽¹⁾ The European Climate Law invites each Member State that has not done so yet to establish a national climate advisory body.

For the cross-cutting issues (Chapters 10-15 of the report), the assessment mainly focused on policy consistency, based on the same approach as for the sectoral assessments.

Based on its analysis of progress and consistency, the Advisory Board drew conclusions on:

1. **'needs'** – changes required to deliver the necessary emissions reductions (or removals) in line with a meaningful contribution to EU climate neutrality;
2. **'gaps'** – barriers in the current policy framework that must be addressed to deliver the required changes;
3. **'recommendations'** – policy options recommended to overcome the identified gaps.

Figure 3 Structure of the Advisory Board conclusions

| | | |
|------------------------|---|--|
| Needs | Required outcomes or changes to deliver the necessary emissions reductions | <i>Example: The need to shift road transport to rail</i> |
| Gaps | Barriers in the policy framework, including: <ul style="list-style-type: none"> • Policy gaps - no policies in place • Ambition gaps - policies are not ambitious enough • Implementation gaps - implementation is inadequate • Policy inconsistencies - counterproductive incentives | <i>Example: Existing EU policies (Combined Transport Directive/Rail Freight Corridors Regulation) have been ineffective (ambition/implementation gap)</i> <i>Initiatives to revise/replace these policies are still pending</i> |
| Recommendations | Policy options to address the gaps | <i>Example: EU legislators should adopt an ambitious revision of the Combined Transport Directive & the proposed Regulation on the use of Railway Infrastructure Capacity</i> |

Source: Advisory Board (2024).

While the Advisory Board’s assessment of progress and policy consistency draws on a large body of scientific and grey literature, it is not fully comprehensive. It focuses on selected progress indicators and their respective indicative benchmarks, EU policies, and does not consider Member State policies. It uses a sectoral approach but does not address sectoral interactions in detail, although some cross-cutting topics which are important across many sectors are included. Because of these limitations, the findings and recommendations of the report do not exhaust the list of EU-level actions that may be needed to achieve climate neutrality by 2050. Nevertheless, the report does provide an overview of some key areas where further policy action can help move the EU closer to meeting its climate goals, based on existing evidence.

1. Achieving the EU's 2030 climate target: fully implement the Fit for 55 package, conclude pending European Green Deal initiatives, and address implementation gaps

The Advisory Board makes the following recommendations to the EU to ensure the 55% reduction objective for 2030 is reached or exceeded, as further detailed below:

1. Fully and swiftly implement the Fit for 55 package.
2. Conclude pending legislative initiatives under the European Green Deal.
3. Phase out fossil fuel subsidies.

1.1 Fully and swiftly implement the Fit for 55 package

Key recommendation 1 - Member States should urgently adopt and implement national measures, to increase the pace of emissions reductions and reverse the declining EU carbon sink in time. If necessary, the European Commission should take enforcement action to ensure that Member States' updated NECPs fully comply with the requirements set out in the Governance Regulation.

The EU has substantially reduced its net GHG emissions since 2005 and largely exceeded its 20% reduction target by 2020, compared to 1990.

In 2022, the EU had reduced its net GHG emissions by 31% compared to 1990 levels. It surpassed the 20% reduction target for 2020, and trends over the past 5 years show an increase of average emissions reductions. Consumption-based CO₂ emissions decreased at a similar pace to territorial CO₂ emissions in the 2010-2020 period.

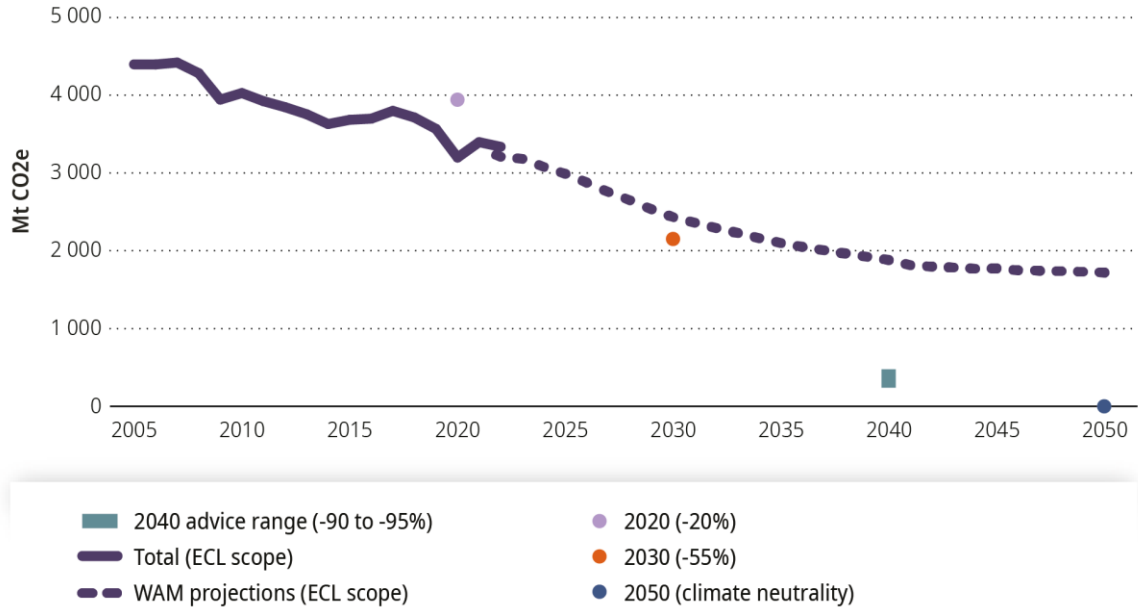
While recent emissions reductions have accelerated, achieving the EU's 55% objective for 2030 requires a significant increase in the pace of reductions to more than twice the 2005-2022 average.

