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TRANSPORT & ENVIRONMENT

WWF

WHAT HAS THE EU DONE FOR YOU AND THE PLANET?



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Country	Topic - Example
Austria	Electric Vehicles - FIVEVB Project
	Public Transport - Climate Ticket
	Rail Connectivity - Connections to Czech Republic
	Rail Connectivity - European Year of Rail Action Plan
	Renewable Energy - Solar Energy Expansion
	Gender Equality, Green Jobs - Women4Green Project
Belgium	Renewable Energy, Emission Reduction - 2018 Governance Regulation
	Clean Air - School Streets
	Clean Water - EU Wastewater Law (Brussels)
	Electric Vehicles - FIVEVB Project
	Rail Connectivity - European Year of Rail Action Plan
	Green Jobs and Skills - J.O.B. Vert project in La Bourrache
Bulgaria	Energy Consumption & Costs - STEP Project
	Clean Air - Replacement of Polluting Stoves and Boilers
	Clean Water - Urban Wastewater Law *(potential for improvements)*
	Reducing Fossil Fuel Dependency - RePowerEU
	Tackling Energy Poverty - POWERPOOR Project
	Tackling Energy Poverty, Energy Efficiency - ComAct Project
Croatia	Clean Water - Urban Wastewater Law *(potential for improvements)*
	Electric Vehicles - Recovery and Resilience Fund, Zagreb Electromobility Strategy
	Renewable Energy - Solar Rooftop Initiative
	Gender Equality, Energy Consumption - EmpowerMed Project
	Tackling Energy Poverty - POWERPOOR Project
Republic of Cyprus	Clean Water - Improved Water Systems and Wastewater Treatment
	Energy Consumption & Costs - STEP Project
Czech Republic	Energy Consumption & Efficiency - New Green Savings Programme *(second part here)*
	Rail Connectivity - Investment in Rail Networks
	Rail Connectivity - Connections to Austria

	Rail Connectivity - European Year of Rail Action Plan
	Energy Consumption & Costs - STEP Project
Denmark	**Electric Vehicles - Bright Green Island Bornholm Initiative**
	Rail Connectivity - European Year of Rail Action Plan
	Just Transition, Green Skills - ARISE Project
Estonia	Renewable Energy, Emission Reduction - 2018 Governance Regulation
	Tackling Energy Poverty - POWERPOOR Project
	Sustainable Food Systems, Nutrition - Organic Food Production Rate
Finland	Renewable Energy, Energy Independence - Electricity Market Design Reform, REPowerEU
	Electric Vehicles - Alternative Fuel Infrastructure Regulation (AFIR)
France	Water Access - Water Framework Directive, Loire-Bretagne Basin Groundwater Protection
	Electric Vehicles - FIVEVB Project
	Rail Connectivity - European Year of Rail Action Plan
	Rail Connectivity - Trans-European Network Strategy
	Renewable Energy - Solar Rooftop Initiative
	Gender Equality, Energy Consumption - EmpowerMed Project
	Sustainable Food Systems, Nutrition - Lens Organic Food Target Environmental Standards
	Food Affordability and Security - Passerelle Project
	Reducing Pesticides, Sustainable Food Systems - Ban on Neonicotinoids
Germany	Renewable Energy, Emissions Reduction - Accelerated Permitting
	Renewable Energy, Energy Prices - Savings from Renewables Expansion
	Clean Air - Low Emission Zones
	Electric Vehicles - FIVEVB Project
	Clean Railway Transport - Electrified Trains: Kiel to Lübeck
	Cost of Living, Support for Low-Income Households - REPowerEU
	Rail Connectivity - European Year of Rail Action Plan
	Rail Connectivity - Trans-European Network Strategy
	Rail Connectivity - Multimodal Digital Mobility Services Proposal
	Renewable Energy - Solar Rooftop Initiative
	Green Skills, Youth - BBNE Project
	Green Skills, Youth - BerufsKlima Work Camps
	Energy Cost, Building Efficiency - W4RES & HFT Stuttgart

	Reducing Food Waste - REFRESH Project
Greece	Energy Consumption, Citizen Empowerment - REPowerEU, Public Awareness Campaign
	Tackling Energy Poverty - POWERPOOR Project
Hungary	Accessible Rail Transport - National Train Ticket Scheme
	Rail Connectivity - Trans-European Network Strategy
	Tackling Energy Poverty - POWERPOOR Project (incl. Terézváros example)
	Tackling Energy Poverty, Energy Efficiency - ComAct Project
	Reducing Food Waste - REFRESH Project
Ireland	Just Transition, Green Skills - ARISE Project
	Clean Water - Urban Wastewater Law *(potential for improvements)*
Italy	**Renewable Energy, Emission Reduction - Italian Energy Communities**
	Renewable Energy, Energy Affordability - Potential for Savings Through Renewables
	Rail Connectivity - Trans-European Network Strategy
	Rail Connectivity - Multimodal Digital Mobility Services Proposal
	Just Transition, Green Skills - ARISE Project
	Gender Equality, Green Jobs - Women4Green Project
	Gender Equality, Energy Consumption - EmpowerMed Project
Latvia	Energy Consumption & Costs - STEP Project
	Tackling Energy Poverty - POWERPOOR Project
	Sustainable Food Systems, Nutrition - Organic Food Procurement Target
	Rail Connectivity - Trans-European Network Strategy
Lithuania	Energy Consumption & Costs - STEP Project
	Rail Connectivity - Trans-European Network Strategy
	Accessible Rail Transport - Potential to Improve Rail Access
	Tackling Energy Poverty, Energy Efficiency - ComAct Project
Malta	Clean Water - Urban Wastewater Law *(potential for improvements)*
	Gender Equality, Green Jobs - Women4Green Project
Netherlands	Clean Air - LIFE CLINSH Project
	Clean Air - EU Air Quality Law & Low Emission Zones (Amsterdam)
	Clean Water - Groundwater Protection, Farmers for Drinking Water
	Energy Consumption - Energy Efficiency Directive
	Renewable Energy - Solar Rooftop Initiative

	Just Transition, Green Skills - ARISE Project
	Energy Efficiency, Cost of Living - The Energy Box (ENPOR)
	Reducing Food Waste - REFRESH Project
Poland	Renewable Energy, Emission Reduction - Accelerated Permitting
	Reducing Energy Consumption & Emissions - Smart Energy Infrastructure, Modernisation Fund
	Energy Consumption & Costs - STEP Project
	Green Jobs, Renewable Energy, Energy Independence - Solar Job Creation
	Public Transport, Clean Air - Investment in Public Transport (Olsztyn)
	Clean Air, Heating - Subsidy Scheme for New Boilers, EU Air Quality Law
	Rail Connectivity - Deployment of Cross-Border Multisystem Engines
	Heating, Cost of Living, Clean Air - Clean Air Plus Programme
Portugal	Clean Railway Transport - Trans-European Network Strategy, EU Cohesion Funds
	Emission Reduction, Cycling Infrastructure - Emissions Trading System
	Nature and Biodiversity Protection - Natura 2000, Protection of Great Bustards
	Nature and Biodiversity Protection - Natura 2000, EU Bird Law, Revival of the Azores Bullfinch
	Rail Connectivity - European Year of Rail Action Plan
	Just Transition, Green Skills - ARISE Project
	Energy Consumption & Costs - STEP Project
	Tackling Energy Poverty - POWERPOOR Project
Romania	**Nature and Biodiversity Protection - LIFE CARPATHIA Project**
	Clean Water - Urban Wastewater Law, Investment in Wastewater Infrastructure
Slovakia	Energy Consumption, Cost of Living - STEP Project
	Sustainable Food Systems, Nutrition - Organic Food Procurement Target
	Food Affordability and Security - Fund for European Aid to the Most Deprived
	Electric Vehicles - Bratislava Electromobility Strategy
Slovenia	Energy Efficiency, Cost of Living - ZERO500 Programme
	Clean Air, Electric Vehicles - Ljubljana Electromobility Strategy
	Rail Safety - Connecting Europe Facility for Transport, European Rail Traffic Management System (Celje-Zidani Most Railway Corridor)
	Gender Equality, Energy Consumption - EmpowerMed Project
	Energy Consumption, Cost of Living - STEP Project
Spain	Energy Independence, Renewable Energy, Clean Mobility - REPowerEU

	Renewable Energy, Green Jobs - Solar Job Creation
	Nature and Biodiversity Protection - Natura 2000, Protection of Great Bustards
	Clean Air - Safe School Environments in Pamplona
	Clean Air - Low Emission Zones, EU Air Quality Law (Madrid)
	Clean Water, Water Access - Water Framework Directive (incl. Segura River Basin)
	Accessible Railway Transport - Single European Rail Market Proposal
	Clean Railway Transport - Trans-European Network Strategy, EU Cohesion Funds (Valencia-Porto)
	Rail Connectivity - Trans-European Network Strategy (Madrid-Galicia)
	Cost of Living, Energy Independence - REPowerEU
	Green Jobs - Empleaverde Project
	Gender Equality, Energy Consumption - EmpowerMed Project
	Tackling Energy Poverty - POWERPOOR Project
	Reducing Food Waste - REFRESH Project
Sweden	Gender Equality, Green Jobs - Women4Green Project

EXECUTIVE SUMMARY

A safe climate

The world is currently heading towards a temperature rise of 2.9°C by the end of the century, with Europe already warming faster than the rest of the world by an extra 1°C. A European Union that is 3°C warmer will become an increasingly dangerous, and partially uninhabitable, place to live. To avoid this, the EU has been making significant progress in reducing greenhouse gas emissions in recent years: thanks to the EU Emissions Trading System (ETS), emissions covered by the system have been reduced by 38% between 2005 and 2022. The share of renewable energy sources in the EU more than doubled from just over 10% to nearly 23% between 2005 and 2022. In 2023, renewables used for our electricity production rose to a record 44% share. However, this is still not enough. Current projections show that, under the current pace, the EU will have reduced its emissions to 48% below 1990 levels by 2030, to 60% in 2040 and to a mere 64% in 2050—way short of net zero and way short of the EU's own targets. Perhaps more importantly, to comply with the goal set in the Paris Agreement, the EU must raise its emission targets and move the climate neutrality ahead to 2040—ten years sooner than its current target. Lastly, the EU should employ nature-based solutions and build nature resilience in order to combat climate change.

Nature, heritage and wildlife

Many areas of our wildlife and natural sites in Europe are under threat. Only 15% of wildlife habitats are in good condition. However, the European Union is actively working towards restoring our nature. Between 1992 and 2018, the LIFE programme invested €2.2 billion in more than 1,800 nature and biodiversity projects. More than 5 million hectares of land have thus been restored or had their conservation status improved. Moreover, the EU Birds and Habitats Directive has led to the creation of the largest coordinated network of conservation areas in the world—the Natura 2000 Network. Still, more needs to be done: the EU must enact the nature restoration law and support it with adequate funds. This could restore at least 20% of the EU land and sea by 2030 and 100% of ecosystems needing restoration by 2050.

Clean air

Air pollution remains the most significant environmental health risk: in 2021, over 300,000 premature deaths were caused by high levels of air pollution in the EU. Most of this air pollution comes from transport, cooking and heating in our homes, industry and agriculture. The EU is trying to tackle air pollution in all of these sectors and nearly €150 billion are available in the 2021-2027 period to achieve cleaner air. So far, EU laws and funding have been successful in driving down air pollution: between 2005 and 2020, emissions of all air pollutants fell in the EU. However, the

EU's air quality standards are still not in line with the World Health Organisation recommendations. The EU must urgently make its air quality standards more stringent by aligning them with the WHO. This could prevent over 100,000 premature deaths every year. In parallel, tough action is needed to cut pollution at source through dedicated source legislation; and to define additional and more ambitious National Emissions Reduction Commitments for the five important air pollutants in Europe contributing to poor air quality, leading to significant negative impacts on human health and the environment.

Clean water

The European Union has been instrumental in widening access to clean and safe water for all, particularly in those Member States that were falling behind in meeting EU's standards of water quality, such as Romania. Between 2014 and 2020, the EU allocated €15 billion to this cause. Thanks to this, 95% of Europe's population has access to high-quality drinking water, and 82% have access to wastewater treatment. However, climate change and increased pollution continue to threaten European water supplies; and despite the initial goal of ensuring all European water bodies have good status by 2015, over half of them are still not in good condition. The EU must urgently step up enforcement of all relevant environmental legislation, especially the Water Framework Directive, to ensure its water protection and management goals are achieved.

Emission-free electric vehicles

Road transport constituted approximately a quarter of the EU's CO2 emissions in 2021 and causes high air pollution levels, linked to at least 238,000 premature deaths every year. To combat this, the European Union has been working on incentivising a transition to electric vehicles, including cars, vans, trucks and buses. Thanks to an EU law, the number of public chargers has increased threefold between 2018 and 2021, to almost 340,000. EU action has also contributed to electric cars becoming more affordable: in 19 Member States, e-cars are already cheaper than a petrol or diesel equivalent. However, the EU still needs to ensure that a robust and sustainably powered charging infrastructure is accessible to all. It must also address the challenge of sourcing raw materials needed to manufacture the e-car batteries in a manner that is ethical, and that does not expose the EU to vulnerabilities when sourcing from outside of the EU.

Accessible and affordable rail

Over the past few years, the EU has been working on making rail travel cheaper, cleaner and easier, with notable successes. The introduction of EU-backed and funded 'climate-ticket schemes' has made rail commuting more affordable and led in some regions to rail usage increasing by 50% between 2021 and 2022. EU investments in rail safety and efficiency have reduced travel times, making railway travel a competitive mode of transport compared to air travel. Between 2019 and 2022, the share of electrified routes in Portugal increased from 15% to 71%, which

makes rail travel even more sustainable. However, with only 7% of kilometres travelled by train in 2022 being cross-border trips, the EU must do more to make cross-border rail travel more affordable, convenient and accessible. This includes harmonising rail standards across all Member States, increasing cross-border connections and simplifying ticketing structures.

Heating costs and energy independence

After Russia's invasion of Ukraine, it became imperative for the European Union to shield European citizens from energy price hikes and to secure Europe's energy independence. The REPowerEU plan has been crucial in achieving just that: through its energy saving measures, the Plan led to a 20% reduction in household energy consumption, representing average savings of €200 per European household. In 2023, the EU significantly reduced its dependence on Russian fossil fuels and overall fossil fuel imports by 17% compared to 2022. A significant milestone was reached as wind produced more EU electricity than gas for the first time, with wind and solar combined achieving their highest ever year-on-year increases. Still, the EU must accelerate the rollout of wind and solar if it wishes to reach its targets of 55% by 2030, double their 2023 share of 27%, and it must do so in a way that does not compromise the EU's biodiversity objectives.

Green jobs

As the European Union transitions to a greener future, it is crucial that this transition takes place in an inclusive manner—a transition that tackles environmental concerns whilst ensuring that citizens' needs are covered through decent wages, good working conditions and stable future-proof jobs. Thanks to EU policies, the EU has seen substantial growth in green jobs, spanning various competencies and accommodating diverse skill levels, totaling 5.1 million jobs in 2020. The EU has also funded projects that have offered thousands of citizens opportunities to improve their skills and adapt to the evolving labour market. Despite these successes, the EU must address the longstanding gender disparity in fields like energy and green transition, where women are persistently underrepresented.

Support for low-income households

With over 41 million Europeans currently unable to afford heating and around 1 in 5 in debt with their utility companies, the EU has faced a significant challenge in supporting low-income households in the energy and cost-of-living crises. To overcome it, the EU has funded numerous projects designed to tackle energy poverty. In one example, the EU funded the Solutions to Tackle Energy Poverty project, which advised over 16,000 consumers across 8 Member States, such as Bulgaria and Lithuania, as well as the UK. This has translated into €11.01 million worth of savings to consumers. The current funds, however, do not adequately address the scale of the crisis; and more funding is needed to effectively transition communities out of energy poverty.

Sustainable food systems

The EU has taken significant action against food poverty and to widen access to healthy, nutritious food. Between 2014 and 2020, the EU allocated €3.8 billion to the Fund for European Aid to the Most Deprived, which it launched to help people in need of food and material assistance. Nearly 13 million people in Europe have already benefited from the programme. The EU has also limited sugars in some food and beverages and banned some of the most harmful pesticides to protect the health of both citizens and the environment. However, the EU must step up its efforts in limiting the environmental impacts of agriculture. Food production is one of the main contributors to greenhouse gas emissions and biodiversity loss and many EU agricultural subsidies still support intensive agriculture and harmful practices, without offering a just transition for farmers. The EU must do more to support the transition to sustainable farming and more plant-based food.

The European Union has been a driving force for positive change. This is evident not just in the statistics on emission reductions, air pollution reduction or renewables share increase—but also in the fact that the EU has successfully been pushing Member States to act where they were reluctant to do so, such as in the case of water protection. However, the European Union faces many challenges ahead before it achieves its climate and environmental targets. **In most EU Member States, 80% of environmental laws come from the EU[1], making the vote in the upcoming European elections a great opportunity to continue our ever-pressing journey to a Europe that is net-zero climate friendly, zero-pollution and socially just. Around 80% of Europeans support this journey[2] and 68% would be likely to vote if elections were held in a week's time.[3]** To deliberately forgo the opportunity to vote in this year's election would be to deliberately forgo the opportunity to be heard and to forgo the opportunity to secure a habitable, safe and healthy planet for centuries to come.

[1] Ludwig Krämer. (2014). *EU Enforcement of Environmental Laws: From Great Principles to Daily Practice – Improving Citizen Involvement.* Link.
[2] The Guardian (2023). Many Europeans want climate action – but less so if it changes their lifestyle, shows poll . Link
[3] Eurobarometer. (2023). *EP Autumn 2023 Survey: Six months before the 2024 European Elections.* Link.

INTRODUCTION

We have arrived at a critical juncture when it comes to our climate and the environment. The planet is on track towards a temperature increase of 2.9C compared to pre-industrial levels, with Europe warming even faster, and we are seeing high levels of environmental pollution and degradation.

At the same time, the European Union has seen significant progress on many fronts in the last few decades and especially in the last few years. In December 2019, just months after the last European elections, the European Commission launched the European Green Deal—a revolutionary set of laws and policies that put the EU on a path towards becoming the first net-zero continent by 2050. It is safe to say that without such EU laws and EU funding, we would have been much further away from ensuring our planet remains, at the very least, inhabitable beyond this century.

Despite the significant steps forward, however, the EU is still far from where it needs to be. The EU must urgently take more ambitious action to achieve our goals and our commitments—and it must do so in a way that will benefit all citizens, including the most vulnerable groups.

The upcoming 2024 European elections present a unique opportunity for all of us, as EU citizens, to push for this action and to elect those decision-makers who understand the urgency of the current situation and who will be open to listen to our demands.

This report shows the instrumental role the European Union has played in driving positive change in 10 areas of environmental policy—from nature restoration and conservation, through emission-free electric vehicles, to supporting individuals in energy poverty. It also highlights why change was necessary in the first place and, crucially, what the EU must do to bring us closer to a net-zero, zero-pollution and socially just future.

How the EU works towards a safe climate

Key takeaways

- The world is currently heading towards a temperature rise of 2.9°C by the end of the century. However, Europe has already been warming faster than the rest of the world by an extra 1°C.

- A European Union that is 3°C warmer will become an increasingly dangerous, and partially uninhabitable, place to live.

- The Mediterranean will be particularly hit as the proportion of land experiencing droughts could rise to almost 50%.

- Whilst the south of Europe dries, northern and central Europe will experience river floods more frequently. Under the current scenario, they could affect almost half a million people every year, compared to 172,000 people now.

- To avoid this disastrous scenario and limit the temperature rise to 1.5°C in line with the Paris Agreement, we must urgently reduce our domestic gross greenhouse gas emissions and reach climate neutrality by 2040 at the latest.

- Thanks to the EU's carbon market, emissions covered by the market have been reduced by 38% between 2005 and 2022.

- However, the number of 'free allowances' handed out to heavy polluters in industry sectors under the carbon market has continued to increase, therefore shielding them from paying for their emissions. In total, the protection of heavy industry amounts to nearly 5 billion free allowances in the period 2021-2030, worth more than €460 billion.

- The EU's carbon market generated almost €40 billion in 2022. These funds can generate massive benefits for EU citizens. For example, Portugal, where transport is responsible for over 25% of the country's greenhouse gas emissions, will invest €300 million until 2030 to develop 960 kilometres of cycle paths.

- Thanks to EU laws, the share of renewable energy sources in the EU's energy mix more than doubled from just over 10% to nearly 23% between 2005 and 2022. In 2023, the share of renewables in the EU's power sector rose to a

record 44%. In Belgium, whose per capita emissions are among the most intensive in the EU, renewable energy consumption increased by 12.5% between 2019 and 2020. Similarly, Estonia saw a 15.1% increase in renewable energy consumption between 2019 and 2020, achieving a nearly 30% decrease in the country's carbon emissions.

- EU laws and funding were a crucial factor behind total emissions in the buildings sector falling by 31% between 2005 and 2021. In 2021, the EU increased the target of the Regulation covering emissions from buildings, mandating that EU countries have to collectively cut emissions by 40% compared to 2005 levels—up from 30%. The Regulation has also generally been made stricter to ensure the emissions targets are achieved.

- The green transition has already shown its capacity to save citizens money on energy bills and to create new jobs. Additional solar and wind capacity already saved EU consumers around €100 billion between 2021 and 2023. Green employment has risen by 23% between 2010 and 2020.

- Despite these achievements, the EU must raise its current emissions reduction target, as well as its targets for renewable energy and energy efficiency, to comply with the Paris Agreement.

The world is currently heading towards a temperature rise of 2.9°C by the end of the century.[4] At the same time, **Europe has already been warming faster than the rest of the world**—whilst **the global mean temperature between 2013 and 2022 was up to 1.17°C warmer than the pre-industrial level, Europe's temperature was nearly an extra 1°C warmer**.[5] In the last 30 years, over a third of heat-related deaths in the warm season were caused by climate change—and the most burdened regions in the world were southern and eastern Europe.[6] Within that time period, the region also saw the highest number of deaths from floods and landslides and southern Europe saw the deadliest wildfires. **In 2018, more European countries experienced wildfires than ever before.** Meanwhile northern and western Europe saw the deadliest storms of the last three decades.[7] Between 1980 and 2022, economic losses from weather and climate-related extreme events reached more than €650 billion.[8] Climate change is therefore no longer a future threat—it is already happening, and EU citizens are having to face its consequences.

[4] UN Environment Programme. (2023). *Emissions Gap Report 2023*. Link.
[5] European Environment Agency. (2023). *Global and European temperatures.* Link.
[6] A.M. Vicedo-Cabrera et al. (2021). *The burden of heat-related mortality attributable to recent human-induced climate change*. Link.
[7] European Environment Agency. (2017). *Climate change, impacts and vulnerability in Europe 2016*. Link.
[8] European Environment Agency. (2023). *Economic losses from weather- and climate-related extremes in Europe*. Link.

At the same time, if we do not act now, it can still become much worse. On a global level, extreme weather events caused by climate change could lead to the displacement of up to 1.2 billion people by 2050.[9] Whilst most people currently displaced due to climate change move within the borders of their countries, it is likely that the exacerbation of climate change will trigger external migration and create competition for basic resources, such as food and clean water, as well as jobs, thereby increasing tension and violence. However, efforts to mitigate climate change are far from a lost cause: by becoming climate neutral by 2040, we can limit the temperature increase to 1.5°C above pre-industrial levels set in the Paris Agreement and avoid the worst possible consequences of climate change.

In 2020, the EU committed to cutting greenhouse gas emissions to 55% below 1990 levels by 2030, with a view to reach climate neutrality by 2050.[10] This was a significant increase from the previous commitment of cutting GHG emissions to 40% below 1990 levels by 2030. Following the advice of its climate science advisors, the European Commission has just this year proposed an additional target of reducing GHG emissions to 90% below 1990 levels by 2040. Whilst this step is certainly a positive one and will bring substantial benefits, it still is not enough to reach the 1.5°C temperature limit.

What has the EU done to ensure a safe climate for future generations?

Averting a climate catastrophe by making the polluter pay

A European Union that is 3°C warmer will become an increasingly dangerous—and partially outright uninhabitable[11]—place to live. Regions impacted by droughts in Europe could double from 13% to 26% of the total area. **The Mediterranean will be particularly hit as the proportion of land experiencing droughts could rise to almost 50%.**[12] This is likely to make it increasingly hard to grow staple crops like wheat and maize in southern Europe and, in turn, lead to higher food prices.[13]

[9] World Economic Forum. (2021). *Climate refugees – the world's forgotten victims.* Link.
[10] European Commission. (n.d.). *Delivering the European Green Deal.* Link.
[11] R.S. Kovats et al. (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Link.
[12] UFZ. (2018). *Climate change intensifies droughts in Europe.* Link.
[13] Politico Europe. (2021). *Droughts, fires and floods: How climate change will impact Europe.* Link.

Whilst the south of Europe dries, **northern and central Europe will experience river floods more frequently**. Under the current scenario, **they could affect almost half a million people every year, compared to 172,000 people now** and resulting damages could increase from €7.8 billion annually to almost €50 billion.[14]

Wildfires, which predominantly affect the Mediterranean region, will last longer and reach farther. Diseases like dengue fever, West Nile virus and malaria will spread more easily as temperatures rise.[15]

To avoid this disastrous scenario and limit the temperature rise to 1.5°C in line with the Paris Agreement, we must urgently reduce our domestic gross greenhouse gas emissions and reach climate neutrality by 2040 at the latest.

One of the EU's flagship laws to approach this target, which has been in place since 2005, is the EU Emissions Trading System—the EU's carbon market in which CO2 emitting companies sell or buy carbon credits depending on their emissions. It covers around 40% of all EU greenhouse gas emissions, including aviation, maritime transport, energy-intensive industries like oil refineries, and, above all, the largest source of EU emissions—electricity and heat generation.[16]

It is precisely in this sector that the EU's carbon market has proven to be most effective: **between 2005 and 2022, emissions from facilities covered by the market have been reduced by 38% and this has been largely driven by the decarbonisation of the power sector**.[17] While other factors certainly played a role, the EU's carbon market was found to have contributed to speeding up emissions reductions by an average of 2.1% annually. Additionally, it has been proven that emissions were cut more in those industries that were greater polluters.[18] By making the polluters pay for their role in the climate crisis, the EU is ensuring we can achieve the emissions reduction we need to avoid a climate disaster.

