European Climate Foundation

Press Release

New report: A net-zero emissions European society by 2050 is within reach but getting there starts today

**** Quotes are available below *****

Europe can reach net-zero greenhouse gas emissions by 2050 at the latest. Not only is it technically and economically possible: a net-zero future is likely to be very desirable, with a stronger economy, a more resilient society, and higher levels of wellbeing. This is the overall conclusion of "Net-Zero by 2050: from whether to how" (1), a new report released today by the European Climate Foundation and Climact, a climate and energy consultancy. It showcases the results of a project developed in consultation with a wide range of stakeholders (2). The report provides a clear perspective on the feasibility and the implications for the European Union of reaching net-zero emissions by 2050 at the latest (3). However, the report warns, it requires transformational action in all parts of society, without delay.

As the European Commission prepares its long-term strategy (LTS) for greenhouse gas emissions (GHG) reductions, to be released in November, this report highlights potential net-zero trajectories, describes the key changes required and explores their implications, in terms of both costs and co-benefits. It also gives a perspective on the need to increase near-term climate ambition to get on track for net-zero, which has relevance for ongoing discussions on EU Member States' National Energy and Climate Plans and the EU's Nationally Determined Contribution under the Paris Agreement.

The findings of the "Net-Zero by 2050: from whether to how" report come from a simulation model developed by Climact in consultation with the ECF and a wide range of experts, and available online (4).

KEY FINDINGS

1. Reaching net-zero GHG emissions by 2050 is feasible but requires robust action across all sectors, and widening the range of low-carbon options used for the transition

- Planning to reach net-zero by 2050 at the latest, in order to be in line with the ambition stemming from the Paris Agreement, means no sector can be left aside.
- We need to widen the range of options being used, including by putting more focus on how we operate as a society. **Innovation in our consumption patterns and increasing natural carbon sinks** need to be combined with the more typical technical options such as **energy efficiency**, f**uel shift, zero-carbon power production and electrification.**
- A review of the different scenarios points to the fact that **commercially available solutions can already take us about 75% of the way to net-zero if deployed at scale**. The remaining 25% can be achieved based on known approaches and technologies for which further scaling up and commercialisation is needed.
- Our research shows that t**here is not one way to decarbonise**: each country, region, city or local authority has to define its own transition with the global objective in mind.

2. Net-zero GHG emissions in 2050 requires raising the 2030 ambition level to set Europe on the right trajectory

- This study finds that to be on a trajectory to net-zero by 2050, **GHG emissions in Europe will need to be reduced by between 55 to 65% compared to 1990 levels (including LULUCF) by 2030.** This means a significant increase in ambition from the current EU 2030 target.
- Our findings, as well as the latest scientific evidence, tell us that t**he next 10 years are crucial if Europe and the world are to avoid the worst consequences of climate change.** Our analysis identifies a **set of "no-regrets" actions**, which need to be taken in this time span:

    - **Transport:** By 2030, the focus must be to ensure transport demand is stabilised to today's levels, and that the modal shift away from cars has started in earnest, with the car share down to 70% from around 80% today. After stabilisation of demand and modal shift, vehicle efficiency is the third key lever in the short term, with efficiency

needing to improve by at least 15% for cars and even beyond 20% improvement for trucks;
    - **Buildings:** Significantly renovating 3% of the buildings each year with deep retrofits to improve energy efficiency to near-zero energy levels, and fully decarbonising heat by 2050 at the latest. Current annual renovation rates are below 1%;
    - **Industry:** By 2030, significantly reducing the demand for material and products demand, by boosting the functional economy, the circular economy, and associated innovation;
    - **Power:** Close to complete phase-out of coal. Wind and solar should reach at least 50% of power production by 2030, around 60% by 2050, and 75% of the demand-side management (DSM) potential being exploited by 2050.
    - **Agriculture, Forestry, and Land-Use**: Before 2030 land-use must fully integrate climate change stakes: policies and business models must be convincing to restore degraded forests and to reforest most surplus and abandoned land. Also, on average, in 2030 meat consumption must be reduced by 25% (and at least halved by 2050) without increasing consumption of dairy products.
    - **Finance:** sufficient investment in innovation is a fundamental requirement for this economy-wide decarbonisation, to accelerate lab-to-market for innovative net zero technologies and the co-development of new products, businesses and services.

- 2050 matters because of the guideline it provides for near-term choices. It evidences the need to increase action now in order to leverage all the no-regrets options available and to avoid locking-in the wrong technologies and processes.

3. Net-zero pathways can cost less than business-as-usual and build a more prosperous, resilient society

- For the energy system, **net-zero GHG emissions pathways can be cost-negative in the medium to long term**, particularly if social and business model innovation can be channelled to increase asset utilisation. Depending on the scenarios, **an overall net reduction in total system costs of around 20% can reached by 2050** (versus 2016);
- A **major shift from spending on energy outside of the EU to domestic spending** will be one of the key drivers of the positive impact in the net-zero transition in Europe in the medium and long term. This is naturally related to

an **increase in energy sovereignty**, with important implications for the EU's strategic position in the world;

- The latest estimates in the literature indicate that the difference in potential climate damages in a 2°C scenario compared to a 1.5°C scenario will be much higher than the total system costs of any scenario. In summary, **the costs of climate impacts resulting from not taking action are far greater than the costs of taking action;**
- **Implementing circular economy principles** implies significant changes in industry, but ultimately **brings added-value and resilience to the economy;**
- A net-zero society is a positive and innovative society that **can bring an attractive quality of life to its citizens, and a wide range of additional benefits and lower costs** – for example: cleaner air, less traffic and city congestion, better living environments, less money spent on fuels and more on infrastructure and innovation in Europe, leading to a more resilient economy with more and better jobs, more durable goods, higher biodiversity, and better forests.

