

# Media Briefing

## UNDER EMBARGO

### NEW REPORT: Climate neutrality by 2040 is possible, but new European Commission needs to act urgently

**Brussels, 24 September 2024, UNDER EMBARGO UNTIL WEDNESDAY 25 SEPTEMBER 00:00 AM CET** European civil society organisations highlight the urgency of phasing out fossil fuels and building a 100% renewable energy system ahead of the establishment of the new European Commission. This media briefing explores the newly published energy scenario, which demonstrates how Europe can achieve climate neutrality already by 2040 and align with the Paris Agreement goals, limiting global temperature increase to 1.5°C.

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The Paris Agreement-Compatible (PAC) 2.0 scenario shows a technical, political and societal pathway for the EU's energy sector to transition towards climate neutrality by 2040. It also aims to ensure that we are planning and building the infrastructure necessary for a future fossil-free, 100% renewables-based energy system.

In addition to this report, which describes the mid to long term transformative changes that are needed to align our energy sector with the Paris Agreement objectives, CAN Europe has also issued [concrete policy recommendations for the 2024-2029 EU policy cycle](#) to make this transition a reality.

### What are the main findings?

- **Achieving climate neutrality by 2040 pays off.** The PAC 2.0 scenario outlines a clear pathway for the EU27 to achieve climate neutrality by 2040, which is 10 years ahead of the 2050 target. This accelerated timeline will

generate significant socio-economic benefits. For every euro invested, the EU will gain up to four times more in co-benefits, amounting to over €1 trillion by 2030.

- **A 100% Renewable Energy System is feasible and essential.** The transition to a 100% renewable energy system is not only technologically viable but instrumental for limiting global temperature increase to 1.5°C. This includes rapid decarbonization of all sectors, phasing out fossil fuels and nuclear by 2040, and massive investments in solar, wind, storage, and grid infrastructure, for a far more flexible energy system than we have today.
- **Energy Demand Reduction is the foundation for climate neutrality.** The PAC 2.0 scenario underscores that achieving climate neutrality by 2040 hinges on a substantial reduction in energy demand across all sectors. Through sustainable lifestyles, energy efficiency, innovation and circularity, the EU could reduce its final energy consumption by more than 40% by 2040 (compared to the PRIMES 2020 Reference scenario projections), ensuring that the transition to a 100% renewable energy system is both achievable and cost-effective.

## What will be the cost of this transition?

PAC 2.0 demonstrates that accelerated climate action not only addresses the climate crisis, but also delivers substantial economic benefits. According to our [estimation](#), for every additional euro invested in the energy transition, Europe stands to gain up to four times more in co-benefits. Crucially, a PAC 2.0 pathway can deliver climate neutrality at a lower cost than the EU's 2050 energy scenario, as we quantify that achieving climate neutrality by 2040 entails total gross investment needs of €28.9 trillion, which is almost €5 trillion less than achieving the EU's 2050 energy scenario (net zero by 2050).

Evidently the additional investment costs (gross investment needs minus investments that would have been needed anyway in the energy sector over the period) are significantly lower than gross investment needs. By frontloading investments this decade, reducing energy demand, and substantially expanding sustainable renewable energy, the EU can enhance both its competitiveness and resilience.

## What should be the focus of the new European Commission in the next five years based on this energy scenario?

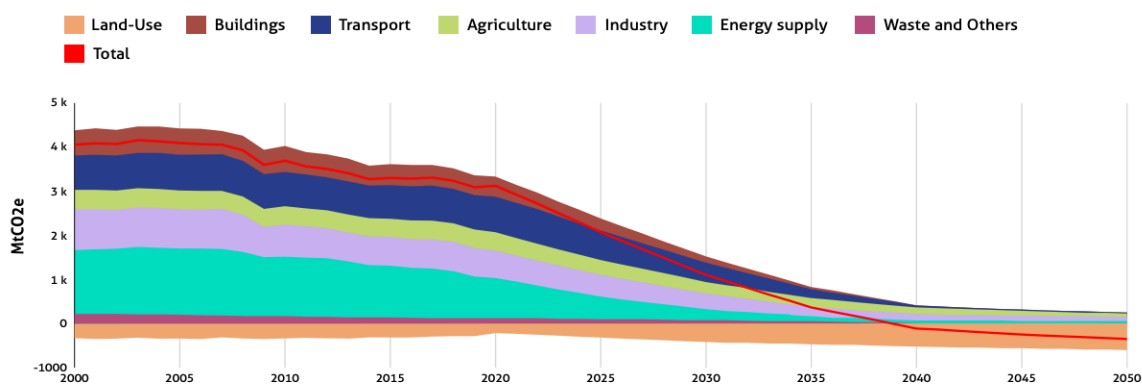
Progressive EU energy policies of the past five years increased in many ways climate ambition. This trajectory and pace absolutely need to be upheld and further accelerated during the next EU policy cycle running over the period 2024 - 2029 as current policies are not sufficient to limit global temperature increase to 1.5°C.