The EU's carbon market brings down emissions not only through making it more expensive for polluters to pollute, but also through the money it generates that can subsequently be invested into green sectors. The money generated from the market has been growing, especially in recent years, and is expected to continue doing so.

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[14] Joint Research Centre. (2020). *Climate change, river flooding and adaptation*. Link.
[15] Politico Europe. (2021). *Droughts, fires and floods: How climate change will impact Europe*. Link.
[16] Statista. (2024). *GHG emissions in the EU - Statistics & Facts*. Link.
[17] European Environment Agency. (2023). *Total net greenhouse gas emission trends and projections in Europe*. Link.
[18] European Central Bank. (2023). *Benefits and costs of the ETS in the EU, a lesson learned for the CBAM design*. Link.

Whereas **in 2017, it generated only €5 billion, in 2022 the amount rose to almost €40 billion.**[19]

The vast majority of these funds go directly to Member States, and they have the potential to generate massive benefits for EU citizens. For example, **Portugal,** where transport is responsible for over 25% of the country's greenhouse gas emissions, **will invest €300 million until 2030 to develop 960 kilometres of cycle paths** to make cycling more attractive as a sustainable and healthy mode of transportation.[20] As part of this programme, Lisbon and Porto have already implemented bike-sharing programmes to make cycling more accessible for residents. Until recently, Member States were still largely free to decide how to spend the EU's carbon market funds—however, thanks to EU law, Member States now must use all of the funds for climate and energy-related purposes.[21]

Curbing emissions further by rapidly increasing the share of renewables in the EU's energy mix

The emissions reduction in the energy sector would not have been possible without the increasing share of renewable energy sources. **Between 2005 and 2022, the share of renewable energy sources in the EU more than doubled from just over 10% to nearly 23%.**[22] **In 2023, renewables used for our electricity production rose to a record 44% share, with wind and solar energy combined for the first time reaching over a quarter of EU power (27%).** At the same time, **the EU saw record falls in coal power, gas power and overall power sector emissions, which fell by 26%, 15% and 19%, respectively.**[23] This trend is likely to continue as gas continues to decline, fourth year in a row, and coal resumes its decline again. This is not by accident—it has been driven by EU laws and initiatives designed to achieve just that.

For example, thanks to the 2018 Governance Regulation, **Belgium**, whose per capita emissions are among the most intensive in the EU[24], implemented a number of policies leading to its **renewable energy consumption increasing by 12.5%**

[19] European Environment Agency. (2023). *Use of auctioning revenues generated under the EU Emissions Trading System.* Link.
[20] Emissions Trading Extra. (n.d.). *Documentary: Helping Portuguese Cyclists To Get On Their Bikes Through The Eu Emissions Trading System.* Link.
[21] European Environment Agency. (2023). *Use of auctioning revenues generated under the EU Emissions Trading System.* Link.
[22] European Environment Agency. (2023). *Share of energy consumption from renewable sources in Europe.* Link.
[23] Ember. (2024). *European Electricity Review 2024.* Link.
[24] McKinsey Sustainability. (2023). *Net zero or growth? How Belgium can have both.* Link.

between 2019 and 2020[25]. This certainly played a role in **Belgium's carbon emissions decreasing by nearly 14% between those two years**.[26]

Estonia, whose economy's carbon intensity is one of the highest in the EU[27], achieved an even more impressive result. By introducing a number of support and grant schemes to comply with the Regulation, **Estonia saw a 15.1% increase in renewable energy consumption between 2019 and 2020**, achieving a **nearly 30% decrease in the country's carbon emissions.**[28] By incentivising the deployment of clean energy, the EU is allowing its Member States—and its citizens—to play their part in reducing overall emissions and averting a climate catastrophe.

A key barrier to EU's faster deployment of renewables is permitting: in some Member States, it can take up to 9 years to approve a large renewable energy project.[29] This, coupled with the energy crisis after Russia's invasion of Ukraine, led the EU to adopt energy emergency measures in 2022. These helped speed up permitting processes for renewable energy projects in areas which were deemed suitable. Thanks to these measures, **Germany permitted 44% more onshore wind capacity in the first 6 months of 2023 than the year prior.**[30] In Poland, the increased electricity production from wind farms contributed to the country achieving a record 27.1% share of renewables in the energy mix in 2023.[31]

However, a key concern remains about the effect of these measures on the EU's biodiversity objectives. To address this, the EU, in its law on renewable energy, encourages Member States to identify areas that are suitable for the development of renewable energy projects for their low environmental effects—these are called renewables acceleration areas.[32] The EU has now developed a mapping tool that can be used to help identify these areas.[33] The map can provide information on which areas should be excluded based on sensitivity maps, such as protected areas for biodiversity conservation under national schemes, and which areas are suitable, for instance in locations where commercial activities, such as wastewater treatment plants, are already in place.

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[25] Guidehouse Germany. (2022). *Assessment of Member States' reports for the year 2020.* Link.
[26] Statista. (2023). *Annual carbon dioxide emissions in Belgium from 1970 to 2022.* Link.
[27] European Parliamentary Research Service. (2021). *Climate action in Estonia.* Link.
[28] The World Bank. (2023). *CO2 emissions (kt) - Estonia.* Link.
[29] European Commission. (2023). *Accelerating permitting for renewable energy.* Link.
[30] Wind Europe. (2023). *Germany installed 1.6 GW new onshore wind in the first semester; rigorously implements EU permitting measures.* Link.
[31] Bridge. (2024). *The Polish energy industry is quietly moving away from coal.* Link.
[32] European Commission. (2022). *Acceleration areas for renewables.* Link.
[33] European Commission. (2023). *New tool to map energy infrastructure and renewable energy potential whilst protecting nature.* Link.

Case study: Italy's energy communities
In the spring of 2021, Italy's first fair energy community was created in the underprivileged neighbourhood of San Giovanni a Teduccio in Naples. The project would not have been possible without the EU's law on renewable energy—the Renewable Energy Directive—which requires Member States to recognise energy communities and allow them to operate. The project allowed for the installation of a total of 166 solar panels, for a total power of 53 kW, on the roof of the local charity Fondazione Famiglia di Maria's headquarters, which distributes clean energy not only to the charity but also to 40 local families living in poverty.[34] Any surplus energy is stored or sold to the grid. The proceeds from the sale are then redistributed among the households—each can expect to receive up to €300 at the end of each year.[35] Today, there are over 150 energy communities across Italy and there will be more—in November 2023, the European Commission approved a €5.7 billion investment for energy communities in Italy.[36] Additionally, at the start of 2024, the Italian government officially issued a decree that gives the green light to the establishment of renewable energy communities. The Italian government expects 5 GW of PV capacity to be built by 2027 and based on Italy's experience so far, there is a possibility of adding an extra 12 GW of solar power capacity by 2030—that is an expansion of 20 GW altogether.[37] For a better picture of how much power that is, 20 GW could power 2 billion LED light bulbs.[38] Energy communities could thus cover around 15% of Italy's solar power expansion that the government has planned until 2030.[39]

[34] Legambiente Campania. (n.d.). *A San Giovanni a Teduccio la prima comunità energetica e solidale d'Italia.* Link.
[35] Claudio Mazzone. (2022). *San Giovanni a Teduccio, per venti famiglie l'energia è «fatta in casa».* Link.
[36] European Commission. (2023). *Commission approves EUR 5.7 billion Italian State aid scheme to support renewable energy communities and self-consumers.* Link.
[37] PV Europe. (2024). *Italy introduces energy communities.* Link.
[38] Office of Energy Efficiency and Renewable Energy. (2023). *How Much Power is 1 Gigawatt?.* Link.
[39] PV Europe. (2024). *Italy introduces energy communities.* Link.



Photo credits: Legambiente

Helping you reduce energy use, your carbon emissions and energy costs all by improving energy efficiency

Greenhouse gases are, however, not only emitted by big companies—they are also emitted by all of us when we heat our homes and offices. **Buildings in the EU account for 40% of our energy consumption and 36% of our greenhouse gas emissions**, which includes the construction of buildings, their renovation, demolition and, above all, energy use.[40]

The EU's action—in the form of both laws and funding— to drive down emissions from buildings was a crucial factor in **total emissions in the buildings sector falling by 31% between 2005 and 2021**.[41] Emissions from buildings, as well as from road transport, agriculture, small industry and waste—together responsible for 60% of the EU's greenhouse gas emissions—are covered by the Effort Sharing Regulation. In 2021, the EU increased the Regulation's target, mandating that EU countries have to collectively cut emissions by 40% compared to 2005 levels in the sectors covered by the regulation—up from 30%. The Regulation has also generally been made stricter to ensure the emissions targets are achieved. Apart from setting collective emissions, the Regulation also establishes national binding targets for each Member State, which has motivated many Member States to take action.

[40] European Commission. (2020). *In focus: Energy efficiency in buildings*. Link.
[41] European Environment Agency. (2023). *Greenhouse gas emissions from energy use in buildings in Europe*. Link.

To comply with the Regulation, **the Czech Republic implemented the New Green Savings Programme.** The programme offers grants to people who want to retrofit their family homes, build passive houses, purchase houses with low energy consumption or purchase heat pumps, charging stations for electric vehicles, solar-thermal and PV installations and more.[42] It was launched in 2014 and since then**, it has supported 180,000 households with CZK 22 billion, which is equivalent to over €887 million**.[43]

Slovenia has launched the **ZERO500 programme**, which is co-funded by the EU through the Cohesion Fund, and which provided full subsidies for energy efficiency measures including building insulation, installation of energy efficient windows or installation of a recuperation system. A total of **426 residential buildings have been renovated** as a result of the programme. In December 2023, the Slovenian government launched a new call which **will offer individual households up to €18,000 each** for the above measures.[44]

To help with the funding of energy efficiency improvements in lower-income Member States, the EU established the Modernisation Fund, which is funded through the EU's carbon market. Through this fund, **Poland, for instance, has received over €220 million** for their Smart energy infrastructure project which aims to improve energy efficiency by **disseminating 3.8 million smart metres**. This will allow households to reduce their energy consumption and **avoid**, over the course of the project, **over 1534 kt of CO2**.[45] This is **equivalent to a year's worth of CO2 emissions from nearly 4 natural gas-fired power plants**.[46]

The EU has also mobilised **nearly €300 billion for Member States through the REPowerEU Plan launched in 2022** in response to Russia's invasion of Ukraine.[47] These funds will help Member States invest more into energy saving programmes and clean energy. Through this programme, Spain has requested a funding of €8 billion, 60% of which it aims to distribute through subsidies. Some of these funds will be used to support renewable energy for self-consumption and energy communities, whilst others will focus on energy infrastructure, including the electrification of transport.[48]

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[42] Ecologic Institute. (2022). *The use of auctioning revenues from the EU ETS for climate action.* Link.
[43] Solarstone. (2023). *Czech Republic rooftop solar subsidy New Green Savings Programme.* Link.
[44] Balkan Green Energy News. (2023). *Slovenia adopts action plan to halve energy poverty.* Link.
[45] Modernisation Fund. (2023). *Report on the implementation of projects (priority programmes) co-financed from the funds accumulated on the account of the Modernization Fund and the material and environmental effects achieved in 2022. Poland.* Link.
[46] United States Environmental Protection Agency. (2024). *Greenhouse Gas Equivalencies Calculator.* Link.
[47] European Commission. (n.d.). *REPowerEU at a glance.* Link.
[48] REScoop.EU and Bankwatch Network. (2023). *Repower communities – not fossil fuels.* Link.

Additional funding will soon be provided through the Social Climate Fund. This fund, distributed via EU countries, is specifically aimed to help the most vulnerable households living in energy or fuel poverty by offering support with the renovation of buildings, clean heating and cooling, zero-emission mobility and more. The fund will be financed through the existing EU carbon market (ETS) as well as the newly incoming money from the EU ETS 2, which will cover emissions from fuel combustion in buildings, road transport and a few additional sectors. Additionally, national governments will contribute 25%—as such, **the Fund will mobilise at least €86.7 billion between 2026 and 2032 and improve the energy efficiency of buildings and facilitate better access to environmentally friendly modes of transportation.**

'Made in Europe'

While the EU dedicates its efforts and funding mainly towards averting a climate catastrophe, the green transition also offers significant positive opportunities for citizens. The first one is that clean energy can deliver significant savings on energy bills. As a result of EU's action, **in 2021 and 2022, the EU added almost 90 GW of PV and wind capacity** which allowed for the displacement of nearly a tenth of hard coal and natural gas generation. For a better understanding of how much capacity that is: just 1 GW of power is equivalent to 310 wind turbines or nearly 2.5 million PV panels. **In 2023, wind power generation (18% of EU electricity generation) overtook gas (17%) for the first time** and **wind and solar** combined saw their **highest year-on-year increases in both generation and installed capacity**.[49]

This additional capacity has reduced electricity prices, **saving EU consumers around €100 billion** between 2021 and 2023.[50] In Germany, such savings would be able to pay for the entirety of what the government decided to allocate towards supporting electricity prices for energy-intensive industries until 2030.

Similarly, switching to an electric vehicle—which the EU incentivises in many different ways, including in the law on renewable energy—can save citizens money. Even in September 2022, still at the height of the energy crisis, it was shown that **driving 100 kilometres with an average electric car charged at home would cost around €6.50. The cost of driving this distance with a petrol car would be, on average, 80% higher and 50% higher if driving with a diesel car.**[51]

The second opportunity lies in employment. Thanks to the EU's efforts on deploying renewable energy sources and improving energy efficiency, there has been a **23%**

[49] Ember. (2024). *European Electricity Review 2024*. Link.
[50] IEA. (2023). *Renewable Energy Market Update*. Link.
[51] Transport and Environment. (2022). *Electric cars are still cheaper to run than petrol and diesel. T&E did the maths*. Link

increase in green employment, compared to a 5% increase in general employment, between 2010 and 2020.[52] The growth of green jobs has been especially noticeable in the solar sector. Whereas, in 2021, the EU solar workforce consisted of 466,000 workers, by the end of 2022, the number was 648,000.[53] **In Spain, solar PV installations, particularly those meant for self-consumption, resulted in a nearly 60% increase in jobs, and it is estimated that 152,000 jobs were created thanks to the energy transition in Spain between 2015 and 2022.[54] However, the top contributor to solar job creation was Poland, which added 147,000 employment opportunities in 2022 alone.**[55] Similarly, **the transition to electric vehicles is likely to create between 3 and 4 million jobs** across the battery value chain in the EU—from manufacturing, through data science to cell engineering.[56] EU climate mitigation laws are therefore not merely about avoiding the climate worst case scenario—they also offer significant economic benefits for citizens.

Is the job done to keep citizens safe and make the transition workable for all?

Despite the numerous positive impacts that EU climate mitigation laws have had on European citizens, legislation designed to achieve our climate targets still has room for improvement.

Current projections show that, under the current pace, the EU will have reduced its emissions to 48% below 1990 levels by 2030, to 60% in 2040 and to a mere 64% in 2050[57]—way short of net zero and way short of the EU's own targets. **Perhaps more importantly, however, to comply with the goal set in the Paris Agreement, the EU would have to achieve emissions 65% below 1990 levels by 2030 and climate neutrality by 2040—ten years sooner than its current target.[58]**

When it comes to clean energy, we must ensure we do not backtrack on phasing out fossil fuels and replacing them with renewable energy sources. Despite the EU's electricity sector being only half as greenhouse gas intensive in 2022 compared to

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[52] European Environment Agency. (2023). *Employment in the environmental goods and services sector.* Link.
[53] Solar Power Europe. (2023). *EU Solar Jobs Report 2023.* Link.
[54] International Renewable Energy Agency. (2023). *Renewable Energy and Jobs Annual Review 2023.* Link.
[55] Solar Power Europe. (2023). *EU Solar Jobs Report 2023.* Link.
[56] European Commission. (2023). *ESF+ powers skills for the battery industry.* Link.
[57] European Environment Agency. (2023). *Total net greenhouse gas emission trends and projections in Europe.* Link.
[58] CAN Europe and EEB. (2020). *Building a Paris Agreement Compatible (PAC) energy scenario.* Link.

1990, it was still 6% more GHG intensive than the year prior. Coal-generated electricity increased by 8%.[59]

Ramping up the deployment of renewables would allow us to phase out the use of gas and coal in electricity generation, heating and industry, and reduce emissions. It would also help us reduce electricity prices—despite the substantial savings generated thanks to the mass deployment of renewables in 2021-22, the savings could have been 15% higher if EU capacity had been increased quicker.[60] Most importantly, however, **to be compatible with the Paris Agreement, the EU would have to commit to a 50% share of renewables by 2030, with a view to reaching 100% by 2040.** This is in contrast to the current target of 42.5% by 2030.

On energy efficiency, the current pace falls far short of the 55% emissions reduction target in 2030. Despite the EU setting a new energy efficiency target of a further 11.7% reduction of primary and final consumption by 2030 (compared to the 2020 scenario), **being compatible with the Paris Agreement would necessitate at least a 20% energy savings target.**[61]

The EU carbon market law was amended in May 2023, setting a new target of achieving a 62% emissions reduction (for emissions covered by the market) in 2030 compared to 2005. According to recent projections, however, even under the most ambitious scenario, the EU will achieve a 59% reduction. Particularly looking at aviation, with the exception of the pandemic-induced drop in 2020, emissions have been rising every year since 2013.[62]

Tackling this will be important to, above all, ensure we achieve our climate target, but it could also bring numerous other benefits. Particularly in areas around airports, tackling aviation could reduce noise and air pollution, positively affecting residents' health and wellbeing. More generally, it opens up the potential for a new sector for clean technology driven by the demand for synthetic fuels that could allow flights to be emission-free.

Climate change is likely to be a dominant topic in the upcoming European elections. More than 8 in 10 EU citizens, and at least 7 in 10 in every Member State, believe that greenhouse gas emissions should be reduced to a minimum and any remaining emissions ought to be offset by 2050.[63] At the same time, EU action against poverty and social exclusion remains central to citizens, with more than 7 in 10 thinking their

[59] European Environment Agency. (2023). *Greenhouse gas emission intensity of electricity generation in Europe.* Link.
[60] IEA. (2023). *Renewable Energy Market Update.* Link.
[61] CAN Europe. (n.d.). *Energy Transition.* Link.
[62] European Environment Agency. (2023). *Greenhouse gas emissions under the EU Emissions Trading System.* Link.
[63] European Commission. (2023). *Citizen support for climate action. 2023 Survey.* Link.

living standards will decrease in the new year.[64] If you are one of those citizens concerned about climate change as well as the cost of living, you have a unique chance of affecting the most crucial years in averting a climate catastrophe and ensuring it is done in a socially just way—simply by going out to vote.

The negotiations that established the Social Climate Fund also unveiled a worrying imbalance of protection and distribution of efforts across society. In particular, the Council of the EU (gathering the governments of the 27 EU Member States) has blocked more progressive ways to ensure a fairer burden sharing and protection. **While the Social Climate Fund was diminished in the final deal compared to the European Commission proposal, negotiators agreed to continue and even increase the number of 'free allowances' handed out to heavy polluters in industry sectors** under the EU's carbon market, the ETS[65], therefore shielding them from paying for all of their emissions.

Between 2013 and 2021 heavy industry received almost €100 billion in free permits to pollute. An amount even higher than the revenues Member States received from the EU's carbon market (€88.5 billion)[66]. On top of that, the heavy industry sectors which receive free permits have barely lowered their emissions (-9,7%) in comparison to the energy sector (-43%)[67] which does not receive these free permits. In fact, in contrast to the 'polluter pays' principle, **some of the biggest polluters have been able to make billions from the ETS itself instead of paying for their pollution.**[68]

What's next?

The negotiations that established the Social Climate Fund also unveiled a worrying imbalance of protection and distribution of efforts across society. In particular, the Council of the EU has blocked more progressive ways to ensure a fairer burden sharing and protection. While the Social Climate Fund was diminished in the final deal compared to the Commission proposal, negotiators agreed to continue and even increase the number of 'free allowances' handed out to heavy polluters in

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[64] Eurobarometer. (2023). *EP Autumn 2023 Survey: Six months before the 2024 European Elections.* Link.

[65] In the EU's Emissions Trading System (ETS), free allowances were initially given to industries to prevent them from moving operations abroad (carbon leakage) and to maintain their global competitiveness.

[66] WWF. (2022). *Where did all the money go? WWF report analyses how Member States spent their ETS revenues.* Link.

[67] Agnese Ruggiero. (2021). *Four key issues to watch in the EU's carbon market reform.* Link.

[68] LeMonde. (2023). *Comment les entreprises polluantes ont transformé les quotas gratuits de CO_2 en un marché de plusieurs milliards d'euros.* Link.

industry sectors under the Emissions Trading System[69], therefore shielding them from paying for their emissions. Between 2013 and 2021 heavy industry received almost €100 billion in free permits to pollute. An amount even higher than the revenues Member States received from the Emission Trading System (€88.5 billion)[70]. On top of that, the heavy industry sectors which receive free permits have barely lowered their emissions (-9,7%) in comparison to the energy sector (-43%)[71] which does not receive these free permits. In fact, in contrast to the 'polluter pays' principle, some of the biggest polluters have been able to make billions from the Emissions Trading System itself instead of paying for their pollution.[72]

For a transformative agenda to move ahead, it will be vital to ensure that the efforts and benefits of the transition are more fairly distributed across society, as well as protection against excessive costs, whether in terms of measures taken or impacts stemming from lack of adequate actions.

As a general rule, the polluter pays principle as enshrined in the EU Treaties, should be fully applied, with bigger polluters and economically stronger actors shouldering a relatively higher cost than average and with targeted support for vulnerable groups and low-income households.

[69] In the EU's Emissions Trading System (ETS), free allowances were initially given to industries to prevent them from moving operations abroad (carbon leakage) and to maintain their global competitiveness.
[70] WWF. (2022). *Where did all the money go? WWF report analyses how Member States spent their ETS revenues.* Link.
[71] Agnese Ruggiero. (2021). *Four key issues to watch in the EU's carbon market reform.* Link.
[72] LeMonde. (2023). *Comment les entreprises polluantes ont transformé les quotas gratuits de CO_2 en un marché de plusieurs milliards d'euros.* Link.

How the EU protects its natural heritage and wildlife

Key takeaways

- Only 15% of European habitats are in good condition, meaning the homes of many native European animals and plants are damaged.
- From 1990 to 2021, there has been a 36% decline in common farmland birds. Nearly 50% of Europe's fish and amphibian populations are in a bad state and deteriorating.
- The EU Nature Restoration Regulation aims to restore at least 20% of the EU's land and sea areas by 2030.
- In Europe, the economic benefits of the Natura 2000 network are valued at EUR 200-300 billion a year and around 4.4 million jobs are directly dependent on the maintenance of healthy ecosystems, a significant proportion of which is situated within the Natura 2000 sites. Closing the funding gap that's needed for the effective management of the network could generate 500,000 additional jobs.
- The Natura 2000 network of protected areas is the largest coordinated network of conservation areas globally, covering more than 18% of the EU land area.
- From 1992 to 2018, the LIFE programme invested €2.2 billion in more than 1,800 nature and biodiversity projects.
- Through LIFE funding, more than 5 million hectares of land, roughly equivalent to the size of the country of Slovakia, have been restored or had their conservation status improved.
- EU laws and programmes have also enabled the revival of many species, like the Eurasian Beaver and the Azores Bullfinch.
- There are between 1.2 to 2.2 billion visitors to Natura 2000 sites per year, generating recreational benefits worth €5–€9 billion annually.
- The EU estimates that restoring nature provides a return of €8 to €38 for every euro invested.

Europe is known globally for its rich cultural and natural heritage. It boasts a range of plants, animals, landscapes, and historical sites, and this heritage is a significant part of our European identity and offers us many benefits. Europe's natural landscapes, like forests, wetlands, and peatlands, are crucial in mitigating climate change by absorbing carbon associated with global warming. Natural areas can also create jobs and opportunities for ecotourism, and they often bring people together and help us understand the history of where we live.[73] Scientific evidence shows that spending time in high-quality natural environments benefits human health and well-being.[74] For example, a study found that an increase in bird species richness is positively associated with life satisfaction across Europe and that the effect of bird species richness on life satisfaction may be of similar magnitude to that of income.[75] Investment in nature conservation is therefore an investment in human well-being. Natural areas also provide protection from the impacts of climate change, such as droughts, floods and heatwaves.

However, many natural areas in Europe are under severe threat. Europe's plant and animal populations are decreasing rapidly. Only 15% of habitats are in good condition, meaning the homes of many native European animals and plants are damaged, threatening species' survival.[76] Likewise, many European fish, amphibians and birds are at risk of extinction. Between 1990 and 2021, there has been a 36% drop in farmland birds.[77] Similarly, **nearly 50%** of Europe's **fish and amphibian populations are in a bad state and deteriorating**.[78] Between 1970 and 2016, monitored migratory fish populations in Europe have declined by 93%—more than the global average of 76%.[79] The window of opportunity to avoid irreversible harm and damage is rapidly closing and the European Union (EU) is taking action to protect natural and cultural areas: in May 2020, the EU released the **EU Biodiversity Strategy for 2030.** As part of it, the EU is finalising the Nature Restoration Law—a historic opportunity and a first-of-its-kind law to bring nature back to Europe. This chapter will explore the EU's actions to protect Europe's cultural and natural heritage.

[73] European Commission. (2019). *Natural and Cultural Heritage: Working Together within the Natura 2000 Network*. Link.
[74] EEA. (2020). *Healthy environment, healthy lives: how the environment influences health and well-being in Europe*. Link.
[75] Joel Methorst et al. (2021). *The Importance of Species Diversity for Human Well-Being in Europe*. Link.
[76] European Environment Agency. (2020). *State of Nature in the EU: Results from Reporting under the Nature Directives 2013-2018*. Link.
[77] European Environment Agency. (2023). *Common Bird Index*. Link.
[78] European Environment Agency. (2020). *State of Nature in the EU: Results from Reporting under the Nature Directives 2013-2018*. Link.
[79] WWF. (2022). *Living Planet Report 2022*. Link.

