

Europe's path to net zero

Deciphering Europe's ambitions, actions and ability to reach net zero



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Key points

- The European Union has been a global leader on climate action and policies. With its European Green Deal, it has committed to reducing greenhouse gas emissions by at least 55% by 2030 from 1990 levels and reaching carbon neutrality in 2050. These ambitions are shaping policy, legislation and investments decisions
- A successful transition to carbon neutrality requires an overhaul of European energy production and consumption. Some sectors – such as power and transport – look set to make the quickest progress, while some countries' decarbonisation efforts will have to be supported
- The transition cost is massive, estimated at €3.5tn over the coming decade. The private sector is expected to contribute two-thirds of this total, with the European Union facilitating investment through legislation and supporting instruments, including taxonomy and its green bond standards. A revision of carbon pricing – its most powerful tool – is due this summer
- Around €600bn has already been earmarked in public funding from the European Union's long-term budget and Next Generation deal. At least that amount again is envisioned for total public commitment, estimated at 35% of total funding. We present a preliminary assessment of public spending plans to date

European Green Deal 101

The European Union (EU) has long led the world on climate action and policies. In December 2019 it pushed the boundaries again, unveiling the European Green Deal and its ambition to become the first climate-neutral economic bloc in the world by 2050. In this paper we look at the *what*, the *how much* and the *how* of its Green Deal. We conclude with a fact-checking exercise, looking at how the pandemic has changed the envisioned delivery of this policy as countries now 'green' their recovery.

The European Green Deal, presented by European Commission (EC) President Ursula Von der Leyen, is the EU's new growth strategy that strives for a clean, just and competitive economy. It is a multi-faceted package with a wide array of policy measures, subsidies and legislation aimed at curbing greenhouse gas (GHG) emissions while supporting innovation and investment in environmentally friendly technologies. Several landmark decisions have been taken already:

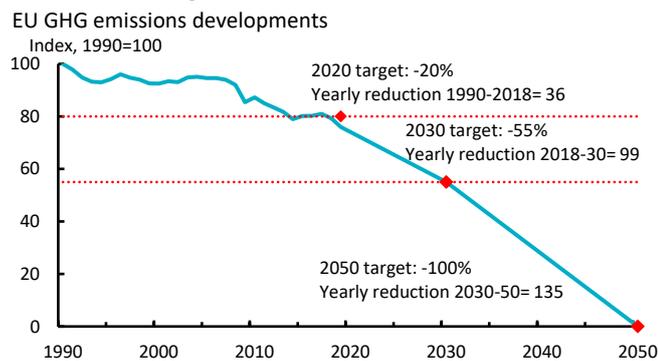
- Setting into law the objective of a climate-neutral EU: The European Climate Law, proposed in March 2020 and agreed in principle on 21 April 2021, makes net zero GHG emissions legally binding for the European Union by 2050
- Funding a 'green recovery': At least 30% of the EU's €1.1tn 2021-2027 budget and 37% of its €750bn recovery fund for 2021-2026 will be allocated to climate objectives – a total of at least €600bn (around 4.3% of GDP)
- EU Taxonomy Regulation: Adopted in June 2020, this establishes an EU-wide classification system to provide firms and investors with a common framework for identifying green activities. This will enable a scaling-up of investment

- Targeting a faster GHG footprint reduction: In December 2020, the EU raised its targeted GHG reduction to at least 55% of 1990 levels by 2030, from 40%

More is coming: In July 2021 the EC will present its 'Fit for 55' package. This will include amendments to several directives¹ to incorporate the more ambitious 2030 target. But more importantly, it will present a revision of the EU Emissions Trading System² (ETS) and propose a Carbon Border Adjustment Mechanism to combat carbon leakage due to international trade. We think the carbon price is crucial for the European Green Deal to work and we will be dedicating an upcoming note to this socially, geopolitically and technically challenging topic.

The EU emission targets are extremely ambitious. The EU will need to reduce net GHG emissions much faster than in the past to meet the 2030 and 2050 goals (Exhibit 1). To do so, there is one priority – a fundamental overhaul of the way energy is produced and consumed in the EU.

