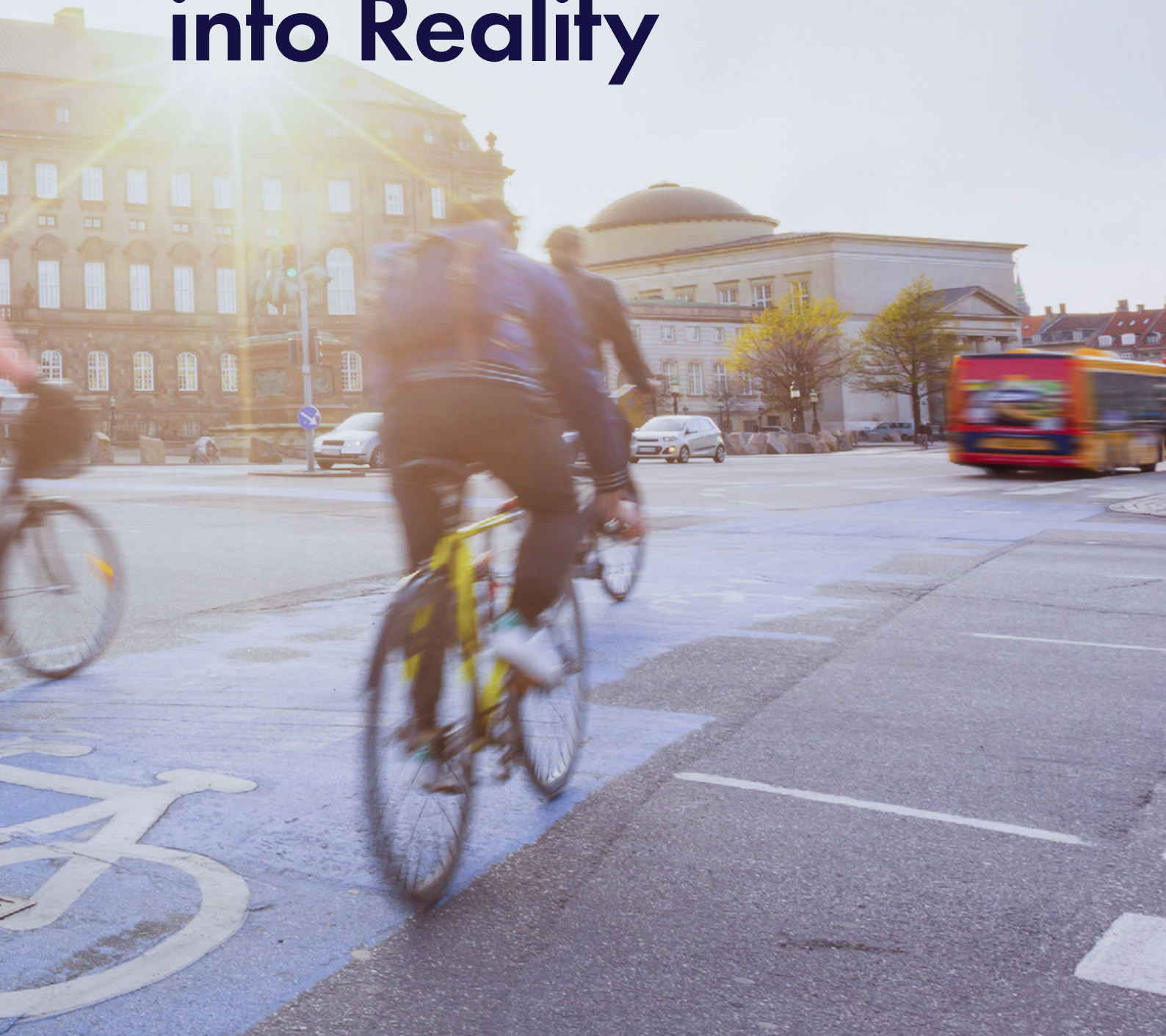


Turning the European Green Deal into Reality



“Turning the European Green Deal into Reality” report by Strategic Perspectives

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This report should be referenced as:

Strategic Perspectives. 2023. Turning the European Green Deal into Reality, Brussels.

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Turning the European Green Deal into Reality



The European Green Deal, from a vision to a comprehensive response to a 'polycrisis'

In 2019, the European Parliament elections gave unprecedented momentum to the need to address climate change, prompting European Commission President Ursula von der Leyen to launch the European Green Deal. What began as a vision to make Europe the first continent to reach climate neutrality by 2050 has evolved into the world's most comprehensive set of laws to decarbonise the economy. The COVID-19 pandemic, Russia's war of aggression against Ukraine and the cost of living crisis, as well as industrial competition from the US and China, have not lowered the importance of the European climate agenda. On the contrary, **the European Green Deal has proven to be a unifying solution to the multiple crises facing Europe**, including economic recovery from the pandemic, climate change, high dependency on energy from Russia and competition on net-zero technologies from China and the US. Policy-makers are, therefore, focusing on the rapid deployment of renewable energies and energy savings to urgently decouple from Russia and the growth of domestic industrial manufacturing of net-zero technologies. These are all solutions that enhance resilience and competitiveness whilst advancing the transition to a net-zero economy.

The adoption of the 14 laws, also known as the 'Fit for 55' package¹, sets in stone all the means to reduce greenhouse gas emissions by at least 55% by 2030. In addition, the European strategy for phasing out Russian fossil fuels 'REPowerEU' amplifies the importance of the decarbonisation parameters, especially in terms of renewable energy deployment and energy savings, two pillars that are becoming essential for Europe's energy security.

Despite the immediate need for new gas and oil supplies and the temporary restart of some coal power plants in winter 2022, **EU decision-makers have put Europe on an irreversible decarbonisation trajectory**. On a continent with limited gas and oil resources, Europeans have no interest in going back to the pre-war status quo. On the contrary, "Turning the European Green Deal into Reality" is going to be an essential focus for governments, from Sofia to Dublin and Rome to Tallinn. Only a thorough implementation of the laws can guarantee the benefits of the transition, **enhance European sovereignty and make EU societies more resilient**.

¹ The European Green Deal, from a vision to a comprehensive response to a 'polycrisis'



Berlaymont,
Brussels, Belgium

This report by Strategic Perspectives, informed with data and modelling of Cambridge Econometrics, analyses the adopted 'Fit for 55' and 'REPowerEU' legislations and:

- 1.** Outlines the required pace of transformation of the European economy.
- 2.** Highlights the implications for Europe's energy security.
- 3.** Shows the direct benefits and impacts for European citizens and businesses.
- 4.** Identifies some of the key drivers for successful implementation.

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Executive Summary

European policy-makers have set a robust decarbonisation path for 2030. EU institutions agreed a yearly rate of 4.7% reduction of greenhouse gas emissions, in order to reach the climate target of 'at least 55%' by 2030. If all laws are implemented correctly and on time, they will lead to a doubling of renewable energy capacity, a two-fold increase in the installation of heat pumps, solar thermal or geothermal heating systems, and a tripling of the building renovation rate per year compared to 2021. At least 29 million electric vehicles are estimated to be on European roads by 2030 and the industry will start its modernisation, whilst reducing its emissions by 29% by 2030, compared to the reference scenario ("business-as-usual scenario" hereafter) that is based on the effects of policies adopted by 2020.

The analysis shows that the **European Union is on an irreversible path away from fossil fuels**, despite the recent rush to build new gas and oil infrastructure, especially Liquefied Natural Gas (LNG) terminals, to decouple Europe from Russian energy quickly. Renewable energies, in particular wind and solar, are becoming cheaper, making European energy decarbonisation a cost-effective and strategic choice. In 2030, renewables will be the main source of electricity in Europe and coal will no longer be cost competitive and will be phased out. The analysis also shows that gas and oil consumption will have reduced by 31% and 34% respectively compared to 2019. Absolute gas demand will have reduced by between 83.50 billion cubic metres (bcm) in a low energy price scenario and

92.91 bcm in a high energy price scenario by 2030 (again compared to 2019). This is almost equivalent to Germany's gas consumption (94 bcm²) in 2021 and more than half of Russia's gas imports (155 bcm) in 2021. Gas demand can be further reduced with additional measures³, such as the energy savings made by households and industry since the start of the war in Ukraine. This solid reduction in gas consumption makes new, permanent gas infrastructure, such as LNG terminals, unnecessary. The analysis predicts that, after decades of a heavy and costly dependence on international fossil fuel markets, the European Union will begin to build a **new energy security policy architecture** based on domestic low-emission energy production.

With gas, oil and coal prices driving high inflation, **the net-zero transition will also become a competitive advantage for European businesses and contribute to protecting households from the cost of living crisis.** Climate-friendly solutions⁴, whether renewable energy, electric vehicles, heating system alterations to heat pumps or renovating homes, have the potential to reduce energy bills and stabilise inflation. On average, European households will see their **spending dedicated to energy and fuels reduced** from 8.6% of their budget in 2022 to 6.1% in 2030. Renewable energies will lower average electricity prices for consumers by more than 7%, compared to the business-as-usual scenario. In addition, decarbonising the European economy will help **create 475,000 more jobs than it will negatively affect by 2030.**

KEY FIGURES I

If implemented in a
timely and effective
way by 2030, the EU
laws could result in:

55%

of electricity from
wind and solar in 2030

29 million

private electric cars
on European roads

58 million

heat pumps installed

COAL
phased out

Gas and oil consumption
reduced by at least

31 & 34%

respectively, compared to 2019



Thorough implementation is the only guarantee for a more sovereign and fair Europe. To secure the pace and the scale of the net-zero transition required by the European laws, special attention needs to be given to the following challenges during implementation:

I. Unlocking investment and ensuring European solidarity.

Additional investment of €351 billion by 2030 (excluding inter alia household spending on vehicles or efficiency) are needed for implementation compared to a business-as-usual scenario. This is equivalent to 10% of the €3.6 trillion of total investments made across EU countries in 2022. Funding is available through the EU's recovery instrument 'NextGenerationEU', the EU budget (the Multiannual Financial Framework) and revenues from the EU carbon market. Given the constraints on fiscal space by some countries, a European climate investment plan, taking the form of the European Sovereignty Fund, could ensure fair and sufficient support for all EU countries.

II. Making climate-friendly equipment affordable for low and middle-income households.

The upfront investment to access climate-friendly solutions is high for the average citizen. EU and national policy-makers can ensure equal access to net-zero technologies by providing targeted support to those who need it most.