What has the European Union done to protect its cultural and natural heritage?

Increasing protected areas that preserve natural and cultural beauty

The EU Birds and Habitats Directives (EU Nature Directives) are the cornerstones of EU nature protection policy, leading to the creation of the Natura 2000 Network. The network safeguards Europe's most precious species and habitats. Thirty years after its creation, the **Natura 2000 network has become the largest coordinated network of conservation areas worldwide, comprising over 27,500 sites and covering more than 18% of the EU land area.**[80]

The Natura 2000 network comprises special areas that protect rare and vulnerable habitats, plants, and animal species. Countries are required by EU laws to manage and safeguard these sites to ensure that the species and habitats within them survive in the long-term. These sites are designated based on their importance for the breeding, resting, and wintering of 190 rare or threatened bird species, or over 1,000 plant and animal species.[81] **One study in Portugal and Spain found that from 2004 to 2015, the network of sites in the Iberian Peninsula may have saved about 36,000 hectares of open farmland habitats** that are home to around 29% of the world's population of great bustards (a bird) and other species that are at risk.[82]

Preserving nature is also an affordable and practical way to protect people from extreme weather and reduce greenhouse gas emissions contributing to climate change. Investing in nature is investing in the future. **The EU estimates that restoring nature provides a return of €8 to €38 for every euro invested.**[83] Effective conservation goes beyond protecting areas; it also involves funding projects and initiatives to preserve our natural resources.

The EU's LIFE programme has played an important role in creating and managing Natura 2000 sites. Over 5,000 of the 27,000 sites have benefited from LIFE-funded projects.[84] **From 1992 to 2018, the LIFE programme invested €2.2 billion in more than 1,800 nature and biodiversity projects.**[85] Although the funds represent less than 1% of the EU budget, they have helped to preserve and restore important sites of European natural and cultural beauty. **Through LIFE funding, more than 5 million hectares of land have been restored or had their**

[80] European Commission. (2019). *Natural and Cultural Heritage: Working Together within the Natura 2000 Network*. Link.
[81] European Commission. (n.d.). *Designating Natura 2000 Sites*. Link.
[82] João Gameiro et al. (2020). *Effectiveness of the European Natura 2000 Network at Protecting Western Europe's Agro-Steppes*. Link.
[83] Ajit Niranjan. (2023). *EU Strikes Landmark Deal on Law to Restore and Protect Nature*. Link.
[84] European Commission. (n.d.). *Financing Natura 2000*. Link.
[85] European Commission et al. (2018). *LIFE Improving Nature*. Link.

conservation status improved, which represents over 6% of the land-based Natura 2000 network.[86] For the EU budget from 2021 to 2027, LIFE funding has increased by almost 60%, allowing for a greater allocation of resources to protect Europe's natural environment.[87]

Case study: the LIFE CARPATHIA project in Romania



Photo credits: Podu Stricat / Unsplash

The Fagaras Mountains in Romania have one of the largest forest areas in Europe. These forests are home to many wildlife species, including large carnivores, golden eagles, and various birds and insects, all naturally found in central European mountain forests. The forests have been threatened by logging, overgrazing of the alpine grasslands, poor wildlife management, and destructive development projects.

Funded by the EU, the LIFE CARPATHIA project allowed the purchase of 3,300 ha of natural forests, spruce monocultures or degraded land, and secured legal protection for forest conservation and restoration. The project converted 500 ha of spruce monocultures back to a mixed and healthy mountain forest by establishing new tree nurseries, removing invasive species, and controlling erosion.

[86] European Commission et al. (2018). *LIFE Improving Nature*. Link.
[87] European Commission. (n.d.). *LIFE - Performance*. Link.

The LIFE project successfully reintroduced bison to the wild in the Făgăraș Mountains after the animals disappeared from the Romanian Carpathians over 200 years ago due to over-hunting. The Făgăraș Mountains is the ninth European region where bison now roam free since 2020. The goal is to release 75 bison by mid-2024. The local rangers monitor the progress of the bison reintroduction and ensure that the bison do not approach nearby communities.

Restoring animal populations and preventing extinction

In the first half of the 20th century, Europe's animal populations were drastically reduced due to centuries of hunting, habitat loss, and exploitation.[88] Many animal species were reduced to a fraction of their original numbers, and some were completely wiped out. The European Union introduced a series of laws starting in the 1970s to prevent further extinction and restore population numbers. The laws aim to stop or limit hunting and the overexploitation of plants and animals. In addition to these laws, Natura 2000 protected sites, as well as conservation and reintroduction programmes, were also established to help restore Europe's wildlife.

Over the past 50 years, several species populations have increased again. One example is the **Eurasian Beaver.** In the first half of the 20th century, there were only a few thousand beavers left in Europe. Today, there are more than 1.2 million.[89] The EU designated the beaver a protected species, which meant hunting it was restricted. The EU also encouraged reintroduction programmes and supported projects that have repaired beaver habitats.[90] The revival of the beaver brings broader advantages that go beyond the species' survival. For example, beavers build dams on rivers to slow down the water flow, leading to increased water storage in the channel or on a floodplain. This water storage can help reduce the impact of drought on local areas and populations. Beaver ponds also work as a filter, capturing sediment, and making our water cleaner.[91]

Birds also play a crucial role in maintaining a healthy ecosystem and providing many benefits. They control pests, clean up waste, and spread seeds.[92] The European Union has a specific law that protects all wild bird species in the EU and their habitats. This law aims to stop the decline and disappearance of bird species, and to

[88] Sophie Ledger et al. (2022). *Wildlife Comeback in Europe: Opportunities and Challenges for Species Recovery. Final Report to Rewilding Europe by the Zoological Society of London, BirdLife International and the European Bird Census Council.* Link.
[89] Hannah Ritchie. (2022). *Wild Mammals Are Making a Comeback in Europe Thanks to Conservation Efforts', Our World in Data.* Link.
[90] Ledger et al. *Wildlife Comeback in Europe.* Link.
[91] Christian Dewey et al. (2022). *Beaver Dams Overshadow Climate Extremes in Controlling Riparian Hydrology and Water Quality.* Link.
[92] BirdLife International. (2022). *Birds.* Link.

help them thrive in the long term.[93] Many EU LIFE projects are dedicated to the restoration of birds.

One project in Portugal, for example, revived the Azores bullfinch.[94] The last of this species was found in Pico da Vara, protected under the EU bird law[95] and the Natura 2000 network. In the 1990s, there were around 80 to 150 pairs of the Azores bullfinch.[96] **Today, the project implemented by SPEA (BirdLife in Portugal) has restored the population to more than 1,300.**[97]

Increased sustainable jobs and eco-tourism opportunities

In Europe, the economic benefits of the Natura 2000 network are valued at EUR 200-300 billion a year and around 4.4 million jobs are directly dependent on the maintenance of healthy ecosystems, a significant proportion of which is situated within the Natura 2000 sites[98]. Closing the funding gap that's needed for the effective management of the network could generate 500,000 additional jobs[99].

The designation of Natura 2000 natural heritage sites by the EU has helped boost local economies, create jobs, and bring people together. These sites can revitalise urban and rural areas and encourage a form of tourism that is better for the environment. European tourism trends show that people increasingly seek natural and cultural heritage sites instead of traditional mass tourism destinations. They also tend to prefer environmentally conscious forms of tourism.[100]

Indeed, Natura 2000 sites are visited by 1.2 to 2.2 billion visitors annually, generating recreational benefits worth €5 to €9 billion every year.[101] **Across the EU, the cultural heritage sector employs over 300,000 people, while 7.8 million jobs are indirectly linked to heritage sites, including hospitality, interpretation, and security.**[102] This shows that restoring nature in Europe can benefit both the environment and local economies.

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[93] European Commission. (2024). *The Birds Directive.* Link.
[94] European Commission. (2023). *How LIFE Pulled One of Europe's Rarest Birds Back from Extinction.* Link.
[95] The Birds Directive.
[96] European Commission. (2023). *How LIFE Pulled One of Europe's Rarest Birds Back from Extinction.* Link.
[97] European Commission. (2023). *How LIFE Pulled One of Europe's Rarest Birds Back from Extinction.* Link.
[98] European Commission. (2013). The economic benefits of the Natura 2000 network.
[99] European Commission. (2020). EU Biodiversity Strategy for 2030.
[100] European Commission. (2019). *Natural and Cultural Heritage: Working Together within the Natura 2000 Network.* Link.
[101] European Commission. (2019). *Natural and Cultural Heritage: Working Together within the Natura 2000 Network.* Link.
[102] European Commission. (n.d.). *EU Policy for Cultural Heritage: Culture and Creativity.* Link.

What more can the EU do to preserve nature?

The European Union and its Member States have been working hard to protect its natural and cultural heritage. Even though progress has been made, many protected species and habitats are still not being well-conserved, and many animal and plant populations continue to decrease at an alarming rate. Detrimental EU subsidies, for example subsidies for harmful farming practices in the EU, are limiting progress in restoring nature, while Member States have little incentive to implement biodiversity conservation legislation and to restore ecosystems.[103]

More needs to be done, in particular regarding proper enforcement by the European Commission of environmental legislation. To form an ecologically coherent and well-connected Natura 200 network, additional areas need to be legally protected and effectively managed by each Member State, and the most sensitive areas for biodiversity must be strictly protected. In addition, the EU's funding that harms biodiversity should be phased out and more budget should be invested in nature conservation at the EU and national level. The EU should resist false solutions advocated by certain politicians and stakeholders that would undermine the conservation successes achieved to-date. For example, lowering the protection status of the wolf and instead allowing for more hunting, will undermine measures to achieve coexistence with the wolves and other large carnivores such as building fences and training sheepdogs.

The recently enacted Nature Restoration Law could be a key tool to advance progress on bringing nature back to Europe. This law aims to restore at least 20% of EU land and sea by 2030. For the law to be effective, it will need to be supported by a sufficient stand-alone fund, enforcement mechanisms and a committed European Parliament and European Commission.

[103] Vallone and Lambin. (2023). *Public Policies and Vested Interests Preserve the Animal Farming Status Quo at the Expense of Animal Product Analogs*. Link.

How the EU helps you breathe cleaner air

Key takeaways

- Air pollution is the most significant environmental risk to health: in 2021, over 300,000 people died prematurely, caused by high levels of air pollution in the EU.
- The main causes of air pollution are road transport, residential heating and cooking using fossil fuels and biomass, and industry. Transport is responsible for half of all nitrogen oxide emissions. Residential heating and cooking is the primary source of the most damaging air pollutant (PM2.5), whilst industry is responsible for almost half of all sulphur dioxide emissions.
- Up to 96% of European city residents are breathing dangerous levels of the PM2.5, mainly caused by road transport in cities. This costs the average European city dweller €1276 per year.
- In 2017, air pollution cost the European Union around €600 billion.
- In most EU countries, emissions from the fossil fuel-based residential heating and cooking sector incur 3.5 times higher health costs than those from transport.
- For the 2021-2027 period, the EU budget has dedicated €147 billion to achieving cleaner air.
- Thanks to EU laws, cities began implementing low- and zero- emission zones, which can reduce urban air pollution by up to 44% and save EU countries billions of euros.
- EU laws and climate targets have incentivised Member States to replace polluting fossil fuel and biomass heating systems with cleaner ones and to transition to cleaner transport in dense urban areas. This can prevent thousands of premature deaths every year.
- EU action brought the costs of industrial air pollution, such as that coming from power plants, down by 35% over the last decade.
- Between 2005 and 2020, emissions of all air pollutants fell in the EU. For PM2.5, emissions fell by nearly a third and emissions of nitrogen oxides (NOx) decreased by nearly 48%. This is thanks to the EU's laws on air quality and the

EU's funding for initiatives aiming to reduce air pollution in sectors like transport or residential heating and cooking.

- In Germany, low-emission zones have resulted in 2%-3% fewer patients with heart problems and 7%-13% fewer patients with stroke. These positive effects have saved Germany over €4 billion.

- A faster uptake of zero-emission vehicles and a ban on some highly emitting vehicles in major cities could result in benefits amounting to €5.2 billion per year in 2030.

Alongside climate change, air pollution represents the most significant environmental risk to health in Europe.[104] **It can cause a variety of health complications, especially respiratory and cardiovascular disease, such as stroke, asthma, bronchitis and even lung cancer.**[105] Emerging evidence shows that air pollution may also be linked with low birth weight, preterm births and a number of other conditions like dementia and Parkinson's disease.[106] All of these are likely to lead to more sick days, more frequent doctor visits, medication needs as well as hospital care. Breathing polluted air can therefore not only significantly reduce our quality of life, but can also exert pressure on our countries' health care sectors and cause productivity losses.

Air pollution can also cause premature deaths. Exposure to high concentrations of **fine particulate matter (PM2.5)**—small particles that are 2.5 micrometres or smaller in diameter and, as a result, can penetrate deep into a person's respiratory system and even bloodstream[107]—**caused 253,000 premature deaths in the EU in 2021.**[108] **Nitrogen dioxide (NO2) and ozone (O3),** two other highly dangerous air pollutants, **caused 52,000 and 22,000 premature deaths in 2021**, respectively.[109] **In 2017, air pollution cost the European Union around €600 billion.**[110]

This was mainly driven by lives being lost prematurely, but also by the lower productivity of those having to live with health conditions caused by air pollution, and states' higher spending on health. Apart from our health and productivity, air pollution also has a detrimental effect on our ecosystems. Ozone can damage agricultural crops, forests and plants and nitrogen oxides can cause the loss of some

[104] World Health Organisation. (2023). *Air quality.* Link.
[105] OECD. (2020). *Health at a Glance: Europe 2020.* Link.
[106] Hoffmann, B. et al. (2022). *Benefits of future clean air policies in Europe.* Link.
[107] OECD. (2020). *Health at a Glance: Europe 2020.* Link.
[108] European Environment Agency. (2023). *Harm to human health from air pollution in Europe: burden of disease 2023.* Link.
[109] European Environment Agency. (2023). *Harm to human health from air pollution in Europe: burden of disease 2023.* Link.
[110] OECD. (2020). *Health at a Glance: Europe 2020.* Link.

sensitive species—all leading to biodiversity loss.[111] Air pollution can therefore have a significantly negative impact on all aspects of our lives and we must do everything we can to reduce it to a minimum. This chapter will look into what the EU has done to ensure we can all breathe cleaner air and offer suggestions what the EU can do to improve it even further.

What has the EU done to ensure citizens can breathe cleaner air?

Despite the continuing high levels of polluted air as well as the consequent premature deaths and health complications, air quality has improved in the EU since 1990[112] thanks to different EU laws aimed to reduce air pollution either generally or in specific sectors.[113] Between 2005 and 2020, the period in which several laws were put in place or updated, we have seen a decrease in total emissions of all air pollutants in the EU. For example, **emissions of PM2.5 fell by almost a third (32%) and emissions of nitrogen oxides (NOx) decreased by nearly 48%.**[114] This has translated into concrete health benefits: **in 2020, the number of premature deaths that were caused by exposure to PM2.5 fell by nearly a half (45%) in the EU**, compared to 2005. The EU has achieved this by setting minimum air quality standards for ambient air, by setting objectives for reducing overall air pollutant emissions at Member State level and by defining rules to cut air pollution at the source (including transport, domestic heating and industry).

Reducing air pollution from transport

One of the main sources of toxic air pollution is transport—it is responsible for nearly half of all emissions of the toxic nitrogen oxides (NOx) in Europe, but it also releases the highly damaging PM2.5 and other pollutants.[115] Contrary to popular belief, however, only a small fraction—around 7%—of PM2.5 pollution in road transport comes from the burning of diesel emitted through the tailpipe exhaust.[116] The rest comes from the usage of rubber tyres, clutch and brake wear and road dust

[111] European Environment Agency. (2023). *Impacts of air pollution on ecosystems.* Link.
[112] European Council (2023). Air pollution in the EU: facts and figures. link
[113] This primarily includes the Ambient Air Quality Directive first adopted in 2008 and updated in 2011, CO2 emission performance standards for cars and vans in 2019, Euro emissions standards, the National Emissions Ceiling Directive of 2016 and the Industrial Emissions Directive of 2010. All laws have been since updated as part of the EU's climate and nature protection effort, as part of the European Green Deal.
[114] European Environment Agency. (2022). *Sources and emissions of air pollutants in Europe.* Link.
[115] European Environment Agency. (2022). *Sources and emissions of air pollutants in Europe.* Link.
[116] King's College London. (2020). *Air pollution from brake dust may have same harmful effects on immune cells as diesel exhaust.* Link.

resuspension (the uplifting of road particles, generated from brake and tyre wear, in the air by the movement of vehicles). Particles from tyres can release toxic chemicals into the environment and, if small enough, can be breathed in and reach deep into our lungs.[117] Dust from brake friction contains metals that can ultimately cause damage to our cells when they get deep into our lungs.[118]

The situation is especially dire in cities—in some cities, such as Lyon, Madrid or Milan, emissions from traffic amount to over 75% of the cities' NOx emissions.[119] It therefore is not surprising that transport is one of the reasons why **89% of European city residents continue to breathe dangerous levels of NOx and 96% are exposed to dangerous levels of PM2.5.**[120] Transport-related air pollution and its negative impact on people's health **cost the average European city resident €1276 every year**.[121]

Even though transport-related air pollution continues to be high, the emissions of most transport-related air pollutants have fallen in the EU in recent years.[122] Whilst encouraging and enabling citizens to be and stay mobile as well as switching to cleaner transportation modes, the reduction in EU air pollution is largely thanks to the EU air quality law[123]. In response to this law, which sets maximum concentration thresholds for certain pollutants, including NO2, many cities across the EU have implemented low-emission zones. These zones regulate access to cities based on the emissions of motorised vehicles and are one of the most effective ways to reduce air pollution in cities. **On average, they can reduce NO2 concentrations in cities by 20%.**[124] In some cities like Madrid, they have achieved a 32% reduction, and 44% in central London.[125]

Such reductions can bring enormous benefits to people's health and wellbeing. In Germany, for example, low-emission zones (which are present in over 70 German cities) have resulted in **2%-3% fewer patients with heart problems** and **7%-13%**

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[117] Imperial College London. (2023). *Prioritise tackling toxic emissions from tyres, urge Imperial experts.* Link.
[118] King's College London. (2020). *Air pollution from brake dust may have same harmful effects on immune cells as diesel exhaust.* Link.
[119] Joint Research Centre. (2019). *Urban NO2 Atlas.* Link.
[120] European Environment Agency. (2022). *Urban air quality.* Link.
[121] CE Delft. (2020). *Health costs of air pollution in European cities and the linkage with transport.* Link.
[122] European Environment Agency. (2023). *Emissions of air pollutants from transport in Europe.* Link.
[123] The EU's Ambient Air Quality Directive.
[124] Clean Cities Campaign. (2022). *Quantifying the effects of low- and zero-emission zones.* Link.
[125] Transport & Environment. (2019). *Low-Emission Zones are a success - but they must now move to zero-emission mobility.* Link.

fewer patients with stroke. These positive effects have applied especially to citizens above the age of 65, and have **saved Germany over €4 billion.**[126]

The EU also helps reduce air pollution by providing funding to the right initiatives. **For the 2021-2027 period, the EU budget has dedicated €147 billion to achieving cleaner air.**[127] One beneficiary was the LIFE CLINSH project in the Netherlands which received a grant of over €5 million to improve air quality in cities situated close to ports and inland waterways. In the Netherlands, particularly in bigger ports, NOx emissions caused by inland waterway transport can represent a quarter of the country's total NOx emissions. As many of these ports are located close to cities, they can negatively affect many people's health. The LIFE CLINSH project helped vessels switch to lower emission technologies and over the duration of the project, it **helped reduce NOx emissions by 25%** and **PM emissions by 69%.**[128] This is likely to deliver significant benefits for people's health and wellbeing into the future.

The EU also funds large infrastructure projects that deliver cleaner transport for people. For example, the EU has recently provided a contribution of almost **€85 million** to a project aimed to **improve public transport in Olsztyn, Poland**.[129] The funds will be used to purchase **6 new trams**, which will together be able to **accommodate 1200 people**. They will also be used to build or **modernise almost 29 km of public transport routes**, including tram and metro lines as well as bus routes. This upgraded infrastructure will **serve 5.7 million passenger trips every year**. Apart from public transport, the project will also provide **9.6 km of cycling lanes**, as well as 4 bike-and-ride facilities—that is, facilities like bicycle storage areas near public transit stops that will allow passengers to cycle to the stops without having to use a car.

Case study: Safe School Environments in Pamplona, Spain

[126] Margaryan, S. (2021). *Low emission zones and population health.* Link.
[127] European Commission. (2023). *Clean-air tracking.* Link.
[128] European Commission. (2023). *CLean INland SHipping.* Link.
[129] European Commission. (n.d.). *Project 1: Improving public transport in Olsztyn, Poland with extended tram line.* Link.



Photo credits: David Vives / Unsplash

Across European cities, parents, teachers and children are campaigning for Safe School Streets—streets around schools where walking and cycling is prioritised over motor vehicles and where roads are closed to traffic or speed limits are reduced. School Streets can provide immediate health benefits for children by drastically reducing air pollution. Evidence from School Streets implemented in London or Belgium show a 20-36% reduction of air pollution.[130]

The City Council of Pamplona in Spain received over €300,000 from the EU to set up a safe school environment in the city. The Council is eliminating parking areas near pedestrian crossings, and turning them into living and play areas for children. In all school areas, traffic calming elements, such as Berlin cushions, have been installed and the speed on the road has been limited to 30 km per hour. Pavements have been widened and pedestrian crossings, which were often excessively long and poorly visible, have been shortened. The Council has also created new safe spaces for parking bicycles, skates and scooters, encouraging non-motorised sustainable mobility.[131]

These measures are crucial for not only allowing children to

[130] Clean Cities. (2022). *School Streets Fact Sheet*. Link.
[131] Ayuntamiento de Pamplona. (2022). *El Ayuntamiento de Pamplona terminará el año reformando los entornos de siete centros escolares para mejorar la seguridad del alumnado en las entradas y salidas.* Link.

breathe cleaner air, but also to reduce the city's carbon footprint. The measures are part of the city's plan to introduce more sustainable modes of transport, which have the potential of reducing just over 17,000 tonnes of CO2 emissions[132]—the equivalent to 3,308 homes' annual electricity use.

Reducing air pollution from domestic heating and industry

Another key source of air pollution, particularly the biggest source of particulate matter pollution, is domestic heating together with cooking using fossil fuels and biomass combustion. In 2018, the **health costs incurred as a result of this pollution in the EU** (plus the UK) amounted to €29 billion—that translates into **€130 per year for an average European household**. In most EU countries, costs associated with this kind of air pollution are actually higher than those from transport: **while driving a diesel car for a year would result in €210 in health costs, the health costs associated with using a wood burner amount to €750 per year, which is over 3.5 times higher.**[133]

The EU's air quality law, as well as the EU's climate targets, help drive down air pollution in this sector, too. To comply with the EU's air quality law, Poland put in place a subsidy scheme to help households replace their boilers. Thanks to these subsidies, roughly 6,000 boilers are being replaced every week. With this pace, **Poland is on track to ensuring that the number of people breathing clean air will rise from 2 million to 30 million by 2030.**[134] Additionally, it should also reduce **the number of people dying prematurely from air pollution by 21,000 every year.**[135]

Similarly, Bulgaria has implemented a programme to replace inefficient and polluting old stoves and boilers, which burn solid fuels, with cleaner, renewable and more efficient heating systems. The project is expected to **reduce emissions from the heating sector by 78%.**[136] **This is especially important as Central and Eastern**

[132] Ayuntamiento de Pamplona. (n.d.). 2030 Energy Transition and Climate Change Strategy of Pamplona. Link.
[133] European Public Health Alliance. (2022). *THE IMPACT OF RESIDENTIAL HEATING AND COOKING ON AIR QUALITY IN EUROPE*. Link.
[134] Clean air is, in this case, defined as compliant with the revised Ambient Air Quality Directive's PM2.5 (annual average concentration), which is stricter and closer to the WHO thresholds.
[135] European Clean Air Centre. (2024). Poland's journey to clean air and AAQD compliance by 2030. Link.
[136] World Bank. (2020). *Supporting the Implementation of Residential Heating Measures in Bulgaria's National Air Quality Improvement Program (NAQIP) and National Air Pollution Control Program (NAPCP).* Link.

European countries face the highest health costs from air pollution.[137] At the same time, Central European countries' residential combustion of solid fuels like coal and biomass for heating contributes significantly to PM2.5 emissions.[138]

Reducing industrial air pollution

Industry, including the energy supply sector and the manufacturing and extractive industries—which include mining as well as oil and gas extraction—are also responsible for air pollution. The energy supply sector is responsible for over 40% of all sulphur dioxide emissions.[139] Sulphur dioxide can affect the respiratory and central nervous systems, reduce lung function, cause headaches and many other health problems.[140]

Over the last decade, industrial emissions have cost EU citizens up to €428 billion per year.[141] However, thanks to EU laws, including the law on industrial emissions which requires polluters to operate with a permit, both emissions and the associated costs have decreased. **Between 2005 and 2020, sulphur dioxide emissions fell by almost 80%.**[142] Over the last decade, **health costs associated with industrial air pollution have decreased by over a third in Europe.**[143]

What can the EU do to keep us and future generations safe and healthy?