While encouraging, the observed trends are not sufficient to indicate that the EU is on track to meet its climate targets: achieving these requires the pace of emissions reductions to increase even further (see Figure 4). To reach the EU's 55% reduction target by 2030, average annual reductions during the 2022-2030 period should be more than twice those observed on average in 2005-2022.

For the time being, Member States' latest projections show that net GHG emissions would be reduced by only 49% by 2030, with current and planned policies at the national level (see Figure 4). According to the European Commission's assessment of the draft updated NECPs submitted in 2023, the measures they include would result in net emissions reductions of 51% by 2030, compared to 1990, which is still short of the 55% objective. Additional efforts would be required in all sectors, particularly those covered by the Effort Sharing Regulation (buildings, transport and agriculture) and the LULUCF sector. The biggest step change is needed in the latter, where the carbon sink has been sharply decreasing since 2015.

These projections do not yet fully reflect the expected impact of the Fit for 55 package or the final updated NECPs, which must be submitted in 2024. But they underline the crucial importance of rapid and effective implementation of the strengthened EU climate policy framework.

Figure 4 Overall progress towards the EU's 2030 and 2050 objectives since 2005



Notes: WAM: projections ‘with additional measures’. These reflect the expected impacts of existing policies and additional ones that Member States were expecting to adopt at the time the projections were made. The projections do not necessarily reflect all the recently adopted elements of the Fit for 55 package. The 2040 range corresponds to the 90-95% reduction compared to 1990 recommended by the Advisory Board. Except for the 2020 target, the scope considered for the GHG emissions includes all domestic emissions and removals, 64% of the international maritime emissions reported in the GHG inventory, and all international aviation emissions reported in the GHG inventory (see Box 1 in Chapter 3 for more information). The 2020 target includes gross domestic GHG emissions (excluding LULUCF) and international aviation.

Sources: Historic GHG emissions: EU GHG inventory (EEA, 2023f). WAM projections: Member States’ March 2023 submissions to the European Commission under the Governance Regulation (EEA, 2023m).

To enable the significant acceleration of emissions reductions required to achieve the 55% target by 2030, the EU strengthened its climate policy framework substantially, in particular with the Fit for 55 package. Delivery of this package will depend on rapid, robust and effective implementation, especially at the national level.

A wide range of EU climate and energy policies have been adopted or revised in recent years to support the necessary acceleration of GHG emissions reductions, primarily under the Fit for 55 package. Central elements of this package set out overall objectives for Member States (the Effort Sharing Regulation, the LULUCF Regulation) or at EU level (the RED III and the EED) that must be achieved primarily through policies and measures at the national and subnational levels.

Member States are required to outline their overall strategies as well as concrete policies and measures to achieve the EU energy and climate objectives in their NECPs, including an overview of the investments needed to reach the national objectives, and a clear plan and timeline to phase out fossil fuel subsidies. Under the Governance Regulation, Member States must update their NECPs to align them with recent policy developments, including the Fit for 55 package. Draft updates had to be submitted by June 2023, and final updates are due by June 2024.

So far, Member States have not sufficiently complied with their obligations regarding NECPs, both in terms of process and content. Many Member States did not fully comply with the Governance Regulation

under the first NECP cycle in 2020 (**implementation gap**): several submissions were late and did not include the minimum required content (e.g. lacking sufficiently detailed information on investment needs and the expected socio-economic impacts of planned measures), and not all Member States ensured permanent multi-level engagement as required. The EU is also in breach of the Aarhus Convention in relation to public engagement in the NECP process (**implementation gap**). The European Commission's assessment of the draft updated NECPs in 2023 found that, despite steps in the right direction, the collective ambition of NECPs was insufficient to achieve the Fit for 55 package's objectives. Many draft updates did not include sufficient information or were submitted late, and not all Member States had set up permanent multi-level dialogues nor conducted public consultations on the plans.

