



## REPORT SUMMARY

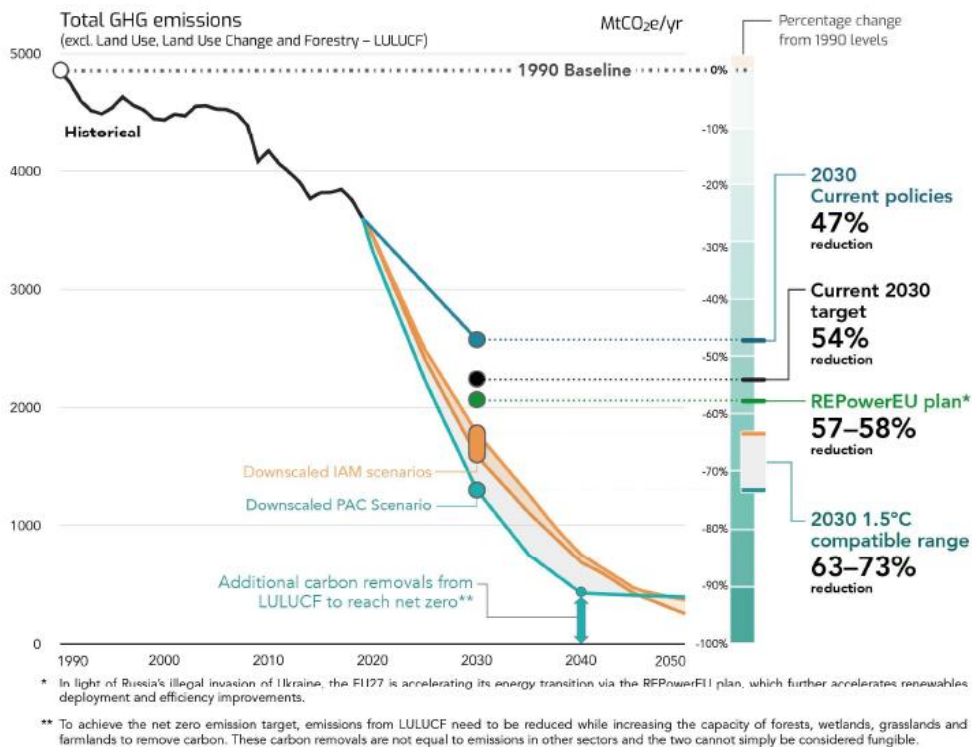
### 1.5°C pathways for the EU27: accelerating climate action to deliver the Paris Agreement

*Climate Action Network (CAN) Europe is Europe's leading NGO coalition fighting dangerous climate change. With over 170 member organisations from 38 European countries, representing over 1.500 NGOs and more than 47 million citizens, CAN Europe promotes sustainable climate, energy and development policies throughout Europe.*

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- To date, governments have put forward unambitious climate targets that are not sufficient to meet the Paris Agreement's long term goal of limiting average global temperature rise to 1.5°C. At the moment they put the world on a path to approximately [2.4 to 2.7°C of warming](#).
  - This [new report](#) by Climate Analytics "**1.5°C pathways for the EU27: accelerating climate action to deliver the Paris Agreement**", shows once again that there are feasible decarbonisation pathways that can put the EU and its Member States on track for meeting the Paris Agreement's goal of limiting temperature rise to 1.5°C by the end of this century.
  - The latest science shows that the 1.5°C goal is still within reach and that there are several pathways that can bring us there. All of these pathways entail steep emission reductions by 2030, reflecting the fact that we have entered the critical decade, during which action to reduce emissions must be drastically scaled up. A rapid scale up of renewable energy capacities is a prerequisite for 1.5°C compatible pathways, in parallel with massively mobilising our energy savings potentials.
  - In late 2020, the European Union's leaders agreed to increase the EU's 2030 climate target from at least 40% to at least 55% (net) emission cuts (both compared to 1990). This is a step in the right direction, yet it is still not enough for the EU to comply with its commitment and limit global temperature rise to 1.5°C.
  - In July 2021, the European Commission released a package of revisions of climate and energy laws and additional regulations, the so called 'Fit for 55', for the purpose of achieving this higher target. In June 2022 the Council adopted its negotiating positions (general approaches) on five legislative proposals in the **Fit for 55 package**. The Member States adopted a common position on the **EU emissions trading system** (EU ETS),

**effort-sharing** between Member States in non-ETS sectors (ESR), emissions and removals from **land use, land-use change and forestry (LULUCF)**, **social climate fund (SCF)**, new CO<sub>2</sub> emission performance standards for **cars and vans**, paving the way for negotiations with the European Parliament.