Despite the positive effects of EU laws on air pollution, levels of air pollutants are still being exceeded across the EU.[144] Meaning that stronger efforts by Member States are needed in order to at least achieve compliance with the existing rules. It is worth noticing that the current ambient air quality standards are not in line with the World Health Organisation (WHO) recommendations included in its Global Air Quality Guidelines from 2005. In 2021, the WHO has updated its Guidelines further

[137] European Clean Air Centre. (2024). *Poland's journey to clean air and AAQD compliance by 2030.* Link.
[138] World Health Organisation. (2015). *Residential heating with wood and coal: Health impacts and policy options in Europe and North America*. Link.
[139] European Environment Agency. (2022). *Sources and emissions of air pollutants in Europe.* Link.
[140] OECD. (2020). *Health at a Glance: Europe 2020.* Link.
[141] European Environment Agency. (2024). *The costs to health and the environment from industrial air pollution in Europe – 2024 update.* Link.
[142] European Environment Agency. (2022). *Sources and emissions of air pollutants in Europe.* Link.
[143] European Environment Agency. (2024). *The costs to health and the environment from industrial air pollution in Europe – 2024 update.* Link.
[144] European Environment Agency. (2023). *Exceedance of air quality standards in Europe.* Link.

reducing the thresholds of air pollution that should not be exceeded based on the latest scientific evidence.[145]

While the European Commission has proposed to make future EU air quality standards stricter starting from 2030, they are still higher than those recommended by the WHO.[146] This means that the EU can still do more to prevent lives from being lost or negatively affected by air pollution. The costs Europe has to pay for damaging air pollution are expected to be reduced by 14% in 2030 compared to 2020. A fifth of the remaining costs could be prevented only through EU laws.[147] It is estimated that **114,000 premature deaths a year could be prevented in European cities if EU air quality standards were aligned with the levels set by the WHO**.[148] Aligning them would not only save lives, but it would also save costs. Complying with WHO recommendations would result in an **overall benefit of €38 billion**.[149] The EU should therefore take action to secure that WHO recommended levels are achieved and maintained throughout its territory.
Further progress can also be made in the implementation of the Ambient Air Quality Directive, since 24 Member States are still subject to EU infringement procedures, meaning these EU countries have not followed EU air quality standards,[150] due to breaches of both concentration and emission limits. Extra attention should therefore be given to the implementation of the upcoming European air quality standards to be achieved at the latest by 2030.

National emission reduction commitments to be achieved after 2030 are also needed. The emission limits of the current National Emission Ceilings Directive are to be achieved by 2030, and a new set of target is needed in order to trigger action for the aftermath. For securing compliance with the existing National Emission Reduction Commitments (2020 and 2030) , additional efforts need to be made as 14 Member States have failed to meet their emission reduction commitments for 2020 for at least one of the five air pollutants covered by the Directive.[151]

On transport, while the EU's air quality law has led cities to implement low-emission zones, the EU should do more to explicitly push cities to implement them, with the aim of ultimately transitioning to zero-emission zones. Zero-emission zones have an even greater potential of reducing air pollution than low-emission zones. They would only allow zero-emission mobility options into the city, such as electrified public transport (trams, metro, buses), electric cars (private or shared like taxis) and active

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[145] World Health Organisation. (2021). *WHO global air quality guidelines*. Link.
[146] Transport and Environment. (2023). *Revision of the Ambient Air Quality Directive*. Link.
[147] UNECE. (2022). *Costs of Inaction on air pollution*. Link.
[148] ISGlobal. (2021). *European Cities Could Avoid an Extra 114,000 Premature Deaths Every Year by Meeting the New WHO Air Quality Guidelines*. Link.
[149] European Commission. (2022). *Impact assessment report accompanying the document Proposal for a Directive on ambient air quality and cleaner air for Europe (recast)*. Link.
[150] Environmental Infringements interactive map. Link.
[151] European Environmental Agency. (2023). *National Emission Reduction Commitments Directive reporting status 2022*. Link.

mobility like walking and cycling. For instance, **the zero-emission zone that is currently planned in Amsterdam is likely to reduce nitrogen oxide emissions by more than 95% between 2020 and 2030.** This is likely to deliver enormous benefits to people's health and wellbeing.[152] In addition, **a faster uptake of zero-emission vehicles and a ban on some highly emitting vehicles[153] in major cities could result in benefits amounting to €5.2 billion per year in 2030** thanks to better health, fewer premature deaths, improved crop yields and biodiversity.[154]

On industry, the EU could avoid 10,000 deaths and about €28 billion every year if it adopted a more stringent law on industrial emissions. The law could also be improved by covering air pollution from **agriculture which is currently responsible for over 70,000 deaths every year. Improving agricultural practices could reduce ammonia emissions by over a million tonnes by 2030 and thus avoid 27,000 deaths annually as well as save costs of €75 billion per year**.[155]

[152] City of Amsterdam. (2019). *Clean Air Action Plan*. Link.
[153] Particularly pre-Euro 6 vehicles.
[154] UNECE. (2022). *Costs of Inaction on air pollution*. Link.
[155] Centre for Research on Energy and Clean Air. (2023). *Upgrading Europe's Air: How a strong Industrial Emissions Directive can save lives and money*. Link.

How the EU ensures our water is pollution-free and accessible

Key takeaways

- Despite progress on access, poor water management, increased pollution and climate change significantly threaten European water supplies: 29% of the EU's territory was already affected by water scarcity during at least one season in 2019; and 22% of surface water as well as 28% of groundwater sources are polluted with nutrients and pesticides.
- EU laws have been crucial in pushing Member States to take appropriate action to protect their waters. EU funding can often support these actions.
- Today, 95% of Europe's population has access to high-quality drinking water, and 82% have access to wastewater treatment.
- Between 2014 and 2020, the EU allocated €15 billion to projects aimed to increase access to clean and safe water for all, particularly in Member States falling behind in meeting EU's standards.
- EU investments in Romania will help 240,000 inhabitants and increase the water supply connection rate (one that meets EU standards) from 65% to 95%.
- Every year, 44,000 tonnes of lead, a harmful chemical component, are leaked into the environment, contaminating our waters and soils. The overall damage costs amount up to €960 million every year.
- The EU has taken action against lead pollution by implementing a lead ammunition ban in wetlands, which should prevent around 1 million birds dying of lead poisoning each year.
- Despite the initial goal of ensuring all European water bodies have good status by 2015, over half of them are still not in good condition. The upcoming elections will be pivotal for guiding the EU towards cleaner, more accessible water for everyone.

We depend on water for almost all our daily activities. Thanks to the EU's action, access to clean and safe drinking water and wastewater treatment has significantly

improved over the past few decades. **Today, 95% of Europe's population has access to high-quality drinking water, and 82% have access to wastewater treatment.**[156]

That said, poor water management, pollution and over abstraction, aggravated by climate change, significantly threaten European water supplies. **In 2019, 29% of the EU's territory was already affected by water scarcity during at least one season.**[157] **In southern Europe, in particular, around 30% of the population lives under permanent water stress**, meaning that demand for water is higher than the supply. This is mainly due to abstractions for the public water supply, the energy production, industry use and agriculture—**in fact, agriculture was responsible for the majority (59%) of Europe's total freshwater use in 2017.**[158] Water pollution is also a vital issue, with **agriculture, through nutrients and pesticides, causing 22% of surface water and 28% of groundwater sources being polluted.**[159] Polluted water sources can have a serious negative impact on public health, potentially causing heart, respiratory and neurological diseases, and even cancer.[160,161]

The European Union is addressing these issues through stricter regulations and protecting and restoring freshwater ecosystems including investments into maintaining and upgrading existing water infrastructure and nature-based solutions. In this chapter, we will delve into these measures, highlighting the positive steps the EU has made to protect the quantity and quality of European water resources.

What has the EU done to ensure clean and accessible water for all?

How the EU protects our waters from a change for the worse

Given the extent of water pollution across Europe as well as the negative effects of climate change, the EU must ensure that our waters are protected from pollution and deterioration. EU laws have been crucial in pushing EU Member States to do so. One of the key EU laws on water[162] requires Member States to achieve good

[156] EurEau. (2023). *European water services.* Link.
[157] European Environment Agency. (2023). *Water scarcity conditions in Europe.* Link.
[158] European Environment Agency. (2024). *Water.* Link.
[159] European Environment Agency. (2021). *Pollution and barriers are key problems for Europe's water.* Link.
[160] European Environment Agency. (2023). *How pesticides impact human health and ecosystems in Europe.* Link.
[161] Nordic Co-operation. (2019). *The cost of inaction.* Link.
[162] The Water Framework Directive, adopted in 2000.

ecological and chemical status in all bodies of surface water and good chemical and quantitative status in all bodies of surface water by 2027 at the latest.

One way for Member States to achieve this is by identifying which water bodies will be used for drinking water abstraction and ensuring their protection accordingly. This has pushed some Member States, including Spain, to extend the protection of their waters. Whilst Spain has, for many years, protected some of its rivers by designating them as 'river nature reserves', **the government added 19 lake nature reserves and 2 groundwater nature reserves to the list of protected reserves in 2022**. As a result, Spain now protects a total of 289 reserves and nearly 4,000 kilometres of watercourses.[163]

Similar actions can be seen in many basins in France. Whilst groundwater has been protected and prioritised for drinking water in the Loire-Bretagne Basin since 1996, the EU law encouraged the local river basin authorities to officially reserve additional aquifers for drinking water in 2022.[164] This ensures the protection of additional resources that are already in relatively good condition.

In south-eastern Spain, the law has encouraged the local water management body to begin restoring the Segura river basin.[165] The project, which aimed to pave the way for a long-term restoration along the whole river length, was supported by the EU with **over €1.65 million in funding**. The project generated a positive impact on the river's fish population: as a result of the dismantling of one disused weir and adding fish ladders to 8 dams, the fish now have a free passage along more than 50 km of the Segura river. Additionally, 15,000 invasive alien fish were removed from the river. The project also brought great benefits to the local biodiversity: the removal of the invasive giant cane and its substitution with almost 5,000 native plants has **generated €457,000 worth of water savings every year**. This is because the evapotranspiration—a process in which water escapes from the soil into the atmosphere—of the giant cane is 6 times higher than that of the native plants.

Case study: Groundwater protection in the Netherlands

[163] WWF. (2023). *Water for Nature, Water for Life*. Link.
[164] WWF. (2023). *Water for Nature, Water for Life*. Link.
[165] European Commission. (n.d.). *Riverlink*. Link.



Photo credits: Daria from TaskArmy.nl / Unsplash

Thanks to European laws, particularly the European Nitrates directive, which aims to reduce water pollution from nitrates used for agricultural purposes, the Netherlands was pushed to protect its groundwater areas after it appeared that their state was not compliant with the law.

The Netherlands made agreements to protect 34 vulnerable groundwater areas by reducing nitrate leaching.[166] Nitrate leaching occurs when heavy rainfall washes out the nitrate from the root zone, which can then contaminate groundwater as well as surface waters.

The Farmers for Drinking Water project aims to help farmers in the most vulnerable areas in the Overijssel region. Agricultural and economic advisors provide them with advice on measures that reduce the leaching of fertilisers and pesticides, and could achieve better economic results.

The project has not only generated economic benefits for farmers, on average generating between €100 and €200 per hectare, but it has also managed to reduce the surplus of nitrogen to 70 kg per hectare—a positive outcome given that the goal of the project was to reduce it to 100 kg per hectare.[167]

[166] Deltaplan Agrarisch Waterbeheer (DAW). (n.d.). *Grondwaterbescherming.* Link.
[167] Boeren voor Drinkwater. (n.d.). *Resultaten.* Link.

How the EU expands access to clean water for all

In Europe, there are **over 4 million kilometres of drinking water networks**, supplying Europeans with clean and safe water. These networks allow people to access clean water for drinking, hygiene and sanitation by simply opening a tap. **The volume of water that is supplied this way amounts to 23 billion cubic metres—enough to fill 9.2 million Olympic size swimming pools**.

In addition, over **3 million kilometres of sewerage networks** are transporting wastewater to **more than 21,000 urban wastewater treatment plants**.[168] The treatment of our wastewater keeps us and the environment healthy. Without treatment, our health could suffer from exposure to bacteria, viruses, nitrogen, phosphorus and other pollutants. As for the environment, rivers, lakes, and coastal waters would be at higher risk from algal blooms, which can be poisonous and make water bodies unsafe. Whilst conventional wastewater treatment does not remove other harmful substances like micropollutants, the EU is proposing to require the installation of advanced treatment to remove them with its updated law on wastewater treatment. This has a proven positive effect on aquatic life in our lakes and oceans as well and the largest part of the costs of removing such pollutants will be carried by the polluter itself. This is important as micropollutants can disrupt the hormonal systems of both humans and wildlife and can have detrimental effects on reproductive, neurological and immune systems.[169]

However, not all European citizens enjoy the same level of access to a safe water supply and adequate sanitation services. When it comes to water supply, **around 23 million people are still not connected to the public water supply network**.[170] Despite more people having access to basic sanitary facilities like showers, baths and indoor flushing toilets, a number of EU countries are not treating their wastewater according to EU standards set in its law on urban wastewater. This is particularly the case for countries in southeastern Europe: **Bulgaria, Romania and Croatia (as well as Malta and Ireland) treat their wastewater in accordance with EU standards in less than 50% of their urban areas**.[171]

The EU plays an important role in improving the current situation not just by setting and updating those standards including for new pollutants such as pesticides and pharmaceuticals, but also by providing funding. **Between 2014 and 2020, the EU allocated €15 billion to projects aimed to increase access to clean and safe**

[168] European Commission. (2020). *10th Technical assessment on the Urban Waste Water Treatment Directive Implementation*. Link.
[169] OECD. (2023). *Endocrine Disrupting Chemicals in Freshwater.* Link.
[170] European Commission. (2018). *Drinking Water Directive Impact Assessment.* Link.
[171] European Environment Agency. (2023). *Waste water treatment improves in Europe but large differences remain.* Link.

water for all.[172] These investments were particularly focused on wastewater collection and treatment infrastructure, such as the construction and upgrading of sewage networks, especially in those Member States that were falling behind in meeting the EU's standards, mentioned above.

In Romania, only around 12% of sewage is treated according to the EU's standards.[173] Some treatment plants are too small or have already been overused. In addition, water sources in Romania are of poor quality or insufficient, with some settlements not having any infrastructure to supply water.

The EU has invested several hundred millions of euros across Romania in recent years to support Romania with the objective of a clean water supply. **In 2022, the EU invested more than €127 million in Buzău county** to upgrade 13 water supply systems, lay 16 kilometres of sewage collectors as well as 430 kilometres of sewerage network pipes and create 57 water sources extraction points—**all set to benefit over 170,000 people in the region**.[174] The EU also **invested nearly €276 million in Cluj and Sălăj counties in 2019** to improve their water supply infrastructure and ensure their wastewater is collected and treated. This will benefit nearly **an extra 240,000 inhabitants** and **increase the water supply connection rate (one that meets EU standards) from 65% to 95%.**[175] In addition, the funds will be used to build a new wastewater treatment plant and to modernise 3 existing plants.

The urban wastewater law needed updating urgently, being 30 years-old by now.[176] The law did not cover key pollutants, including microplastics and pharmaceuticals, which are increasingly contaminating the water supplies in Europe.[177] For now, selected plants will be required to remove micropollutants, having a proven positive effect on aquatic life and costs being shouldered by producers and importers of human pharmaceuticals and cosmetics with a larger share. Sewer overflows are also becoming an increasing problem as extreme weather events such as heavy rains become more frequent. **In Brussels, for example, some 10 million cubic metres (equivalent to 4,000 Olympic-size swimming pools) of wastewater make their way directly into Brussels' waterways through overflows every year.**[178] Like many

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[172] European Commission. (2021). *Tapping into Cohesion Policy investment in water services.* Link.
[173] WISE Freshwater. (n.d.) *Romania.* Link.
[174] Water News Europe. (2022). *EU invests in Romanian water infrastructure.* Link.
[175] European Commission. (2019). *Regional project for developing water and wastewater infrastructure in Cluj and Salaj Counties.* Link.
[176] European Environmental Bureau. (2021). *EEB position for a revised Urban Waste Water Directive.* Link.
[177] European Environmental Bureau. (2021). *EEB position for a revised Urban Waste Water Directive.* Link.
[178] Canal it Up. (2023). *Sewage water discharged in the Senne and the canal.* Link.

European cities, Brussels collects rainwater and wastewater in a single system, meaning that days of heavy rain can cause the system to overflow, and sewage is discharged into waterways. The EU wastewater law is now obliging EU countries' to limit the pollution from sewer overflows with priority to preventive measures such as blue-green solutions that capture and retain rainwater. Still, the EU can play an important role to provide more support for Member States to modernise their water systems and improve wastewater treatment. Good examples come from Cyprian cities Nicosia, Larnaca, and Limassol, that are now compliant with EU lwa due to successful co-financing between the EU's investment bank, the EIB, and Cyprus of €230 million in 2023.[179] **Annual spending needs to increase from €40 billion to €60 billion to ensure that wastewater treatment in cities and urban areas meet EU standards.**[180]

Protecting our health and the environment from lead

Every year, 44 thousand tonnes of lead are disseminated into the environment, threatening the health and lives of animals and people.[181] **The overall damage costs of lead used for hunting, fishing and shooting sports across the EU can amount up to €960 million every year.**[182] Lead has been used traditionally in hunting, fishing and shooting sports through lead gunshots, bullets and fishing tackles. Some contemporary fishing practices even rely on deliberately releasing lead sinkers into water. Lead projectiles from sports shooting can contaminate the soil and water in or around shooting ranges, which, if used for agriculture, can put the cattle or poultry in the area at risk of poisoning.

Over 150 million birds are put at risk every year from exposure to lead. Of waterbirds, it is estimated that 1 million die as a result of lead poisoning.[183] Waterbirds living in wetlands get poisoned either by ingesting the rounded pellets which fill the lead cartridges as they can be mistaken for the small stones they consume to help with their digestion, or by consuming lost lead fishing tackle.[184,185] Vultures and facultative scavengers (species that scavenge when the opportunity arises, as opposed to relying on carrion) can be similarly poisoned—either directly by eating carcasses that have lead pellets on them or indirectly by eating animals

[179] European Investment Bank (2023). Cyprus: EIB commits €230 million support for vital wastewater management and multi-sector investments.. Link
[180] European Investment Bank. (2023). *EIB Water Sector Orientation.* Link.
[181] European Chemicals Agency. (n.d.). *Lead in shot, bullets and fishing weights.* Link.
[182] Deborah J. Pain et al. (2019). *Wildlife, human and environmental costs of using lead ammunition: An economic review and analysis.* Link.
[183] BirdLife International. (2023). *Press release: Lead ammunition finally banned from wetlands across the EU.* Link.
[184] BirdLife International. (2023). *Press release: Lead ammunition finally banned from wetlands across the EU.* Link.
[185] European Chemicals Agency. (n.d.). *Lead in shot, bullets and fishing weights.* Link.

that have consumed lead.[186] The long-term decline of these species' populations caused by repeated poisonings can have negative consequences on our ecosystems. As vultures primarily consume carrion, they are responsible for a number of critical processes, including maintaining nutrient recycling—the process by which nutrients circulate in the environment—or reducing the development and spread of some diseases. These processes are all incredibly beneficial to humans.

Although not associated with the contamination of water, lead ammunition can also affect humans more directly. Hunters feeding their families or selling their game meat[187] can accidentally poison people and this can have devastating effects on their health, with particular risk for children. The ingestion of lead can lead to neurodevelopmental problems in children, such as IQ reduction, and cause cardiovascular problems, chronic kidney disease, hypertension, impaired fertility and adverse pregnancy outcomes in adults.[188] Some Member States, such as France, already advise the general public against eating game killed with lead more than 3 times a year and advise children and pregnant women against eating this meat at all.[189] Additionally, even our pets are at risk of lead poisoning from ammunition. Dogs fed with pet food containing game, or off-cuts from hunted animals, are exposed to extremely high levels of lead, putting them at risk of both acute and chronic health effects.

To safeguard our health and our ecosystems from lead contamination, the EU has implemented a ban on lead ammunition in EU wetlands, which took effect just last year (2023). The new rules will help protect the health of our wetlands and prevent around 1 million birds dying of lead poisoning each year.

What can the EU do to ensure a secure supply of clean and safe water into the increasingly climate-change-affected future?

The existing measures have established some fundamental standards to decrease the pollution of water sources in Europe. However, the EU must do more to ensure all Europeans can access clean water.

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[186] Vulture Conservation Foundation. (2023). *EU bans the use of lead ammunition in wetlands.* Link.

[187] Game meat is meat from animals that are not usually farmed for mass consumption, but rather are typically found in the wild. This includes animals like deer, moose, elk, bear, and others.

[188] European Chemicals Agency. (n.d.). *Lead in shot, bullets and fishing weights.* Link.

[189] European Chemicals Agency. (n.d.). *Lead in shot, bullets and fishing weights.* Link.

A significant issue related to water is slow implementation of the EU water laws and the lack of enforcement by the Member States and the European Union. **The EU set the goal to achieve good conditions for all European waters by 2015 (with possibility to extend the deadline to 2027 in limited cases). However, even after twenty years of consecutive EU efforts, over half of Europe's water bodies are still not in healthy condition.**[190] This is primarily due to slow implementation and Member States taking advantage of exemptions and loopholes to delay the fulfilment of this objective. **The EU must step up implementation and enforcement of all relevant environmental legislation, and in particular of the EU's Water Framework Directive**, to ensure its water protection and management goals are achieved by 2027. The EU must also reject any efforts to weaken the targets prompted by failures to comply with them.

In addition to better implementation, water protection objectives need to be streamlined across the different sectors that can have an impact on our water resources and quality, such as the EU's energy transport or key farming policy, the Common Agricultural Policy. This was also recommended by the EU's fitness check evaluation of its water laws[191]

In addition, it should take further measures to ensure water resilience and supply in times of nature and climate crisis, for example by implementing and enforcing the polluter pays principle and the principle of recovery of costs in all sectors, including in agriculture, which is responsible for 80% of the nitrates pollution,[192] and industry. A new Water and Climate Resilience Law, with strong ambition on freshwater, should set legal requirements for ecosystem-based adaptation, using nature as a buffer to floods, droughts and wildfires. Without sufficient, well-managed and good quality water in the landscape, there won't be enough good quality water for people.

Lastly, the current ban on lead ammunition only applies to wetlands, meaning that hunting and outdoor sports shooting outside wetlands, as well as lead used in fishing sinkers and lures, can continue to pollute European waters. The European Chemicals Agency is currently working on a second restriction that proposes a complete ban on the use of lead. However, the process for this wider ban has a long way to go; **the EU elections represent a critical opportunity to push this a halt to toxic lead through**.

The EU and its Member States should implement existing policies to maintain and restore the resilience of rivers, lakes and wetlands, particularly by strengthening

[190] European Environment Bureau. (2023). *The Water Framework Directive, the forgotten tool to fix Europe's water crisis: State of play on implementation and enforcement of EU's main water law.* Link.
[191] European Commission. Fitness check of the Water Framework Directive and the Floods Directive. p. 1. Link
[192] European Commission. (n.d.). *Nitrates.* Link.

their protection and minimising pressures on them such as pollution or modifying their water flows. To that effect, ecosystems will benefit from Member States implementing the EU Nature Restoration Law, which requires measures to restore them. In addition, reducing pollution from agricultural and industrial activities should be a priority for protecting Europe's ecosystems under climate change in the next mandate as well as **making the EU more water resilient in the face of nature and climate crisis.** In the end water does not come from the tap, it comes from nature, and we need to protect and restore it as a matter of priority so that it can continue providing benefits to us.

How the EU is improving your access to electromobility

Key takeaways

- Road transport represents a substantial portion of the EU's greenhouse gas emissions, contributing to approximately one quarter of the EU's CO2 emissions in 2021, causing roughly 70,000 premature deaths annually and leading to annual health costs estimated at up to €80 billion.
- To significantly lower the climate impacts from the share of road emissions and combat severe air pollution, the EU has agreed a 100% zero-emission mandate for new cars via its new law on CO2-emitting cars by 2035.
- Cities like Ljubljana showcase success in reducing air pollution through innovative shared electric car initiatives, with the EU actively supporting similar projects.
- Thanks to EU-backed policies, the share of transportation emissions in Bornholm's overall CO2 emissions decreased from 27% in 2017 to 17% in 2021 (Denmark).
- A new EU law also requires sufficient charging infrastructure in line with the uptake of electric vehicles every 60 km along key EU roads, enabling convenient eco-friendly long-distance travel. The EU has already witnessed significant growth in the public charging market, with the number of chargers reaching almost 340,000 in 2021, a three-fold increase from 2018.
- EU-backed incentives and research support aim to make e-cars more affordable. Today, the overall cost of ownership of e-cars in the EU has decreased significantly, with e-car ownership being cheaper than a petrol or diesel equivalent in 19 Member States.

Road transport represents a substantial portion of the EU's greenhouse gas emissions, contributing to approximately one quarter of the EU's CO2 emissions in 2021.[193] Recognising this significant environmental impact, causing roughly **70,000 premature deaths annually due to air pollution from road transport**, the EU has

[193] European Commission. (2021). *Zero emission vehicles: first 'Fit for 55' deal will end the sale of new CO2 emitting cars in Europe by 2035.* Link.

prioritised the decarbonisation of road transport, aligning with its ambitious climate targets.[194] Electric cars (e-cars) emerge as pivotal tools in achieving this decarbonisation objective, with the potential to address challenges in remote areas that are hard to reach through alternative transportation means such as trains and bikes.

However, several challenges hinder the widespread adoption of e-cars. These challenges encompass the development of a robust charging infrastructure, ensuring a sustainable and renewable energy supply to power these vehicles, and crucially, grappling with the ethical sourcing of raw materials essential for manufacturing batteries. The latter poses a dual challenge as it involves not only securing these materials, but doing so in an ethical manner.

Additionally, there is a reliance on technologies originating from outside the EU, which exposes the EU to potential vulnerabilities, especially considering the current geopolitical climate. The importance of taking a thorough, EU-focused approach is clear when tackling these issues. This approach ensures that electric cars play a significant role in reducing emissions from road transport, which is crucial for making transportation more sustainable and resilient. It's important for the EU to address these challenges strategically after the upcoming EU elections. Doing so will help speed up the transition to a greener road transport system, benefiting everyone in the EU.

What has the EU done to improve the access to e-cars?