- **Member States' updated NECPs, which must be submitted by 30 June 2024, should fully reflect the new EU legislative framework and demonstrate enough ambition to enable achievement of the EU's energy and climate objectives.**
- **All Member States must proceed with rapid adoption and implementation of the planned measures outlined in their updated NECPs to have a chance of achieving the necessary reductions in time.**
- **The European Commission should ensure that Member States' updated NECPs are fully compliant with the Governance Regulation – in terms of both their content and the process supporting their set-up and implementation – and take enforcement action if necessary (see Chapter 14, recommendation G1).**

1.2 Conclude pending legislative initiatives under the European Green Deal

Key recommendation 2 - Adopt pending legislative initiatives which aim to support the required emissions reductions, including the ETD.

While almost all the Fit for 55 package's legislative proposals have now been adopted, the revision of the ETD put forward by the European Commission is still pending. The current ETD is not aligned with the EU's climate ambitions, as it gives preferential treatment to GHG emission-intensive energy carriers compared to less emission-intensive alternatives. It also includes harmful tax exemptions for aviation, maritime and professional road transport, agriculture, energy-intensive industries and heating of buildings (**policy inconsistency**). Adopting the revision as proposed would go a long way to addressing the inconsistencies identified. However, by the end of 2023, legislators had made limited progress towards this, making it the only proposal from the original Fit for 55 package (published in July 2021) that had not been adopted yet.

- **To contribute further emissions reductions, EU legislators should conclude the Fit for 55 package by adopting an ambitious revision of the ETD, aligning energy taxation with the EU's climate objectives. In particular, the revision should set higher minimum tax rates for fossil fuels and remove environmentally harmful tax exemptions (for aviation, maritime and professional road transport, agriculture, heating of buildings and energy-intensive industries), as part of a full and urgent phase-out of fossil fuel subsidies (see key recommendation 4, and Chapter 10, recommendation C5).**

Since the Fit for 55 package was published in July 2021, the European Commission has made further legislative proposals aimed at accelerating GHG emissions reductions. These include revisions of the Energy Performance of Buildings Directive (EPBD) and of CO₂ emission performance standards for HDVs, as well as a Methane Regulation. It also launched initiatives to boost clean technologies and make the EU more competitive and autonomous, in particular the Net-Zero Industry Act, the Critical Raw Materials Act, and the reform of the electricity market design, as well as the hydrogen and decarbonised gas

market package. Most of these proposals were at advanced stages of the legislative process by the end of 2023.

However, progress on the operationalisation of the different sectoral strategies under the European Green Deal (e.g. the Farm to Fork Strategy, the Sustainable and Smart Mobility Strategy, the CEAP 2) has been slower, with many initiatives still in the legislative process or not yet proposed by the European Commission. These remain to be converted into ambitious EU legislation.

→ **EU legislators should conclude the legislative process on the other pending initiatives under the European Green Deal, such as the revised CO₂ emission performance standards for HDVs, while maintaining a high level of environmental ambition** (see Chapter 4, recommendation E4; Chapter 5, recommendation I3; Chapter 6, recommendation T2; Chapter 7, recommendation B1; Chapter 8, recommendation A3).

Key recommendation 3 - Provide stable investment outlooks for renewable energy by adopting pending legislation and implementing existing policies.

The deployment of solar PV and wind energy needs to accelerate across the EU to achieve the 42.5% renewable energy objective for 2030 and to lead to a net-zero electricity system by 2040 at the latest. Progress is challenged by changing investment landscapes as well as inadequate infrastructure planning and development, spatial planning and permitting, workforce skills, and supply chains. This lowers investment certainty and affects system planning and decision-making (e.g. in PV and wind value chains, as they are not yet adjusted to the required deployment and industry growth).

EU policies have been adapting to this challenge, in particular through the REPowerEU plan, the RED III, the TEN-E Regulation and the EU action plan for grids. Several of the above-mentioned pending legislative initiatives also aim to improve the investment framework for renewables, including the electricity market reform, the Net-Zero Industry Act and the Critical Raw Materials Act.

→ **Timely adoption and implementation of the electricity market reform, the Net-Zero Industry Act and the Critical Raw Materials Act should reinforce long-term investment signals to support the scale-up in wind and solar PV. Mechanisms supporting RES must be stable, offer a long-term market outlook, and find a balance between least-cost RES at scale and nurturing technological innovation. Better use of public funds will be key in this respect, e.g. through de-risking tools and tailored financing solutions** (see Chapter 4, recommendation E4).

1.3 Phase out fossil fuel subsidies

Key recommendation 4 - Phase out fossil fuel subsidies in line with existing commitments.