III. Building a European net-zero industrial base.

Accelerating Europe's transition is projected to lead to an increase in European imports in sectors related to net-zero technologies⁵ by just 1% by 2030. Europe, therefore, risks remaining a net-importer and dependent on China. Building European manufacturing of these technologies can reverse this trend, secure the achievement of climate goals, maximise the benefits in terms of employment and innovation, and position the EU at the forefront of the global race. This is the aim of the Net-Zero Industry Act proposed by the European Commission, which could be a game-changer, if properly implemented and backed by sufficient investment. If local manufacturing development is targeted in regions facing an industrial decline (e.g. coal mining regions or those with a strong presence in the automotive supply chain) decision-makers could provide tangible, implementable solutions for the workforce and help to revitalise those territories.

KEY FIGURES II

The potential benefits across Europe in 2030 are:

475,000
net jobs created

Reduced inflation and energy prices

Help bring down inflation and stabilise it at

1.5%

Reduce average electricity prices by

7%

Reduce energy and fuel spending in household budgets to

6.1%

compared to 8.6% in 2022

Increased energy security

Reduced coal imports by

73%

Reduced imports of gas and oil by

17%

relative to 2019.



Solar panels in Utrecht, The Netherlands

Methodology and modelling of the report



The analysis was implemented using Cambridge Econometrics' global macroeconomic model E3ME, which has been part of several studies on the economic impacts of decarbonisation pathways and policies in Europe and across the world. It is a model of the world's economic and energy systems and the environment, which can provide comprehensive analysis of policies:

1. Direct impacts, for example reduction in energy demand and emissions, fuel switching and renewable energy.
2. Secondary effects, for example impacts on fuel suppliers, energy prices and competitiveness.
3. Rebound effects of energy and materials consumption due to lower prices, spending on energy or higher economic activities.
4. Overall macroeconomic impacts on jobs and the economy, including income distribution at macro and sectoral levels.

The modelling exercise examines the energy and socioeconomic outcomes of two scenarios:

1. A business-as-usual scenario, calibrated to the 2020 EU Reference Scenario.
2. A policy scenario which reflects targets of the 'Fit for 55' and 'RePowerEU' policy packages (a full list is provided in the annexe) in particular:
 - A. EU level net greenhouse gas (GHG) emission reductions of at least 55% by 2030, compared to 1990 levels, by extending the EU carbon market to road transport and buildings, as well as phasing out internal combustion engine (ICE) vehicles by 2035, among other measures.
 - B. A renewables target for 2030 of 42.5%.
 - C. An energy savings target of 11.7% by 2030.
 - D. A natural gas savings target of 35 bcm by 2030.

The scenarios take into account the effects of recent energy price hikes. Additional sensitivity testing was carried out to assess how the presence (or absence) of such increases may affect the model results. The policy scenario also includes the latest policy decisions undertaken in 2023, particularly targets for 600 Gigawatt (GW) of solar capacity by 2030 (higher than targeted by the 'Fit for 55' package) and latest revisions to the Energy Efficiency Directive (EED) and the Council position as an assumption for the Energy Performance of Buildings Directive (EPBD) outcome.

The E3ME modelling was complemented by additional off-model estimations based on the model output. The estimates of heat pumps were derived as a function of the amount of useful heat energy delivered (projected by E3ME) and an assumption for the average useful energy per heat pump (estimated from historical data to 2022). The methodology does not assume any change in heating habits and technical efficiency improvements which would generate additional efficiency gains in the future. While the E3ME modelling projects the number of EVs in the stock, the number of second hand EVs becoming available is an estimate based on a) the total fleet of EVs in any given year (projected by E3ME based on historical data to 2022) and b) assumptions for the lifetime of these cars and the share of EVs in all second-hand car sales (estimated from historical data for selected countries to represent a mix of high and low assumptions). It was assumed that EVs older than 4 years old are sold on the second-hand market and they are only resold once. This means that the estimates for second-hand EVs by 2030 are conservative, because cars can change ownership sooner and more than once.

A new European energy security policy architecture

The European Union has taken solid first steps towards phasing out fossil fuels entirely, not only imports from Russia. Taken together, the higher CO₂ price in the European carbon market (which will make coal and gas-fired power plants more expensive to run) and the 42.5% renewables target for 2030, will help to replace fossil fuels especially in the electricity sector⁶. At the same time, the 11.7% energy savings target and the end of sales of new petrol, diesel and hybrid cars by 2035, will reduce demand for fossil fuels in transport⁷, industry and building sectors. A fully decarbonised European energy mix will mitigate the geopolitical risks associated with high import dependence of fossil fuels and secure Europeans' access to affordable, low-emission energy.

The phase-out of coal and subsequent demand reduction of gas and oil address the twin challenges of climate change and energy security. Volatile gas and oil prices, dependence on a limited number of suppliers and the high cost of LNG have highlighted the vulnerability of the European Union when it relies on fossil fuels. The European Commission forecasts that fossil fuel prices could remain volatile and high⁸. The 'Fit for 55' package and the measures planned under 'RePowerEU' lay the foundation for **a new energy security policy architecture in Europe**, based on the full potential of the energy transition. While the past policy architecture relied on burning coal, gas and oil imports from abroad, this new architecture will be based on generating fossil free power domestically. Key pillars set in law are:

1. Advancing the electrification and thus decarbonisation of heating, transport and industry.
2. Ensuring a continuous source of cheap power in the electricity market through the strong deployment of renewable energies across Europe.
3. Saving energy, including through demand reduction policies.

The EU countries have spent more than €150 billion on energy imports from Russia⁹ since the Russian war in Ukraine started and €400 billion for gas imports¹⁰ in 2022. Relying on fossil fuels is a geopolitical threat for Europe. **If the EU climate laws are properly implemented, gas and oil imports will be 17% lower in 2030** compared to 2019. This new energy security policy architecture will make Europe less dependent on certain regimes and reduce the financial flows that support them. The rapid substitution of coal, oil and gas by renewables and energy saving is **a security asset, making Europe more independent** and resilient to energy price shocks from outside. It also provides reliable energy, securing supplies for European industries and households. The energy transition is **making European decarbonisation a cost-effective and strategic choice**.



Solar Panel in
Barcelona, Spain

Greater independence through renewable energy deployment

EU policies have incentivised the growing deployment of renewables, especially solar and wind, over the last decade. According to the think tank Ember¹¹, they overtook coal in the electricity mix in 2019 and gas and nuclear in 2022. More recently, the war in Ukraine and the energy crisis have led the European Commission to propose higher renewable energy and energy-savings targets. National measures, impressive energy savings and reduced demand during a warm winter have caused a sharp drop in gas consumption, which was 12% lower in 2022 than the 2019–2021 average¹². While these effects might be temporary, the decrease in fossil fuel consumption will become structural in the future. The

implementation of the EU 2030 laws could set in motion an irreversible trajectory of declining coal, gas and oil consumption in Europe and powerful growth for renewables. If the EU's Renewable Energy Directive is properly implemented, the share of renewables in the energy mix will almost double from 22% in 2020 to 42.5% by 2030, with wind and solar as the main share of it. As a result, the analysis shows that all the conditions are in place for **Europe to be coal-free by 2030 and for gas and oil consumption to fall by at least 31% and 34% respectively by 2030 compared to 2019**. Absolute gas demand is reduced between 83.50 bcm in the low energy price scenario and 92.91 bcm in the high energy price scenario by 2030, which is more than half of the 155 bcm of Russian gas imports in 2021. It only reflects the demand reduction triggered by European laws in 2030. Additional energy saving measures can further reduce gas consumption. For example, emergency legislation aimed at reducing gas demand by 15% actually led to a reduction of 19% (41.5 bcm) between August 2022 and January 2023¹³. These results highlight the potential to further reduce gas demand and show that new and permanent LNG infrastructure is unnecessary.