The EU faces a pressing need for action as six of the world's top ten urban areas with the highest rates of premature deaths from air pollution are located within its borders, including cities like **Milan, Berlin, and Rotterdam**.[195] In 2023 alone, air pollution caused a staggering **238,000 premature deaths in the EU**, with only pollution from road transport and specifically by polluting combustion engines lead to health costs estimated at up to **€80 billion annually in 2020.**[196]

To tackle this issue head-on, the EU has introduced **a groundbreaking ban on the sale of new CO2-emitting cars in Europe by 2035**. This forward-looking law aims to accelerate the production and widespread adoption of electric cars across the EU and beyond, offering **a cleaner and healthier future for all citizens**. In cities like Ljubljana, leading the charge in embracing electric cars, we witness a positive

[194] Transport and Environment. (2022). *EU's new air pollution limits a big step forward but fall short of WHO guidelines.* Link.
[195] Ends Europe. (2023). *Air quality: The EU urban areas with the highest concentrations of particulate matter pollution.* Link.
[196] Transport and Environment. (2022). *Air quality.* Link.

transformation in air quality and overall well-being. Ljubljana has become one of the EU capitals with the highest per capita share of e-cars, making significant strides in reducing air pollution from transportation. **Local initiatives backed by the EU Commission** have been key to this success, promoting and facilitating the use of e-cars, especially through shared means.

The city's electromobility strategy, initiated in 2013 as part of a broader urban mobility plan, introduced shared e-cars tailored to pick up passengers along bus routes during periods of lower frequency.[197] This innovative approach allows passengers to request an e-car on-demand during less busy times, fostering a shared and efficient transport system. This strategy has not only been successful in Ljubljana but **has expanded across the public transport networks in Bratislava and Zagreb, thanks to support and knowledge exchange from and facilitated by the EU**.

To bridge the e-mobility gap to more rural areas, the city implemented e-car shared riding schemes on the outskirts. As a result, **air pollution from transport** has **significantly decreased**, contributing to an improved quality of life for citizens. According to the 2022 Eurobarometer, 92% of citizens in Ljubljana **express satisfaction with their quality of life**, **a notable increase from 78% in 2012.**[198] Good air quality stands out as one of the most crucial factors influencing this positive shift.[199]

The EU has recognised the success of such initiatives and is **actively supporting** similar projects across the EU. Additionally, the EU is investing in **accelerating green and renewable energy production** to power the growing fleet of e-cars. It is vital to ensure that this ambition is sustained beyond upcoming elections to continue the positive momentum toward cleaner and more sustainable local environments.

Case study: Mobility in Denmark

[197] City of Ljubljana. (2019). *Environmentally friendly vehicles*. Link.
[198] European Commission. (2023). *Report on the quality of life in European cities 2023*. Link.
[199] EBRD. (2021). *Pedestrianisation and car-free zones: Ljubljana, Slovenia*. Link.



Photo credits: Marek Studzinski / Unsplash

Denmark had the **second highest share of newly registered e-cars in the EU at 36%** in 2023 and has been pioneering e-mobility in the past decade.[200] Within Denmark, the island of **Bornholm**, home to 39,000 people, is at the forefront of sustainability, aiming to achieve carbon neutrality by 2025. The island's reliance on **costly fuel imports** and its small rural economy motivated the launch of the **Bright Green Island Bornholm initiative** in 2019, backed by **EU cohesion funds.**[201] With **60% of residents relying on cars** (only 3% on public transport) and high fuel costs, the initiative focused on a **community-driven approach to address mobility challenges, including the ambitious deployment of an electric car fleet and charging infrastructure**.[202] The EU-supported **InsulaE** project played a key role by introducing sustainable and cost-effective energy sources for electric vehicle charging, resulting in **48 charging stations** now available across Bornholm.[203] Consequently, the share of transportation emissions in Bornholm's overall CO2 emissions decreased from **27% in 2017 to 17% in 2021.**[204]

[200] Nordea. (2022). *Rising sales of electric cars in Denmark.* Link.
[201] Bright Green Island. (2019). *Introduction to Bright Green Island.* Link.
[202] Trafikstyrelsen. (2023). *Bornholmanalysen.* Link.
[203] Elbilvinden (2024). *Ladekort.* Link.
[204] Sparenergi. (2022). *Energy Analysis for Bornholm.* Link.

Supporting the roll-out of infrastructure across different regions

Speaking of the right laws: ensuring the success of a widespread transition to e-cars involves not just having the right vehicles, but also the necessary **charging infrastructure**. Recognising this need, the EU has finalised a law on charging and refuelling infrastructure for cars, buses and trucks, called the Alternative Fuel Infrastructure Regulation (AFIR), compelling Member States to establish **fast public charging ports every 60 km** along the extensive TEN-T network that spans the entire continent.[205]

This law aims to address the **challenges of emission-free travel across all distances**, making it more convenient and easier for drivers to charge their e-cars on longer journeys. **The EU already has witnessed significant growth in the public charging market, with the number of chargers reaching almost 630,000 at the end of 2023, a three-fold increase from 2020.**[206] This development is particularly crucial in regions where sparse population density and long distances have made the switch to e-cars more challenging. For example, **in Finnish Lapland, the installation of public charging ports has already increased to 200 (up from 3 in 2015) since the announcements of the mandatory targets**, providing drivers with increased incentives to transition to electric vehicles today.[207] The results are already making an impact, with e-cars accounting for **18% of all newly-registered vehicles in the region in 2023**, up from 8% in 2019.[208]

Making electric cars more affordable

Making electric cars **more affordable** is a key factor in their widespread adoption, given the complexities of production and challenges in sourcing materials for essential batteries. Recognising this, various financial incentives have been introduced across Member States, including tax breaks, purchase subsidies, and support schemes.

The EU mandated 2035 phase-out is compelling car manufacturers to introduce more affordable models. This shift is driven by the increasing stringency of CO2 targets set for 2025 and 2030, prompting carmakers to address the broader mass market**. Croatia,** for instance, is set to receive **€200 million to develop and deploy**

[205] European Council. (2023). *Council adopts new law for more recharging and refuelling stations across Europe.* Link.
[206] Clean Cities Campaign. (2023). *The state of shared and zero-emission mobility in European cities*. Link.
[207] Electromobility.fi. (2015). *Sähköinen liikenne: Latausverkosto kasvaa Lapissa*. Link. / Neve. (2024). *Sähköautoilu Lapissa*. Link.
[208] Statfin. (2024). *First registrations of motor vehicles.* Link.

domestically produced e-cars, **enhancing accessibility** for municipalities around Zagreb.[209] The **EU's Recovery and Resilience Fund** will support the creation of an autonomous e-vehicle fleet for transportation in and around Zagreb, **providing connectivity** to currently underserved, highly polluted areas that are dependent on conventional car traffic. This shared e-mobility initiative aims not only to reduce **traffic congestion** in Zagreb, but also to promote a cleaner and faster commuting experience.

Additionally, the EU is actively supporting **research and development in e-car batteries**. The EU-funded FIVEVB project, which involves participants from Austria, France, Belgium, and Germany, is working on **innovative battery cell technology for electric vehicles.**[210] By leveraging cutting-edge materials and technologies, the project aims to enhance the **efficiency and capabilities** of EV batteries. This includes developing cells with higher energy density, longer lifespan, and faster charging times—all crucial aspects for the broader adoption of electric cars.

Projects like this one are set not only to elevate the overall performance of EVs but also to bring down the production costs, making electric cars more accessible and affordable for a wider range of consumers. **Today, the overall cost of ownership of e-cars in the EU has decreased significantly**, **with e-car ownership being cheaper than a petrol or diesel equivalent in 19 Member States**, with EU-backed investments in research and development contributing significantly.[211] With improved performance at a lower cost, this advancement is expected to contribute to a further reduction in the overall cost of e-cars and increase their deployment across Europe, making them even more accessible.

What more can the EU do to increase access to electromobility?

2023 car sales show that, despite economic headwinds, European BEV sales have increased by 28%, and by more than a third in the EU alone. Yet sales of electric cars in Europe are not increasing as fast as in 2020 and 2021, as the EU CO2 requirements gave a big push to manufacturers to produce and sell zero emission cars across Europe to comply with the set CO2 targets.

One of the biggest gaps in our sustainability transition is access to not just emission-free by going electric, but also affordable and compact vehicles that use

[209] European Commission. (2022). *Croatia's recovery and resilience plan.* Link.
[210] European Commission. (2022). *Five Volt Lithium Ion Batteries with Silicon Anodes produced for Next Generation Electric Vehicles.* Link.
[211] World Economic Forum. (2023). *Owning an electric vehicle in Europe could be cheaper than you think.* Link.

resources as efficiently as possible. The past few years have seen a growing trend, especially in the electromobility segment with around 54% SUVs, towards massively large premium SUVs, that risk eating up the emission savings from the move to electric. Minimum energy efficiency standards as done for example for our house-appliances can make sure that all cars on Europe's roads are fit for a sustainable road trip or at least not hampering the journey.

Increasing the offer of second-hand electric vehicles, allows to bring down prices and increase the guaranteed offer of more affordable electric cars. Companies have the means and broad financial shoulders to stem the currently still higher upfront costs by electrifying their corporate fleets first and releasing the cars into the second-hand market after their leasing period. EU policy-makers need to make sure that companies receive a regulatory nudge to go zero-emission first.

Lastly, cleaning up the supply chain of batteries and raw materials - will require continued efforts within Europe and abroad, where most of mineral extraction takes place. These elements are urgently needed for the production and assembling of those electric vehicles - whether bus, car or truck - and the EU has the rare opportunity to scale-up key emerging technologies for the electromobility transition, especially the recycling of battery materials, the production of green steel and aluminium as well as the processing of mining waste.

How the EU is improving your rail journeys

Key takeaways

- More than half of EU citizens (52%) are willing to shift their travels from planes to trains. Additionally, 73% of citizens believe that the EU should make rail travel more affordable. Already today, a notable portion of the EU's busiest flight routes can be effectively replaced by train alternatives within six hours.

- The introduction of EU-backed and funded 'climate-ticket schemes' has been a crucial tool in addressing high ticket costs, making rail commuting more affordable and leading to increased rail usage.

- Investments in rail safety and efficiency have contributed to reducing travel times, making rail journeys a competitive mode of transport across various important intercity and commuter lines. With EU support and technical assistance, travel times between Madrid and Santiago de Compostela decreased from 4 hours 30 minutes to 3 hours 20 minutes, providing a viable alternative to air travel.

- Extensive electrification and supporting viable zero-carbon alternatives contribute to making rail travels even more sustainable. 60% of the EU's network is already electrified and 80% of the traffic is on those lines. Portugal serves as a prime example of this undertaking, increasing its share of electrified routes by 15% to 71% between 2019 and 2022. Under the TEN-T policy, the goal is to achieve full electrification of the EU's mainline network (accounting for 80% of rail traffic) by 2050.

- Thanks to new tracks and electrification, the reopened line between Brno and Židlochovice in Czechia makes travel by train approximately 15 minutes faster on average than commuting by car during rush hours. Židlochovice now experiences close to 2,000 passengers per working day, a substantial rise from the 1,200 recorded when the railway line was reopened in 2019.

- The number of night train connections increased to 200 in 2023, up from 120 in 2019. As a result, cities like Berlin and Brussels or Vienna and Paris are accessible by night train again.

- Further efforts to harmonise rail standards across all Member States, coupled with a push to increase cross-border connections and to simplify ticketing

structures, need to be undertaken to make cross-border rail travel more affordable, convenient, and accessible for EU citizens.

The EU has long recognised the importance of efficient and sustainable transport systems for the economic and social well-being of its citizens. The railway sector, in particular, plays a crucial role in this regard, providing a reliable, cost-effective, and environmentally friendly mode of transport. Over the past legislature, the EU has passed laws as well as launched some investments aimed at **enhancing the efficiency, accessibility, and sustainability of its railway systems**. This has been designed in line with the objectives set out in the **European Green Deal** and the **Sustainable and Smart Mobility Strategy**. The big push to fully unfold the benefits of a cross-EU rail network with comfortable, affordable rail journeys that connect citizens even across long distances is yet to be implemented.

In the context of the upcoming EU elections, the topic of railway policy is of particular relevance. **A 2021 public opinion poll conducted by the *Europe On Rail* Coalition highlights that over half of EU citizens (52%) are willing to shift their travels from planes to trains. Additionally, 73% of citizens believe that the EU should make rail travel more affordable.**[212] This was exemplified during the EU's dedicated European Year of Rail in 2021, which has set the stage for ongoing efforts to improve the efficiency and sustainability of the EU's railway infrastructure.

The EU has highlighted the role of rail as a game changer in achieving the EU's climate-neutrality objective by 2050. However, it has also underscored the problems still holding rail back, especially on long-distance, cross-border connections. Of all kilometres travelled by train in 2022, only **7% are cross-border trips**.[213] The current setup of different railway systems based on complex standalone national systems, has undermined EU integration in the sector.

Achieving further integration between Member States' rail networks requires the harmonisation of technical, administrative, and safety rules, which remains challenging. The ongoing liberalisation of the rail market is a key cornerstone of the proposed Single European Rail Market. It is a potential driver of sectoral growth, as demonstrated by the Madrid-Barcelona line. Passenger numbers on this line **surged by 34%** in just one year, following the introduction of **more frequent services by multiple operators** and a **43% reduction in ticket prices**.[214]

[212] Europe On Rail. (2021). *European public opinion poll shows support for shifting flights to rail.* Link.
[213] European Commission. (2022). *Rail Travel at a Glance.* Link.
[214] Le Monde. (2023). *The successful liberalization of high-speed rail in Spain.* Link.

This chapter will explore these impacts in detail, focusing on how the EU is making commutes/travels cheaper, cleaner, and easier, and whether it has delivered on its rail promises for 2019-2024.

What has the EU done to improve your rail journeys?

Making your rail travels cheaper

Amidst the ongoing climate crisis and the aftermath of Russia's invasion of Ukraine, rail transport emerges as a pivotal solution to address the resulting challenges. While rail travel rebounded to pre-COVID levels in 2022, the EU emphasises the need to enhance rail accessibility. This includes addressing difficulties in booking cross-border tickets due to various providers and operators, a lack of real-time information, often inaccessible information in English, inconsistent travel conditions and reimbursement schemes, as well as limited connectivity to inter-modal transport options like buses, ferries, bikes, and scooters.

A significant obstacle is the **rising cost of tickets, with EU rail fares increasing by an average of 3% between 2017 and 2022, reaching up to a 44% surge in Lithuania.**[215] Comparatively, **79 out of 112 cross-border EU routes offer cheaper flight tickets.**[216] To address this, the EU encourages Member States to **propose initiatives** for **better rail access** as a crucial tool in tackling climate and cost-of-living crises.

Austria's **'Klimaticket,'** introduced in 2022 as part of Austria's national recovery and resilience plan, is a game-changer in beating the cost-of-living crunch and inspiring daily commutes by train. Thanks to the EU' **Recovery and Resilience Fund**, this scheme simplifies the once complex fare structures, offering a fuss-free modular system for short and long distances.[217]

Now, Austrians can enjoy **short commutes for just €30 a month** or **€3 a day nationwide**, using any rail or public transport. Students and those facing economic challenges get an extra discount. The Linz to Rohrbach route in Upper Austria, a hotspot for car commuters, became **61% cheaper than traditional monthly or annual passes**.[218] On top of this, **41% of 'Klimaticket' users had not subscribed to**

[215] Euronews. (2023). *Rail fares across Europe: The countries with the most expensive train tickets.* Link.
[216] Greenpeace. (2022). *Cross Border Rail Travel.* Link.
[217] European Commission. (2022). *Introduction of Klimaticket.* Link.
[218] BMK. (2022). *Klimaticketreport.* Link.

such passes before, leading to a remarkable surge in train usage, especially on busy commuter routes, **where a quarter of users had previously relied on cars.**[219]

Hungary echoes this success, recording a **6.4% rise in rail commuters** on the busy Budapest-Tatabanya corridor after launching a similar EU-backed ticket scheme in 2022.[220] Thanks to this scheme, **a ticket costs less than 15 litres of fuel, covering 250-300 km**. However, the surge in rail passengers highlights the strain on outdated rail infrastructure, necessitating simultaneous investments in infrastructure and increased frequency. Similar measures should extend to cross-border long-distance rail journeys to competitively challenge air travel.

Making your rail travels safer

Let's talk about rail safety—a cornerstone of every journey. With ageing infrastructure and diverse standards across Member States, the EU's **Common Railway Policy** has rail safety at the forefront.

Central to this effort is the **Connecting Europe Facility for Transport (CEF)**, a vital funding tool aimed at enhancing transport connectivity. Through investments in the European Rail Traffic Management System (ERTMS), which streamlines rail control and command systems, the EU aims to **unify the 27 different rail systems** across the EU. In 2023, the EU allocated **€6.2 billion for 132 selected transport infrastructure projects**, focusing on safety and operability enhancements.

Notably, the Celje-Zidani Most railway corridor in Slovenia, a pivotal connection between two major cities and railway hubs, has benefited from this funding. By implementing ERTMS through new signals and control points, this previously outdated railway line now boasts **improved monitoring capabilities**, enabling **faster and safer travel**. Since its completion in 2022, the corridor has seen a notable **increase in train frequency**, with an additional train per hour during peak times, **reducing travel time to just 18 minutes for faster trains.**[221] This transformation not only makes rail travel quicker but also safer, particularly when compared to the congested parallel highway section.

Speeding up your rail journey

Boosting efficiency and reducing travel time stands as a key factor in enhancing the appeal and competitiveness of rail journeys compared to car and plane trips. Particularly crucial for long-distance travel, **a notable portion of the EU's busiest flight routes can be effectively replaced by train alternatives within six hours.**[222]

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[219] BMK. (2022). *Klimaticketreport*. Link.
[220] KSH. (2023). *Transport Statistics 2023*. Link.
[221] Kraj Samorazdalje. (2021). *Nadgradnja Železniške Proge Zidani Most-Celje*. Link.
[222] Greenpeace. (2023). *Report-Climate Tickets*. Link.

Aligned with its updated **Trans-European Network (TEN-T)** strategy, the EU, in 2021, set an ambitious target of **increasing speeds** on vital corridors like Paris-Budapest or Hamburg-Palermo **to a minimum of 160 km/h**. **Currently, 30% of the lines covered by TEN-T allow for speeds of no more than 60km/h.**[223] Enhancements could not only significantly cut travel times between the endpoints of these key routes but also along the entire journey. For instance, **travel times between Frankfurt and Milan could be reduced from the current 8 hours to 5 hours and between Kaunas and Riga from 2 hours 45 minutes to just 1 hour.**[224]

The EU's commitment to upgrading key routes and expanding train connectivity has already yielded faster travel, exemplified by the Madrid-Galicia high-speed rail line. With EU support and technical assistance, **travel times between Madrid and Santiago de Compostela decreased from 4 hours 30 minutes to 3 hours 20 minutes, providing a viable alternative to air travel.** This improvement also enabled **a doubling of train capacity and better frequencies, benefiting residents in rural Galicia and Castille/Leon with new stops along the route**.[225]

Nevertheless, it is essential not to neglect the development of conventional lines. Prioritising connectivity for all communities, especially in car-dependent rural areas, remains crucial. Simultaneously, while high-speed infrastructure projects have proven effective, their considerable cost and potential impact on biodiversity and traversed communities warrant careful consideration. Thus, prioritising the enhancement of existing infrastructure to connect the maximum number of people emerges as a key focus.

Case study: Czechia

[223] European Commission. (2023). *How fast are rail trips between cities.* Link.
[224] European Commission. (2021). *Q&A: Cross-Border passenger rail.* Link.
[225] Adif Alta Velocidad. (2022). *Línea Madrid-Galicia.* Link.



Photo credits: Timur Shakerzianov / Unsplash

Czechia has the **densest rail network in the EU**, with tracks extending even to remote villages. In 2023, the country signed a **€992 million loan agreement** with the European Investment Bank (EIB) to support the upgrade of the rail network through **improvements to level crossings**, **new trains, and enhanced accessibility for people with reduced mobility**.[226]

Completed EU-backed projects, such as the reactivation of the railway line from Brno to Židlochovice in 2019 after 40 years, have resulted in **better and more frequent services compared to the previous bus-based system**.[227] The transformation of the train station included the establishment of an **intermodal hub** featuring convenient connections to neighbouring towns and villages through frequent bus services. Additionally, amenities like dedicated bike storage and e-car charging ports were introduced.

The new tracks and electrification also **make travels by train approximately 15 minutes faster on average than commuting by car during rush hours.**[228] The integration of low-floor trains has enhanced accessibility, particularly benefiting passengers with reduced mobility. This has resulted in a **remarkable increase in**

[226] European Investment Bank. (2023). *EIB and Czech Republic to cooperate on modernization of local railway networks.* Link.
[227] Ohla-ZS. (2020). *Modernization railway line Hrušovany u Brna and Židlochovice.* Link.
[228] Ohla-ZS. (2020). *Modernization railway line Hrušovany u Brna and Židlochovice.* Link.

passenger numbers at the Židlochovice station. This town of 3600 inhabitants now experiences close to **2000 passengers per working day, a substantial rise from the 1200 recorded when the railway line was reopened in 2019.**[229]

Making your rail travels greener

Trains are among the **most environmentally friendly** modes of transport in the EU today, **responsible for less than 1% of transport emissions in the EU.**[230] Most importantly, they serve as a viable and comfortable alternative to more polluting modes of transport such as aviation. A significant factor in this is the **high degree of electrification**, **with 60% of the EU's network electrified**[231] and 80% of the traffic is on those electrified lines[232]. Under the TEN-T policy, the goal is to achieve **full electrification** of the EU's mainline network (accounting for 80% of rail traffic) by 2050. While the target is surely ambitious, the route to achieving this goal is well underway.

Portugal serves as a prime example of this undertaking, increasing its share of electrified routes by 15% to 71% between 2019 and 2022.[233] The full electrification of the 134 km Minho Line, connecting Porto and Valenca at the Spanish border, was made possible through **co-financing by EU Cohesion funds.** This transformation not only enables **faster and more frequent travel** with modern rolling stock but also aligns with Portugal's commitment to powering all electrified lines with renewable energy from wind and solar sources.[234] This green initiative not only alleviates congestion, but also reduces **greenhouse gas emissions** in one of Portugal's most polluted regions.

For routes and areas posing challenges for electrification, the EU supports **pilot projects exploring viable alternatives**. A notable example is the Kiel to Lübeck route in northern Germany, where passengers now benefit from **battery-operated trains**, a technological advancement facilitated by EU backing.[235] These state-of-the-art trains not only offer commuters a **faster and more sustainable travel option,** but also contribute to a significant reduction in pollution compared to the previously operated diesel-powered trains.

[229] Zdopravy. (2022). *Počet cestujících v regionální dopravě v IDS JMK nyní převyšuje čísla z roku 2019.* Link.
[230] European Commission. (2023). *Rail Transport.* Link.
[231] European Commission. (2023). *Rail Transport.* Link.
[232] European Alternative Fuels Observatory (2023). Link
[233] RailwayPro. (2023). *Investment announced for Portuguese Railway Network in 2024.* Link.
[234] Railtech. (2021). *Electrification of the Minho Line in Portugal.* Link.
[235] European Commission. (2023). *Rail Transport.* Link.

Helping you travel further by rail

Improving **cross-border rail connections** stands out as a top priority for rail travellers across the EU. The prevalence of national regulations and the lack of integration between different rail companies have created obstacles for cross-border operations. Purchasing cross-border tickets often involves buying multiple tickets from various outlets, resulting in increased travel costs. Furthermore, the lack of integration leads to limited and mismatched connections, sometimes with no connections at all.

Recognising the significance of these challenges, the EU has embarked on various initiatives to **enhance cross-border rail travel**. Efforts to streamline border crossings and eliminate time-consuming procedures, such as engine changes and staff transitions, have been supported by the deployment of **cross-border multisystem engines**, such as for Polish operator PKP Intercity. These engines enable seamless operations across different countries, **reducing travel times significantly**. For instance, journeys between Austria and the Czech Republic now enjoy a **smoother experience without lengthy border stops**, resulting in a **25-minute reduction in travel time between Vienna and Prague.**[236]

In 2023, the EU enacted a package aimed at **harmonising rail standards** across Member States, fostering greater integration between different systems for seamless cross-border travel. This initiative expands passenger options for more frequent cross-border connections.[237]

Additionally, following the **European Year of Rail in 2021**, an action plan was introduced to **increase the number of cross-border connections and simplify ticketing structures**, ultimately making rail travel more affordable. As part of this action plan, the EU identified **10 pilot rail projects**, including routes like Copenhagen-Berlin-Prague and Lisbon-A Coruna, to enhance **frequency and speed**. Moreover, the European Year of Rail shone a light on the revival of **night train services**, with the aim of offering smooth and seamless overnight connections between city centres. The number of **night train connections already increased to 200 in 2023, up from 120 in 2019.**[238] As a result, **cities like Berlin and Brussels or Vienna and Paris are accessible by night train again.**

However, the EU has yet to introduce new laws aimed at streamlining the booking process for long-distance journeys across the EU, namely the Multimodal Digital Mobility Services (MDMS). The proposed law intends to incorporate data on diverse

[236] Die Presse. (2014). *OEBB verkürzen die Reisezeit von Wien nach Prag.* Link.
[237] European Commission. (2023). *Rail Transport: New harmonised EU Standards support cross-border rail.* Link.
[238] Germanwatch. (2020). *Connecting Europe with a Rail Renaissance.* Link.

travel options, providing passengers with the ability to **compare prices, durations, and carbon footprints as well as allowing third-party booking platforms to sell tickets for cross-border journeys**. Consequently, there is ample room for enhancement, including tools such as supporting the **exemption of costly track charges**, which **could result in substantial savings, such as up to €167 for a family of four on a route like Berlin to Naples.**[239]

What can the EU do to further improve your rail journeys?

In the past 5 years the EU has done significant efforts on raising awareness via several communication measures of the potential of rail, the benefits the journeys on Europe's 220.000 km[240] long railway tracks can have - not just in terms of lowering transport's environmental impact, but the effortless and comfortable connections between our urban hubs and countries.