Fossil fuel subsidies undermine the climate transition, by hindering the reorientation of private financial flows towards climate mitigation, locking in GHG emissions from fossil fuel-dependent infrastructure, and reducing the public budget available to support climate investments.

The EU and its Member States have repeatedly committed to phasing out fossil fuel subsidies, for which they are required to set a deadline under the 8th EAP. Despite these commitments, fossil fuel subsidies remained relatively stable in the last decade (around €50 billion per year), and even increased sharply in 2022, in the context of the energy crisis (€120 billion). Only a minority of Member States currently have, in their NECPs, clear plans and timelines for phasing out such subsidies (**implementation gap**).

→ **Fossil fuel subsidies should be phased out fully and urgently. Member States should include clear plans and timelines to achieve this in their updated NECPs** (see Chapter 12, recommendation F2).

- **Fossil fuel subsidies supporting vulnerable households should be redirected towards well-targeted interventions that adequately address regressive effects while maintaining an incentive for energy savings and a shift towards RES** (see Chapter 12, recommendation F2).

Fossil fuel subsidies continue being channelled through state aid approved by the European Commission. While the Temporary Crisis and Transition Framework includes a very positive opening for more public investment towards a net-zero economy, it is not fully consistent with the EU climate neutrality objectives. Adopted in response to the energy crisis, the Temporary Crisis Framework of March 2022 and its successor the Temporary Crisis and Transition Framework of March 2023 allow Member States to shield fossil fuel power plant operations and energy-intensive companies from high and volatile energy prices. Despite its temporary and crisis-led nature, the framework provisions keep being extended, allowing vast public support which is inconsistent with the energy transition (**policy inconsistency**). In addition, by restricting public rights to internal administrative review of state aid decisions, the EU is in breach of the Aarhus Convention in relation to access to justice (**implementation gap**).

- **EU state aid rules affecting national support measures for EU companies should be made more consistent with EU climate goals and brought in line with the Aarhus Convention, notably to safeguard public access to justice** (see Chapter 4, recommendation E1).

2. Towards climate neutrality by 2050: address remaining policy inconsistencies and gaps

Looking beyond 2030, emissions reductions in the EU will need to accelerate even faster to achieve climate neutrality by 2050. Building on the Fit for 55 package, the EU can become climate neutral by 2050 through several well-identified actions and opportunities. Early action on these could bring multiple benefits.

While the recent strengthening of the EU climate policy framework is expected to go a long way towards achieving the EU's 2030 target – provided that it is implemented swiftly and effectively – becoming climate neutral by 2050 at the latest will require further policy developments.

The Advisory Board identified several remaining policy options that can help the EU achieve the necessary emissions reductions to deliver on its long-term climate objectives. The board makes the following recommendations to the EU, as further detailed below:

1. Remove remaining inconsistencies of EU policies with climate objectives.
2. Further improve existing policy instruments.
3. Develop new policies.

Certain decisions made today have long-lasting effects and might strongly impact the EU's ability to reach its climate neutrality objective in time, for example, when linked with a risk of fossil fuel lock-in. Therefore, although the recommendations below are primarily aimed at strengthening the EU policy framework post 2030, some of the recommended actions should start already in the coming years. This would provide multiple benefits, including avoiding lock-ins, reducing the risk of abrupt changes in the EU economy, supporting the achievement of the 2030 objective and potentially even enabling this goal to be exceeded (thereby decreasing the EU's cumulative emissions until 2050 and thus increasing the fairness of its contribution to global mitigation).

2.1 Remove policy inconsistencies

Key recommendation 5 - Make EU policies fully consistent with the EU climate neutrality objective and the phase-out of fossil fuels in the EU.

The European Climate Law requires the European Commission to check that draft measures and legislative proposals are consistent with EU climate goals. These checks have been done on many, but not all, relevant measures, including at least two delegated acts with high climate relevance (i.e. acts establishing taxonomy criteria for sustainable investment and defining renewable transport fuels) (**implementation gap**).

→ **The European Commission should assess more systematically the consistency of any draft measure or legislative proposal with the climate neutrality goals as set out in the European Climate Law. This also applies to the delegated and implementing actions under the Fit for 55 package and European Green Deal, as well as other measures such as climate-relevant state aid decisions and communications** (see Chapter 14, recommendation G3).

Scenarios towards net-zero emissions in the EU imply that fossil fuel use decreases sharply and is almost fully phased out from public electricity and heat generation by 2040. While the revised EU ETS provides a strong signal to this end, not all EU policies are consistent with a progressive phase-out of fossil fuels in future energy systems (e.g. the TEN-E Regulation, the proposed Gas Directive and Gas Regulation, state aid rules, and the EU Taxonomy). Due to the necessary speed of change in the energy sector, decisions made today risk costly infrastructural and contractual carbon lock-ins (**policy inconsistency**).