- The ongoing legislative process is the window of opportunity for the EU to align its laws with the highest plausible climate ambition for Europe that is proven to be feasible.
- As a rich economy, as well as a major historical emitter, the EU should strive for a tougher emissions reduction. The study finds that to be 1.5°C compatible, the EU should aim to reduce its emissions between 66 and 77% below 1990 levels by 2030 (including LULUCF). **It also reinforces CAN Europe's long-standing demand for reductions of at least 65%. The bloc could reach net zero emissions by 2040, a decade earlier than planned, if its policies followed one of the many feasible 1.5°C compatible pathways.**



*This figure shows domestic 1.5°C compatible GHG emissions for the EU27, compared to current policies and targets proposed by the bloc. The EU's current policies and targets do not align with 1.5°C, as assessed in this report. All targets and plans are converted to exclude LULUCF and international aviation and shipping within the EU27. Historical data is taken from PRIMAP (Gütschow et al 2021).*

## What are the key elements to get in line with 1.5°C compatible pathways?

The key trends are already described in the Paris Agreement Compatible (PAC) scenario and confirmed by findings from the downscaled Integrated Assessment Models (IAMs) of the IPCC's most recent Assessment Report:

- **Rapid electrification of industry processes, heating** (heat pumps) **and transport** (electric vehicles) with renewable electricity, based on a multiplication of solar PV and wind energy capacities, reaching a fully renewable energy system by as early as 2040.
- **Targeted introduction of renewable hydrogen and other synthetic fuels** based on renewable hydrogen to decarbonise hard-to-abate sectors such as long distance transport (aviation and shipping).
- **Ramping up energy efficiency measures and energy savings** to cut final energy demand by as much as 50% in 2050 (and even up to 65% of buildings final energy demand by 2040).

### What is calculated in this report?

The international science and policy institute Climate Analytics looked at the IAMs from the most recent IPCC report (Working Group III contribution to Assessment Report 6) on how to limit dangerous climate change to 1.5°C. Climate Analytics selected certain **1.5°C compatible pathways** that are technically feasible and economically cost-efficient, while achieving the highest plausible ambition for emission reductions. At the same time, the steep greenhouse gas emissions reductions in these 1.5°C compatible pathways do not violate strict sustainability criteria, including on the level of carbon dioxide removal from bioenergy and afforestation.

Climate Analytics first **downscales the global IAMs to the EU27 level** and calculates the greenhouse gas emissions reductions that the EU27 could achieve if its policies followed these 1.5°C compatible pathways. An additional 1.5°C compatible pathway besides the downscaled IAM is the **Paris Agreement Compatible (PAC) scenario**. The PAC scenario is a bottom-up scenario developed by CAN Europe and the European Environmental Bureau for the EU, to illustrate how different energy consumption sectors such as industry, buildings and transport could implement the civil society's policy demands (at least 65% greenhouse gas emission reduction by 2030, net zero emissions in a 100% renewable energy system by 2040).

All 1.5°C compatible pathways are compared with current policies and current targets of the EU27 (at least 55% net greenhouse gas emissions reduction by 2030). This comparison exercise allows us to identify the ambition gap between EU policies and what is needed to reach the Paris Agreement by following 1.5°C compatible pathways.