Exhibit 1: A long and ambitious road ahead



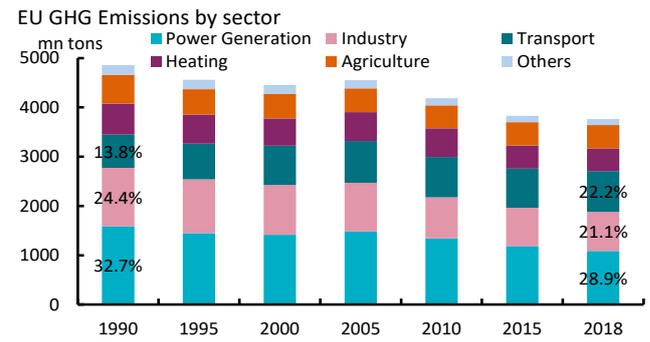
Source: EEA and AXA IM Research, May 2021. Note: GHG emissions include international aviation, excluding land use, land use change and forestry. Yearly reduction in megatons of CO₂ equivalents.

Reshaping the energy system

The production and use of energy accounts for more than 75% of the EU'S GHG emissions. In 2019, the energy mix was still dominated by fossil fuels (at around 70% of gross available energy), with oil the biggest contributor, with 36%, followed by natural gas, at 22%. Encouragingly, the share of renewable energy has almost doubled since 2008, at 15.3%, overtaking nuclear at 13%.

In terms of sectors, power, industry, transport, buildings and agriculture account for the bulk of the EU'S GHG emissions, albeit with uneven progress since 1990 (Exhibit 2). Power and industry have seen the strongest reductions in emissions, while transport emissions have risen substantially, as increases in travel demand have more than offset efficiency gains.

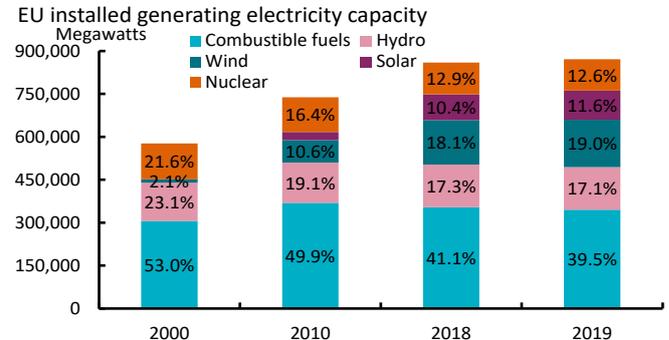
Exhibit 2: Five sectors dominate EU GHG emissions



Source: European Environment Agency (EEA) and AXA IM Research, May 2021.

The example of the power sector, which is leading the way in the energy transition, is interesting as it shows that the combination of sector-specific policies and the EU ETS is working. Indeed, energy-specific legislation under the Renewables Energy Directives has supported substantial investments in renewable electricity, while at the same time the ETS (particularly after the adoption of the Market Stability Reserve in 2015) has incentivised fuel switching from coal to gas and renewables. Fossil fuels' share of electricity generating capacity fell from 53% in 2000 to around 40% in 2019, while the share of renewables reached 48% in 2019 (Exhibit 3). In terms of production, around one-third now comes from renewable energy sources.

Exhibit 3: Ongoing decarbonisation of EU power system



Source: Eurostat and AXA IM Research, May 2021.

Admittedly, further action will be needed to meet the 2030 targets³ of at least 32% of renewables in final energy consumption (compared to 19.7% in 2019), which translates into a renewable share of 50% in electricity production. But the technologies are there, with wind and solar already cost-competitive, so we expect the power sector to be the first to reach carbon neutrality by the mid-2040s.

Progress in other sectors is likely to occur at different speeds, depending on technological availability and implementation. The transport sector should benefit from policies encouraging smart and clean mobility. But scaling up supply chains and infrastructure for electric vehicles is likely to take time, with no

¹ In particular, the Renewable Energy and Energy Efficiency Directives

² The ETS is the EU'S main carbon pricing tool, a cap-and-trade system that covers emissions from the power generation sector, industry and intra-

European flights, amounting to around 40% of total EU emissions. Revision will potentially extend the scheme to buildings and road transport sectors.