The 10-year network development plan (TYNDP) process, which informs today's energy infrastructure investment decisions across Europe and beyond, is not yet in line with the EU 2050 climate neutrality objective as required under the revised TEN-E Regulation (**implementation gap**).

- **EU policies should be better aligned with the 2050 climate neutrality objective, notably in the fields of energy infrastructure and markets (for example, TEN-E and the internal energy market framework), finance (e.g. the EU Taxonomy), industrial emissions (for instance, the Industrial Emissions Directive) and competition (e.g. state aid rules)** (see Chapter 4, recommendation E1).
- **Practices within the EU policy framework, such as scenario-building for cross-border infrastructure planning and development, should be consistent with EU pathways to climate neutrality. According to these, fossil fuel use decreases sharply and is almost fully phased out from EU's public electricity and heat generation by 2040** (see Chapter 4, recommendation E1).
- **Application of CCU/CCS technologies and hydrogen should not lead to unnecessary fossil gas infrastructure lock-ins** (see Chapter 4, recommendations E6 and E7).

2.2 Further improve existing policies

Key recommendation 6 - Strengthen the EU climate governance and compliance frameworks.

The Governance Regulation requires Member States to develop national LTSs and to ensure consistency between their NECPs and LTSs. However, the LTS governance process does not foresee an iterative review process as is currently provided for the NECPs. The regulation also does not require the European Commission to thoroughly check whether the NECPs are consistent with national LTSs. Therefore, the regulation does not sufficiently ensure that the NECPs are consistent with the LTSs, nor that the latter are adequate to enable achievement of the EU's long-term objectives (**ambition gap**). Furthermore, the provisions on multi-level climate and energy dialogues are not sufficiently clear regarding the permanent and systematic nature of stakeholder engagements (**ambition gap**).

The current provisions of the European Climate Law are not sufficient to incentivise the establishment by Member States of independent national climate advisory bodies (**ambition gap**). These could play a particular role in the NECP preparation process at the national level, but this role is currently not yet foreseen in the Governance Regulation (**ambition gap**).

→ **The upcoming revisions of the Governance Regulation and European Climate Law represent an opportunity to improve the existing governance framework for climate action in the EU. In particular, (i) the national LTSs should be subject to an iterative review process (similar to the current process for NECPs) and the link between LTSs and NECPs should be strengthened, (ii) the requirement to set up permanent multi-level energy and climate dialogues should be reinforced, and (iii) the establishment of independent national climate advisory bodies should be made mandatory** (see Chapter 14, recommendations G1, G3 and G4).

The ESR sets annual binding targets at national level for domestic GHG emissions not covered by EU ETS or the LULUCF Regulation. The 5-year cycle of formal compliance checks under ESR leads to a substantial time lag between the emissions and the compliance assessment's conclusions, which risks undermining its effectiveness (**ambition gap**).

→ **The EU should consider more effective compliance mechanisms, in particular for Member States' obligations to reduce emissions from sectors outside the EU ETS, i.e. under the Effort Sharing and LULUCF Regulations** (see Chapter 14, recommendation G2).

Key recommendation 7 - Make the two EU emissions trading systems fit for net zero.

Successive revisions have strengthened EU ETS. However, there is not yet a clear strategy to prepare the carbon market for when the cap – which determines the amount of emission allowances allocated to the market – reaches zero, which will occur before 2040 (**policy gap**).

Furthermore, whereas free allocation will be gradually phased out for sectors covered by the new CBAM (even if only by 2034), it will continue for sectors considered to be exposed to carbon leakage which are not covered by the CBAM. This risks creating distortions and complexities, and could reduce mitigation incentives for consumers and downstream industries (**ambition gap**). Furthermore, the number of allowances available for free allocation will decrease rapidly and eventually reach zero in line with the cap. Free allocation is therefore not a long-term solution to address the risk of carbon leakage.

→ **The functioning of EU ETS when the emissions cap for stationary installations is approaching or equalling zero needs to be clarified shortly (including the potential role of carbon removals). The EU should also develop alternatives to free allocation to address the risk of carbon leakage for sectors not yet covered by the CBAM, especially as the cap further reduces towards zero** (see Chapter 10, recommendations C1 and C2).

The introduction of a separate scheme for buildings and road transport will substantially increase the share of EU GHG emissions covered by an EU-wide carbon price, and provides an additional incentive for emissions reductions in those sectors. However, if the system's carbon price exceeds €45/tonne of carbon dioxide equivalent (tCO_{2e}), a predefined number of additional emissions allowances will be released on the market, on top of the original cap. As most models predict that prices well above €45/tCO_{2e} will be needed to deliver the required reductions in the sectors covered, this mechanism is likely to be triggered. This would *de facto* increase the emissions budget under the system, and could jeopardise the envisaged GHG emissions reductions of 62% by 2030 (compared to 2005) (**ambition gap**). This would require more ambitious national measures to achieve the reduction targets under the

ESR which could be riskier, given the weaknesses in the governance and compliance framework described above.

