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EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT REPORT

Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

Securing our future
**Europe's 2040 climate target and path to climate neutrality by 2050 building a
sustainable, just and prosperous society**

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Executive summary of the impact assessment

Limiting global warming to the Paris Agreement goal of 1.5°C requires greenhouse gas (GHG) emissions to reach net zero globally by the early 2050s. The remaining global carbon budget⁽¹⁾ is declining very fast, increasing the risks of reaching irreversible tipping points in the climate system, with unknown and potentially catastrophic consequences for people and for ecosystems. It is essential to accelerate action to avoid these consequences.

The European Climate Law mandates the Commission to make a legislative proposal, as appropriate, for an EU-wide 2040 climate target within 6 months of the global stocktake under the Paris Agreement. The global stocktake was completed at the Conference of the Parties in December 2023. The aim of the initiative covered by this impact assessment is to implement the European Climate Law, which enshrines in law the EU's commitment to become climate neutral by 2050 and the EU's 2030 climate target to reduce net greenhouse gas (GHG) emissions by at least 55% in 2030 relative to 1990 levels.

The 2040 target will also inform the EU's future post-2030 nationally determined contribution (NDC) that all Parties to the Paris Agreement must submit to the UNFCCC by 2025 (under Article 4(9) of the Agreement). The 2040 climate target will set the pace to reduce EU-wide net GHG emissions over 2030-2050 on an effective and just transition path towards climate neutrality by 2050.

The impact assessment draws on public and stakeholder consultations, an extensive analysis of the impacts on the energy system, land sector, non-CO₂ emissions and the economy, as well as on exchanges with related policy DGs through an Inter-Service Group.

It looks at five options for the 2040 target, to consider the full range of possible net GHG emission levels. The assessment narrows down the options at an early stage to three, with a detailed assessment by sector of the action needed to reach climate neutrality by 2050. The options are to set the 2040 target to reduce emissions by:

- up to 80% (Option 1), consistent with the 'linear' trajectory of net GHGs between 2030 and 2050 referred to in the Climate Law (Article 8);
- two options that are consistent with the ranges of scientific scenarios compatible with reaching the goal under the Paris Agreement of a 1.5 °C temperature increase:
 - o at least 85% (Option 2) corresponding to a range of 85-90% reduction;
 - o at least 90% (Option 3) corresponding to a range of 90-95% reduction.

Option 2 reflects the total net GHG emissions that would be reached with a continuation of the current policy framework, and thus serves as the 'baseline' target level.

This impact assessment looks at how these three options compare in terms of their effectiveness in achieving the following goals:

- bringing the EU's GHGs to net zero by 2050;
- minimising the EU's contribution to climate change;
- ensuring a just transition;

⁽¹⁾ IPCC. Estimated cumulative net global anthropogenic CO₂ emissions from a given start date to the time that anthropogenic CO₂ emissions reach net zero that would result in limiting global warming to a given level.

- maintaining the long-term competitiveness of the EU economy;
- promoting the deployment of the technologies needed for the transition;
- ensuring security of supply and the EU's strategic autonomy; and
- meeting the EU's broader environmental policy objectives.

The analysis covers all sectors needed for the EU to reach its 2050 climate neutrality target. It is based on the Green Deal legislation and the REPowerEU actions to address the energy crisis.

The initiative does not propose or assess the post-2030 energy and climate policy framework. This future framework will be developed and assessed in the coming years to meet the 2040 target.

The main difference between the options is in the pace of the transition. Option 3 is the most effective in bringing the EU to climate neutrality by 2050, with a greater reduction in net greenhouse gas emissions ahead of 2040. As a consequence, it will imply less additional action after 2040 to reach net zero emissions by 2050.

Option 3 leads to the lowest GHG cumulative emissions (the "GHG budget") for the EU, making it the best option in terms of the EU's contribution to limiting climate change and providing the most credible push to the EU's partners worldwide to accelerate climate action. By encouraging early action, it is the target option expected to have the most impact on reducing global emissions, and on increasing the prospect of keeping 1.5 °C degrees warming within reach, so as to limit the disruptions to all economies, including the risk of reaching irreversible climate tipping points.

There is a clear difference between the target options in terms of the importance of novel technologies. Option 3 is accompanied by a faster roll-out of low-carbon technologies such as hydrogen production by electrolysis, carbon capture and industrial carbon removals between 2031 and 2040 than Option 2. Option 1 largely postpones the deployment of these technologies to the last decade 2041-2050.

Option 3 requires higher annual investment needs in 2031-2040 than Options 1 and 2, and then comparatively lower investment in 2041-2050. They result in only very limited differences in terms of total energy system cost, GDP and competitiveness on global export shares, while Target Option 3 shows the greatest benefits in terms of energy independence and greater protection against fossil fuel price shocks, strengthening the EU's strategic autonomy. All options lead to strong improvement in air quality and associated health benefits, and limit the environmental impacts.

Overall, Option 3 is more efficient, with higher net benefits in terms of avoided climate change and air pollution than the additional costs needed to mitigate climate change.

Option 3 will require a greater focus and action to ensure a just transition than under the less ambitious target options, as the transition is somewhat accelerated. However, the increase in costs for households compared with the 'baseline' Option 2 is small, and this assessment does not account for any policy measures or redistributive measures that can be expected to be developed to address social impacts.

The analysis shows the potential for demand-side actions, such as behavioural changes in food, circularity and mobility (as in the LIFE analysis), to complement the supply-side

transition (as shown in the core scenarios), and to reduce the costs to society of reaching the 2040 target: lowering energy system costs, the need for investment in (novel) technologies, and environmental risks (e.g. linked to higher demand for bioenergy).

The stakeholders who responded to the public consultation showed their awareness of the problems addressed and clear support for the 2040 target options, in line with those analysed in this impact assessment. Setting the target at 90% or higher received strong support from individuals (46%) and civil society organisations (63%). Most businesses supported a target of over 80% (39%), split as follows between a reduction of between 80% and 90% (23%) and a reduction of over 90% (16%), with less support for a reduction of 75-80% (29%). Research organisations were split between a target between 80-90% and a target above 90% (35% each).

The impact assessment therefore concludes that the preferred option is Option 3, a net GHG reduction target for the EU of 90-95% by 2040. It is in line with the advice of the European Scientific Advisory Board on Climate Change. It provides the best balance between, on the one hand, climate ambition and contribution to a fair share of the global carbon budget to meet the Paris Agreement temperature goals, and on the other hand, financial and technological feasibility.

The benefits of Option 3 outweigh the limited differences with Option 2, the baseline, and Option 1 in terms of effectiveness on just transition, competitiveness and in term of possible environmental trade-offs or supply of critical raw materials. These are trade-offs that can be addressed and mitigated by the forthcoming climate and energy framework and the overall enabling framework.

The transition will contribute to shielding the EU from shocks stemming from geopolitical events and global fragmentation, notably by reducing dependence on fossil fuels and improving the security of its energy supply. The security of supply of critical raw materials will need to be monitored and anticipated. It will be essential to manage the transition effectively to ensure the affordability for households and competitiveness of the European industry.