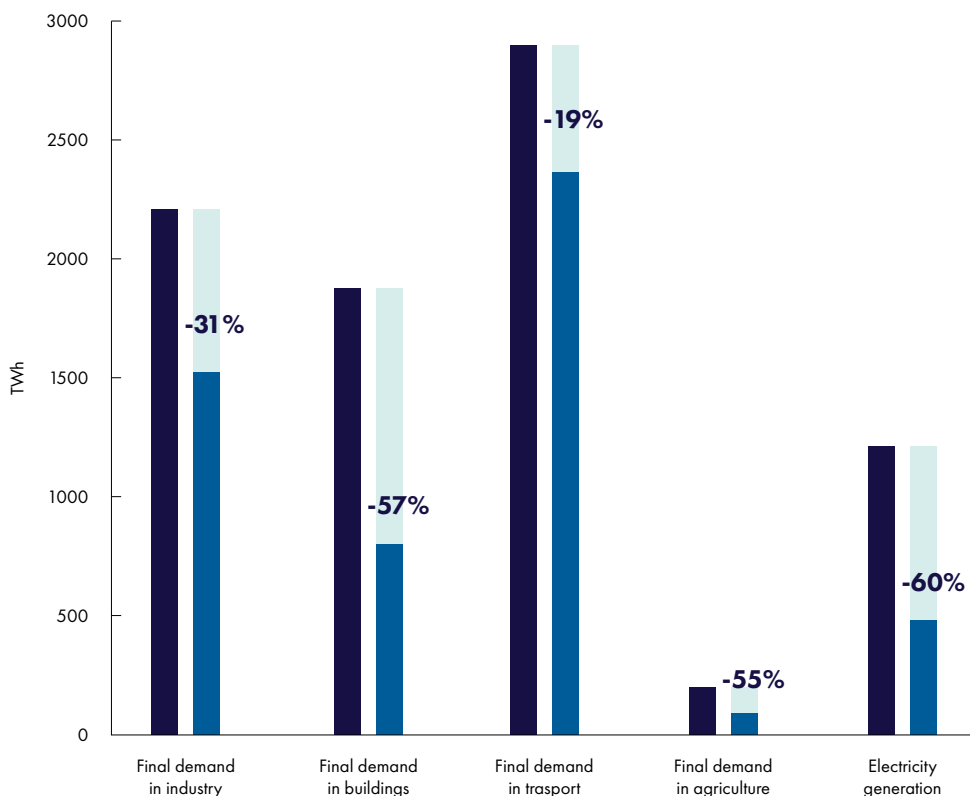


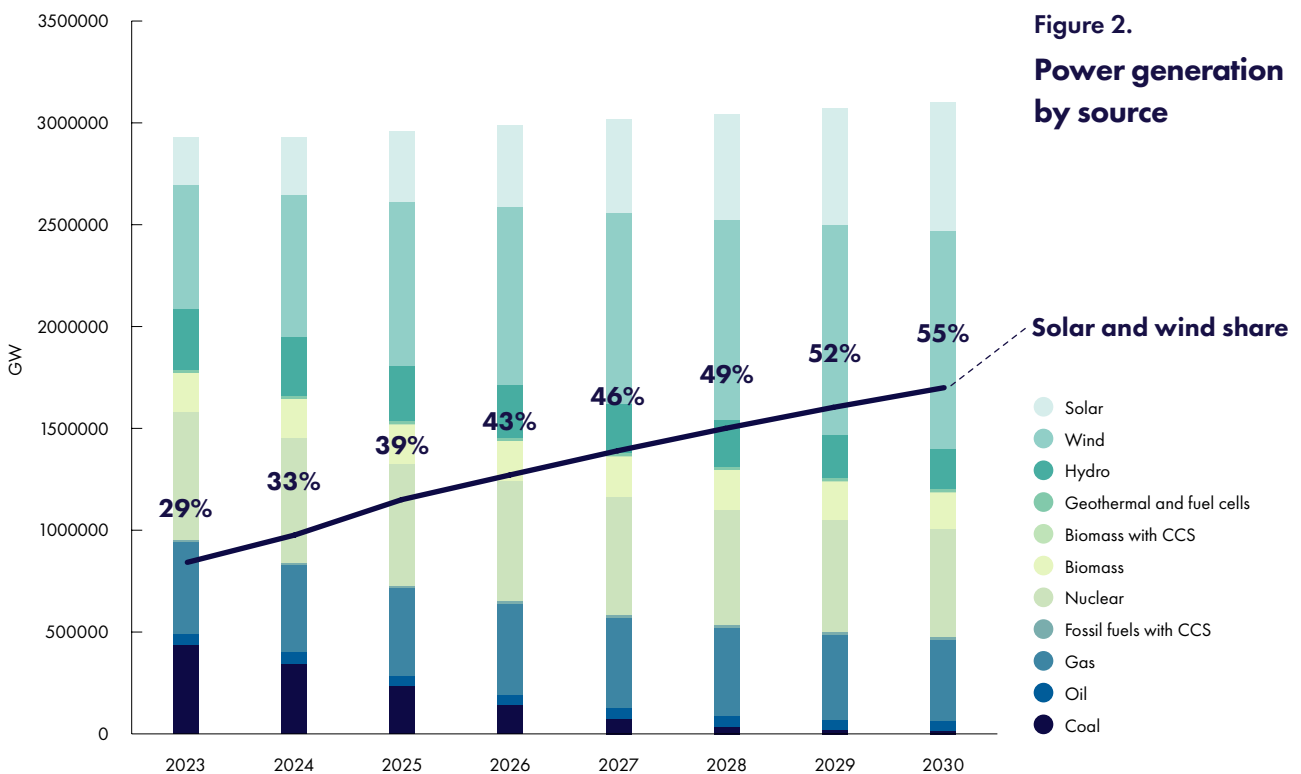
Figure 1. Fossil fuel use by sector in 2015 and 2030

Demand for fossil fuels is expected to fall across all sectors by 2030, compared to 2015. A structural change in Europe's energy policy architecture makes Europe more independent from external suppliers and substantially increases its energy security. **Figure .1**

When zooming in on the electricity sector, the decline of fossil fuels is even more pronounced, only 15% in 2030 compared to 42% in 2021. Conversely, by 2030, **55% of the electricity consumed in Europe will be from solar and wind power**, ensuring an affordable and secure energy source that can also meet the growing demand caused by the electrification of transport, industry and heating. **Figure 2.**

However, doubling the total renewable capacities by 2030 will require an unprecedented deployment rate. **Renewable energy should be installed 3.2 times faster in the next 7 years than in the last 20**

years. Market trends in solar and offshore wind provide confidence that these targets will be met and, eventually, exceeded. According to SolarPower Europe's Market Outlook¹⁴ solar power installations increased by 47% in 2022 and will continue to grow exponentially throughout the decade, exceeding Europe's solar capacity targets. The European obligation to install photovoltaic systems on roofs larger than 250 square metres (m²) for new buildings and 400m² for existing commercial and public buildings and car parks will support this development. A similar trend can be seen in offshore wind, with major projects under development in priority sea basins, leading to a potential overachievement of EU renewable targets according to Ember¹⁵. Scarcity in the value chain and inflation have weakened the onshore wind industry in Europe, putting the sector at risk. Despite a record year in 2022, Wind Europe¹⁶ estimates that only 20GW of onshore wind will be installed on average each year, falling short of the 30GW needed to meet the European renewable target.



Industry decoupling from fossil fuels to improve business competitiveness

This new energy security policy architecture brings massive benefits to the European economy, first and foremost in terms of reliable and affordable energy to industries and businesses. The heavy dependence on imported fossil fuels is costing European companies dearly compared to other economies¹⁷, especially in energy-intensive industries whose business model relies on the availability of cheap energy. Some industrial sites have had to cease production due to rising energy prices, especially in the paper and glass industries¹⁸. This risk is here to stay, according to

the European Commission, which recognises that the era of abundant and cheap fossil fuels is over¹⁹. In that context, **the transition to climate-friendly solutions is a competitive advantage for the European economy**, leading to significant savings. According to the analysis, the levelised cost of electricity generation from renewables will decrease over time, whereas the levelised cost of electricity generation from fossil fuels will continue to increase, building a strong business case for renewables.

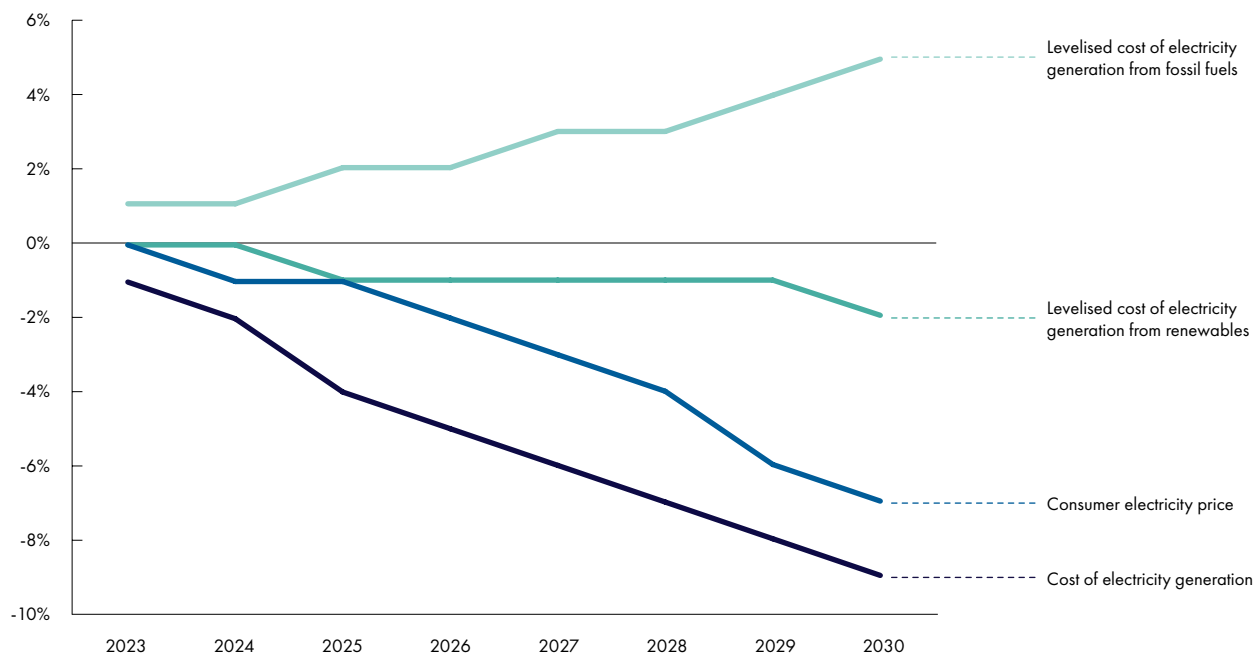
As a result, the energy transition can lower average electricity prices for companies and households by more than 7% by 2030, compared to the business-as-usual scenario. **Figure 3.**

The CO2 price in the European carbon market is meant to incentivise companies to decarbonise their industrial processes. The adopted reform of the EU carbon market points to the industry and power sector reaching net-zero emissions

Figure 3.

Comparison of the price of electricity from renewables, fossil fuels, price for consumers and cost of electricity generation

Average difference from baseline



by 2039, in line with the trajectory of allowance reductions, also called 'linear reduction factor'. This means that, over the next decade, substantial investments will be needed to **modernise Europe's industrial base, by switching to renewables, electrifying and developing more efficient processes**. Positive pilot projects have been implemented²⁰, for example in the steel industry, where gas or coal processes have been replaced by green hydrogen to produce iron, coupled with an electric arc furnace for steel. This will not be an isolated example in the near future. With the adopted EU policy, industrial emissions will be reduced by 29% by 2030, paving the way for deeper decarbonisation of downstream sectors such as automotive or construction.

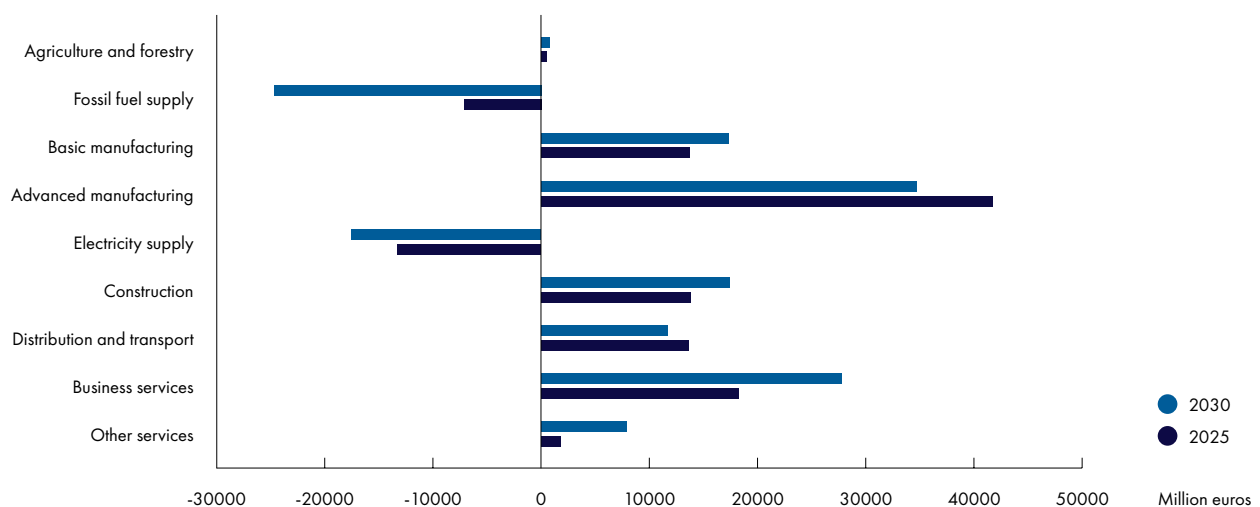
More generally, the analysis shows that the decarbonisation generated by the European Green Deal will have a positive economic impact in Europe. **Gross domestic product (GDP) could be 0.4% higher by 2030**, with some sectors benefiting strongly from the net-zero transformation of the economy. This is the case for the construction sector, which will benefit from the high renovation rate and advanced manufacturing needed for the deployment of net-zero technologies. **Figure 4.**