The split between the two emissions trading systems can be justified for pragmatic reasons in the short term. In the longer term, having different prices for 1 tonne of CO₂ might fail to encourage emissions reductions where they are least expensive. It could also create distortions and perverse incentives, e.g. by discouraging electrification of energy uses if electricity (covered by the EU ETS) is subject to a higher carbon price than fuels used for heating of buildings (covered by the EU ETS 2) (**ambition gap**).

→ **The initial years of operation of EU ETS 2 should help inform future adjustments and design choices. After 2030, the system should aim for a carbon price signal high enough to incentivise emissions reductions in line with reaching EU climate neutrality, and for an increasing convergence of the carbon price between the two emissions trading systems** (see Chapter 10, recommendation C3). **This should be accompanied by well-provisioned and targeted measures to address adverse socio-economic effects, based on a thorough analysis of the expected impacts** (see key recommendation 8).

Key recommendation 8 - Base EU policies on a systematic impact assessment and ex post evaluations of the socio-economic impact of climate policies and measures to ensure a just transition and effective implementation.

Despite the many benefits of climate mitigation (e.g. reduced dependency on energy imports, improved air quality and human health, avoided costs of inaction), climate policy measures can have disruptive and regressive socio-economic impacts, placing a disproportionate burden on low-income households and vulnerable groups. The net-zero transition relies on properly understanding and addressing its costs and benefits at household, community and wider society levels.

Many EU policies build on a limited recognition and narrow understanding of the socio-economic impacts that could arise from climate policy implementation, particularly in relation to inequality. This limitation suggests that the connection between EU climate and social policies could be reinforced (**ambition gap**).

This also partly explains why the narratives surrounding climate policy instruments do not pay due attention to their co-benefits as well as local needs and values (**ambition gap**).

→ **More systematic and context-specific impact assessments and ex post evaluations (e.g. considering local and national needs) should help reinforce synergies between EU social and climate policies and improve climate policy narratives. They should also help design compensatory measures such as the Social Climate Fund and the Just Transition Fund. Assessments should be transparent and include public consultations. By informing and engaging citizens and other stakeholders, consultations increase public support for climate policies and measures** (see Chapter 11, recommendations W1, W2 and W3; Chapter 15, recommendation S2).

Key recommendation 9 - Provide stronger incentives for climate action in the agricultural sector and food system, including through the upcoming revision of the CAP.

The lack of emissions reductions in the agricultural sector since 2005 highlights the need for stronger incentives in this sector. The CAP is the EU's flagship agricultural policy, which aims to deliver on 10 key objectives including on climate action. However, its effective contribution to GHG emissions reductions is uncertain at best. Its goal, among others, to contribute to mitigation is largely qualitative and forms part of a broader set of agri-environment objectives (**ambition gap**).

The CAP's green architecture provides opportunities for Member States to promote sustainable practices, but the emphasis given to climate change mitigation is largely discretionary and difficult to quantify *ex ante* (**ambition gap**).

Furthermore, the CAP continues to provide financial support to emission-intensive agricultural practices such as livestock production, rather than focusing on the transition to less emission-intensive activities (**policy inconsistency**).

- **The CAP should be better aligned with the EU climate objectives. This could include (i) a standalone emissions reduction objective, (ii) moving towards mandatory good practices that support CH₄ and N₂O reductions and soil carbon increases, and (iii) shifting CAP support away from emission-intensive agricultural practices, like livestock production, and towards lower-emitting products, carbon removals, environmental services, and economic diversification** (see Chapter 8, recommendation A1).
- **In parallel, the EU should strengthen measures to encourage healthier, more plant-based diets, and develop a strategy for a just transition to a food system consistent with the climate neutrality objective** (see Chapter 8, recommendation A3).
- **The EU should start preparations now with a view to extending the emissions pricing regime to the agricultural/food and LULUCF sectors to incentivise further climate action in these areas** (see key recommendation 13).
- **The recommended options (reforming the CAP, introducing emissions pricing and strengthening measures to encourage healthier, more sustainable diets) should be pursued in parallel and in a coherent manner to avoid conflicting policy signals. This would be consistent with the EU approach for other sectors, where carbon pricing is combined with other policy instruments such as minimum performance standards and subsidies.**

Key recommendation 10 - Target the deployment of CCU/CCS, hydrogen and bioenergy towards activities with no or limited alternative mitigation options.