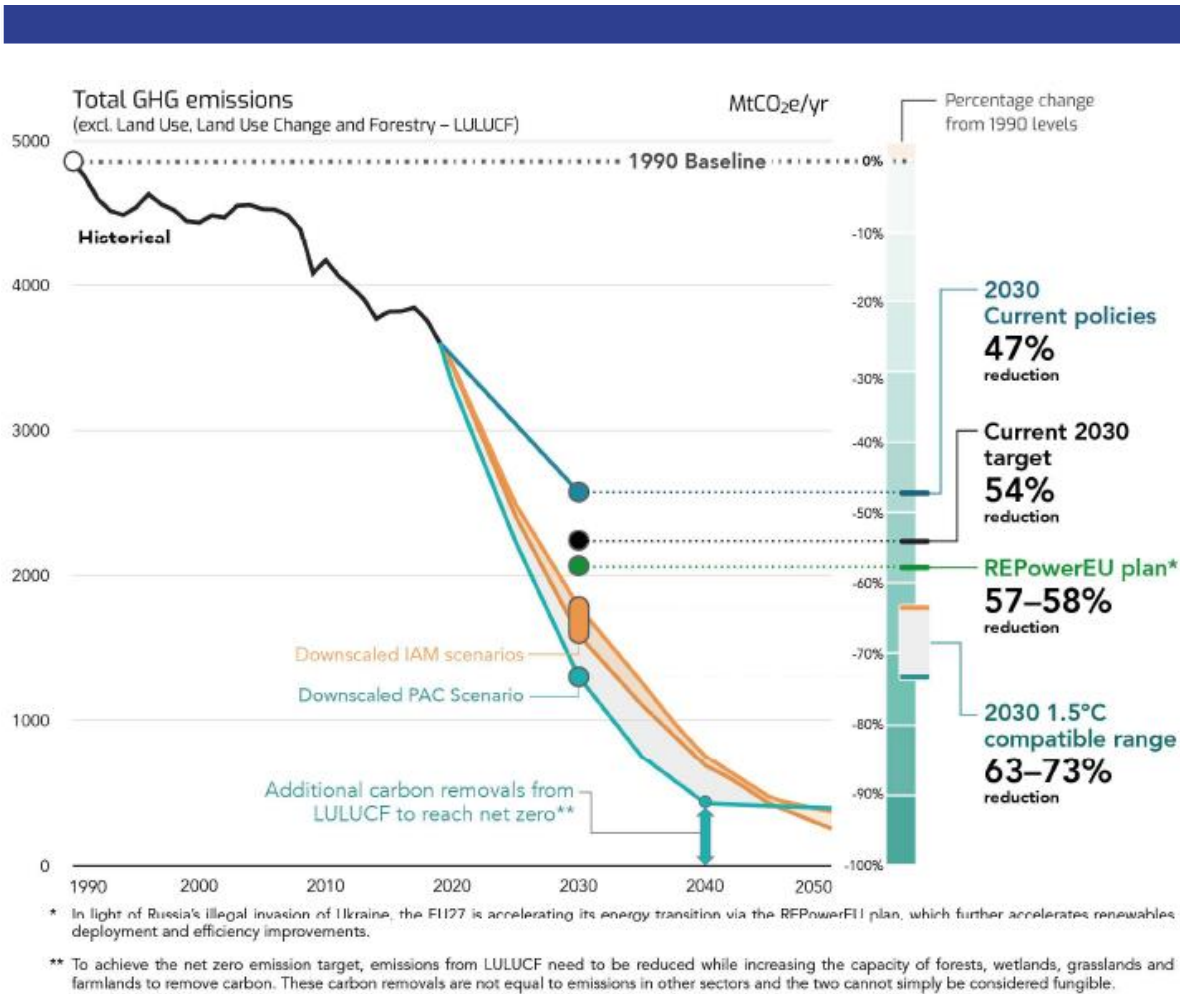
### Summary of policy recommendations:

- **Time dimension:** The actions set out in this report require a step-change in ambition but are technically feasible and economically cost-effective. Taking these actions, alongside strong efforts to preserve and expand the EU's LULUCF sink, could enable the EU27 **to reach net zero GHG emissions by 2040, a full decade earlier than currently planned.**
- **Global equity dimension:** In addition to setting stronger emission reduction targets and adopting more stringent policies to achieve them, **the EU27 also has an obligation, under the fair share and equity considerations embedded in the Paris Agreement, to assist less wealthy countries** to rapidly reduce their own emissions. Without such assistance, the global effort required to limit warming to 1.5°C will be distributed unfairly and will be unlikely to be met in time.