## Different countries have different starting points.

The key element of the PAC 2.0 is achieving climate neutrality by 2040, for Europe, which doesn't translate into all Member States being climate neutral at the same time. A common vision for Europe must be based on solidarity to tackle the huge challenge of the climate crisis and its impacts and support from citizens. And this has to take into account different starting points and national contexts as well as potentials, while collectively aligning on the much needed and increased climate ambition.

## What's the level of greenhouse gas emissions reduction per sector?

The emission trajectory of the PAC 2.0 for the European Union until 2040 visualises total emissions reductions, represented by the red line across all sectors in Figure 1 below, expressed in million tonnes of CO2 equivalent. These emissions are disaggregated across all emitting sectors, namely buildings, transport, agriculture, industry, energy supply, and waste and others, shown in different colours. At the bottom, the light orange area marks the amount of emissions that land-use, or LULUCF should cover, perceived as negative emissions.



**Figure:** PAC 2.0 emissions trajectory until 2040 - EU27

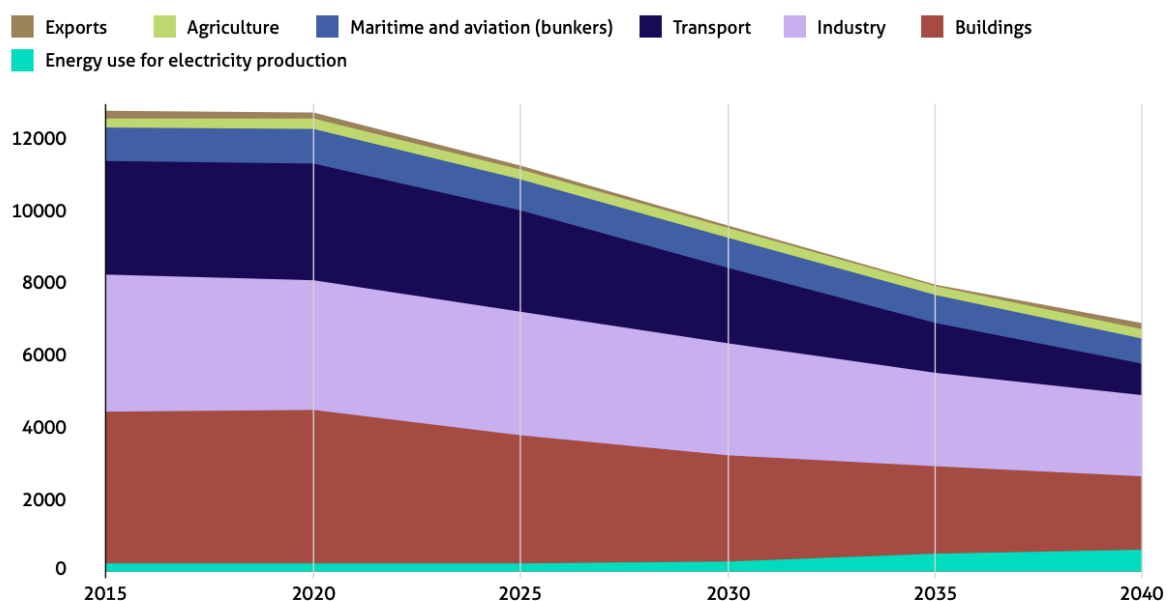
**Source:** Pathways Explorer

# What does this scenario foresee for energy consumption reduction?

The reduction of the energy consumption is envisaged mainly in the sectors of buildings, industry and transport. Through actions taken in the current and the next decade, more energy-efficient **buildings** that have been renovated will apply renewables-based heating and cooling systems and phase-out inefficient fossil fuels. This will halve the energy demand from buildings from 4,191 TWh in 2015 to 2,019 TWh by 2040.