CCU/CCS, indirect electrification through renewable hydrogen and its derivatives, and bioenergy are less efficient or raise sustainability concerns compared to other mitigation pathways, such as energy efficiency improvements and direct electrification. Even so, they remain necessary to achieve deep emissions reductions in sectors where direct electrification is technically challenging (e.g. in aviation and maritime transport and energy-intensive industries).

A harmonised carbon price applied across all sectors would ensure that the most efficient mitigation options are prioritised, and that less efficient options are only applied where there is a lack of alternatives, provided that the price signal is not distorted by other interventions such as subsidies. However, this is currently not the case:

- Different sectors are subject to different carbon prices, which distorts the level playing field for different mitigation pathways. For example, electricity production is currently subject to the highest price under the EU ETS, whereas the absence of a pricing mechanism in agriculture and LULUCF means that bioenergy is not covered by any carbon price. As a result, the EU carbon pricing regime favours bioenergy use over electrification technologies (**policy gap/inconsistency**).
- EU policies support CCU/CCS, including CO₂ infrastructure, but do not currently target their deployment to applications with no, or limited, other mitigation options (**policy gap**).
- The EU's massive policy support for the hydrogen value chain does not sufficiently reflect the techno-economic limits of hydrogen and its most efficient uses in an integrated and decarbonised energy system (**policy gap**).

- The promotion of bioenergy under the REDI and II has resulted in substantial volumes of national subsidies for bioenergy use, even in sectors where available mitigation options (e.g. electricity and low-temperature heat production) are more efficient and carry lower land-use and biodiversity risks (**policy inconsistency**).

→ **EU policies in support of CCU/CCS, bioenergy and hydrogen should be better targeted towards applications with no, or very limited, other mitigation options** (see Chapter 4, recommendations E6 and E7; Chapter 6, recommendation T4; Chapter 9, recommendations L1, L2 and L3).

Key recommendation 11 - More policy action is needed to increase public and private investments in climate mitigation.

Annual investments in climate mitigation need to be multiplied more than fourfold (from €200-300 billion per year in recent years to €1,250-1,400 billion a year up to 2030). This requires a reorientation of existing investments and an increase in overall investments in the energy and transport sectors (by at least €500bn per year). Given the magnitude of the investment gap, a concerted effort by both public and private sectors is needed.

The EU aims to spend 30% of its long-term budget (the MFF) and at least 37% of the RRF's national envelopes on climate action. However, flaws in the methodology for tracking climate spending results in over-reporting and, in the case of the MFF, does not capture spending on potentially harmful activities (**ambition gap**).

Reporting under the RRF is more robust as it applies the 'do no significant harm' principle, in line with the EU Taxonomy. However, the facility is expected to cease after 2026 and there is no clarity on whether it will be succeeded by a similar instrument, which limits the outlook for investors (**policy gap**).

The investment gap also needs to be closed through Member States' public budgets. Their fiscal space is however constrained by high expenditures to tackle recent crises, increased competition for public budgets, higher interest rates, and the EU's fiscal rules set out in the Stability and Growth Pact. Recent changes to state aid rules provide more leeway for Member States to support mitigation projects. However, this could fragment the internal market, and measures to address this (the proposed Strategic Technologies for Europe Platform) have insufficient budget (**ambition gap**).

→ **The reporting methodology under the MFF should be improved to track more accurately EU expenditures that contribute to climate action, and to identify spending on potentially harmful activities** (see Chapter 12, recommendation F2).

→ **The EU should consider continuing the common debt approach under the current RRF beyond 2026 to increase investors' certainty and boost EU public investment in climate action** (see Chapter 12, recommendation F3).

The private sector will need to make a substantial contribution to achieve the required level of climate-related investments. This must be driven by sufficiently ambitious EU policies that address technology-specific risks and funding gaps, to increase the supply of bankable climate mitigation projects. Measures could include regulations, carbon pricing and – where investments are not yet profitable under current carbon pricing trajectories – other tailored financial incentives and solutions. In addition, the policy framework must address permitting, access to capital, long-term regulatory visibility, supply chains and labour availability.

- **EU policies should address technology-specific risks and funding gaps by speeding up permitting, removing regulatory uncertainties, and providing tailored financial incentives and solutions where investments are not yet profitable with the current carbon price trajectory** (see Chapter 12).

2.3 Develop new policies

Key recommendation 12 - Pursue more ambitious reductions in energy and material demand through new and strengthened policies.

The Advisory Board's advice on a 2040 target highlighted that pathways with more emphasis on demand-side measures have multiple co-benefits compared to those prioritising supply-side technological solutions. So far, the EU policy framework has primarily concentrated on supply-side, technology-focused measures, and much less on initiatives aimed at moderating consumption of GHG-intensive products and services. The latter are either absent (e.g. no dedicated policies to moderate transport demand, to promote healthy diets, etc.) (**policy gap**) or ineffective (for instance, a lack of progress in reducing energy demand, achieving a modal shift, or increasing material circularity) (**ambition/implementation gaps**).