With awareness raised, action must follow suit and address some of the barriers that make these rail opportunities harder for citizens across Europe to access. As a first step, additional funding to modernise and update railway lines as part of the EU budget after decades of underfunding this transport mode over investment into heavily polluting and ever-growing road and aviation infrastructure, will allow for smooth and reliable operations.

An EU ticketing law that eases the booking for cross-border connections, was due in this law-making term and is a customer remedy to the complexity of currently navigating several EU countries and language when booking long-distance rail journeys. T**his MDMS law is the right tool to open ticketing selling to third parties facilitating one ticket to cross several countries** rather than several national tickets as well as connecting rail to other connecting modes of transport such as a car or ferry, making it truly multi-modal. This must be a **focus in the period 2024-2029.**

[239] Transport and Environment. (2023). *New study: Solo travellers could save up to 20% on the cost of night train tickets.* Link.
[240] UNECE (2022). Length of lines of transportation made up by rail exclusively for the use of railway vehicles and maintained for running trains. link

How the EU is reducing your heating costs and ensuring energy independence

Key takeaways

- 67% of citizens advocate for ambitious government policies in response to the climate emergency.
- The EU's REPowerEU Plan shielded citizens from energy price fluctuations through the introduction of energy-saving measures, leading to a 20% reduction in energy consumption for households.
- In 2022, 16 GW of wind power and 41 GW of solar power were installed, marking a 46% and 47% increase compared to 2021, and saving around 11 billion cubic metres of gas. This is the equivalent of powering around 17.2 million households per year or 141 gas tankers.
- In 2023, the EU significantly reduced its dependence on Russian fossil fuels and overall fossil fuel imports by 17% compared to 2022, emphasising a broader transition away from fossil fuels altogether.
- EU-supported programmes, such as Clean Air Plus in Poland, offer subsidies for thermal upgrades, supporting vulnerable populations and enhancing energy efficiency. As a result, up to 21,200 pollution-related deaths per year can be avoided by 2030, with 30 million Poles being able to breathe cleaner air by 2030.
- EU measures enabled Member States to gather funds from the excess profits of energy companies, subsequently directing these resources to the most vulnerable citizens and businesses across the EU. Germany alone earmarked €265 billion in support until December 2023, corresponding to 7.4% of its overall GDP, while Spanish households now save €400 per year on their energy bills.
- The EU's Green Deal accelerated installations of green energy, adding 69 GW of solar and wind power capacity in 2023, sufficient to power over 20.8 million households.

Energy is an integral part of our daily lives, playing a fundamental role in powering our homes and businesses. The significance of energy becomes even more apparent in the face of the recent energy crisis, which saw prices skyrocket, posing challenges for both businesses and citizens alike.

Key laws passed in the past five years have irreversibly transformed our energy sector towards sustainability. The EU's commitment to safeguarding citizens from the uncertainties of energy prices, reducing dependency on external sources, and fostering the deployment of renewable energy sources sets the stage for a resilient and green energy future. This chapter explores the positive impacts of EU initiatives and legislations related to energy, uncovering how these changes play a pivotal role in empowering EU citizens and reducing their energy and heating costs.

What has the EU done to protect citizens from fluctuating energy prices and to secure Europe's energy independence?

Protecting you from fluctuating energy prices

Since the onset of Russia's invasion of Ukraine in 2022, the EU has taken steps to shield its citizens from the unpredictable fluctuations of energy prices. Confronted with one of the most profound crises right after the COVID-19 pandemic, the EU initiated a prompt and comprehensive response with unprecedented speed. At a political level, the **REPowerEU Plan**, launched in May 2022, has emerged as a safeguard, achieving substantial milestones in reducing the EU's dependence on Russian fossil fuels. Notably, this initiative has resulted in nearly **20% of energy consumption savings**, representing an average savings of **€200 per European household.**[241] The introduction of a gas price cap and a global oil price cap under the plan shielded EU citizens from the tumultuous spikes in fuel costs in the immediate aftermath of the energy crisis. **Doubling the additional deployment of renewables** has been a cornerstone achievement, steering the EU towards a more sustainable and secure energy future. As a result, EU citizens benefit from a stronger, greener energy system protecting them from evolving geopolitical uncertainties.

But how has this impacted citizens' electricity bills? The significant surge in utility bills created a significant strain on households. In the Netherlands, households witnessed a substantial surge of **953% in their electricity bills**, resulting in an additional **€630 annually for Dutch households in 2022**.[242] Adding to the

[241] European Commission. (2023). *REPowerEU-one year on.* Link.
[242] NL Times. (2022). *Dutch Households pay EUR630 more for energy than a year ago.* Link.

frustration, citizens observed energy companies **recording record profits** during this period, averaging **€29 billion in 2022.**[243]

In response, the EU has pushed its Member States to take significant steps to support citizens and businesses grappling with soaring energy costs. In October 2022, a newly adopted emergency law was passed with three crucial measures: firstly, **a reduction in electricity consumption**, secondly, **a cap on the revenues of electricity producers**, and thirdly, securing a **solidarity contribution from fossil fuel businesses**. These measures enabled Member States to gather **funds from the excess profits of energy companies**, subsequently directing these resources to the most vulnerable citizens and businesses across the EU. By February 2023, **the increase in energy prices was lower** (16.6%) than during the same time the previous year (28.7%).[244]

These measures also allowed Member States, particularly those dependent on Russian gas imports, to implement comprehensive household support schemes. **Germany alone earmarked €265 billion in support until December 2023, corresponding to 7.4% of its overall GDP.**[245]

In **Spain**, energy prices have undergone a significant transformation. **From being the highest in the EU between January and June 2022, they have now become the lowest by December 2023, standing at 18.23 cents per kWh.**[246] This represents a 40% decrease compared to the peak prices in January 2022, representing **annual average savings of €400 per household.**[247] While the implemented measures and their outcomes may differ among Member States, the targeted nature of these measures, especially in addressing the challenges encountered by vulnerable and socio-economically marginalised groups, stands as a foundational pillar.

Reducing our dependence on harmful fossil fuels

The war in Ukraine has marked a significant turning point in the EU's interaction with fossil fuel imports, introducing essential geopolitical and security elements to the dynamics of its fossil fuel supply and utilisation.

Despite the significant drop in Russian energy supplies—**from 45% of EU's fossil gas imports last year, to just 14% in September 2022**—Europe has found alternative supplies and reduced its overall demand to compensate for the

[243] Politico. (2023). *Mind-boggling profits for big oil puts tax hikes back on the agenda.* Link.
[244] European Council. (2022). *The REPowerEU plan explained.* Link.
[245] Euronews (2023). *Energy Crisis in Europe: Which Countries have the cheapest and the most expensive electricity.* Link.
[246] Sur. (2023). *Spain saw the biggest electricity price drop in the whole of the EU during the first half of the year.* Link.
[247] Statista. (2022). *Spain: Electricity prices for households 2022.* Link.

shortfall.[248] However, it emphasised the importance of accelerating the broader transition away from fossil fuels altogether. This shift has been particularly prominent in Member States heavily dependent on Russian gas, as exemplified by **Bulgaria**, where **gas demand decreased by 22%** between August 2022 and March 2023, surpassing the EU-wide reduction of 18% in the same period.[249]

This is complemented by an acceleration of clean renewable energy solutions such as wind and solar power and an overhaul of the EU's electricity market design (EMD). These reforms focus on **enhancing consumer protection**, providing stability for companies, and **increasing the proportion of green electricity**.

Under the current market model, where electricity prices are influenced by the highest-cost energy source, typically fossil fuels, the reform seeks to make electricity prices less reliant on fossil fuel prices. By doing so, the goal is to reduce the electricity bills borne by consumers. These measures have already translated into results. In **Finland**, a nation once reliant on Russian oil imports, the annual growth rate of installed renewable power capacity **surged to 26%** in 2022, a significant increase from the 9% recorded in 2021.[250]

However, these proposals to replace Russian oil and gas by expanding fossil gas infrastructure, also rely on impractical hydrogen levels, or increasing bioenergy without feedstock restrictions. This underscores the gaps in the RePowerEU strategy and the broader EU goal of transitioning away from fossil fuels, emphasising the need for heightened ambition in the upcoming legislative period.

Providing you with affordable and clean renewable heating solutions

In the EU's ongoing energy transition, a crucial aspect is the emphasis on a 'just transition,' a principle that prioritises the protection and support of vulnerable populations. Following Russia's invasion of Ukraine, a critical concern arose regarding the heating of homes, particularly as Russian gas, once a primary heating source, became uncertain and expensive. This challenge was compounded by the fact that **75% of Europe's building infrastructure relies on outdated heating systems and lacks adequate insulation**, putting many at risk of energy poverty when prices hike.[251]

To address this, the EU has decided to more consistently implement the **'energy efficiency first' principle**. This principle highlights the significance of maximising the use of current resources, aiming to minimise waste and environmental impact.

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[248] Bruegel. (2022). *European natural gas imports*. Link.
[249] European Commission. (2023). *REPowerEU One Year On-Bulgaria*. Link.
[250] European Commission. (2023). *REPowerEu One Year On-Finland*. Link.
[251] European Commission. (2023). *Commission welcomes political agreement on new rules to boost energy performance of buildings across the EU*. Link

This becomes particularly crucial as we await the broader roll-out of renewables and building (deep) renovations to achieve a more comprehensive and sustainable impact.

The Energy Efficiency Directive (EED) introduces the principle of 'energy efficiency first' into EU law. It sets rules and obligations for achieving the EU's ambitious energy efficiency targets. The law **mandates EU countries to collectively ensure an additional 11.7% reduction in energy consumption by 2030**, compared to 2020. In practice, this means that countries like the **Netherlands** have already increased the **responsibilities for energy-intensive businesses to reduce their** energy demand as well as implement nation-wide efficiency measures such as heat **pumps, wall, glass and roof insulation, and solar boilers** leading to an expected reduction of 30%.[252]

To structurally reduce EU energy consumption for heating and cooling needs, we need to expand and consolidate the integration of the renewable heating & cooling solutions in the context of holistic building renovation. These renovations should prioritise the connection of buildings to locally available and renewable heat sources, such as geothermal and solar thermal, and embrace renewable-based heating solutions like heat pumps. All these efforts should be reflected in a future Heat Pump Action Plan to ensure that the integration of renewable heating solutions in our buildings is coupled with energy savings.

This strategy should also emphasise the importance of holistic urban planning, especially in districts to reduce our heating and cooling demands, while improving the quality of people's lives.[253]

Case study: Poland

[252] European Commission. (2023). NextGenerationEU: Commission endorses the Netherlands' €5.4 billion modified recovery and resilience plan, including a REPowerEU chapter. Link.
[253] CAN Europe. (2024). *Unlocking energy savings and advancing the decarbonisation in buildings and heating.* Link



Photo credits: Victor Malyushev / Unsplash

Poland is home to **36 out of the 50 most polluted cities in the EU**.[254] The widespread use of 'smokers' (polluting boilers) in around **22% (~3 million) of households** contribute to over 75% of household particulate matter pollution. To address this, the **Clean Air Plus programme**, **initiated in 2022 through the EU Recovery and Resilience Fund (RRF), offers substantial subsidies, up to 90%, for thermal upgrades and the replacement of outdated heating boilers**. As a consequence of this policy, Poland saw the highest growth in heat pump sales in Europe in 2022.[255] An assessment of the European Clean Air Centre estimates that the Clean Air Plus programme could prevent up to **21,200 pollution-related deaths annually by 2030**.[256] As such, nearly **30 million Poles will be able to**

[254] Clean Air Fund. (2022). *Challenging public perceptions and reforming government programmes in Poland*. Link.
[255] European Heat Pump Association. (2023). *PORT PC: 2022 was the Year of Heat Pumps in Poland*. Link.
[256] HealthPolicy Watch. (2024). *Poland's Clean Household Energy Initiative Should Save Over 21000 Deaths annually*. Link.

breathe cleaner air by 2030.[257]

While the EU has taken commendable steps towards a 'just transition' and energy efficiency, the urgency of addressing heating challenges, especially since the war in Ukraine and the subsequent geopolitical instability, underscores the need for continued ambition. The reliance on outdated heating systems in a significant portion of Europe's buildings amplifies the complexities of achieving reliable heating amid geopolitical uncertainties. The 'energy efficiency first' principle, though a positive move, demands a more comprehensive and accelerated approach, emphasising the importance of voting in the upcoming European elections to sustain and enhance the EU's commitment to a robust, sustainable and fair energy transition.

Clean renewable energy for everyone

In 2022, 16 GW of wind power and 41 GW of solar power were installed, marking a 46% and 47% increase compared to 2021, and saving around 11 billion cubic metres of gas.[258] **This is the equivalent of powering around 17.2 million households per year or 141 gas tankers.** The updated Renewable Energy Directive (RED III) now establishes a binding EU-level target of at least 42.5% renewable energy by 2030.

This is complemented by initiatives such as the Solar Rooftop Initiative, which aims to bring online over 320 GW of solar photovoltaic by 2025 **(97 million households- covering all households in Germany, France, the Netherlands, and Croatia)** and almost 600 GW by 2030 **(181 million households—the EU has a total of 200 million households)**. This initiative promotes the installation of solar panels on new public, commercial, and residential buildings.

In **Austria**, a leading EU Member State in renewable energy adoption, the **deployment of solar panels** has since **doubled from 2021 to 2022**, now accounting for approximately 5% of the country's electricity demand, powering 450,000 households—equivalent to all of the households in Styria and Burgenland combined.[259] These households managed to reduce their electricity bills by approximately 30%.[260]

[257] HealthPolicy Watch. (2024). *Poland's Clean Household Energy Initiative Should Save Over 21000 Deaths annually.* Link.
[258] Wind Europe. (2022). *Wind Energy in Europe.* Link.
[259] Erneuerbare Energie. (2023). *Solarenergie.* Link.
[260] Enerix-Solar. (2021). *Photovoltaikanlagen in Österreich.* Link.

The effects of increased renewable energy installations from 2022 are especially pronounced in Member States that are lagging behind in their decarbonisation efforts. In **Italy**, the Member State with the least ambitious renewables targets, wholesale **electricity prices** have **nearly tripled** in the past year, with the majority of this rise linked to **surging gas prices**. Currently, it is **three times more cost-effective** to produce electricity from **new onshore wind and solar photovoltaic systems** than gas in Italy.[261] As such, the financial and legislative initiatives of the EU have contributed to making renewable energy sources more affordable. The declining costs linked to generating renewable electricity have played a pivotal role in ensuring that this shift is not just environmentally conscious, but also economically feasible.

The recent Ember report on the EU's 2023 renewable energy production showcases the fruits of these undertakings. There was a substantial **collapse in EU fossil fuel electricity and power sector emissions, with record declines in coal power (-26%), gas power (-15%), and overall power sector emissions (-19%).**[262] This reduction is the result of a **decrease in demand and the growth of climate-friendly energy sources, such as wind and solar power**. A significant milestone was reached as **wind produced more EU electricity than gas for the first time**, with wind and solar combined achieving their highest ever year-on-year increases. **Renewables**, comprising **44% of EU electricity in 2023, saw wind and solar catering for more than a quarter of our electricity needs (27%), marking a notable shift away from fossil fuels.**[263] However, the data highlights the need for an accelerated rollout of wind and solar, as REPowerEU targets aim for 55% by 2030, double their 2023 share of 27%.

Empowering you to participate in the energy transition

These pivotal policy changes at the EU level have undeniably triggered a transformative movement toward sustainable practices among citizens. These initiatives have played a crucial role in increasing awareness of the urgent climate emergency and fostering active engagement in the green transition. By prioritising the green transition on its agenda, the EU has encouraged citizens to adopt environmentally friendly practices by embracing energy-efficient solutions and reducing their carbon footprints. This shift is reflected in the EU's annual EU Barometer survey of 2022, which indicates that **an overwhelming majority of Europeans**—nearly 88% of respondents—**believe in an inclusive green transition** that leaves no one behind. Furthermore, a significant **77% express a personal sense of responsibility to take action.**[264]

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[261] Ember Climate. (2021). *Gas-reliant Italy lags behind in Europe's race to renewables.* Link.
[262] Ember Climate. (2024). *2023 European Electricity Review.* Link.
[263] Ember Climate. (2024). *2023 European Electricity Review.* Link.
[264] Eurobarometer. (2023). *Climate change-July 2023.* Link.

To address the ongoing energy crisis, REPowerEU in particular has played a pivotal role in fostering a sense of collective responsibility across countries, encouraging citizens to actively participate in the transition towards clean renewable energy sources. The initiative has gone beyond mere policy implementation, engaging citizens through multifaceted campaigns, educational efforts, and incentivised programmes. For instance, awareness campaigns have informed citizens about the benefits of renewable energy, illustrating how their individual choices can collectively impact the environment. Indeed, well-designed campaigns that motivate people to reduce their energy use have proven to be an effective tool.

In **Greece**, an extensive **public awareness-raising campaign as part of REPowerEU**, featuring a catalogue of low- or zero-cost energy-saving measures and renewable alternatives, has resulted in a notable **10% reduction in energy consumption** in 2022.[265] This achievement holds particular significance for Greece, as citizen awareness of the green transition and climate change has historically been lower compared to other EU Member States. Factors such as economic challenges, political priorities, and a lack of comprehensive environmental education have contributed to a limited understanding of these issues among the general population.

There has been a notable shift in recent years, particularly since 2022, as indicated by the European Investment Bank's 2022-2023 Climate Report. The report highlights a **change in sentiment**, with 66% of Greek respondents now supporting more **stringent government measures** to influence personal behaviour, and this percentage rises to 75% among individuals under the age of 30.[266]

This mirrors a broader trend across the EU, where, on average, 67% of citizens advocate for ambitious government policies in response to the climate emergency, as highlighted in the same EIB report.[267] This data underscores a notable consensus among citizens regarding the urgency of climate action. This is particularly significant in the face of some governments and political parties advocating for less ambitious or no climate policies, particularly in the context of the upcoming EU elections, often citing concerns about protecting citizens' interests and maintaining economic competitiveness.

[265] European Commission. (2023). *REPowerEU One Year On-Greece.* Link.
[266] European Investment Bank. (2023). *75% of young Greeks in favour of stricter government measures to fight climate change.* Link.
[267] European Investment Bank. (2023). *5th Climate Survey.* Link.

What more can the EU do to facilitate sustainable affordable heating?

The ongoing shift towards an inclusive green transition demands unwavering commitment from policymakers. The commendable efforts and educational campaigns initiated by REPowerEU highlight the necessity for sustained commitment beyond election cycles and crises. To make a home heated by renewables, we have to look at the source; how the electricity is produced. Our next round of EU law-makers has the responsibility to make sure the EU stays on track and fulfils its global climate responsibility to progress to a net-zero continent by spurring its energy production to 100% renewables energy sources such as wind and solar by 2040 as well as make it workable and affordable for its citizens. As a crucial side effect, it will also allow its 27 countries to be fully independent of third countries that can significantly threaten not just our secure energy supply but also its prices with recently seen geopolitical changes.

Therefore, while addressing potential obstacles to ambitious climate policies is crucial, **financing the transition remains a major concern**. Relying on funding streams, like pollution permits from the Emissions Trading System (ETS), introduces potential drawbacks, including continued dependence on fossil gas and increased reliance on biomass for our energy production.

Furthermore, changes in the Renewable Energy Directive emphasise the importance of greater solar and wind energy. Going forward, the EU needs to rapidly phase out fossil fuels and transition to a fully efficient and sustainable renewable energy system by 2040. Renewable energy sources are the most cost effective form of power generation available today, and it is crucial that we seize the opportunity by deploying rooftop solar photovoltaic and making better use of brownfields and low sensitivity areas.[268] However, **the practice of categorising all renewable energy projects as being of "overriding public interest" raises significant concerns**. This approach could lead to the **circumvention of thorough environmental assessments, especially in protected areas**, potentially compromising ecological integrity.

This issue also underscores the critical role of citizens and civil society participation in such initiatives. **Enhancing transparency and civil society's participation at both national and European Union levels is vital for ensuring that policies with significant environmental impacts are being thoroughly evaluated, and not approached in isolation**. Additionally, after environmental laws are enacted, it is essential that citizens have the ability to hold national governments and decision-makers accountable.

[268] IRENA (2022). Renewable Power Remains Cost-Competitive amid Fossil Fuel Crisis. Link

The upcoming European elections provide a platform for citizens to advocate for robust and environmentally friendly energy measures. The examples above illustrate the essential role of voting in pushing for more ambitious initiatives and exercising pressure for effective implementation at the Member State level. The transformative journey towards sustainability requires a collective and continuous effort, ensuring alignment with both citizens' interests and environmental priorities.

How the EU creates green jobs, including ones that do not require a university diploma

Key takeaways

- Fueled by policies and initiatives, the EU has seen substantial growth in green jobs, spanning various competencies and management positions and accommodating diverse skill levels. The Green job sector totaled 5.1 million jobs in 2020 whilst clean energy accounted for nearly one-third of GDP growth in 2023.

- With a budget of €142.7 billion, European Social Fund Plus funded projects, among others, have offered thousands of citizens opportunities to improve their skills and adapt to the evolving labour market. These initiatives span diverse sectors, including construction and eco-tourism, supporting transitions in highly polluting industries and resulting in the establishment of new jobs and businesses.

- Facing the greatest challenges, rural communities are also receiving assistance to advance technologically and develop skills, with the aim of boosting the employability of individuals within these communities.

- As demand for green jobs continues to increase, investing in vocational training and lifelong learning is crucial to equip youth with sustainability competencies while addressing the 11.7% EU average unemployment rate among Europe's 94 million young individuals.

- Despite progress, further work is needed to promote gender equality and attract, guide, and support women in green jobs, as it is not only socially but also economically advantageous (companies with at least 30% women in senior roles perform better overall).

- Currently there is a mismatch between the level of skills currently needed in non-green jobs and the level of skills needed in emerging green jobs. In sectors where low-skill jobs are being replaced by high-skill jobs (such as the energy sector), early retirement policies will be also needed to

facilitate the work transition to quality green jobs, as pointed out by a recent study from the European Parliament.[269]

Ensuring a fair transition to a greener future is crucial for building a sustainable, resilient, and inclusive EU for all its citizens. To do this effectively, the three pillars of sustainability should be equally addressed, tackling environmental concerns, as well as considering both social and economic dimensions.

EU rules play a role in guiding countries and their citizens towards a fair and eco-friendly shift, aligning environmental and social goals for a sustainable and inclusive future, in which the needs of its people are covered through decent wages, good working conditions and stable future-proof jobs.

The EU also **allocates significant resources to programmes often tied to** compliance **with specific environmental and social criteria** like the European Regional Development Fund (ERDF), the Social Climate Fund (SCF) and the EU's main financial instrument, the European Social Fund (ESF), now ESF+. The ESF+ supports employment, social inclusion, and citizens' development across Member States.

The ESF+ was established to continue the work of the ESF in the period 2021-2027 and **counts with a budget[270] of €142.7 billion for a wide range of (youth) employment projects, spanning from** local initiatives to national projects that translate into **theoretical and practical training, traineeships, advice services on career planning, assistance to start businesses**, among other initiatives. Furthermore, EU Member States are expected to allocate at least 10% of the funds directly on targeted actions for young people without employment or education.

As labour markets continue to change and in view of the current global challenges that directly affect the EU economy, impacting both workers and businesses, **this chapter will delve into the impacts and contributions of these public funds to foster a socially fair green transition.**

What has the EU done to create sustainable futures through green jobs?

[269] European Parliament (2020). A Just Transition Fund - How the EU budget can best assist in the necessary transition from fossil fuels to sustainable energy. Link
[270] European Social Fund Plus. (2021). *What is ESF+?*. Link.

According to Eurostat[271], **employment in the EU green economy increased from 3.2 million in the year 2000 to 5.1 million in 2020 whilst clean energy accounted for nearly one-third of GDP growth in 2023.[272]** Overall, both the number of jobs and the economic contribution in the environmental sector have grown more than the entire economy. This is the result of numerous EU policies and projects that support sustainability and green employment.

However, it is important to understand that **the term "Green jobs" extends beyond the eco-industry and encompasses fields such as renewable energy, green construction, organic farming, and eco-tourism**. Additionally, it includes sectors in transition, such as the automotive industry shifting towards clean and electric vehicles. Notably, even one of the EU's most historic sectors, the production of now green steel, exemplifies the broadening scope of employment opportunities aligned with sustainability and environmental consciousness. The extraction and processing of resources critical for Europe's future-proof and sustainable economy such as green steel bring further employment opportunities, coming from for example the material recovery, or scrap sorting and treatment. That opens up the waste sector and creates jobs connected to the social economy such as repair stores, which allow to extend the lifespan of steel and other products.

Understanding that almost all jobs in all sectors have the potential to be green jobs[273], there is an immense opportunity that must be taken advantage of to green our economies and industries across a wide range of sectors in Europe. Nonetheless, **while green employment opportunities are created**, it remains **fundamental to continue assessing other areas** that can be expanded **to generate new jobs** beyond areas that directly contribute to preserving and restoring the environment, as well as **finding alternatives** for those that will be redefined **and open new pathways** to work for those that will be replaced.

For instance, the Switch to Green Initiative estimates more than **400,000 new jobs can be created in the construction sector due to energy efficiency measures**, such as the renovation and upgrade of public buildings, in accordance with the requirements of the Energy Efficiency Directive.[274] Similarly, **over 400,000 potential jobs** can be created in the EU as a **result of enhanced waste management practices** and changes to the EU Waste Framework Directive.

In its efforts to create more green and good-quality jobs, **the EU continues to support projects such as Empleaverde in Spain[275], which promotes the**

[271] Eurostat. (2023). *Environmental Economy – Statistics on Employment and Growth.* Link.
[272] IEA (2023). Clean energy is boosting economic growth. Link
[273] Social Europe. (2023). *Green Jobs from Challenge to Opportunity.* Link .
[274] Switch to Green. (2023). *The Green Employment Initiative.* Link.
[275] Empleaverde. (n.d.). *Encuentro de la Red Emprendeverde: "Oportunidades para impulsar tu emprendimiento verde".* Link.

establishment of eco-friendly employment opportunities and entrepreneurial ventures since 2014. Its recently launched Empleaverde+ 2023 programme[276] has two main objectives: to train people in acquiring skills for 'green' employment and to offer practical training for those who are currently unemployed.

