A Linear Route to Net Zero:

Why the European Commission's 2040 Target Is Costly, Inflexible, and Risky

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28 August 2025

Summary

- The proposed 2040 target of reducing greenhouse gas emissions by 90% may have unintended social, economic, and technological consequences.
- We propose a linear path to net-zero emissions by 2050, with a 66.5% reduction target for 2035 or, if a 2040 target is politically necessary, a 78% (or 80%) reduction following a linear decline. This approach would allow the EU the flexibility to respond to technological developments and other countries' climate actions.
- The EU risks losing policy flexibility by setting a very high 2040 target, as nationally determined contributions under the Paris Agreement cannot be reduced once submitted. Developed countries such as the UK, Norway, and Switzerland have chosen more conservative 2035 targets, retaining their ability to alter course based on actual developments.
- Achieving an additional 35% emissions reduction in just ten years will be extremely costly. Key technologies, such as green steel, cement, fertilisers, and plastics, are not yet commercially viable, and transmission network construction has fallen behind targets, necessitating massive redirection of private investment.
- EU governments face rising public debt (81.8% of GDP), aging populations, and an increase in defence spending commitments to 5% of GDP. These fiscal pressures may lead to slower emissions reduction and a failure to meet ambitious targets, ultimately undermining the EU's desired climate leadership position.

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Background

Under the Paris Agreement (United Nations 2015), parties are required to submit an update of their nationally determined contributions (NDCs) every five years.[1] This update should include a higher greenhouse gas (GHG) emissions reduction goal than the previous NDC. However, Article 4 of the Paris Agreement does not define at what rate emissions should fall. While developed countries such as the UK,[2] Norway,[3] and Switzerland[4] have proposed NDC targets only for 2035, the European Commission has proposed a target for as late as 2040.[5] Moreover, it has set a very ambitious target of reducing emissions by 90%. We consider this an imprudent decision, mainly because – according to the generally accepted interpretation – NDCs under the Paris Agreement cannot be decreased once they are submitted. This would deprive the EU of the flexibility of adjusting the 2040 target in response to actual developments in 2035.

The EU proposal, therefore, risks two adverse outcomes.

Inability to meet the high cost of attaining the target

The EU submitted in 2020 NDC commitment with the goal to reduce GHG emissions by 55% in 2030. It took 33 years to reduce emissions by 37% by 2023[6] and there are seven years left to cut additional 18% emissions.. This period was marked by a major shift away from coal and towards the use of lower-emission natural gas and renewable power. At the same time, there was a steep decline in heavy industrial production in eastern and central Europe,[7] which contributed significantly to reducing emissions in this part of the EU.

With the exception of domestic heating and transport, such opportunities for emission reduction may not recur. Although the cost of production of renewable electricity has fallen drastically, the technologies for the production of green steel, cement, fertilisers, and plastics are still not in commercial operation. Reforming these sectors will be extremely costly and investments time-consuming, making the goal of reducing emissions by an additional 35% in just ten years unattainable. The marginal abatement cost of emissions, given current and emerging technologies, will only increase as we approach carbon neutrality.

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[1] The list of submitted NDCs is available at National Determined Contributions Registry, UN Nations Climate Change (https://unfccc.int/NDCREG).

[2] The NDC of UK for 2035 was set at 81% (UK Government 2025).

[3] Norway's NDC aims to reduce greenhouse gas emissions by at least 70–75% by 2035 (UNFCC 2025b).

[4] Switzerland's second NDC aims to reduce its greenhouse gas emissions by at least 65% by 2035 (UNFCC 2025c).

[5] 'EU's climate law presents a new way to get to 2040', European Commission, 2 July 2025 (https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1687).

[6] Progress on climate action, European Commission, 2024

[7] For example, the production of crude steel decreased in 1989-2024 by 70% in CEE countries including Poland, Czechia, Hungary, Slovakia, Bulgaria and Romania. Based on data from Steel statistical yearbook 1990, International Iron and Steel Institute and data (https://worldsteel.org/wp-content/uploads/Steel-Statistical-Yearbook-1990.pdf) and European Steel in Figures 2025, EUROFER The European Steel Association, (https://www.eurofer.eu/assets/publications/brochures-booklets-and-factsheets/european-steel-in-figures-2025/European-Steel-in-Figures-2025_23062025.pdf)

A sharp drop in emissions will require a radical transformation of the economy. This will entail huge expenditure on building transmission and distribution networks.[8] Although the European Commission is identifying resources and funds that could help finance the transformation, these are not sufficient. More importantly, transmission network construction has fallen behind targets in recent years;[9] it is a very time-consuming process, and there is no reason to assume that the pace of construction will accelerate.

These factors lead us to conclude that the EU will be able to achieve its ambitious target in a relatively short period of time only by redirecting significant part of private investment from other sectors to the energy transition. This will, of course, further slowdown economic growth in the EU.

Failure to meet the target and loss of climate leadership

The EU is also facing rising public debt, which reached 81.8% of the GDP in the first quarter of 2025 (88% in the euro area).[10] All EU economies also have to deal with fiscal costs due to their ageing populations and low fertility. For strategic security reasons, member countries of the North Atlantic Treaty Organization have committed to sharply increasing their defence spending to 5% of GDP. Therefore, EU governments, on average, do not have the fiscal space for further debt-induced spending on the energy transition (Brøns-Petersen 2025). This lack of resources may lead to lower emissions reductions and a failure to meet the unrealistic target. This would undermine the EU's ability to secure climate leadership.