Strategic Perspectives recommends the following for national implementation:

- I. **Facilitate the authorisation of new renewable energy installations as adopted by 'RePowerEU'. Today's permitting procedures are too long and cause delays in connecting projects to the grid. The 2-year time limit for authorisation and 1-year time limit for projects in go-to areas are the best way to match the required deployment rate.**
- II. **Maintain energy saving efforts to reduce fossil fuel imports further and limit energy bills for the economy.**
- III. **Support the onshore wind industry as it faces major economic turbulence. EU countries could explore temporary rescue measures to help the sector overcome shortages linked to the supply chain and higher costs from inflation.**

Figure 4.
Impacts on sectoral gross output compared to the business-as-usual scenario

Absolute difference from baseline



A new social contract at the centre of successful implementation

The European Green Deal has the potential to improve the quality of life for millions of Europeans. Gas, coal and oil prices are the driving force behind high inflation in Europe²¹, lowering households' purchasing power while increasing energy and mobility poverty. Energy end-uses in Europe are overly reliant on fossil fuels, meaning citizens are paying high prices for heating, cooling and transport. Before the energy crisis, Eurostat estimated that around 7% of the European population could not afford to heat their homes properly²². That equates to 34 million people, which is expected to have risen in the context of the crisis²³. While 2022 inflation was an average of +6.2%²⁴, the EU climate laws on cars, renewables and efficiency could help stabilise prices. The climate-friendly solutions, whether EVs, changing heating systems or renovating homes, can be **an effective shield against high prices and protect Europeans' wallets**. This would be supported by a high share of renewables providing cheap electricity in the mid-term. In addition, implementing EU climate legislations can result in other concrete benefits for citizens, such as reducing air pollution by 60% compared

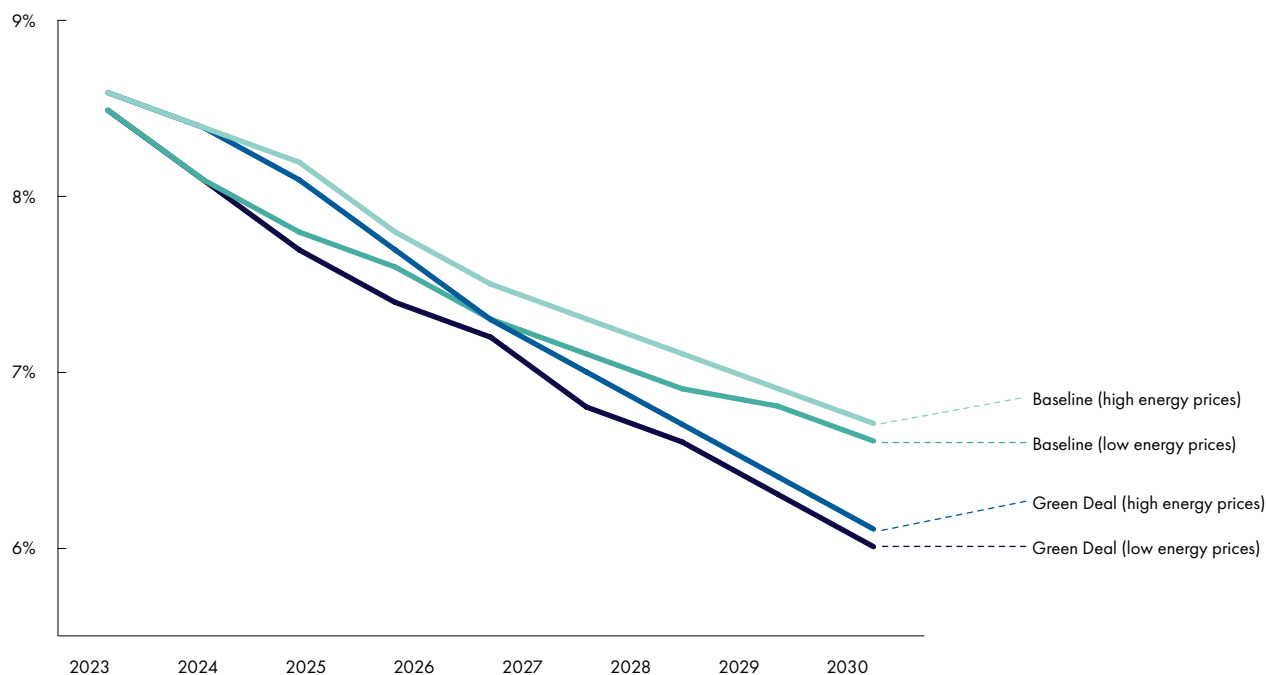
to 2015 and improving health and living conditions. This would lead to a reduction in mortality in Europe, around 114,000 premature deaths could be avoided²⁵.

A lot of attention will need to be paid to the **affordability of climate-friendly solutions for low and middle-income households**. High societal support is key for a successful implementation of EU laws, especially when it comes to citizens changing mobility habits, heating systems and energy consumption. **A true 'new social contract' has to fully embrace the needs of (and clearly benefit) the entire society.**

Figure 5.

Average share of the energy/fuel expenditure in household budgets

% of total consumption



A fair distribution of the benefits of the net-zero transition

The analysis shows that average household expenditure on electricity, gas and other fuels will fall from 8.6% of their total budget in 2022 to 6.1% in 2030, due to the high penetration of fossil-free solutions, such as EVs or heat pumps. However, this gain will not necessarily be well distributed across society. If climate-friendly solutions remain too expensive for low and middle-income households, their energy bills will remain high. These groups will then be exposed to the expected high and volatile gas and oil prices. In addition the extension of the EU carbon market, and thus carbon pricing to the building and transport sector as of 2027, is likely to increase energy bills disproportionately for those who are already struggling. The upfront investments

for renovation or climate-friendly technologies, such as EVs or heat pumps, are often too high for the average citizen, especially during a cost-of-living crisis. **Figure 5.**

Making the transition more affordable for low and middle-income households first will be **the basis of a new social contract in Europe**. It is in the interest of decision-makers to prevent social distress, such as the concerns raised by the Gilets Jaunes, who started their movement in 2018 by opposing the increase of the carbon tax in France. In this context, the European Social Climate Fund is a historic opportunity to better target those in need of transition support by redistributing revenues from the EU's carbon market for heating and transport. Valued at €86.7 billion over the period 2026–2032, it will incentivise governments to develop social climate plans that map needs and provide targeted support to households to switch to an EV or public transport, change heating systems or renovate their homes. In other words, it paves the way for a more targeted social climate policy that has the potential to become a promising instrument of solidarity both between and within EU countries.

Good example 1

Using EU carbon market revenues to renovate social housing

EU countries can build on the experience of France or the Czech Republic²⁶, for example, in using carbon market revenues to support housing renovation for people in energy poverty situations. In France, almost 100% of carbon market revenues go to the National Housing Agency (ANAH) for social housing renovation²⁷.

Since the beginning of the energy crisis, EU countries have spent around €646 billion in order to reduce energy prices³². This was an important effort to keep bills affordable for businesses and households. Unfortunately, the support did not incentivise the switch to renewables-based energy equipment or renovations but, instead, just reinforced the status quo, mainly through direct or indirect subsidies to fossil fuels. **Turning the current temporary windfall profit tax on fossil fuel companies into a permanent and redistributive tax** would provide strong leverage to support a fair distribution of the energy transition in Europe. Fossil fuel companies' record-high profits³³ could be redistributed to help governments in the deployment of net-zero technologies for low and middle-income households. The so-called EU 'solidarity contribution' was adopted by the EU in the Autumn of 2022 to apply a minimum 33% levy on the extra 20% of profits realised by coal, gas and oil companies in 2022/2023, compared to the average of the previous years. In total, the European Commission³⁴ estimates €25 billion in potential revenues from such a contribution. Austria³⁵ was one of the first EU countries to introduce a 40% windfall profits tax on oil and gas companies. The rate is reduced to 33% if companies invest part of these profits in the deployment of renewable energy, creating a virtuous circle of incentives to support the net-zero transition of the economy. Such financial redistribution from fossil fuel companies to households will be essential to make the transition fairer.

Strategic Perspectives recommends the following for national implementation:

- I. **Use the Social Climate Fund and EU carbon market revenues to provide targeted support for low and middle-income households. Social climate plans are a major opportunity to map energy and mobility poverty and ensure that the transition happens first for the most vulnerable groups. Special attention should be paid to technical and administrative support to empower groups that are not likely to reach out for public support.**
- II. **Implement a progressive and permanent windfall profits tax on fossil fuel companies to support the transition of the most vulnerable groups in society. This can be a strong political signal in favour of more social equity.**



Tram in
Budapest, Hungary

Good example 2

“Sozialticket” in Berlin, free commuting train pass in Spain and free public transport in Luxembourg

During the Summer of 2022, Germany²⁸ launched a monthly “9-Euro-Ticket” to combat inflation, reduce energy use and support access to rail services. With 52 million subscriptions, it was extremely popular. 10% of purchasers replaced their car journeys with train journeys. This scheme has now been replaced by a €49 monthly ticket. However, some regions, such as Berlin²⁹, have decided to maintain the €9 ticket for welfare recipients. This progressive approach helps to further target the poorest households and limit the price of public transport for those who need it most.