Much more energy-efficient **industries**, as 2.5 times more electrified than in the present, will apply circularity, deploy green hydrogen (H2) for high-temperature processes and see energy demand decrease from 3,835 TWh to 2,230 TWh.

The **transport** sector, as very difficult to decarbonise, requires modal shifts, a smaller, electrified car and truck fleet, and rail prioritisation, to see energy demand fall down from 3,127 TWh in 2015 to 890 TWh by 2040.



**Figure:** PAC 2.0 Energy demand per sector — EU27

**Source:** Pathways Explorer, CAN Europe analysis

## What technologies do we need to see this scenario become reality?

The deployment of renewable energy sources plays a key role here. Wind and solar have been growing at a rapid pace in Europe, proving that they can outpace fossil fuels in electricity generation. But although 2023 set a new record with 74 GW of wind and solar installations, this still falls short **of the 100-120 GW needed annually by 2040 to align with the Paris Agreement targets** (and even more if the energy demand reduction foreseen in PAC is not achieved). This is why it is important to more rapidly shift investments from fossil fuels to renewable energy.

In the PAC 2.0 Scenario, renewable electricity generation more than triples during the decade from 2020 to 2030. Based on renewables, the electrification rate at the EU27 reaches 43% by 2030 and 80% by 2040. This leads to renewables covering 50% of gross final energy consumption in 2030 and 100% in 2040. Such an increase of renewable energy is one of the key elements for cutting greenhouse gas emissions by 65% by 2030.

Equally important will be the development of infrastructure. The acceleration of sustainable renewable energy deployment should include enhancing grids, increasing energy storage, demand-side flexibility and improving system flexibility. Transmission and distribution-level grid bottlenecks must be addressed to avoid unnecessary losses of already generated electricity. Grid uptake can be promoted in nature-friendly ways and by leveraging flexibility measures to full potential to address the current gridlock, which is increasingly prohibiting many Member States from reaping the benefits of the energy transition.

## What does the scenario foresee for the use of nuclear power?

The pursuit of new nuclear energy is not only dangerous but also uneconomic as construction is slow and expensive. Therefore, public finance should remain inaccessible to nuclear power. The PAC scenario does not expect any lifetime extension of nuclear power. On the contrary, increasing costs of maintenance, of the fuel chain and decommissioning tend to incentivise earlier retirements. By 2040, nuclear power will be phased out.

## What does the scenario foresee for the use of hydrogen?

Only renewable hydrogen that is produced through electrolysis with renewable electricity brings about a climate benefit. The PAC scenario shows that the EU has sufficient renewable energy potentials to produce the additional electricity needed to run the electrolysers. As producing renewable hydrogen and other non-fossil gases and fuels such as synthetic methane and liquid synthetic fuels is linked with high losses, **the direct use of renewable electricity is the preferred option.**

Only in those sectors where an energy carrier with high energy density is needed do we foresee the introduction of renewable hydrogen, e.g. in the steel industry, use of green ammonia in shipping, e-kerosene in aviation and a very small use of e-fuels in long-distance heavy freight. For efficiency reasons, neither renewable hydrogen nor synthetic methane are introduced for heating in buildings. Introducing hydrogen from fossil gas in combination with Carbon Capture (CCS) technologies is neither considered a realistic option nor a contribution to emissions reduction.

## Who is involved in the PAC 2.0 project?

[Climate Action Network \(CAN\) Europe](#) participates in the Paris Agreement Compatible (PAC) 2.0 project, as member of a wider consortium consisting of [European Environmental Bureau \(EEB\)](#), [Renewables Grid Initiative \(RGI\)](#) and [REN21](#) as project partners, to construct a European-wide energy scenario aligned with the objective to limit global warming to 1.5°C.

### **For more information and media requests:**

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