So far, **the initiative has provided training and project guidance to** sustainable businesses, assisting **over 28,000 individuals (with 80% receiving a qualification), and creating 1,300 new jobs along with 200 enterprises.**[277] The effort encompasses **more than 3,300 capacity-building training sessions across 282 projects**, including:

- Green Smart Up with face-to-face training to enhance entrepreneurs' skills in creating green business models.
- The University of Alcalá's General Foundation enhances the professional skills of unemployed individuals in the circular economy through online courses.
- I2CInspections pioneers the circular economy in construction by training professionals in bioconstruction and material reuse.

Helping workers become more adaptable so they can find and keep jobs more easily

To achieve a socially fair green transition, creating conditions that support green jobs and provide assistance to workers in declining sectors, like coal mining, is essential. The EU Just Transition Fund is precisely dedicated to facilitating and financing this change of path for workers with a pocket of €55 billion over the period 2021-2027. This involves measures to boost the green labour market, bridge skills gaps, and address potential labour shortages. **With the support of such EU funds, employers are addressing future qualifications and modern, digital, green skills needs which are in demand** through training, facilitating transitions to growing industries, and promoting active career management.

High-emission, **polluting industries like fossil-based energy, transportation, agriculture, tourism and construction are likely to feel the direct effects of internal job changes**. Additionally, workers' transition to other jobs may be more difficult and possibly more costly in terms of unemployment payments, relocation and retraining.[278] Some **efforts to tackle these challenges involve providing additional skills or retirement support to current workers and preparing young people with the knowledge needed** to succeed in this evolving landscape. For instance, acquiring competencies related to renewable energy technologies,

[276] Empleaverde. (n.d.). Programa Empleaverde+. Link.
[277] Empleaverde. (2024). *Histórico Empleaverde.* Link.
[278] Kees van der Ree. (2019). *Promoting Green Jobs: Decent Work in the Transition to Low-Carbon, Green Economies*. Link.

sustainable transportation systems, precision agriculture, eco-friendly tourism practices, and green construction techniques becomes crucial.

Furthermore, **due to limited access to education, training, and green energy infrastructure, rural communities face the greatest obstacles.**[279] In pursuit of a resilient and competent workforce geared for the socially fair green transition, **numerous projects are currently supporting technological advancements, reskilling, or upskilling in agriculture-dominated regions**.

The EU-funded ARISE project, involving a consortium with partners from Denmark, North Macedonia, Ireland, Italy, Netherlands, Portugal, and the United Kingdom, seeks to up-skill and re-skill professionals in the design and construction industry. It offers **personalised learning pathways for green and digital skills to construction workers, craftspeople, and professionals**.

ARISE aims to transform both the delivery and recognition of sustainable energy skills in the construction sector. The project introduces a new system of training that will be applicable across the EU, contributing to the wider availability of a skilled workforce in the building market.

Fostering sustainability by investing in vocational training and lifelong learning for young people

From the **approximately 94 million young Europeans, aged 15 to 29, a notable proportion is unemployed, ranging from 4.2% in the Netherlands to 19.8% in Romania in 2022 (the EU average is 11.7%).**[280] Thousands of **projects and programmes across Europe**, **focus on assisting young people, especially those categorised as not in Employment, Education, or Training (NEETs),** to gain the necessary know-how and opportunities to enter the workforce.

For instance, the BBNE (Berufsbildung für nachhaltige Entwicklung befördern) programme in Germany focuses on promoting **vocational education for sustainable development**, emphasising green skills for climate-friendly and resource-efficient actions in the workplace. Funded by the ESF and the Federal Environment Ministry through 2022, this project aims to raise awareness of **integrating sustainability into everyday work life.**

The programme focuses on two areas:

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[279] International Labour Organization. (2019). *Greening the rural economy and green jobs.* Link.

[280] Eurostat. (2023). *Statistics on young people neither in employment nor in education or training.* Link .

a. Skills development in energy-efficient building refurbishment: Enhancing connections between construction facilities and stakeholders involved in planning, refurbishment, and new construction, promoting cross-trade cooperation through practical training courses.
b. Greening of jobs: Offering young people insights into various occupational profiles and their potential to be green, providing guidance for career choices. It particularly targets those deciding on their first career or contemplating a career change.

While jobs increasingly involve and demand green skills, the significance of programmes such as the BBNE becomes even more pronounced. For instance, according to OECD data from 2023, **Germany has experienced a more rapid increase in the demand for green jobs compared to non-green jobs.**[281] On average, the demand for green jobs expanded by 9.7% more during the period from Q1 2019 to Q1 2022.

Also in Germany, the BerufsKlima work camps, funded by the ESF, aim to equip individuals aged 16 to 25 with sustainability competencies for successful careers in the green sector. These four-day camps provide hands-on experiences through workshops, business games, and company visits. The participants not only develop green competencies but also receive career guidance. Over 350 young people have participated, with notable impacts on their personal and professional development. The camps contribute to shaping a workforce driving Europe's green transition.

Case study: La Bourrache in Belgium

[281] OECD. (2023). *Job Creation and Local Economic Development 2023: Bridging the Great Green Divide*. Link.



J.O.B. Vert is a project by La Bourrache, funded by the ESF+, which trains NEETs ("Not in Education, Employment, or Training") aged 18-29 in organic farming and landscape gardening, fostering ecological consciousness, and empowering individuals to instigate positive change in their communities. The programme encompasses 18 weeks (755 hours) of practical and theoretical training, as well as civic service courses. Upon completion, participants gain visibility and valuable professional experience, with 1 out of 2 participants securing employment or advancing to vocational training.

Antonin is one of the project's beneficiaries. His inspiring journey unfolds from enduring bullying and a suicide attempt due to a physical disability to rebuilding self-esteem and triumphing over challenges. After participating at J.O.B Vert, his pursuit of a career in parks and gardens, despite setbacks, led to a permanent position. His story from adversity to success, inspires many, showcasing the transformative power of determination and the importance of providing young people with training opportunities.

In an increasingly fast-paced world, it is crucial for NEETs to realise they can actively contribute as citizens by caring for biodiversity and the soil. By tending to the earth and those who cultivate it, they can find purpose and make a meaningful impact.

Filling the gender gap by supporting women in accessing green jobs

Providing training and certifications to individuals without proper credentials serves as a catalyst for re-engaging the long-term unemployed in the workforce. Additionally, such **training helps parents update their skills after a career break, a situation that many women encounter**. This approach fosters entrepreneurship, confronts biases, and actively pursues gender balance in the workforce, with the goal of overcoming obstacles and enriching job prospects.

Despite progress in certain sectors, **women's representation in employment remains limited, notably in fields like energy and green transition** skills programmes, such as STEM (science, technology, engineering, and mathematics) initiatives.

The longstanding **gender disparity within the energy sector persists, evident in the EU where the wage gap approaches 20%, and women hold only about 20% of senior positions.**[282] Additionally, the statistics emphasise a broader gender gap, with **women constituting only 22% of transport, 32% of energy, and 10% of construction workers in the EU**. This underrepresentation extends to new (renewable) energy projects, further hindering women's active participation in the ongoing energy transition.

Closing the gender gap is crucial to achieving a socially fair transition and is highly beneficial for the economy, as **it is estimated that companies with a minimum 30% women in senior roles perform better overall.**[258] Additionally, women represent half of all EU university graduates, thus their involvement and inclusion in the green transition will spark innovation.

The EU-funded Women4Green project, led by Austria and involving partners from Sweden, Italy, Turkey, and Malta, aims to bridge the gender gap in the green sector. Focused on young women in the career orientation phase, the project seeks to make sustainable professions attractive and accessible. Goals include strengthening interest, promoting participation, providing guidance, supporting career choices, and contributing to gender equality in the green economy. The project entails

[282] WWF. (2023). *Women in wind: A missing piece of the EU offshore renewable energy transition.* Link.

creating a catalogue of green sector occupations, a didactic concept, podcasts, a community platform, learning materials, career guidance workshops, and guidelines for green businesses to attract and hire more women.

How can the EU further support citizens in accessing green jobs?

To further expand access to green jobs within the European Union, **a multifaceted as well as broadened approach is needed that goes beyond making training accessible.** Law-makers are in need to broaden their understanding of what green jobs can entail and exchange with industry sectors, such as waste and social economy on which new business models furthering social and environmental prosperity can be envisioned.

Another critical aspect is the development and implementation of targeted educational programmes and apprenticeships that cater specifically to the emerging green sectors. These programmes should be designed to bridge the gap between existing skill sets and the demands of green industries, such as renewable energy, sustainable agriculture, and green technology. By tailoring these programmes to suit the needs of diverse demographic groups, including women and marginalised communities, the EU can foster a more inclusive green workforce.

Moreover, the integration of green job access into broader economic recovery and development plans is essential. This strategy ensures that as the EU navigates economic challenges, it does so with a forward-looking perspective that aligns with its environmental goals. By embedding green job creation within the fabric of economic recovery, the EU can simultaneously address unemployment, economic resilience, and climate change mitigation.

We require a more compelling rationale for prioritising sunrise[283] over sunset[284] jobs, meaning the focus needs to lay on building out still emerging and innovative greentech industry branches. Yet our current industrial policy largely maintains support for industries like fossil-based steel production or chemicals and cement. The upcoming elections hold significant sway in determining the course of Europe's endeavours. Policies in the upcoming term focus on initiatives that

[283] Jobs in industries that are emerging and growing, often characterised by innovation and technology advancements. These sectors are seen as the future of the economy and include fields like renewable energy, biotechnology, and other green technologies.
[284] Jobs in industries that are declining or becoming obsolete, often due to technological changes, shifts in consumer preferences, or environmental considerations. Examples might include coal mining, traditional manufacturing, and other industries negatively impacted by green transitions or automation.

facilitate access to green jobs, aligning the goals of a resilient European economy with the demands of environmental sustainability and societal equity.

How the EU supports low-income households and mitigates energy poverty

Key takeaways

- Over 41 million Europeans are currently unable to afford heating.
- Almost half of single mothers (44%) and nearly a third of single women (31%) cannot afford rising energy costs in Europe.
- Around 20% of Europeans are in debt with their utility companies and 53% struggle with the rising cost of living.
- The EU funded numerous projects such as W4RES (Women as Leaders of Renewable Energy Shift in Heating and Cooling), ENPOR (Energy poor households in the private rented sector) and STEP (Solutions to Tackle Energy Poverty) to attack energy poverty from different gender and socio-economic angles.
- Financial support is critical to ensuring there is a just transition for all European citizens, meaning that energy transition policies are accommodating to the social and economic factors of households.
- Current EU funds, such as the Social Climate Fund, are a good start to support but not sufficient yet to adequately support people in living their lives more sustainably. With more EU funds in the coming term allocated to especially to heat homes and power transport in poverty-oriented projects and renovations, people across Europe can transition effectively and get out of energy poverty.

In Europe, energy poverty—defined as "lack of access to essential energy services and a need to reduce consumption of heating, hot water, cooling, lighting and energy to power appliances"—is at an all-time high.[285] Approximately **1 in 10 Europeans (over 41 million) are currently unable to afford heating, almost a 3% hike from the year prior. More than a third are experiencing difficulties paying**

[285] European Union. (2024). *Energy Poverty.* Link.

bills either sometimes or most of the time.[286,287] As, in the EU, climate change contributes to the high rate of energy poverty, the EU is refocusing its priorities to take stronger action against climate change while assisting vulnerable groups experiencing energy poverty. The EU's prioritisation of this issue is reflected in its citizens' concerns: **1 in 3 citizens are concerned about climate change and its impacts and more than 7 in 10 believe their living standards will decrease over the next year.**[288]

With the European Union taking stronger action against climate change, there's an optimistic opportunity for impactful outcomes. However, it is crucial to approach these efforts with a keen awareness of their potential impacts on vulnerable groups. It is important to ensure that environmental policies bring fair and inclusive benefits, particularly when implemented in areas with high income inequality.[289] **This chapter will review what the EU has done to alleviate energy poverty amongst low-income households and the areas it needs to focus on to continue resolving this issue.** Understanding how to tackle the energy poverty crisis is an issue for the EU to continue to prioritise.

What has the EU done to mitigate the experience of energy poverty for Europeans?

Solving gender inequalities in the context of the Green Transition

When addressing energy poverty and associated vulnerabilities within the EU, gender inequality must be taken into account. **European women are over-represented in low-paying jobs and are more likely to be unpaid for their work compared to men, leaving them vulnerable to the rises of energy utility costs.**[290] Further, as more women than men are living alone, especially as single parents—single mothers are particularly more likely to feel the effects of the rising costs of energy. **Almost half of single mothers (44%) and nearly a third of single women (31%) cannot afford rising energy costs in Europe.**[291,292]

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[286] European Parliament. (n.d.). *Energy Poverty in the EU.* Link.
[287] European Commission. (2023). *EP Autumn 2023 Survey: Six Months before the 2024 European Elections.* Link.
[288] European Commission. (2023). *EP Autumn 2023 Survey: Six Months before the 2024 European Elections.* Link.
[289] The European Anti-Poverty Network. (2023). *EAPN's Review on Energy Poverty 2022.* Link.
[290] European Commission. (2024). *The gender pay gap situation in the EU.* Link.
[291] Eurostat. (2022). *Living Together: The life of women and men in Europe.* Link.
[292] Syndicat European Trade Union. (2022). *Unequal Pay Means Women Hit Hardest by Energy Prices.* Link.

One EU-funded initiative (€1,98 million of EU funds) to address energy poverty is the EmpowerMed project (Empowering Women to Take Action against Energy Poverty). Through energy visits to households, the installation of energy-saving devices, the promotion of energy-saving measures and other activities, **the project has impacted over 10,000 women** and their households in Albania, Croatia, France, Italy, Slovenia and Spain. The initiatives resulted in a **total reduction of 1,600t CO2 emissions/year—the equivalent of 4,160 economy flights from Amsterdam to Rome—and generated €160,000 of investments in sustainable energy and €780,000 in economic savings.**[293,294] The EU applied their focus on gender equality and gender poverty by collaborating with communities and local partners to reduce the rate of women experiencing energy poverty.

One of the activities implemented in the participating areas was a collaborative community approach in the form of collective advisory assemblies. **These groups gathered 20-30 people affected by energy poverty to develop skills around energy usage, reading energy bills and learning simple tricks to save on energy costs.** Through these knowledge exchanges, with the support of energy advisors, the communities supported each other to develop solutions to mitigate their experience of energy poverty.

Helping all vulnerable people

The EU also funded the **ENPOR (Energy poor households in the private rented sector) project to help evaluate existing energy efficiency policies and improve them by ensuring that they target the most vulnerable groups.**[295] An example includes The Energy Box—a social enterprise which was started in 2014 in the municipality of Utrecht, in the Netherlands.[296] Intending to reduce people's energy consumption, the project provided a consultation with an energy coach, an advisory report and a box containing energy-saving products for its participants.[297] The Energy Box, however, only had 1 in 10 households, on average, apply for an Energy Box.

Thanks to ENPOR, The Energy Box received support on how to increase the awareness of the box by experimenting with communications, such as using flyers and door hangers and giving out information on how to reach different

[293]Empowermed. (n.d.). *Empowermed Project.* Link.
[294]Climate Group. (2024). *What exactly is 1 tonne of CO2.* Link.
[295]ENPOR. (2021). *Enpor at a Glance.* Link.
[296]Marine Faber Perrio. (2022). *Research Yields Surprising Results about Promotional Activities of the Dutch Energy Box.* Link.
[297]Marine Faber Perrio. (2022). *Research Yields Surprising Results about Promotional Activities of the Dutch Energy Box.* Link.

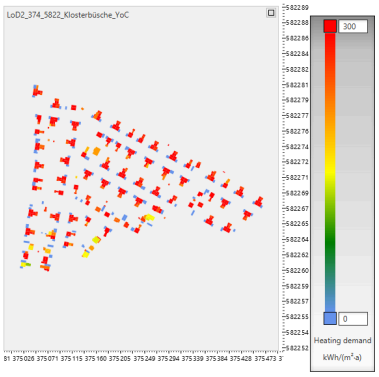
target groups, such as migrants and students. As a result, they implemented new variations of the programme, such as "Energy Box via Social Network", which utilised food banks and community gatherings to promote the programme, or "Energy Box for Language Barriers", which translated materials into multiple languages to reach those with migrant backgrounds.

With over 45,000 residents using energy boxes, households who participated in the project have collectively saved more than €5 million per year for 45.000 residents. One household can save about 257 kWh of electricity each year, the equivalent of running a dishwasher over 257 times.[298] The ENPOR project's approach highlights the need to develop multi-faceted approaches to target all vulnerable groups to increase the effectiveness of policies and solutions against energy poverty.

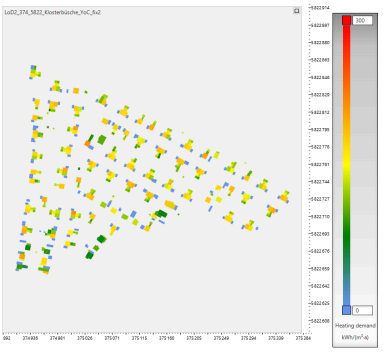
Case study: W4RES and HFT Stuttgart's Collaboration in Germany[299]
Approximately **46% of Germans found themselves experiencing energy poverty** between March 2022 and June 2023, a **65% increase from the year before.**[300] To combat this rapid increase, Germany committed to making all buildings well-insulated and carbon-neutral by 2050.[301] **To achieve its goal, the country is offering energy-efficient subsidies to contractors and households to help lower the costs of energy-efficient renovations.**[302] However, low-income households often do not have access to this information. In Autumn 2021, four low-income communities in Berlin, Germany, collaborated with the "Verband Haus- und Wohneigentum" regional association to participate in the EU-funded W4RES project. HFT Stuttgart (University of Applied Sciences), along with the communities, **analysed buildings and conducted surveys to assess how low-income households can renovate their homes to be more energy-efficient**. The project developed energy plans for the individual buildings and introduced households to energy consultants to inform them how and where they can save on energy costs.

[298] Marine Faber Perrio. (2023). *The Dutch Energiebox Programme and Tool.* Link.
[299] Céline Suchet. (2023). *Four Berlin Settlement Communities in the Energy Transition.* Link.
[300] SVRV. (2023). *Policy Brief: Folgen der Energiekrise.* Link.
[301] Federal Ministry for the Environment, Nature and Conservation, Building and Nuclear Safety. (2016). *Climate Action Plan 2050.* Link.
[302] Anne Power and Monika Zulauf. (2011). C*utting Carbon Costs: Learning from Germany's Energy Saving Program.* Link.

Before



After

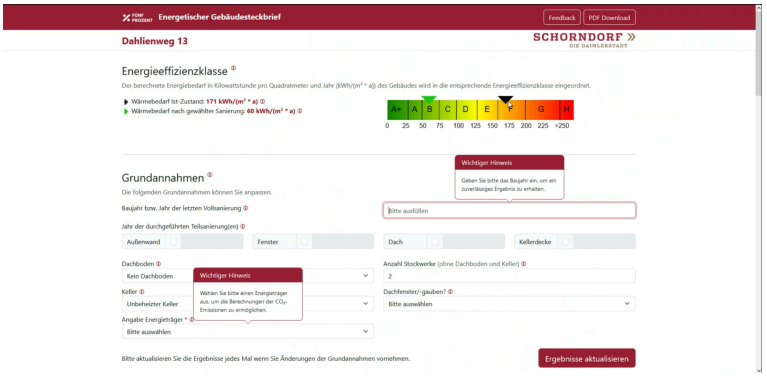


Above Images: **The before and after of a Berlin settlement,** comparing the simulated heating demand for buildings in their **current state to after a full refurbishment**. Energy costs were saved by the community accessing the information they needed to make the proper renovations.[303]

The project's model facilitated access to crucial information for the community to reduce its energy consumption and save money on its energy bills.

"Without the project, access to this information is kind of a low barrier and so the project generated transparency for people to make an informed decision." **(Professor for HGT on the project's impacts).**

As a result of the project, **two members of the original project team created a startup in Germany to fill the energy knowledge gap**. The startup, Fünf Prozent (Five percent in English), works in collaboration with local municipalities and communities, to **develop energy models and factsheets to help communities be more energy-efficient.**



[303] Images from a member of the W4RES project team.

Above: An example of an energy factsheet a community will receive from Fünf Prozent on their current building's energy efficiency.[304]

One of the co-founders of the company reflected on the feedback it receives: *"A lot of homeowners write to us saying that they really love the idea and it really* ***helped them get an overview of the topic.****"*

Developing citizen-centric energy-efficiency awareness campaigns

As the Energy Box intervention in the campaign illustrated, raising awareness and implementing consumer behaviour change campaigns are effective solutions to assist low-income households with their energy spending. **With 53% of surveyed Europeans struggling with the rising cost of living, and almost one in five people in debt due to their utility bills, energy-saving tips are short-term alleviation measures that are important for households to implement.**[305]

The EU-funded STEP (Solutions to Tackle Energy Poverty) project utilises behaviour change campaigns to advise consumers, train frontline workers on how to educate consumers about energy poverty and advocate for policies targeting energy poverty and supporting energy efficiency.[306]

The project partnered with national organisations to conduct outreach to provide advice to energy consumers within communities currently experiencing energy poverty. The advisors reviewed cost-saving tools and eligible funding programmes available for these communities. **The project advised over 16,000 consumers in Bulgaria, Cyprus, the Czech Republic, Latvia, Lithuania, Poland, Portugal, Slovakia and the United Kingdom. Over 1,000 workers received training modules to facilitate workshops, all of which translated to 38.4 GWh of energy savings—equivalent to over 3.3 billion smartphone charges.**[307] [308]

Additionally, the current POWERPOOR project develops support programmes and tools for citizens suffering from energy poverty. **The project, focused on Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Portugal, and Spain, empowers citizens with the knowledge and financial tools to advocate for themselves and have more control in managing their energy expenses.** The POWER-FUND tool, as part of the POWERPOO project, guides energy-poor citizens to learn about finance

[304] Images from a member of the W4RES project team.
[305] European Foundation for the Improvement of Living and Working Conditions. (2022). *Energy Poverty Looms as Cost of Living Increases: Data behind the Difficulties.* Link.
[306] STEP. (2020). *About - Step Project - Solutions to Tackle Energy Poverty.* Link.
[307] Environmental Protection Agency. (2024). *Greenhouse Gas Equivalencies Calculator.* Link.
[308] STEP Energy. (2022). *A European Project Delivering Vital Solutions during a Pandemic.* Link.

opportunities to overcome economic and financial barriers and connects them with available funding opportunities, energy communities and cooperatives.[309]

Through these activities, the project ensures the participation of low-income households. **Empowering citizens with the ability to make decisions, access funding, and design energy-poverty prevention and intervention activities are at the root of mitigating the occurrence of energy poverty in communities across Europe.**

Implemented by the POWERPOOR project and staffed by its trained and certified energy advisors, **local energy poverty alleviation offices provide a comprehensive advice clinic for communities to access information for alleviating energy poverty using the POWERPOOR approach**.[310]

Two offices opened in Hungary, with one in the Municipality of Terézváros offering energy-saving tips to interested municipality residents, especially elderly individuals, who often live alone in uninsulated apartments. The consultations discussed energy bills, reducing electricity usage, and preventing heat loss. They also gave detailed suggestions on choosing appliances and accessing financial assistance to help with their energy bills.[311] The office was opened on the weekend, in a **strategic central location within the municipality, to accommodate the schedules of the households they wanted to serve and maximise their reach to help residents who normally would not have access to these services.**[312] The goal was to keep them up-to-date and informed about their resources and rights to mitigate energy poverty.

Funding energy-efficient infrastructure for low-income households

Financial support is critical to ensuring that there is a just transition for all European citizens, meaning that energy transition policies are accommodating to households' social and economic factors. In practice, these funds will look to fund projects such as the New Green Savings Programme, implemented in the Czech Republic, and funded by the EU from 2014 to 2021. The programme focused on energy savings in family houses and apartment buildings. Throughout its seven-year programming period, **77,000 beneficiaries benefited from its support and were paid a total of 11 billion CZK (roughly €435 million) to insulate and repair windows and doors of their home renovations and apartment buildings, implement and replace energy-saving systems such as solar thermal systems, boiler heating systems and outdoor shading technology.** With an overall focus on reducing energy consumption and encouraging the use of renewable energy

[309]Powerfund. *(2024). Initiatives Map. Link.*
[310]POWERPOOR. (2024). *Project*. Link.
[311]POWERPOOR. (2023). *Tackling Energy Poverty at its Source*. Link.
[312]Csejtei Orsi. (2022). *Hogy Legyen Kevesebb a Rezsi?* Link.

sources, the EU's support was integral in developing the foundations for these households to be included in the energy transition.

Another EU-funded project (€1,99 million), ComAct (Community Tailored Actions for Energy Poverty), is focused on **assisting more than 3000 residents across the Central and Eastern European region access low-cost and energy-efficient multi-family apartment buildings.**[313] [314] With five pilot projects being implemented in Bulgaria, Lithuania, Ukraine, Hungary and the Republic of North Macedonia, the project **works with local communities to construct significant energy-efficient renovations in multi-family apartment buildings, making them affordable and manageable.**[315] These investments support low-income families through external shocks to energy prices and the implementation of green energy policies.

What can the EU still do to support its citizens?