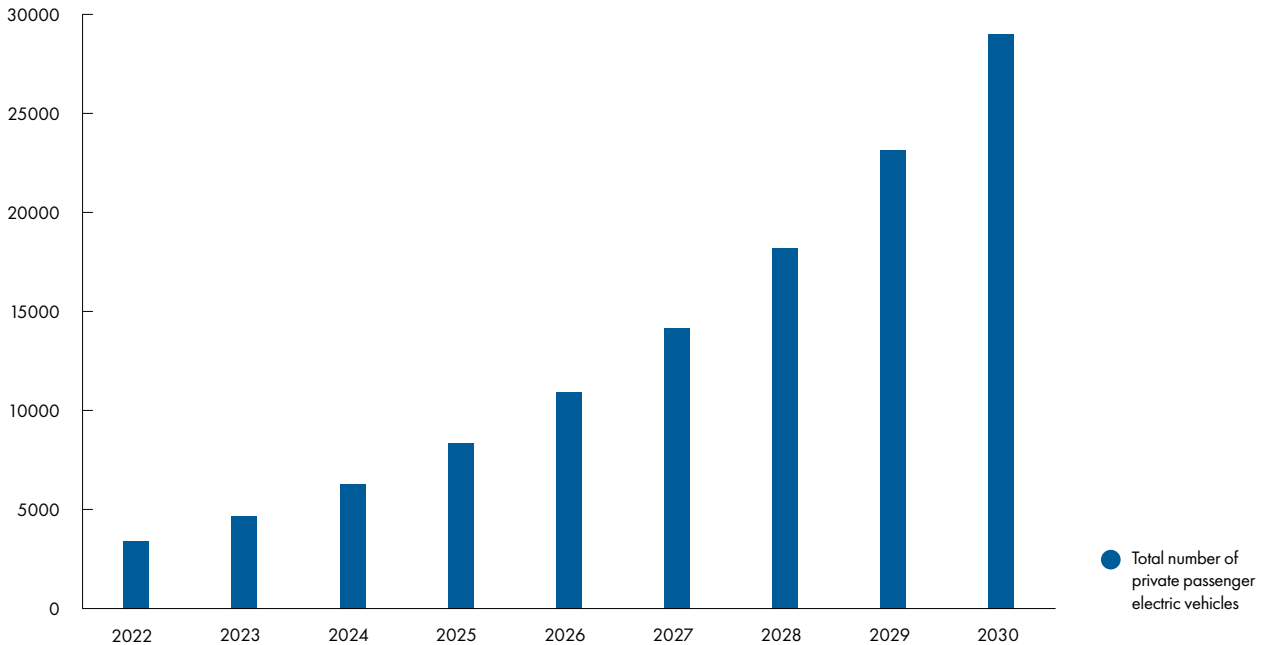
Spain³⁰ has taken a similar approach by introducing a free pass for people who commute by train. Although it does not directly target the poorest households, by covering only commuting journeys, it ensures good support for workers. More than 2 million passes were issued in Autumn of 2022. This measure is directly funded by a windfall profits tax on fossil fuel companies, which allows for fair redistribution.

Another example can be found in Luxembourg³¹, where the government decided to make public transport free to provide citizens with a cheap and reliable alternative to their cars. The reasoning behind this was to ease mobility inequalities, reduce road traffic and to provide solutions for low-income households.

Figure 6.

Number of private passenger electric vehicles and second-hand private passenger electric vehicles (corporate vehicles excluded)

Thousand vehicles



Emergence of electric vehicles as a tool to reduce fuel bills

Fuel costs are rising dramatically as a proportion of total household expenditure, particularly as diesel and petrol prices increase in Europe. The EU's CO₂ standards for cars, which set an end date of 2035 for the sale of new diesel, petrol and hybrid cars, are creating a major shift in the European car market. The first effects of the European CO₂ standards for cars are visible: **one in ten new cars sold in 2022 is electric**³⁶. The EU legislation is setting the pace of change, encouraging carmakers to follow and develop new models that embrace this industrial transformation. 6 major car manufacturers (Renault, Mercedes-Benz, Stellantis, Volvo, Jaguar and Ford) have committed themselves to sell only EVs by 2030, 5 years

before the deadline set by the law. Some others are still far from this market trend, including BMW, Hyundai-Kia and Toyota, who plan to sell only 50% EVs in 2030³⁷. Car manufacturers have a role to play in quickly diversifying the range of electric car models to increase the choices for consumers and ultimately reduce the price.

According to the analysis, the number of EVs will grow considerably. By 2030, **29 million private electric cars will be on Europe's roads, representing 11% of the private passenger car fleet**. The figure will be even higher if adding the corporate car fleet and public transport. This is an important development that will reduce oil consumption and bring clear benefits in terms of reduced air pollution and noise. The boom in EVs will be one of the most efficient answers to fuel costs for EU citizens, especially once the price of EVs is on a par with diesel or petrol cars. This could happen as soon as 2026, according to campaign group Transport and Environment³⁸. **Figure 6.**

Good example 3

France's electric vehicle 'social leasing'

The French Government will launch a public 'social leasing' offer in 2023. This will give the poorest households access to a light EV for as little as €100 a month. According to one study³⁹, the cost of leasing an EV is often over €600 a month, €233 more than the average for internal combustion engine cars. The government is negotiating directly with car manufacturers to guarantee the production of at least 100,000 simple EVs per year, potentially allowing the poorest households to access cheap mobility. In total, 900,000 households living in low-emission zones or in mobility poverty situations could have access to this service by 2030, according to another study⁴⁰. This is a very promising model that has the potential to make EVs more affordable for low income households. France is also introducing a green bonus of up to €5,000 to help households buy a light EV. This also applies to electric motorcycles and bicycles.

For now, the affordability of EVs still remains a barrier for low and middle-income consumers. As part of the new social contract, **governments have the opportunity to develop targeted public support** such as 'social leasing', electric conversion bonuses or specific support schemes for EVs to ensure fair access.

In order to reduce the price of EVs further, it will also be important to **incentivise lighter and smaller vehicles**. In the electric segment, car manufacturers tend to develop heavier car models, also known as Sport Utility Vehicles (SUVs)⁴¹, to the detriment of new, small, low-emission vehicles. This limits short-term access to an EV for middle-income households. Tesla,⁴² for example, wants to develop smaller EVs in order to lower the price. In addition, the **development of a second-hand market for EVs** is a key component in accelerating the penetration of low-emission vehicles on European roads, as well as making them more affordable. According to the estimations made, second-hand EVs sold by households could represent 3.4% of total EV sales by 2030. Policies that support the rapid conversion of corporate fleets to electric vehicles could significantly amplify this development, as the average use of a car in the corporate market is only 4 years⁴³.

Strategic Perspectives recommends the following for national implementation:

- I. **Support low- and middle-income households in accessing EVs by implementing targeted public support, such as social leasing, electric conversion bonuses or specific support schemes for EVs.**
- II. **Accelerate the greening of corporate fleets by establishing low-emission vehicle requirements for companies.⁴⁴ This will be key to building the second-hand market for EVs, especially considering that 6 out of 10 vehicles sold are for the corporate segment.**
- III. **Incentivise the production of smaller and lighter vehicles to increase affordability.**

Building renovation and switching heating systems to improve households' comfort

The energy crisis is also affecting heating and electricity bills, with an average increase of 67% across the European Countries in January 2023 compared to January 2021⁴⁵. Here too, the European Green Deal offers a solution for households. As part of the Renewable Energy Directive and the soon to be adopted Energy Performance of Buildings Directive, national governments envisage the installation of renewable heating and cooling systems in homes. Raised energy prices linked to the Russian war in Ukraine have already led to a higher uptake of low-carbon solutions in

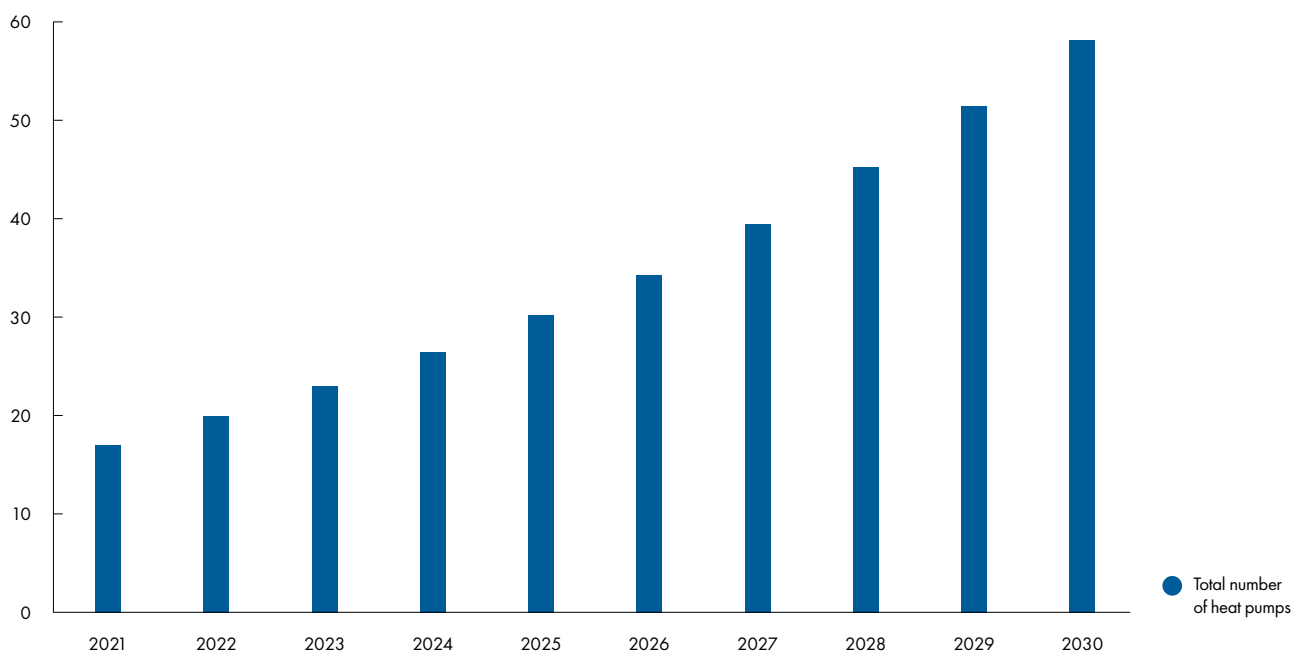
Europe. Heat pumps are becoming popular in most parts of Europe to replace old gas and fuel heating systems, and coal where it is being used in some parts of Central and Eastern Europe. **A record 3 million heat pumps were installed in Europe in 2022**, 38% more than in 2021⁴⁶, which was already considered a record year with 2 million heat pumps sold⁴⁷. In Italy, more than 500,000 heat pumps were installed in 2022, while in Poland and Belgium, the heat pump market doubled in a single year. Despite this exponential growth of renewable heating systems, oil and gas boilers still dominate in terms of overall sales. As highlighted by the Regulatory Assistance Project⁴⁸, 700,000 oil and gas boilers were installed in Germany in 2021 compared to 154,000 heat pumps.

According to the analysis, **58 million heat pumps** will be installed by 2030. The installation rate is expected to double compared to 2021. 'RePowerEU' already puts in place measures to support this trend. This could be a game-changer to bring down costs, grow installation rates and address bureaucratic hurdles at the political level. **Figure 7.**

Figure 7.