### Fit for 55 is far from being Fit for 1.5°C

Climate Analytics' report shows that in technically feasible and cost-effective pathways to decarbonisation for the EU27, emissions fall 66-77% (gross, incl. LULUCF) below 1990 levels by 2030. The current 'Fit for 55' target falls short of 1.5°C compatible pathways by **500-1000 Mt CO<sub>2</sub>e in 2030**. The analysis also shows that, by rapidly reducing fossil fuels while preserving and expanding the net carbon sink from land use, land use change and forestry (LULUCF), **net-zero GHG emissions could be reached by 2040** in the EU27, a full decade ahead of the current target.

### How do the 1.5°C pathways compare with current EU policies, Fit for 55 and REPowerEU?



This figure shows domestic 1.5°C compatible GHG emissions for the EU27, compared to current policies and targets proposed by the bloc. The EU's current policies and targets do not align with 1.5°C, as assessed in this report. All targets and plans are converted to exclude LULUCF and international aviation and shipping within the EU27. Historical data is taken from PRIMAP (Gütschow et al 2021).

## Does the REPowerEU plan finally make EU targets compatible with Paris?

Depending on the exact implementation of the [REPowerEU plan](#), and the relative role of coal and gas, this would likely lead to EU27 emissions in 2030 reaching **57-58% reduction below 1990 levels**, excluding LULUCF (Climate Action Tracker 2022). Including LULUCF, the ambition in the REPowerEU plan potentially constitutes a 2030 emissions level of **60-62% net below 1990 levels**. While the actions contained in the REPowerEU plan go some way to closing the gap, there remains a substantial ambition gap of **280 to 770 Mt CO<sub>2</sub>e** that would need to be addressed for the EU's targets to be deemed 1.5°C compatible.

## What about the impact of the Russian invasion of Ukraine?

All 1.5°C pathways were developed before the ongoing gas prices crisis, and before the Russian invasion. These developments have led to substantial increases in the price of fossil fuels (particularly gas) and underscored the volatility of fossil-based energy systems. In the current context, the **cost advantage of renewables is even greater** than assumed in these pathways, and the rationale for rapid deployment even stronger.

## Do we need more nuclear power to align the EU with 1.5°C compatible pathways?

The 1.5°C pathways show that nuclear electricity is not a required component of 1.5°C compatible action. Its share in electricity generation in the EU27 drops from **27%** in 2019 to **7%-8%** in 2030. In the EU27, nuclear power remains in the energy mix only with a **marginal contribution** during the 2040s.

## Will the lights stay on in a system running with high shares of solar and wind power?

Yes. To realise an energy system with such a high penetration of renewable energy, renewables deployment will need to be complemented with other infrastructure, as well as structural changes in energy markets. As with any highly renewable energy system, variability in solar and wind will need to be smoothed using a combination of **transmission, storage, and demand-side flexibility**. However, it has been shown that additional electricity transmission infrastructure in Europe, to help balance the grid at a continental scale, could realise a zero-carbon power system at substantially lower costs. In fact, most of these benefits can be achieved with only around 25% more transmission capacity than what is installed currently.

## Is the EU's current 2030 climate target enough to avoid dangerous climate change?

No. Even with the EU's enhanced target of at least 55% net emission reductions by 2030, as well as with the pledges from other major emitters, the world is still heading towards a global temperature rise of at least 2.4°C by the end of this century (Climate Action Tracker) with devastating consequences for people and the planet. Such a significant temperature rise would translate into an increased temperature in most land and ocean regions, extreme weather conditions (such as hot extremes, heavy precipitation), drought and precipitation deficits. Biodiversity and ecosystems would be affected, with several species being decimated or becoming extinct. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth would increase, and would particularly affect disadvantaged and

vulnerable populations, some indigenous peoples, and local communities dependent on agricultural or coastal livelihoods<sup>1</sup>.