Several sectoral strategies under the European Green Deal include initiatives to address the issue, but many of these have not yet been proposed (e.g. a legislative framework of sustainable food systems) or adopted (such as the Regulation on the Use of Railway Infrastructure Capacity and the revision of the Combined Transport Directive). Furthermore, some of these initiatives are primarily focused on voluntary consumer responsibility, which is unlikely to be effective on its own (**ambition gap**).

- **EU policies should incentivise more vigorously the reduction of energy and material demand (in mobility, housing, material use and diets), both through efficiency improvements and behavioural changes. To enable this, policies should establish structures and introduce disruptive end-use innovations which increase the quality, affordability and convenience of lower-emissions products and services. The European Green Deal sectoral strategies include several initiatives that could contribute to this, but these remain to be proposed/adopted** (see key recommendation 1, Chapter 3, recommendations E2 and E3; Chapter 5, recommendations I2 and I3; Chapter 6, recommendations T1 and T2; Chapter 7, recommendations B1, B2 and B4; Chapter 8, recommendation A3; Chapter 11, recommendation W2).

Key recommendation 13 - Expand the EU GHG pricing regime to all major sectors (including agricultural/food, LULUCF and upstream fossil fuel operations), and provide EU-level incentives for carbon removals.

The recent revision of the EU ETS Directive substantially extends the scope of the EU GHG pricing regime, from 36% of total emissions and removals today to 74% by the end of this decade. However, the remaining 26% would still be excluded from any EU-wide GHG pricing regime (**policy gap**).

Most of this gap is due to the absence of an EU-level pricing mechanism in the agricultural and LULUCF sectors. The European Commission is currently studying ways of introducing some form of pricing mechanism in these areas but has not yet tabled a formal proposal. A GHG pricing mechanism for the agricultural/food and LULUCF sectors would provide a clear financial incentive for farmers and forest managers to reduce emissions and increase removals, and for consumers to reduce consumption of GHG-intensive agricultural products. It would also address the uneven distribution of incentives for biomass use versus carbon removal and reduce the risk of intra-EU leakage of agricultural and LULUCF-related emissions.

- **The EU should start preparations now with a view to expanding the pricing regime of EU GHG emissions to all major emitting sectors, including agricultural/food and LULUCF. For these areas, pricing instruments should incentivise both emissions reductions and carbon removals. Instruments should reflect the specific characteristics of the agricultural/food and LULUCF sectors. This includes the technical complexity of measuring emissions and removals, attributing them to land management and mitigation actions, differences in the permanence of various natural removals, and the risk of international leakage. The impact – in particular on small farms and farms in vulnerable regions – should be assessed *ex ante* and potentially adverse economic, social and environmental impacts addressed to ensure a just and fair transition. This could be done in different ways directly targeting the problems at hand. The CAP budget or revenues from such pricing mechanisms could be used to finance redistributive measures and to support climate mitigation and adaptation efforts** (see Chapter 8, recommendation A2; Chapter 9, recommendations L3 and L4; Chapter 10, recommendation C4).

Fugitive emissions from fossil fuel extraction and handling are not covered by the EU ETS and, until recently, were not covered by any other EU reduction policy (**policy gap**). The Methane Regulation aims to address this gap, but its ambition level will depend on the implementing acts to be adopted by the European Commission. It does not set a price on upstream GHG emissions from fossil fuel extraction and handling, either in the EU or abroad. As a result, climate externalities are not fully internalised in the price of fossil fuels supplied to the EU market (**policy gap**).

The emission intensity of oil and gas extraction and handling could be lowered considerably by setting a price on upstream emissions in the energy sector. Expanding the EU ETS to fugitive emissions from fossil fuel operations within the EU, and setting up a border adjustment mechanism (reflecting the EU ETS price) on upstream GHG emissions from fossil fuels imports, would incentivise fossil fuel exporters to adopt adequate regulations; it could take into account comparable reduction efforts outside the EU (e.g. the CH₄ emission charge under the US Inflation Reduction Act). The Methane Regulation could serve as a first step towards a robust monitoring, reporting and verification system for such instruments.

- **The EU should address upstream emissions from fossil fuel extraction and handling, both domestically and related to fossil fuels imported into the EU. Building on the Methane Regulation, it should consider expanding the EU ETS to fugitive emissions from domestic fossil fuel operations. In parallel, a border adjustment mechanism should be introduced for upstream GHG emissions from fossil fuel imports** (see Chapter 4, recommendation E9). **Pricing upstream emissions from fossil fuels would also contribute to the required phase-out of these fuels in the EU** (see key recommendation 5).



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