Total number of heat pumps sold from 2021 to 2030

Million heat pumps.





Good example 4

Decentralised Dutch strategy to phase out gas heating

In 2021, around 90% of Dutch homes relied on gas heating systems. The National Climate Act 2019 set a clear gas phase-out target for 2050, triggering early action in the heating sector with a target of 1.5 million gas-free homes (per 8 million) by 2030⁴⁹. The Dutch government decided to ban new stand-alone fossil fuel boilers as of 2026⁵⁰ in order to ensure the use of heat pumps and the decarbonisation of local district heating. Municipalities were put in the driving seat for implementation, via the Natural Gas-Free Districts Programme and the obligation to develop local heating transition plans⁵¹. Municipalities are in charge of consulting citizens, co-producing tailored-made solutions and plans, as well as identifying bottlenecks. This method increases the acceptability of the transition and encourages sharing of best practices at the national level.

In addition to replacing old fossil heating systems with renewable heating, the most effective way to reduce household energy bills and to improve their comfort is the deep renovation of buildings. Currently, renovation rates are far from what is needed to meet European energy efficiency targets and reduce overall energy consumption in Europe by 11,7%. **By 2030, at least 3% of the building stock should be renovated each year**⁵². Today it is only 0.2%. New national incentives and financial schemes, especially for energy-poor households, are essential to increase building renovation. This remains the most effective way to build a social contract that reduces household energy consumption, as well as eradicating energy poverty.

The Energy Performance of Buildings Directive, currently negotiated among the EU institutions and only likely to conclude in Autumn, will provide a timely impetus to boost renovation. The minimum energy performance requirements will set out a clear trajectory for renovating the private building stock. For this analysis, a conservative assumption of the outcome of this legislation was taken. However, the benefits could be amplified in the case of a more progressive outcome, for instance some proposals on the table suggest the least performant building to be renovated quickly so all buildings have at least energy label D by 2030.



Good example 5

The Czech and Irish renovation schemes against energy poverty

Both the Irish and Czech governments have adopted a package of measures to tackle energy poverty through the renovation of buildings.

The Czech government has launched a New Green Savings Programme, funded by EU carbon market revenues, the EU recovery plan and NextGenerationEU. It covers 100% of the renovation costs for the most vulnerable households and pensioners. Although this is often a single-step renovation, such as replacing windows, doors or roof insulation, it provides an incentive and direct support to start deeper renovations. The programme also supports the installation of solar panels, EV charging systems or renewable heating⁵³. More importantly, it finances renovation before it happens and provides assistance to access the service, removing an important financial and administrative burden from the poorest households' shoulders.

In the case of Ireland, the Free Home Energy Upgrade Scheme covers 100% of the cost of energy renovations for homeowners who cannot afford it. It is targeted at people on social assistance, such as the unemployed, single parents or people with disabilities, living in homes with an energy rating of G, F or E. Additional financial support is also available for the entire population to cover 50% of the cost of a deep renovation to achieve an energy rating of B2. Supported by a one-stop-shop, which simplifies the access to this financial support, the government aims to renovate 500,000 dwellings to B2 level by 2030, halving the sector's greenhouse gas emissions⁵⁴.

Strategic Perspectives recommends the following for national implementation:

- I. **Cover 100% of the up-front costs of building renovations for low-income households or those benefiting from social welfare, as is the case in Ireland and the Czech Republic. Include the replacement of heating systems and the installation of solar panels on the roof as a great way to improve the comfort of homes and reduce bills⁵⁵.**
- II. **Facilitate access to building renovation services with a one-stop-shop which provides direct assistance.**
- III. **Include local communities in the planning of the gas phase-out for building, in order to have a broad acceptance of the building transition and to ensure an effective implementation.**

The net-zero transition as a main driver for quality jobs in Europe

Accelerating the decarbonisation of the European economy will contribute to creating a net 475,000 jobs by 2030, thus generating substantially more jobs than will be made redundant. Proper management of the just transition requires a region-by-region and company-by-company approach, given the employment impact will strongly vary across Europe. According to Eurostat⁵⁶ green jobs already accounted for 4.5 million full-time equivalent jobs in 2019. There is already a shortage of workers⁵⁷ in the renewable energy, building, industry and infrastructure sectors. Unless addressed by national governments, this shortage risks delaying the effective implementation of net-zero transition policies⁵⁸. Employment in renewable energies, building renovation and clean technology manufacturing is expected to grow the most, with more than 57,000 jobs generated in the electricity sector alone.

Anticipating the decline of fossil fuel industries ensures no one is left behind

Given that the transition framework is now clear, governments and companies can focus on the just transition to provide support and new employment opportunities for workers. **The EU has initiated a just transition framework that is now replicated in its countries.** The creation of the European Just Transition Fund in 2020 was a direct support scheme for anticipating the phase-out of coal, gas and oil in the coming years. Hand-in-hand with the Just Transition Platform, which gathers all stakeholders of coal regions in an inclusive way, it aims to plan the conversion of workers, sites and regions that will be impacted by the structural change. About 230,000 people⁵⁹ working in the coal industry, whether mining or power plants, will be supported by this scheme, mainly in Poland, Bulgaria, Germany, the Czech Republic, Greece and Spain.

Good example 6

Just transition plans in Spain and Greece

In Spain⁶², the government reached a 250 million euro 'just transition' agreement with private coal mining companies to retrain 600 miners in Asturias, Aragón and Castilla y León, while offering early retirement to others. In total, about 1,700 workers are supported in this transition. It was the first agreement of its type in Europe, paving the way for inclusive negotiations in the mining industry in other countries.

The regions of Western Macedonia and Megalopolis in Greece are coal-intensive regions, which require transition in line with the Greek government plans to phase out coal by 2028. According to studies⁶³, 4.5% of total employment in the region could be lost by 2035. In 2018, the Greek government anticipated this transformation and designed a Just Transition Fund⁶⁴ of €20 million per year, financed by EU carbon market revenues, to start the restructuring of the regions. This was followed in 2022 by €1.38 billion of support from the newly created European Just Transition Fund. In consultation with local authorities and workers, major investments are planned in retraining workers for the renewable energy sector, the development of the bioeconomy and the redevelopment of the sites, creating new activities and securing the coal phase-out.

The private sector also has an important role to play. Projections foresee shifts in the skills that will be needed to support electrification, digitalisation and the emergence of new energy sectors. The Just Transition strategy of the Italian power company ENEL⁶⁰ is a successful example of accompanying workers through the transition; it anticipates the closure of the whole coal power plant fleet and its remaining coal mine in Tuscany by 2027, as well as the decommissioning of some oil and gas plants. The company has set up dialogues early on with trade unions and local authorities on the future of the 65,000 workers concerned. Workers have been retrained for the renewable energy sector, mainly solar, and have been offered voluntary relocation or early retirement. It is a different story with some other coal companies, notably the Czech Energetický a průmyslový holding (EPH) group, which buys up well-worn coal power plants and mines in Europe at very low cost and runs them without anticipating the structural changes for the workers. This leaves trade unions with no visibility on the future of the workforce⁶¹. The role of public authorities in steering a just transition plan is therefore important to ensure a common framework for all sites.

Strategic Perspectives recommends the following for national implementation:

- I. **Use the Just Transition platform as a standard method to bring together trade unions, companies, local and national authorities in order to anticipate closures and provide solutions for affected regions. The Spanish and Greek examples give a good picture of a comprehensive plan combining investment, retraining, social dialogue and regional restructuring.**
- II. **Support company retraining so as not to lose the skills of the fossil fuel workers but to retrain them so they can work on renewables.**

Maximising the net-zero transition's benefits for employment

Today, 2.6 million people work in the highly energy intensive industry sector⁶⁵. The green and digital transformation of traditional industries, such as steel or car manufacturing, require a whole new set of skills. New manufacturing processes or higher use of digital equipment can already be anticipated and, as a result, companies can launch retraining now to ensure they have a qualified workforce. **If the transition is managed well, more jobs can be maintained in these sectors than in a business-as-usual scenario** (meaning with a limited transition pathway).

However, not all regions will transform in the same way. There are regions⁶⁶ that necessitate special governmental attention as they are facing multiple transitions and industrial declines simultaneously and are, therefore, deserving of a more comprehensive plan. **Figure 8**.

For example, this is the case for the Saar region in Germany, Asturia in Spain, Silesia in Poland or Les Hauts-de-France in France. These regions face declining coal mining and a change in steel production and car manufacturing. Net-zero technology companies do not automatically set up factories in such places to offer new green jobs, instead preferring regions that are well connected to the EU single market, highly innovative and able to mobilise financial capacities to reskill workers. **Encouraging companies to locate net-zero technology manufacturing in these regions is a wise political choice**. Governments can contribute their share by providing additional investment in infrastructure and worker training to make the locations appealing. The discussion on

the Green Deal Industrial Plan and the forthcoming European Sovereignty Fund could be an opportunity to identify priority regions where **net-zero technology manufacturing could receive additional EU financial support**. This would allow a strong role for these regions with new economic activity, reskilling of the local workforce and relocation of parts of the industrial value chains of the net-zero economy. The US can be taken as a good example of this idea. Since the adoption of the Inflation Reduction Act, at least 100,000 new green jobs⁶⁷ have been created in the old declining industrial centre, the so-called 'Rust Belt', as well as the South, which are traditionally more Republican-orientated States. It shows that a well-managed **reindustrialisation has the potential to ensure a fair distribution of green jobs** and to increase support for the transition.