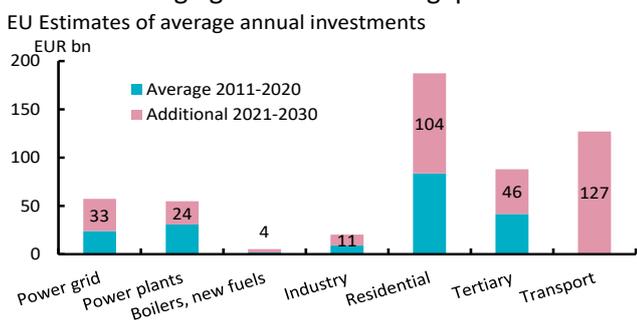
³ Likely to be revised up in July 2021.

such technological solution for aviation and shipping currently available. Likewise, in the building sector technologies are available, and improving building energy performance features relatively high on the green agenda of national governments – but once again, renovating building stocks takes time. In the industry sector, slower expected progress is due rather to the lack of mature technology – although the EU is betting on green hydrogen, seen as the last mile to net zero for hard-to-decarbonise sectors. And finally, in the agriculture sector, new farming techniques could help, but as more than half of agriculture emissions come from raising animals for food, significant progress would need either meat-innovation or a material change in consumers’ diets.

What are the costs of the transition?

The EC estimates that to reach the 55% GHG reduction target by 2030, annual investment in the energy system will need to be around €350bn higher in the coming decade (2021-2030) than in the 2011-2020 period. This equates to an annual additional increase of 1.7% of GDP – massive when you think that EU public investment and gross fixed capital formation (essentially, net investment) averaged 3.1% and 21.5% of GDP respectively, between 2000-2019 (Exhibit 4).

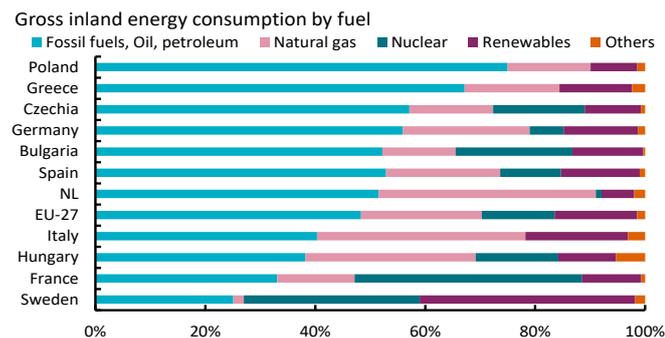
Exhibit 4: A large green investment gap



Source: EC and AXA IM Research, May 2021. Note: Transport only shows additional investment. Historical average for 2011-2020 was €492.2bn.

Moreover, transition costs are not equally split across European countries. Central and Eastern European countries started the decarbonisation process later than Western European nations – they still heavily rely on fossil fuels, so investment needs are higher for them to catch up (Exhibit 5).

Exhibit 5: Some will need more than others



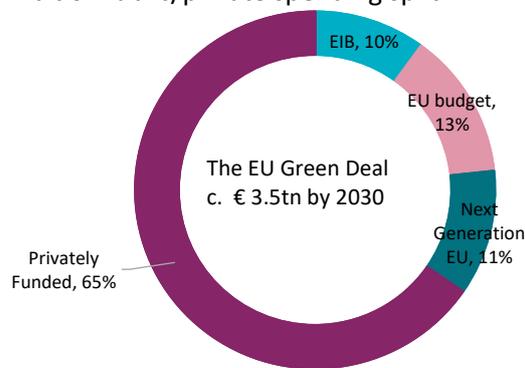
Source: Eurostat and AXA IM Research, May 2021

The EC is well aware of the distributional and reallocation effects of its climate policies. The Just Transition Mechanism, supporting the most carbon-intensive regions, has been designed to ensure social inclusiveness and political acceptability of the decarbonisation process. The €150bn in allocated funds may be too small, but it sends an important signal of solidarity.