Proposal

For various reasons (listed below), we believe that the NDC goal should correspond to a linear path toward net zero by 2050. Strategically, the EU should aim for a linear decline in emissions by 2035, a date also chosen by other developed countries. Such a target would allow the EU sufficient flexibility to set a pace of emissions reduction that is based on emissions trends in countries that have a decisive influence on the rate of warming (China, the US, India, and Russia). For a linear decline until 2035, the target should be 66.5%.

However, if there is a political consensus that the EU must set a target for 2040, it should be set at 78%, in line with the linear decline.[11]

- Setting a linear target today will enable the EU to increase its future NDC targets. The EU will continue to be a leader in reducing emissions, as no other economy of 450 million people will be able to reduce emissions so significantly. The EU can raise its targets to more than 80% if the governments of other countries increase their targets as well. With this 'tit-for-tat'

[8] Eurelectric estimates that grid development and renewal in the EU and Norway will require an investment of €67 billion per year. See 'Double investments in power distribution or lose Europe's race to net-zero', Eurelectric, 22 May 2024 (https://www.eurelectric.org/news/grid_investments_for_netzero/).

[9] For example, the SuedLink, the 700-kilometres-long direct-current power line connection in Germany, was planned to be ready in 2022 but will not be completed before 2028. See 'Grid operator lays first underground cables of key energy transition power line', *Clean Energy Wire*, 22 October 2024 (https://www.cleanenergywire.org/news/grid-operator-lays-first-underground-cables-key-energy-transition-power-line).

[10] 'Government debt at 88.0% of GDP in euro area', Eurostat, 21 July 2025 (https://ec.europa.eu/eurostat/en/web/products-euro-indicators/w/2-21072025-ap).

[11] See European Commission (2024) for the impact assessment report.

strategy, free riding will become less of an issue. For example, the US could re-enter the Paris Agreement, and China could set more ambitious targets.[12] Keeping the initial EU target low leaves room for negotiation.

- A linear path allows the EU to effectively respond to technological developments. Several technologies meant to be key tools for decarbonisation, including hydrogen production, have not achieved the expected cost reductions and continue to require substantial financial support.[13] This is even more the case for carbon capture. Also, without alternative methods of production for key commodities such as steel and cement, rapid decarbonisation will not be possible in the next decade. We cannot predict with certainty what technologies will be available ten or twenty years from now, but we can safely assume that technologies in 2045 will be cheaper and more efficient than those available in 2035 or 2025 (Stagnaro et al. 2025).

- If the goal is to minimise the cost of achieving our climate objectives, then it makes sense to avoid premature adoption of inefficient technologies that require substantial subsidies. We have seen the consequences of early adoption before: between 2008 and 2011, many countries rapidly scaled up solar photovoltaics deployment, and their public budgets and electricity costs are burdened by billions of euros annually in subsidies – a high price for the questionable benefit of being a first mover.[14] Had the EU waited, we could have achieved greater capacity at a lower cost.

- Setting a precise CO_2 emission target for 2040 for an emissions trading scheme (ETS) can be misleading, as it focuses on a single-year snapshot rather than long-term climate impact. By contrast, the ETS cap is essentially a budget for the remaining total emissions in the foreseeable future. Furthermore, climate change depends on the cumulative reduction of emissions, not just emissions in one target year. An emissions budget approach sets a total cap over time, which aligns with the scientific understanding of atmospheric CO_2 accumulation. Relying solely on the 2040 target may lead to overshooting in the earlier years, jeopardising long-term goals. Emission budgets provide flexibility in timing while ensuring that total pollution remains within safe limits. This aligns better with the market dynamics of the ETS, which relies on predictable scarcity. Budgets allow for smoother price signals and investment planning. Politically, annual budgeting is easier to track and adjust than rigid distant-year targets. Therefore, in an ETS context, emission budgets provide a more effective and responsive climate policy framework.

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[12] In the latest NDC submitted by China, there are no specific targets. China aims to have CO_2 emissions peak before 2030 and to achieve carbon neutrality before 2060 (UNFCC 2025a).

[13] See the report of the European Court of Auditors (2024), which states, 'The EU targets turned out to be overly ambitious: based on the available information from member states and industry, the EU is unlikely to meet them by 2030'.

[14] Subsidies to renewable technologies more than doubled in period 2008-2011, from 22 bln. Eur to 47 bln. Eur. Final Report Energy Subsidies, (European Commission October 2020) https://trinomics.eu/wp-content/uploads/2020/11/Final-Report-Energy-Subsidies.pdf

Conclusion

In conclusion, we reaffirm our shared commitment to climate change mitigation. However, success will depend on setting not just ambitious but also realistic goals. We respectfully call on European decision-makers to adopt a 2040 emissions target that both acknowledges environmental urgency and seeks an achievable transition. An 80% emissions reduction target strikes this essential balance. It would significantly ease financial and technological pressures, retain public support, and preserve the EU's role as a global climate leader – without risking overstretch or loss of competitiveness.

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