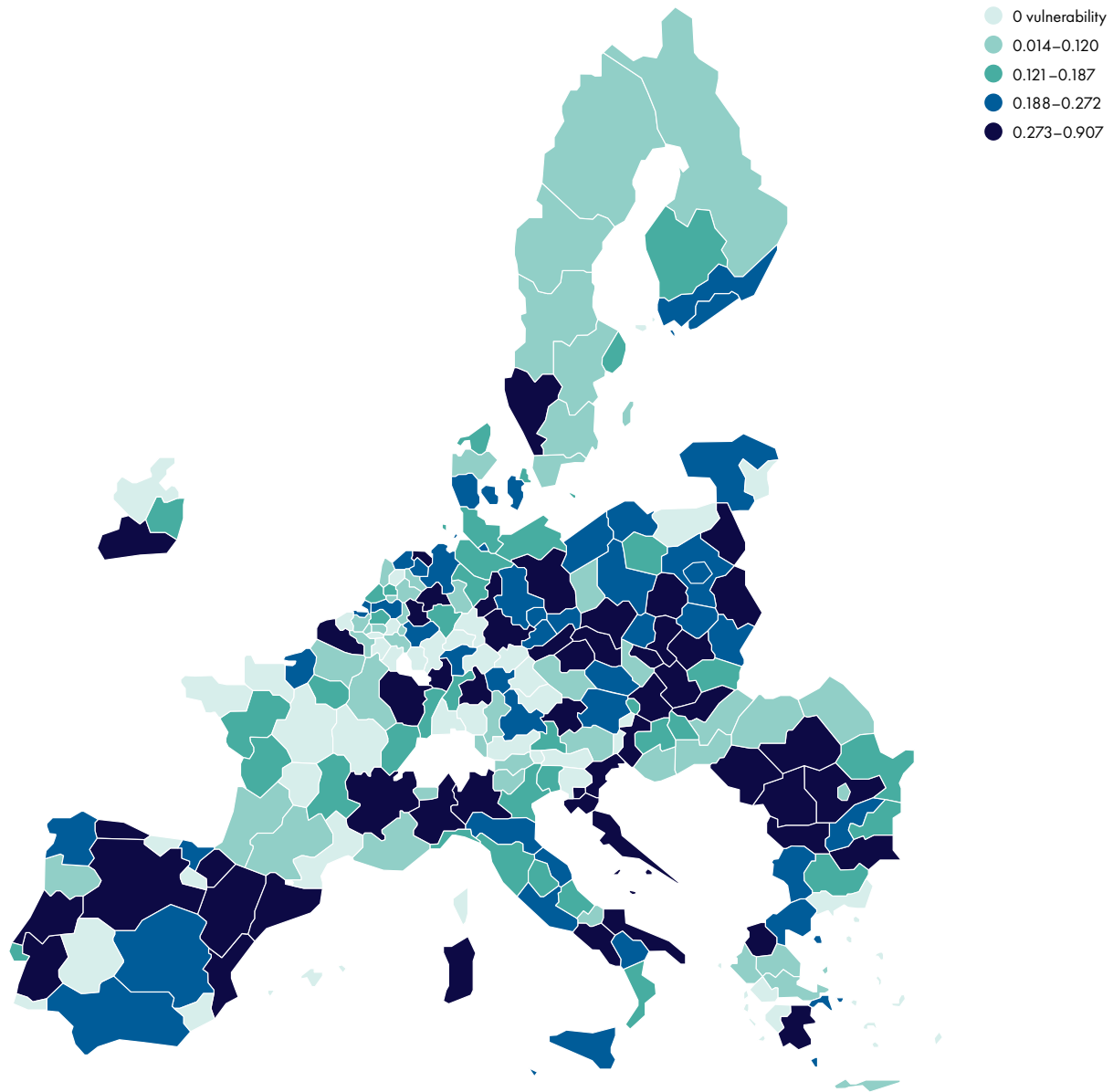
Strategic Perspectives recommends the following for national implementation and the upcoming EU debate:

- I. **Map target regions for the location of strategic net-zero technology manufacturing linked to the European Green Deal Industrial Plan. This can be an opportunity to re-industrialise affected regions through the transformation of the economy. Additional public funding could be offered through the future European Sovereignty Fund, to reskill the workforce and support the establishment of factories in these areas.**
- II. **Develop green skills academies to support the transformation of the workforce at the local level. These could receive support from the Just Transition Fund and carbon market revenues.**

Figure 8.

Map of regions likely to be affected by a transition risk as they concentrate vulnerability factors

Declining industry, limited connections, high unemployment, etc



From: 'Mapping regional vulnerability in Europe's energy transition: development and application of an indicator to assess declining employment in four carbon-intensive industries' by W. McDowall et al, 2023, *Climatic Change*, 176(7), <https://doi.org/10.1007/s10584-022-03478-w>, Open Access

Effective implementation maximises the benefits

Swift and thorough implementation of the laws is the only guarantee to decrease the EU's dependence on Russian and other fossil fuel imports, while growing a domestic zero-emission economy. Europeans are undergoing a profound economic transformation that affects all sectors and households alike. To secure the speed and scale of the much-needed transformation, it is essential to unlock investments across Europe. Solely allowing the countries with adequate fiscal space to move ahead would seriously undermine the single market and European cohesion. Additional investments at the scale of €351 billion are needed to meet the 2030 targets.

European solidarity and investment are at the core of success

The multiple crises facing Europe can only be solved by a joint effort and solidarity; the COVID-19 pandemic ended with the first joint EU borrowing facility, creating a recovery plan worth €750 billion, including €277 billion for the green transition. Similarly, a common response to the energy crisis encouraged EU countries to save energy, fill gas storage and undertake joint purchasing, in order to prevent shortages. The European electricity market allowed the sufficient supply of power from Warsaw to Paris, despite insufficient production in some parts of Europe. A rapid solution was also found to connect Ukraine to the European power grid. **This solidarity is a way to preserve the single market and ensure a collective resilience to face crises.** Everything else is not cost-effective; the current competitive rush of building new LNG terminals in France, Spain, Italy, Greece, Germany and Poland, often with the excuse to become the new gas hub of Europe, is leading to an overcapacity of gas infrastructures⁶⁸.

The European Commission's involvement in managing joint funds, overseeing investment decisions through state aid and pointing out finance gaps, is essential to ensure that all EU countries can manage a cost-effective transformation to both meet climate goals and have equal opportunities. While the EU Budget and the EU's recovery fund are the

biggest financial instruments, the EU has also set up targeted financial tools to support EU countries in their transition. The Just Transition Fund supports the conversion of regions and workers in carbon-intensive industries and the Social Climate Fund, to help low and middle-income households access climate-friendly solutions. With €17.5 billion and €86.7 billion respectively for seven years, they represent the emergence of a **new European climate solidarity**.

The analysis estimates that the **additional investment needed by 2030, compared to a business-as-usual scenario, is €351 billion, which is equivalent to 10% of the total investment made in the 27 EU countries**. This includes demand-side investments in the energy system, such as construction of new power plants and investment in both building insulation and in expanding existing production capacities to meet higher demands for manufactured materials and infrastructure building activities. However, consumer expenditure on EVs or efficiency measures are not covered by this figure. In addition to NextGenerationEU, revenue from the European carbon market (ETS) can provide additional investment. According to the European Environmental Agency⁶⁹, the 27 EU countries received €14.4 billion in 2020 and €25 billion in 2021. With the CO₂ price likely rising in the European carbon market, the amount of revenue will grow in the next few years, all of which, according to the new law, shall be directed towards the transition.

The European Commission's recent plan to facilitate the use of state aid in sectors can also help address the gap as there is an urgent need to increase investment, in order to reduce our dependence on Russian fossil fuels. However, the plan risks undermining EU cohesion, given not all EU countries have the same national fiscal capacity to invest. For now, Germany and France are the main beneficiaries of the new state aid rules; 53% of approved state aid was reported by Germany, while France accounts for around 24% and Italy for over 7%⁷⁰. **Not addressing this concern in the implementation phase risks leading to a two-speed transition in Europe**. The revision of the EU Budget in 2023 is an opportunity to plan long-term investments in the net-zero transformation of the European economy and ensure cohesion between EU Countries. The **forthcoming European Sovereignty Fund** can address these concerns. There is a clear need to also improve the

speed and complexity of funding approvals, as voiced by many European companies in response to the Inflation Reduction Act (IRA). If proven effective, the new fund could form the basis for a **new climate financing architecture** as part of the next EU budget.

The EU could be in a position to scale-up investments in all parts of the transition value-chain, from local projects to cross-border projects. Unlocking simple, direct and quick investments for relevant, green Projects of Common European Interest, can bring a major boost to the European net-zero transition. They could be extended to cross-border projects such as North Sea, Baltic and Mediterranean offshore wind, cross-border rail or the modernisation of the electricity grid. Increased political attention can also be given to local authorities and EU countries if they go for greener technologies (e.g EVs, green steel). Public procurement accounts for 14% of the European GDP and can be an essential driver for transformation. According to I4CE⁷¹, EU financial tools, such as NextGenerationEU, could cover the extra cost of green procurement in some regions and Member States.

Strategic Perspectives recommends the following for national implementation and the upcoming EU debate:

- I. Assess the finance gap and explore a new EU climate investment architecture as part of the debate on the European Sovereignty Fund and midterm review of the EU budget. The European Sovereignty Fund could be the pilot for this architecture by providing quick, simple and direct support to European Projects of Common Interest and help EU Countries in accelerating their transition⁷².**
- II. Introduce green public procurement rules and funding, to cover the extra cost of green technologies as a way to secure its faster deployment and demand.**

Building a European industrial base

The European Green Deal will make Europe an important market for net-zero strategic technologies⁷³. The International Energy Agency (IEA)⁷⁴ estimates its size at around \$124 billion per year by 2030 for Europe and \$650 billion for the global market. This is a huge opportunity for EU companies if they manage to **scale up manufacturing capacities rapidly to turn the vision into reality**.

According to the IEA,⁷⁵ China dominates 60% of mass production of key net-zero strategic technologies, as well as controlling the supply chain for some of the key materials for the transition, especially rare earth elements. 25% of EVs and batteries in Europe come from China, as do more than 90% of solar panels. Europe still has a strong share of wind power manufacturing and the heat pump industry, representing

85% and 73% of domestic demand. However, scarcity in the value chain and inflation have weakened the wind industry in Europe, putting the sector at risk and limiting its expansion in reaching higher renewable targets. Rising demand for heat pumps in Europe has led to increased imports from China in recent years. **The EU is a net-importer of strategic net-zero technologies. There is a risk this trend will continue; the analysis shows that Europe's imports in net-zero technology sectors will increase by 1% by 2030** as the energy transition accelerates. This high dependence on China exposes the EU to major supply risks, bottlenecks or even disruptions in strategic technologies.

President von der Leyen's Green Deal Industrial Plan⁷⁶, translated into the Critical Raw Material Act and the Net Zero Industry Act, is a positive response to this challenge. The Commission has set a 40% target for domestic production of strategic net-zero technologies. 45% of solar, 60% of heat pumps, 85% of wind power, 90% of batteries and 100% electrolyzers⁷⁷ used for the transition could be built in Europe, according to indicative targets. This plan is a solid basis for a net-zero



EV charging in Amsterdam, The Netherlands

transition made in Europe, which will help secure climate goals, reduce its strategic dependency and capture an important part of the high economic potential of the transition. It facilitates permitting for the installation of new manufacturing capacities.