Closing the investment gap

The big question is how to plug this massive €3.5tn green investment gap by 2030. We estimate that around 35% will come from the public sector, while the rest will have to be shouldered by the private sector (Exhibit 6). Below, we review the tools the EC has available to steer money towards this green transition.

Exhibit 6: Public/private spending split



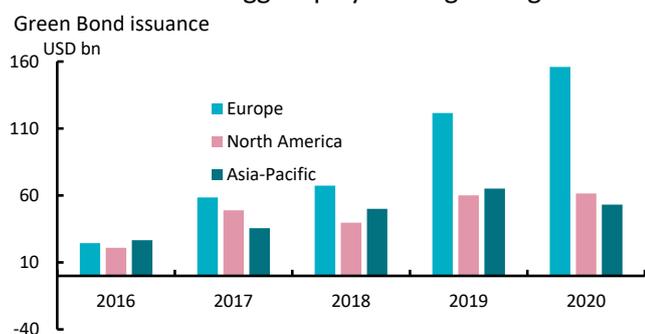
Source: AXA IM Research, May 2021.

- Higher climate spending targets.** Green investments are ‘public goods’ – benefitting all without exclusion – and as such public funding has an important role to play. To boost public funds, the EC has been greening the EU budget and recovery fund. At least 30% of the €1.07tn agreed under the EU long-term budget for 2021–2027 and at least 37% of the €750bn Next Generation EU (NGEU) funding should be spent on climate-related policies and programmes. This means that between 2021 and 2027 around €600bn of fresh EU resources will be made available for the green transition, equal to about 25% of the investments needs. True, the NGEU has a loan component (€360bn) that may not be fully requested by some countries, but that should be offset by an increase in the domestic budget share of green spending. Actually, our estimate may be on the conservative side, especially if the EU seizes the opportunity to revamp the fiscal framework (expected in the first half of 2022) by introducing some form of ‘green golden rule’. This could exclude green public investment – aligned with the EU Taxonomy – from deficit and debt accounting, encouraging governments to finance the transition.
- Crowding in private investments via the European Investment bank (EIB).** The EIB is a critical player in mobilising additional funding for the sustainable transition. Its new climate strategy, adopted in 2019, envisages dedicating at least 50% of its lending to climate projects by

2025 (from 37% in 2020). Given its annual lending volume targets of around €60bn and its historical leverage multiplier of about 3.4 times, triggering €1tn of private investments by 2030 appears within reach. In addition, the type of investments financed matters, and the IEA⁴ has flagged some positive progress. The ‘enabling’ role of the EIB has increased over the past few years via a greater involvement in earlier-stage and riskier innovative projects. Plans to scale up its advisory services are also welcome. Helping private and public sectors with its technical and financial expertise could be another powerful tool to support the deployment of green investments.

3. **Building a conducive regulatory framework: The role of the EU taxonomy.** The EU taxonomy is an important step towards delivering the EU’s Green Deal ambitions. It defines what constitutes green activity⁵. Interconnected with the Corporate Sustainability Reporting Directive (guiding companies on disclosing their actions in light of the taxonomy) and the Sustainable Finance Disclosure Regulation (clarifying the categories of sustainable investment products market participants offer to savers), it provides a comprehensive framework to channel private financial flows into green investments. The EU has been a first mover on this issue and hopes it could set up a global benchmark. But work is still ongoing— technical criteria have so far been agreed only for the first two environmental objectives (climate mitigation and adaptation), and delicate decisions have been postponed, such as the inclusion of natural gas and nuclear.