Broader financing and policy initiatives are needed to support low-income households to be active members in the energy transition. Carbon tax mitigation measures to help low-income households need to be implemented by the EU in the next term. A planned extension of the Emissions Trading System (ETS), known as ETS 2 (which covers the buildings and road transport sectors), **will result in the average EU household having to budget for around €363 more in carbon tax per year, a cost that tightens their budgets.**[316] While intending to provide incentives to lower carbon emissions, it leaves low-income EU households and small businesses in difficult situations, increasingly unable to afford the costs of the energy transition.[317] **The EU must provide more funding and guidance to countries with high rates of energy poverty and whose citizens and their businesses will be affected by the ETS-2.**

From a regulatory perspective, an ambitious and fair implementation of the Energy Performance of Buildings Directive (EPBD) can mitigate the effects of the ETS-2. By boosting the rates of holistic (deep) energy renovations, especially of the leakiest buildings (in view of the high energy poverty rates), we will be able to decrease the demand for heating fuels, while delivering healthier and more comfortable homes for all. Integrated (deep) energy renovations combine different actions (such as insulation, installation of renewable-heating technologies, solar PV/thermal

[313]CORDIS. (2020). *Community Tailored Actions for Energy Poverty Mitigation: COMACT Project: Fact Sheet.* Link.
[314]ComAct. (2024). *The Project.* Link.
[315]ComAct. (2024). *The Project.* Link.
[316]European Rating Agency. (2023). *EU Carbon Pricing: ETS-2 Struggles to Balance Affordability with Emissions-Reduction Incentives.* Link.
[317]European Rating Agency. (2023). *EU Carbon Pricing: ETS-2 Struggles to Balance Affordability with Emissions-Reduction Incentives.* Link.

technologies, and others) and have the potential of future-proofing our homes and buildings for the decades to come.

Amongst the different funding streams to support the improvement of our buildings, a popular European measure to tackle energy poverty is the Social Climate Fund. The funding initiative, to support their low-income and vulnerable citizens and businesses, impacted by the ETS-2 policy is a **€86 billion strong fund, providing temporary income support to assist vulnerable households and transport users.**[318] However, the **original amount that was to be allocated to the fund was reduced from 50% to 25%** of its estimated value. As such, the funding is **unlikely to cover the costs and compensations** associated with the infrastructure changes to road transport and buildings. The SCF needs bolstering and rerouting funds back into it for it to fully unfold its potential.

More generally, the European Union can better support its citizens facing energy hardships and poverty by continuing to **fund projects that develop sustainable strategies to not only lift low-income households out of energy poverty but also allow them to join and have a voice in debate on the energy transition**. In the short term, allocating funds to support energy subsidies for low-income households, energy-saving advisors and incentives for citizens to adopt renewable energy tools will help with the immediate relief of energy poverty, and long-term solutions need to be developed. Projects that provide energy-saving education and construct and renovate energy-efficient buildings for low-income households should continue to be funded. **The EU should overall have a more structural approach to energy poverty, with sufficient funds and integrating the social concerns into energy policy.**

[318] Agnieszka Widuto. (2023). *Energy transition in the EU.* Link.

How the EU improves access to healthy and planet-friendly diets

Key takeaways

- Unsustainable agriculture is the main driver of biodiversity loss, as evidenced by the decline of farmland bird populations. The EU Farmland Bird Index (FBI) highlights a 36% decline in birds among common farmland birds from 1990 to 2021.

- Citizens in the EU tend to have greater access to nutritious foods relative to other regions. For example, stunting in Europe—a key indicator of malnutrition—affects 4.5%, well below the global average of 22.0%.

- In 2020, agrifood systems contributed to 31% of total EU emissions.

- Many of the ingredients that end up in our food are fuelling global deforestation. The average European consumes 60.6 kg of soy per year, the majority of which can be linked to deforested areas and converted savannahs and grasslands in South America.

- 7 in 10 Europeans want deforestation off the EU market. More than 1.1 million people responded to the EU's public consultation on deforestation in 2020, making it the largest public consultation on environmental issues in the history of the EU, and the second largest ever.

- EU lawmakers are limiting sugars and trans-fat in fruit juices to protect citizens from health problems. They also agreed with food manufacturers to reduce 10% of added sugars in processed foods in 2020.

- The EU spends €82 billion annually on food services procurement. To provide healthy and sustainable food options, the EU guidelines instruct Member States to spend this money on quality, nutritious foods.

- The EU has a cost-of-living crisis where 11% of the population can't afford a quality meal every second day. The Fund for European Aid to the Most Deprived (FEAD) was introduced in 2014 and has benefited almost 13 million people in Europe in terms of food access.

- A study found that 84% of the participants had at least two pesticides in their bodies, with children showing higher pesticide levels than adults. The EU

has banned some of the most harmful pesticides to lessen environmental and health impacts associated with pesticide usage.

- The EU wastes around 88 million tonnes of food each year, about 20% of the food it produces. 70% of EU food waste comes from households, and food services. Under the EU Farm to Fork Strategy, the EU has committed to reducing food waste and is funding food redistribution projects.

- Livestock farmers in the EU have received 1,200 times more public funding than plant-based or cultivated meat groups. 97% of the research and innovation spending is directed towards animal farmers, with most of these funds aimed at enhancing production.

The global food system significantly drives greenhouse emissions, biodiversity loss, and negative health impacts. In fact, unsustainable agriculture is the main driver of biodiversity loss, as evidenced by the decline of farmland bird populations. The EU Farmland Bird Index (FBI) measures the number of common bird species at selected sites and is often used to indicate the wider state of EU biodiversity. **The Index highlights a 36% decline in birds among species common on farmland from 1990 to 2021.**[319] **In 2020, agrifood systems also contributed to 31% of total EU emissions.**[320] These emissions are driving climate change, which, along with the loss in biodiversity, threatens our food security and increases the cost of food. For instance, Europe's 2022 summer extreme heat significantly impacted food prices.[321] This increase in food prices disproportionately impacted those with the lowest incomes as they tend to spend a higher percentage of their income on food.

Our consumption in Europe also has an impact abroad. For decades, European citizens have been unwittingly contributing to nature destruction. Many of the ingredients that ended up in our food were fuelling deforestation, including in the Amazon, the lungs of our planet. Until recently, the EU was the second largest importer of tropical deforestation and associated emissions, only second to China[322]. In 2017 alone, EU consumption of deforestation-linked products led to the destruction of 203,000 hectares. That's almost twice the size of Berlin.

The European Union is implementing initiatives to reduce agricultural greenhouse gas emissions, preserve natural resources and improve accessibility to healthy and affordable food for citizens. Citizens in the EU tend to have greater access to nutritious foods relative to other regions. **For example, stunting in Europe—a key**

[319]European Environment Agency. (2023). *Common Bird Index in Europe.* Link.
[320] European Parliament. (2023). Climate Impact of the EU agrifood system. Link.
[321]Maximilian Kotz et al. (2023). *The Impact of Global Warming on Inflation: Averages, Seasonality and Extremes.* Link.
[322] WWF (2021).Stepping Up? The Continuing Impact Of Eu Consumption On Nature Worldwide. link

indicator of malnutrition—affects 4.5%, well below the global average of 22.0%.[323] However, more progress is needed to shift towards a food system prioritising the health of people, the planet, and wildlife. The European Union has a crucial role in enabling this change. This chapter considers the positive impacts of EU initiatives to improve the sustainability and resilience of the European food system, focusing on the everyday impact on EU citizens.

How has the European Union supported citizens to adopt sustainable and healthy diets?

Improving nutrition

One of the key missions of the EU's Farm to Fork strategy, launched in May 2020, is to empower citizens to make healthy and sustainable food choices. Eating well is fundamental to our health and wellbeing. Unhealthy diets are a leading risk factor for many health problems. For instance, dietary risks are responsible for approximately half the burden of cardiovascular disease, Europe's main cause of premature mortality.[324]

In the EU, average red meat, sugars, salt, and fat intake continue to exceed the recommendations for healthy intake. At the same time, the consumption of fruit and vegetables, legumes and nuts is insufficient.[325] This type of diet can be described as a "lose-lose diet" as it is both unhealthy and environmentally unsustainable. The European Union ensures that EU citizens, particularly children, have access to healthy meals. They are doing this by limiting sugars in fruit juices and trans-fat, protecting citizens from the risks of heart disease and other health problems. Additionally, **EU lawmakers have agreed with food manufacturers to reduce 10% of added sugars in processed foods.**[326] This type of regulation encourages companies to reformulate their products and remove excess sugars, salt, and fat from everyday supermarket items. Doing so makes it easier for people of all backgrounds across the EU to make healthier choices.

The EU spends approximately €82 billion annually on food services procurement.[327] To ensure that EU citizens have access to healthy and sustainable

[323]Global Nutrition Report. (2020). *Europe Nutrition Profile*. Link.
[324] European Heart Network. (2017). *Transforming European food and drink policies for cardiovascular health*. Link.
[325] Walter Willett et al. (2019). *Food in the Anthropocene: The EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems*. Link.
[326] European Commission. (2019). *Initiatives on Nutrition and Physical Activity*. Link.
[327] Djojosoeparto et al. (2020). *The Healthy Food Environment Policy Index (Food-EPI): European Union. An Overview of EU-Level Policies Influencing Food Environments in EU Member States*. Link.

food options in public canteens, the EU has issued guidelines to Member States to spend this money on quality, nutritious foods.[328] The EU states that public contracts should be awarded based on some key criteria relating to social and environmental factors, as well as cost. Many local and regional authorities have adopted these guidelines. **In 2016, the government of Lens, France, introduced a target of 20% for organic foods and other environmental standards in its food services procurement.[329] The award criteria reduced the weighting of price and increased the weighting of the quality of food (45%) and environmental performance (15%).**[330] Other countries, such as Latvia and Slovakia, have mandatory organic food procurement targets in place, while others, such as Estonia, have substantial organic food production rates.[331] These procurement processes will reduce the risks of life-threatening diseases and the food system's harmful impact on our environment and climate.

Incentivising healthy and nature-friendly diets

In recent years, the European Union and many of its Member States have come to recognise the need to transition towards plant-based diets. This shift is essential not only to combat climate change but also to promote healthier lifestyles among citizens. **The plant-based food industry within the EU has experienced a significant surge, with sales increasing by 49% from 2018 to 2020, amounting to a substantial EUR 3.6 billion in total sales value.**[332]

Plant-based foods offer numerous environmental advantages over animal farming, requiring significantly less land, freshwater resources, and emitting less greenhouse gases. **Today, almost half of the crops imported to the EU for animal feed are made up of soy, primarily from South America.**[333] The growth of soybean farms has caused widespread deforestation in the Brazilian Amazon, resulting in the loss of natural habitats and biodiversity.[334] **Deforestation displaces wildlife species, putting them in closer proximity with each other and to humans.**[335] **Transitioning to local, plant-based diets could mitigate these environmental impacts while enhancing EU food security**, reducing vulnerability to global food system disruptions.

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[328] European Commission, et al. (2017). *Public procurement of food for health: technical report on the school setting.* Link.
[329] Rossella Soldi. (2018). *Sustainable Public Procurement of Food.* Link.
[330] Rossella Soldi. (2018). *Sustainable Public Procurement of Food.* Link.
[331]Djojosoeparto et al. (2020). *The Healthy Food Environment Policy Index (Food-EPI): European Union. An Overview of EU-Level Policies Influencing Food Environments in EU Member States.* Link.
[332]Smart Protein. (2021). *Plant-Based Foods in Europe: How Big Is the Market? The Smart Protein Plant-Based Food Sector Report.* Link.
[333] WWF. (n.d.). *Soy Story.* Link.
[334] WWF. (n.d.).
[335]Pedro H.S. Brancalion et al. (2020). *Emerging Threats Linking Tropical Deforestation and the COVID-19 Pandemic.* Link.

Acknowledging the unsustainability of current food habits in Europe, the EU's Farm to Fork Strategy underscores the necessity of embracing a plant-based diet. This requires reducing the consumption of red and processed meats while increasing the intake of fruits and vegetables. Moreover, the strategy outlines commitments to allocate EU funds towards researching alternative plant proteins and meat substitutes. **Horizon Europe, the EU's flagship research and innovation programme, further emphasises this commitment through projects focusing on cultivated meat and fermentation-based foods in its 2023/2024 work programme.**[336]

Despite recognising the importance of transitioning to plant-based diets, the EU's regulatory efforts, particularly through the Farm to Fork (F2F) Strategy, have been lacking in incentivising such dietary shifts. While the F2F Strategy acknowledges the necessity of dietary changes, it falls short in providing adequate regulatory measures to promote and facilitate the transition.

The EU's failure to leverage the F2F Strategy to incentivise plant-based diets represents a missed opportunity. By neglecting to implement robust regulatory frameworks to encourage and support the adoption of plant-based lifestyles, the EU has overlooked a significant avenue for promoting sustainability and public health.

As we move forward, it is imperative that the EU takes proactive steps in the next term to rectify this oversight. By enhancing regulatory measures and providing tangible incentives, the EU can better promote the transition to plant-based diets to advance environmental sustainability and public health objectives.

Food affordability and security

The EU is facing a cost-of-living crisis, with an estimated 11% of the EU population (49 million people) unable to afford a quality meal every second day.[337] In the face of this crisis, the EU has adopted a range of schemes to ensure its citizens can afford essential foods, including subsidies for school meals, funds for people facing food insecurity, and direct payments to farmers.

Case study: the Passerelle project in France
In October 2021, Action Against Hunger and The Salvation Army in France launched a pilot project, Passerelle, which aimed to

[336]GFI Europe. (2022). *Horizon Europe Announces €25 Million for Sustainable Proteins.* Link.
[337]Eurostat. (2021). *Inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day by level of activity limitation, sex and age.* Link.

use cash transfers as a way to alleviate food insecurity. The project was set in Montreuil, France, where 15% of the population used food aid during the pandemic.[338] The project would not have been possible without the France Relance recovery plan, which received 40% of its funds from the European Union.[339]

For a period of 4 months, 200 households (a total of 843 people) received financial assistance of €63 per month per person and individualised advice in which recipients could visit a social centre close to their home and receive information about their rights.[340] The direct transfer of money gives people the freedom to choose what they want to eat according to their constraints and preferences.

After the project, 97% of respondents of the follow-up survey confirmed that they had used the cash transfer to buy food and 88% of those who had known their food budget said that the financial assistance had covered half or more of their food shopping for the month. One recipient described how she could previously only afford to buy bread and some vegetables when food shopping. The financial assistance allowed her to buy other items she wanted.[341]



[338] L'Armée du Salut. (2022). *A Montreuil, une « Passerelle » pour lutter contre les nouvelles formes de précarité.* Link.
[339] Ministry for Europe and Foreign Affairs. (n.d.). *France Relance recovery plan: building the France of 2030.* Link.
[340] ACTION CONTRE LA FAIM. (2022). *PROJET PASSERELLE À MONTREUIL : 1 AN D'EXPÉRIMENTATION POUR INSPIRER DE NOUVELLES ACTIONS POUR L'ACCÈS À L'ALIMENTATION DE TOUTES ET TOUS.* Link.
[341] Fondation Armée du Salut Fads. (2022). *Projet "Passerelle" : un coup de pouce" financier à 200 familles précarisées par la crise sanitaire.* Link.



Photo credits: Valentina Camu

The EU started the Fund for European Aid to the Most Deprived (FEAD) in 2014. FEAD aims to help people who need food and material assistance. Most of the funding (83%) is for food support.[342] **For the period of 2014-2020, the EU allotted €3.8 billion to the programme.** FEAD is implemented nationally with operational programmes approved by the European Commission. In Slovakia, FEAD gives support of €360,000 per year for a programme that provides food and basic material assistance to people in need.[343] Since it was introduced in 2014, nearly 13 million people in Europe have benefited from this funding instrument.[344]

Research shows that one of the barriers to accessing healthy, plant-based foods is the cost. **A survey in 11 EU countries showed that 60% of respondents thought that the high price of sustainable food was the biggest obstacle to buying it.**[345] The EU developed a Sustainable Food Systems Law to make sustainable and healthy food more affordable and accessible by creating enabling food environments and by preventing unfair competition, and encouraging sustainable food production.[346] The Law was about to be published by the European Commission in 2023 but was indefinitely shelved, and requires renewed commitment from the EU to ensure it is adopted and implemented.

[342]Djojosoeparto et al. (2020). *The Healthy Food Environment Policy Index (Food-EPI): European Union. An Overview of EU-Level Policies Influencing Food Environments in EU Member States.* Link.
[343]European Commission. (2021). *Diverse Approaches to Supporting Europe's Most Deprived - FEAD Case Studies 2021.* Link.
[344] Red Cross EU Office. (2023). *Food Aid and Cost-of-Living Crisis in Europe.* Link.
[345]WWF. (2023). *WWF Food Habitat Survey.* Link.
[346]WWF. (2022). *Valuing food for a game-changing EU legislative framework for sustainable food systems.* Link.

Reducing deforestation by eating more sustainably

For decades, European citizens have been unwittingly contributing to nature destruction. Many of the ingredients that ended up in our food were fuelling deforestation, including in the Amazon, the lungs of our planet. The coffee in our morning latte, the soy indirectly present in our cheese sandwich, or the palm oil in our favourite cookies, were often produced at the expense of beautiful rainforests. the average European consumes 60.6 kg of soy per year, contributing unknowingly to the destruction of precious natural ecosystems outside of Europe[347].

Until recently, the EU was the second largest importer of tropical deforestation and associated emissions, only second to China[348]. In 2017 alone, EU consumption of deforestation-linked products led to the destruction of 203,000 hectares. That's almost twice the size of Berlin.

Citizens wanted to put an end to this and raised their voices. 7 in 10 Europeans want deforestation off the EU market[349]. More than 1.1 million people responded to the EU's public consultation on deforestation in 2020, making it the largest public consultation on environmental issues in the history of the EU, and the second largest ever. And the EU listened: thanks to the EU Deforestation Law, adopted in 2023, products associated with the destruction of forests are being banned in the EU. This means that companies will have to prove that their products are deforestation-free in order to enter our market. European consumers will finally have the certainty that the food on our supermarket shelves is more sustainable and that key ecosystems, crucial to people's livelihoods and our health, are better protected.

This new law will now need to be implemented by national governments to make sure effective guidance is provided to companies and controls are happening, and the Commission needs to take further actions to avoid any loopholes from weakening the law.

Reducing pesticide usage

In the EU, a third of bee, butterfly and hoverfly species is in decline, while 80% of both crop and wild flowering plant species rely on animal pollination.[350] Half of the agricultural land in the EU is at risk of facing a shortage in pollination.

[347] WWF (2023). Hidden Soy - It's Present In Most Of Our Favourite Meals. Link
[348] WWF (2021). Stepping Up? The Continuing Impact Of Eu Consumption On Nature Worldwide. Link
[349] WWF (2021) . 7 in 10 Europeans want deforestation off the EU market - new poll. Link
[350]European Commission,. (2023). *"Save bees and farmers!": One million signatures in European Citizens' Initiative signals EU co-legislators to keep environmental ambition.* Link.

Widespread usage of pesticides threatens pollinators, posing a challenge to food security, increasing pollution, and contributing to biodiversity loss.[351]

Exposure to chemical pesticides is also harmful to human health and is linked to chronic diseases such as cancer, respiratory, heart and neurological illnesses. Between 2014 and 2021, researchers conducted a study in five European countries to see if people had pesticides in their bodies. The study found that **84% of the participants had at least two pesticides in their bodies, with children showing higher pesticide levels than adults.**[352]

The EU has banned some of the most harmful pesticides to lessen environmental and health impacts associated with pesticide usage and incentivise pesticide-free agriculture with its current Sustainable Use of Pesticides Directive (SUP). For example, **in 2018, the EU expanded its ban on neonicotinoids.** Neonicotinoids are a type of insecticide used to protect plants from harmful insects.[353] They work by binding to the nerve cells of insects and destroying them. However, the problem is that they kill not only harmful insects but also many beneficial species, such as bees, butterflies, and other wildlife. Studies from recent years have shown that neonicotinoids can harm birds and even lead to the collapse of fisheries.[354] Neonicotinoid insecticides have also been linked to human health effects that include lower testosterone levels, altered insulin regulation, and changes to fat metabolism.[355] This ban has incentivised more sustainable forms of farming, for example, France's organic sugar beet cultivation has expanded from 253 hectares to 1,800 hectares in the span of three years (2019-2022).[356]

Recently, the EU has taken a step backwards in minimising pesticides in agriculture, withdrawing its initially proposed update to the SUP. A proposed law that would have introduced strict targets limiting Member States' pesticide use was scrapped.[357] What is more, pesticides banned for use within the EU continue to be produced and exported from Europe, mainly in lower-income countries.[358] These hazardous chemicals are known to cause harm regardless of where they are used. In 2021, EU companies exported over 13,200 tonnes of banned insecticides, containing

[351]European Environment Agency. (2023). *How Pesticides Impact Human Health and Ecosystems in Europe.* Link.
[352]Eva Govarts et al. (2023). *Harmonized Human Biomonitoring in European Children, Teenagers and Adults: EU-Wide Exposure Data of 11 Chemical Substance Groups from the HBM4EU Aligned Studies (2014-2021).* Link.
[353]European Commission. (n.d.). *Neonicotinoids.* Link.
[354]Hallmann, C., Foppen, R., van Turnhout, C. et al. (2014). *Declines in insectivorous birds are associated with high neonicotinoid concentrations.* Link.
[355]NRDC. (2022). *Neonicotinoids 101: The Effects on Humans and Bees.* Link.
[356]European Environment Agency. (2023). *Organic Sugar Beet Production and Robotics Use in France.* Link.
[357] Reuters. (2023). *European Parliament scraps pesticides bill in latest setback for green legislation.* Link.
[358] Unearthed. (2023). *EU sending huge quantities of banned, bee-killing pesticides to poorer countries, documents reveal.* Link.

approximately 2,930 tonnes of neonicotinoid active ingredients.[359] This year's EU elections are a critical opportunity to push for renewed EU commitment and tighter regulation on pesticide usage, reflecting the EU's role and responsibility in the global food system.

Minimising food waste

As part of the EU's transition to sustainable food consumption, the EU has included activities within its Farm to Fork strategy to address the issue of food waste. **The EU currently wastes around 88 million tonnes of food each year, which is about 20% of the food it produces.**[360] **Seventy percent of EU food waste comes from households, food service, and retail, while the remaining 30% comes from production and processing.**[361] At a time when food prices are at an all-time high in the EU, saving food costs and preventing food waste is crucial. **Food waste currently costs the EU an estimated €143 billion annually.**[362] In 2015, the EU Action Plan for the Circular Economy called for establishing a platform dedicated to food waste prevention.

The EU also funds REFRESH, a project dedicated to food waste mitigation. This project developed a framework to address the different actions needed to combat food waste at all levels in their target countries, including Spain, Germany, Hungary, and the Netherlands. The REFRESH project in Germany aimed to create educational resources to increase awareness about the importance of reducing food waste and guide consumers on preventing waste during grocery shopping. A training programme was developed in partnership with a German food retailer, which showed impressive results. Eighty percent of trainees continued to discuss food waste even months after the training and 42% of trainees felt that the training helped them behave more sustainably in their daily lives and at work.[363]

Additionally, the European Union has set a food waste reduction goal. It mandates the Member States to implement specific measures, including reducing food waste generation, encouraging the donation of unsold but still edible food, enhancing consumer understanding of food date labelling, and monitoring and reporting of progress in reducing food waste levels. Reducing food waste can have multiple benefits, such as saving resources in food production, saving money, and reducing

[359] Unearthed. (2023). *EU sending huge quantities of banned, bee-killing pesticides to poorer countries, documents reveal.* Link.
[360]Council of Europe. (2016). *Food Losses and Food Waste: Assessment of Progress Made in Implementing the Council Conclusions Adopted on 28 June 2016.* Link.
[361]Council of Europe. (2016). Food Losses and Food Waste: Assessment of Progress Made in Implementing the Council Conclusions Adopted on 28 June 2016. Link.
[362]Eurostat. *European Union Food Inflation.*
[363] Nora Brüggemann and Patrik Eisenhauer. (2019). *Food Waste Reduction Training of PENNY Apprentices Successfully Completed.* Link.

the environmental impact of food. Additionally, food redistribution can ensure that more food is available for all EU citizens to consume.

Why does my vote in the EU elections matter for the food I eat?

The EU is making progress in building a more sustainable and healthy food system for everyone involved. The **Farm to Fork Strategy is the EU's first policy to address the food system holistically.** The strategy considers issues related to food production, processing, distribution, and consumption. The EU has also banned some of the most harmful pesticides mitigating negative environmental and health impacts.

However, more work must be done to address the negative impact of farming. Many EU agricultural subsidies still support intensive animal agriculture. **Livestock farmers in the EU have received 1,200 times more public funding than plant-based or cultivated meat groups.**[364] **Indeed, cattle farmers in the EU received at least 50% of their income from direct subsidies.**[365] **Furthermore, 97% of the research and innovation spending is directed towards animal farmers, with most of these funds aimed at enhancing production.**[366] The current policy environment does not do enough to support the transition to more sustainable, plant-based diets. **EU citizens eat twice the global average of meat, causing health problems, environmental degradation, and significant greenhouse emissions.**[367]

Moreover, the current EU system does not only fail consumers and the environment, but farmers are also suffering. 20% of the largest European farmers, often large-scale industrial agri businesses, receive 80% of direct payments, while most farmers (often family farms) on small or medium-sized farms receive little to no support from the EU.

A supportive European Union is vital to fulfilling and surpassing the ambitions of the **Farm to Fork strategy** to create a food system where the healthy option is the default one and where there are consumer's subsidies to help the most fragile part

[364] Vallone and Lambin. (2023). *Public Policies and Vested Interests Preserve the Animal Farming Status Quo at the Expense of Animal Product Analogs.* Link.
[365] Vallone and Lambin. (2023). *Public Policies and Vested Interests Preserve the Animal Farming Status Quo at the Expense of Animal Product Analogs.* Link.
[366] Vallone and Lambin. (2023). *Public Policies and Vested Interests Preserve the Animal Farming Status Quo at the Expense of Animal Product Analogs.* Link.
[367] Jon Henley et al. (2022). *Greens v "Beefatarians": Europeans Go to War over Their Dinner.* Link.

of the population access healthy and nature-friendly food. We need a food and farming system that ensures fair livelihoods for farmers, the well-being of all European citizens and the natural environment it relies on. This includes so far neglected efforts to reduce the amount of toxic pesticide usage as much more is needed to ensure we eat healthy food.



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