Quotes:

Laurence Tubiana, CEO of the European Climate Foundation:

"Net zero needs to be our goal, our direction of travel, and our rallying cry. The "Europe we want" is one that protects its citizens from global threats such as climate change, which no one country can tackle on its own; and creates a safer, cleaner world. Net-zero is a path to a sustainable Europe in which prosperity and well-being are delivered alongside a clean and healthy environment."

Lola Vallejo, Climate Programme Director at the Institute for Sustainable Development and International Relations (IDDRI):

"Envisioning what a low-carbon future looks like in the long-term is a prerequisite to inform short-term climate policies consistent with the collective goals of the Paris Agreement, whether at the European or national scale. When reaching net zero emissions is on the horizon, it is all the more necessary to build a credible forward-looking pathway, involving key stakeholders, as well as taking stock of real-world progress and barriers."

Carlos Sallé, Senior Vice-President of Energy Policies and Climate Change at IBERDROLA:

“Besides a strong ambition and commitment to fighting climate change, we need simulations like the ones presented in this study to analyse the feasibility and efforts required by all the sectors of our economy. Net-zero emissions targets by 2050 can be achieved in the EU with robust policy frameworks based on rigorous scenarios, and the wider use of climate friendly solutions,such as renewable energy sources, electric vehicles, heat pumps, etc, which are already available from a technical and economic perspective.”

Julien Pestiaux, Partner at Climact:

“What has really struck us during our research is how attainable the transition to zero emissions is: most of the tools we need are already available across all sectors, and using them will redirect the huge financial flows spent on fossil fuels back in to the European economy. The co-benefits of the transition massively outweigh the additional investments required, particularly if the focus is given to the demand side with increased use of circular economy principles – which consumers are really starting to understand, for example in relation to plastics. The focus today must be on giving a clear direction of travel, activating the no regrets actions, increasing European cooperation, and so giving leadership to the rest of the world.”

Imke Lübbeke, Head of Climate and Energy at WWF European Policy Office:

"We are already feeling the impacts of climate change, from more aggressive weather patterns to weakened ecosystems--all leading to growing concern among European citizens. Science shows that we are at a tipping point and need to limit the rise to 1.5°C through transformative pathways, to avoid possible irreversible damage. This modelling work shows that the EU can do so, by aiming for net zero emissions by 2040, by phasing out fossil fuels, increasing removal sinks, investing in green transport and infrastructure, and moving to an efficient 100% renewable energy system. This is the time for the EU to show global leadership through a holistic, integrated—and impact-oriented--approach to their long-term climate strategy. "

<u>On using the CTI 2050 Roadmap Tool:</u>

Dr Jan Ole Kiso; Department for Business, Energy and Industrial Strategy; UK Government:

"The forthcoming Intergovernmental Panel on Climate Change report on the global implications of the 1.5C target will reignite the discussion around net-zero emissions by 2050. The CTI 2050 Roadmap Tool is an ideal tool that helps to develop strategies to reduce greenhouse gas emissions and understand the various trade-offs involved. This calculator tool assists in developing an informed debate between policymakers, experts and the general public. Only in the presence of such a debate can a reliable and well-balanced 2050 strategy materialise."

Notes to the editors:

1. "Net-Zero by 2050: from whether to how - Zero emissions pathways to the Europe we want": https://europeanclimate.org/wp-content/uploads/2018/09/NZ2050-from-whether-to-how.pdf

2. **Model-testers. The following organisations supported the analytical team in testing the model:**
Agora-Energiewende, Climate Strategy, Fraunhofer Institute for Systems and Innovation Research ISI, Friends of the Earth (FoE) UK, Grantham Research Institute - London School of Economics, Iberdrola, Institute for European Environmental Policy (IEEP), Institute for Sustainable Development and International Relations (IDDRI), Stefan Scheuer, Third Generation Environmentalism (E3G), UK Department for Business, Energy and Industrial Strategy (BEIS), and the World Wide Fund for Nature (WWF) European Policy Office.

Other organisations were consulted on sector specific discussions: Agora Verkehrswende, Aviation Environment Federation (AEF), Buildings Performance Institute Europe (BPIE), Ecofys, EuroACE, the European Consumer Organisation (BEUC), the European Federation for Transport & Environment (T&E), Fraunhofer ISI, International Federation of Organic Agriculture Movements – EU (IFOAM-EU), International Institute for Systems Analysis, Öko-Institut, Imperial College London (ICL), Open Exp, Stefan Scheuer, and Vrije Universiteit Brussel (VUB) – Institute for European Studies (IES).

3. This project has developed and used a simulation model of European emissions and the mitigation options available in the future, analysing possible pathways to

reach net-zero GHG emissions. The emissions scope of the model encompasses all sectors of the economy and all GHG emissions sources covered by national inventories, including international aviation, shipping, and LULUCF.

For each sector of the EU economy that emits GHGs, the GHG emissions drivers and means of reducing them – referred to as 'levers' – were modelled. Examples of levers include shifting from cars to softer modes of transport, deep retrofits of buildings to reduce their energy consumption, enhancing the circular economy with longer-lived assets, shifting to renewable forms of electricity production, and shifting to healthier diets to free up land for increasing forest covers.

4. Webtool: https://stakeholder.netzero2050.eu/

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