However, the **Green Deal Industrial Plan implies rapidly deployable, massive and long-term investments to grow production capacities**. This aspect is missing from the proposal. Today's EU investment is mainly focused on research and development (R&D) and downstream deployment of net-zero technologies. Only €8 billion would be available from the EU budget for the installation of net-zero technology factories, where Europe lags behind the US and China investment plans⁷⁸. The US's IRA, for instance, supports new production capacities through both tax credits and direct support. It will be essential to design new financial mechanisms to fill the gap and bring fresh money to the net-zero strategic industry. In the short term, a few options could be explored to scale up the EU green industrial base, for example, the use of carbon market revenues by EU countries or the quick deployment of the Innovation Fund to support new manufacturing capacities. According to the European Commission⁷⁹, net-zero strategic technology manufacturing will require a minimum additional €92 billion in investment by 2030, with public investment accounting for at least 17–20%.

If all conditions are put in place, **Europe will be well-positioned to compete with the growing Chinese wind and heat pump industries**. It will be key to grow offshore wind and heat pump manufacturing and to consolidate the onshore wind sector, which faces important economic difficulties. **Europe can also quickly regain market share in the battery value chain⁸⁰**. According to studies⁸¹, the European industry could even produce 100% of li-ion batteries by 2027 while improving its environmental standards. Redeveloping a European solar

sector might be more challenging, although it is a major opportunity given the growth of solar installations. It will require significant investments and a business model based on higher innovation, as the workforce cost negatively impacts the competitiveness of solar panel manufacturing in Europe. Finally, Europe is well placed to lead the development of electrolysers, one of the key strategic technologies of the next decade for decarbonising heavy industry. In that regard, European manufacturers, that represent more than 20% of the global market today, will be able to set the standards globally.

Strategic Perspectives recommends the following for national implementation and the upcoming EU debate:

- I. Accelerate permitting to reach sectoral production targets for the strategic net-zero technologies. This will send a strong signal to market players⁸².**
- II. Quickly scale up funding for manufacturing in order to be able to compete with large subsidy programmes in the US and China.**
- III. Using European carbon market revenue or the Innovation Fund for targeting manufacturing capacities, can be a quick response to the financing gap. In the medium term, the review of the EU Budget and forthcoming European Sovereignty Fund represent an opportunity to bring fresh and long-term planned investments to the table.**

New economic partnerships

Rapidly scaling up the manufacturing of strategic net-zero technologies in Europe is an essential approach to reducing the dependence on China or any other single supplier. It could go hand-in-hand with the **development of new economic partnerships to foster a global decarbonisation dynamic**. The Critical Raw Material Act proposal and its accompanying documents clearly highlight the need to diversify supply chains. Developing new economic partnerships with third countries is, therefore, becoming a key pillar of implementation for national governments and businesses alike. They can reduce supply risks by having a broad range of partners that provide critical raw materials or net-zero technologies, ideally provided with high human rights, environmental and trade standards.

For governments, this provides an opportunity to shape a new approach to economic cooperation with non-European countries that is mutually beneficial. For businesses, they have the confidence that their production cycles won't be disrupted.

Future trade partners will benefit from the EU's policy knowledge, capacity building and lessons learned in regulating Europe's decarbonisation by involving citizens and business alike. If done well, the cooperation can support growing value chains and net-zero industries in partner countries, as well as providing them with the confidence to choose a decarbonised development path. It is vital, however, that European actors don't only limit their interests to exports. Such **partnerships are more accepted and successful if they respect the needs of the partner country**, involve local communities and create jobs there. At the scale and speed required both to meet the EU's climate targets and decarbonise other economies, such cooperation might increasingly involve technology and knowledge transfer. The Russian war in Ukraine has shown that such partnerships can create resilience against supply and price shocks.

If successful pilot cooperation projects are designed over the next year, new economic partnerships on critical raw materials and net-zero technologies can turn into a strategic priority for the next European Commission as the demand will grow even more over the next decade.

Strategic Perspectives recommends the following for national implementation:

- I. Identify suitable and interested countries to form new economic partnerships. It is vital to involve local communities, civil society and business in applying high human rights, environmental and trade standards.
- II. Establish partnerships that benefit both sides: EU countries benefit from more resilient supply chains, while their partner countries will be supported in growing value chains and net-zero industries.





Conclusion

The European Green Deal and effective climate action grew stronger in response to the COVID pandemic, Russian war in Ukraine and evolving geopolitical tensions. Europe is accelerating the decarbonisation of its economy as it is the smart economic and security conscious choice.

Thorough implementation is now the main responsibility of national governments. Given the limited fiscal room for manoeuvre in many countries, financial resources should be clearly targeted at projects that significantly accelerate the transition. The analysis shows that a new European financial architecture, with improved funding structures to enable the decarbonisation of all European economies, will be needed to ensure EU cohesion while accelerating the net-zero transition. The upcoming debate on the European Sovereignty Fund has potential to pilot key components of the new architecture.

Ensuring the affordability of climate-friendly solutions can better spread the benefits of the transition across society. Governments can implement a variety of measures, including through the Social Climate Fund, to ensure that low and middle-income households are the first to reap all the benefits of the net-zero transition. Such measures can enhance social equity if public support also encompasses technical and administrative support.

Predictability of policies and well-managed just transitions, especially in regions where many transitions coincide, are key to building consensus around the changes needed. Building strategic net-zero technology manufacturing in regions most affected is a major opportunity to engage these workers and territories in favour of decarbonising the economy.

The findings of this report show that Europe is committed to turn its Green Deal and international climate pledges into reality.

ANNEXE

Policy indicators included in the Modelling

Target that will be modelled

Emission reduction

(I) EU-wide net GHG emission reductions of at least 55% by 2030 compared to 1990 levels (including carbon sinks)

(II) At least 40% of emissions reduction for ESR sectors, compared to 2005 levels (Effort Sharing Regulation targets for road transport, agriculture, buildings, small industries and waste).

Policies that support overarching targets (some modelled directly, some modelled indirectly using 'proxy' policies with the same effect)

1. ETS reform to achieve 62% emissions reductions in ETS sectors compared to 2005:

- Linear Reduction Factor (LRF) of 4.3% (in the period 2024–2027) and 4.4% (in 2028–2030).
- Rebasing of the cap of 90 million allowances in 2024 and 27 million in 2026.
- Phase out of free allowances for energy-intensive industries: 2026: 2.5%, 2027: 5%, 2028: 10%, 2029: 22.5%, 2030: 48.5%, 2031: 55%, 2032: 62.5%, 2033: 80%, 2034: 100% (full auctioning).
- 100% of intra-EU shipping emissions + 50% of extra-EU shipping emissions will be covered as of 2024. Auctioning of allowances gets scaled up over time: 40 % in 2024, 70 % in 2025, 100 % in 2026.
- Auctioning of allowances gets scaled up over time: 25% in 2024, 50% in 2025 and 100% from 2026.

2. ETS extension to roads and buildings (ETS2) to achieve 43% emissions reductions by 2030, compared to 2005:

- Starting in 2027 or 2028 depending on energy price levels.
- Scope extended to all fossil fuel combustion, including also process heating in small industries, as well as private yachts and jets.
- Price stability mechanism to ensure that the ETS2 price does not exceed 45 euros/tCO₂ at least until 2030.

3. New sales of ICE cars/vans phased-out by 2035 :

Emission reductions of 15% in 2025, 55% (cars) and 50% (vans) in 2030 and 100% in 2035.

4. Sustainable Aviation Fuels (SAF): Minimum 63% share by 2050 at aircraft suppliers at EU airports.

5. Reduce the GHG intensity of the energy used on-board by ships by up to 75% by 2050.

Target that will be modelled

Fuel savings

Natural gas savings of 35 bcm by 2030 (RePowerEU)

Target that will be modelled

Renewable Energy

EU renewable energy target for 2030 of 42,5%

Policies that support overarching targets (some modelled directly, some modelled indirectly using 'proxy' policies with the same effect)

Sub-targets included in the RED revision:

1. Indicative target for renewable energy in buildings of 49% in 2030.
2. Heating and cooling target: increase the share of renewable energy by at least 0.8 percentage points as an annual average calculated for the period 2021 to 2025 and by at least 1.1 percentage points as an annual average calculated for the period 2026 to 2030, starting from the share of renewable energy in the heating and cooling sector in 2020.
3. Indicative renewable target in industry: average minimum annual increase of at least 1.6 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030.
4. Indicative renewable target for district heating and cooling: 2.2 percentage points as an annual average calculated for the period 2021 to 2030, starting from the share of energy from renewable sources and from waste heat and cold in district heating and cooling in 2020.

Target that will be modelled

Energy efficiency

Energy savings of from 11,7% by 2030

Policies that support overarching targets (some modelled directly, some modelled indirectly using 'proxy' policies with the same effect)

1. ETS reform to achieve 62% emissions reductions in ETS sectors compared to 2005:
 - End of public support for gas heating in 2025.
 - Minimum energy performance:
 - I. from 2028 new buildings owned by public bodies would be zero-emission buildings.
 - II. from 2030 all new buildings would be zero-emission buildings.
 - Decrease of the average primary energy use in the whole residential building stock over the period from 2025 to 2050:
 - I. by 2033, the D energy performance class level.
 - II. by 2040, a nationally determined value derived from a gradual decrease of the average primary energy use from 2033 to 2050 in line with the transformation of the residential building stock into a zero-emission building stock.
 - Solar rooftops:
 - I. by 31 December 2026, on all new public and non-residential buildings with useful floor area over 250 m².
 - II. by 31 December 2027, on all existing public and non-residential buildings, undergoing a major or a deep renovation, with useful floor area over 400 m²; and
 - III. by 31 December 2029, on all new residential buildings.
2. EED revision:
 - Overall energy savings target: 11,7% at EU level by 2030 (compared to the projections of the 2020 Reference Scenario).
 - Annual energy savings by EU countries of 1.5% (on average) until 2030.
 - I. The annual energy savings will begin with 1.3% in the period until the end of 2025,
 - II. and will progressively reach 1.9% in the last period up to the end of 2030.
 - EU countries shall ensure that the total final energy consumption of all public administration bodies combined is reduced by at least 1.9% each year.

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4. By climate-friendly solutions, we mean all the technologies and services that households and/or small businesses can use to switch from fossil fuels, including electric vehicles, access to reliable public transport services, heat pumps, solar heating, rooftop photovoltaics, deep building retrofitting services etc.
5. By net-zero technologies, we refer to the list of the strategic net-zero technologies in Annexe of the European Commission's Net Zero Industrial Act proposal, i.e Solar photovoltaic and solar thermal technologies, onshore wind and offshore renewable technologies, battery/storage technologies, heat pumps and geothermal energy technologies, electrolysers and fuel cells, sustainable biogas/biomethane technologies, carbon capture and storage (CCS) technologies, grid technologies.
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