Exhibit 7: The EU: Biggest player in a growing market



Source: Climate Bonds Initiative and AXA IM Research, May 2021

4. **Creating an EU Green Bond Standard.** Europe has also been leading in green bond issuance (Exhibit 7), and more is coming, thanks to sovereign enthusiasm and EU funding issuance – 30% of the NGEU funds are expected to be raised via green bonds, to a maximum of €250bn. The EC expects to make a legal proposal for the EU Green Bond Standard by June 2021, but implementation will likely

take much longer. This is mainly because it aims to ensure greater transparency around what constitutes green investment by linking it with the EU Taxonomy – which is itself still incomplete. Compared to the Green Bond Principles from the International Capital Market Association, the EU Green Bond Standard would require use of proceeds to be fully aligned with the EU Taxonomy, the issuer to produce a formal green bond framework and more granular reporting. We think there might be a trade-off between the stringency of the EU Taxonomy and the growth objective of the EU green bond market.

5. **Strengthening ‘market pull’ strategy: Putting carbon price at the core.** The EU emissions trading system, long seen as the flagship EU climate policy, is the largest cap-and-trade system in the world. It was founded in 2005 and covers emissions from industry, energy production and intra-European air traffic, i.e. around 40% of EU GHG emissions. Yet, rising emissions from the transport sector – not covered by the ETS – and carbon prices still too low to be consistent with EU targets (despite reaching new high recently) are pushing the EC to present a revision of the ETS system by mid-July. Reforming the ETS is clearly not trivial. It involves technical and political challenges, such as how to reduce the number of free allowances without weighing too much on industry (competitive concerns), how to deal with transport and heating sectors (create a temporary and parallel ETS?) and how to use ETS revenues (designing redistribution measures). It is also linked with another issue: carbon leakage. As conditions are becoming more stringent in the EU, the risk is high that emission-intensive companies just relocate to places with significantly lower (or no) carbon prices. The EC wants to avoid this issue by proposing a Carbon Border Mechanism Adjustment (also by mid-July). But taxing the emissions embedded in imported products involves technical, legal and geopolitical challenges.

So far, so green?

Of all the tools to steer investments we have been discussing, we can already gauge progress on one - greening the budget via a higher climate spending target. Here we will focus on the allocation of the NGEU funds, and particularly on the Recovery and Resilience Facility⁶. As a reminder, NGEU is meant to total €750bn (€390bn in grants and €360bn in loans). Of that, €672.5bn is allocated to the Recovery and Resilience Facility (RRF) and countries had to submit Recovery and Resilience plans (RRP) to access funds by the end of April. These plans had to include reforms, but also meet certain criteria i.e. at least 37% and 20% should be spent on green and digital

⁴ International Energy Agency, “European Union 2020”, June 2020

⁵ If it contributes to one of these six objectives (climate mitigation and adaptation, sustainable water use, the circular economy, pollution prevention, and the eco system), while doing no significant harm to any other objective. See [EU Taxonomy: a pathway to superior corporate sustainability](#), AXA IM, April 2021.

⁶ For a broader picture, looking at the green component of the recovery measures implemented since the start of the pandemic, we recommend looking at the very comprehensive [OECD Green the Recovery Database](#).

components respectively, with the EC highlighting priorities in terms of investments areas (Exhibit 8).

Exhibit 8: The EC flagship areas of investments

EC list of priorities	
Power up	<ul style="list-style-type: none"> •The frontloading of future-proof clean technologies •Acceleration of the development and use of renewables
Renovate	<ul style="list-style-type: none"> •The improvement of energy efficiency of public and private buildings
Recharge and Refuel	<ul style="list-style-type: none"> •The promotion of future-proof clean technologies to accelerate the use of sustainable, accessible and smart •Charging and refuelling stations •Extension of public transport
Connect	<ul style="list-style-type: none"> •The fast rollout of rapid broadband services to all regions and households, including fiber and 5G networks.
Modernise	<ul style="list-style-type: none"> •The digitalisation of public administration and services, including judicial and healthcare systems
Scale-up	<ul style="list-style-type: none"> •The increase in EU industrial data cloud capacities •The development of the most powerful, cutting edge, and sustainable processors
Reskill and upskill	<ul style="list-style-type: none"> •The adaption of education systems to support digital skills and educational and vocational training for all ages

Source: EC and AXA IM Research, May 2021.