It has been estimated that such a dramatic temperature increase trajectory will also cause 8.0% GDP loss in Europe by [2050](#). In order to contribute its [fair share](#) under the Paris Agreement, the EU should therefore strive for emission reductions of [at least 65% by 2030](#), and ramp up assistance to achieve emission reductions in developing countries.

## Is meeting a target of at least 65% emission reductions by 2030 feasible?

Yes. Multiple studies, including Climate Analytics' [most recent publication](#), indicate that a target of 65% reduction in greenhouse gas emissions in the EU below 1990 levels by 2030 is achievable<sup>2</sup>. Stronger EU legislation would give all market players and stakeholders the certainty and the direction they need in order to make the right, future-proof investments. This is a prerequisite for a just transformation of our societies and economies.

## How costly will this profound transformation of our energy system be?

Investing in energy savings and renewable energy clearly brings about benefits for the people and the environment. The costs of the required transformation are far outweighed by the costs of inaction or delayed action. A fully renewable energy system avoids costs of environmental damage in the EU, e.g. from weather extremes, amounting to €10,000 billion by 2050<sup>3</sup>. The continued use of fossil fuels would only increase the bill for our economies.

Moreover, renewables are a cheap domestic energy source, helping to alleviate energy poverty and giving economies a powerful competitive advantage over those dependent on fossil fuels. Zero fuel costs is one reason why solar and wind are [already the cheapest technologies](#) for producing electricity in almost all areas of Europe. Installation costs are set to fall further as renewables benefit from growing economies of scale and as fossil fuel subsidies are cut<sup>4</sup>.

The [sky-rocketing energy prices](#) all over Europe, mainly due to soaring fossil gas prices and the ongoing [conflict in Ukraine](#), add further to the arguments on why the EU needs to accelerate the energy transition. In order to cut energy costs in the long term, we need to massively reduce our demand and replace fossil fuels with renewable energy sources. That is exactly what we also need to do to keep on track with the 1.5°C objective.

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<sup>1</sup> [IPCC Special Report: Global Warming of 1.5°C](#)

<sup>2</sup> A selection of studies can be found in our factsheet [‘Science shows 65% emission reductions by 2030 is feasible and pays off’, September 2020](#). The studies include our [Paris Agreement Compatible \(PAC\) energy scenario, June 2020](#).

<sup>3</sup> [German Institute for Economic Research \(DIW\): Make the European Green Deal real, June 2020](#).

<sup>4</sup> CAN Europe, [“Key reasons why solar and wind energy will lead the way to safer climate and a brighter future“](#)

## What needs to happen before/at COP27 in Sharm El-Sheikh?

The EU27 and its Member States now have an opportunity to light a path forward for the rest of the world to follow, but it will require political courage to embrace the highest plausible climate ambition. **The EU27 will also have to prove their consistency and honour their commitments made last year in Glasgow. During COP26, in fact, governments promised to strengthen their climate action, revisiting and increasing their Nationally Determined Contributions (NDCs) in line with 1.5°C by the end of 2022.** Two months before COP27, its NDC still stands at 55%. The REPowerEU policies would already bring the EU to its 55% target, but the bloc could greatly benefit from increasing the ambition of its NDC. The current target of 55% is insufficient to stop future extreme weather conditions similar - if not worse<sup>5</sup> - to those seen this year, and falls short of the objectives of the Paris Agreement.

In addition to setting stronger emission reduction targets and adopting more stringent policies to achieve them, wealthy countries like most in the EU have an obligation, under the fair share and equity considerations embedded in the Paris Agreement, to assist less wealthy countries to rapidly reduce their own emissions. Without such assistance, the global climate mitigation burden required to limit warming to 1.5°C will be distributed unfairly and will be unlikely to be met in time.

Please note that the report **“1.5°C pathways for the EU27: accelerating climate action to deliver the Paris Agreement”** is an update of last years' [publication](#), integrating now the most recent scenarios from the IPCC.

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<sup>5</sup> The [Climate Action Tracker](#)'s findings confirm that the EU's target is consistent with at least 2°C of warming, and if other countries were to make similar levels of effort, it would certainly lead to faster warming, and worse and more frequent impacts than at 1.5°C.