Looking at the RRP for the biggest four countries in the euro area, we stress a few points:

1. Only Italy is expecting to fully utilise EU resources.

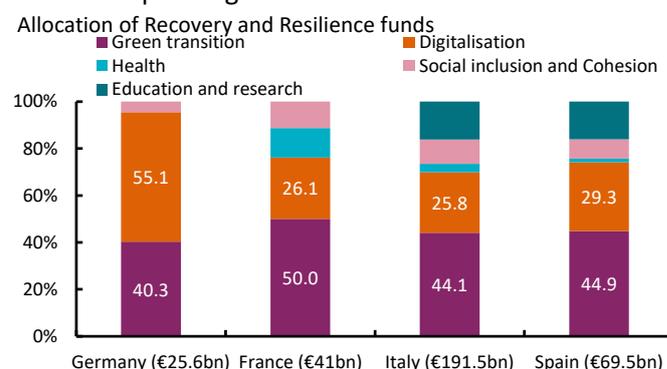
Germany and France will only rely on the grants' component, while Spain is postponing its decisions to use loans to 2022 (€70bn). As such, the Italian plan is much bigger in size (€191bn under the RRF, complemented by €14bn under the REACT-EU recovery initiative and a €31bn national top-up fund) than Spain's (€69.5bn).

2. Spending matches the EC guidelines. In all four countries, spending on the green transition is above 40% on average, while digitalisation gathers at least 25% of expenditures (Exhibit 9), exceeding the required thresholds. In Germany, the share is much higher, incorporating categories – education, health, public administration – which are usually singled out in the other countries.

3. Green spending shows similar priorities but different national strategies. Digging into the details of climate spending, smart mobility and buildings energy efficiency lead in all countries (Exhibit 10), in line with EC priorities and the investment needs we flagged previously. Yet focus differs; for instance, in Germany and Spain, green mobility mainly targets the development of electric cars and related infrastructure, likely leveraging on their car producer status. In France, electric vehicles are also supported, but more than 60% of the €7bn allocated to green infrastructure and mobility will be spent on modernising and developing the rail network. This is also a strong focus in Italy, where

around 50% of the green mobility spending is dedicated to the development of high-speed trains. Beyond smart mobility and building renovation, countries' RRP also reveal different areas of investments. In Germany, a substantial share of investment – about 24% – is going to hydrogen, while Spain and Italy also focus on renewable energy developments, climate change adaptation and preservation of environment and biodiversity. Overall, RRP are in line with the EC guidelines and different action plans reflect the diversity of economic structure and challenges across countries. They go in the right direction, but focus will now turn on implementation, the absorption rate of the funds and reforms delivery.

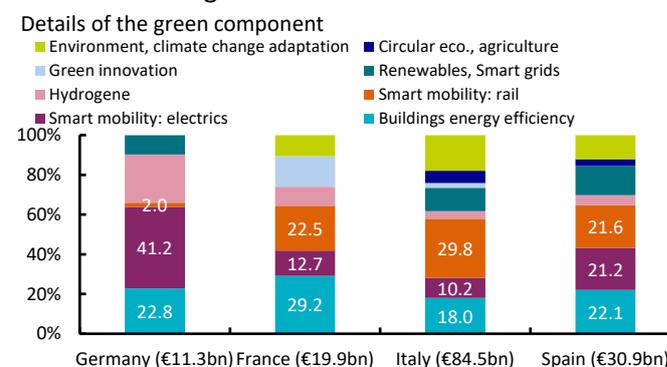
Exhibit 9: Spending the RRF resources



Source: National RRP And AXA IM Research, May 2021.

The European Green Deal is an ambitious and comprehensive roadmap that involves many challenges. These include the energy transformation of all economic sectors, massive investments, and the creation and revision of supporting instruments. The carbon price is a powerful component of this. We will review the revision of the Emission Trading System and the Carbon Border Adjustment Mechanism proposal in our next paper.

Exhibit 10: Green spending: Recharge, Refuel and Renovate leading in all countries



Source: National RRP and AXA IM Research, May 2021.

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