
High-impact green recovery in the EU's 'big five' (emitters): key elements and caveats

Lara Lázaro Touza, Alina Averchenkova & Gonzalo Escribano Francés - March 2022



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1	Assessment <ul style="list-style-type: none">• The EU's top five greenhouse gas emitters have exceeded the requirement of allocating 37% of the NRRPs' funds to the green transition in their NRRPs.• NRRPs can help Member States meet their climate targets while recovering from COVID-19.• However, all plans build on the existing policy frameworks and targets and are not expected to lead to increased ambition, except for Spain, which has brought forward its 2025 NECP targets to 2023 (Gobierno de España, 2021).• Comparison across recovery plans should be exercised with caution as plans vary greatly in size, data is structured in different ways and plans mix funding instruments. Initially, some NRRPs only included grants (eg, Spain), some included grants and loans (eg, Italy), some included funding from national budgets (eg, Germany, Italy and Poland) and some are part of a larger recovery effort (eg, France). Additionally, climate 'tagging' is heterogeneous across NRRPs.
2	Criticisms <ul style="list-style-type: none">• Limited ambition (Germany and Italy).• Lack of all-encompassing and clear performance targets (Germany and France).• Insufficient allocation of funds to strategic areas, low cost-effectiveness, and poor monitoring and evaluation (Italy).• There is a need to complement NRRP funding with regulatory changes (France).• Limited focus on how to achieve objectives (Spain).• Outdated energy strategies to face post-COVID and meet European energy targets (Poland).
3	Implementation <ul style="list-style-type: none">• Plans are thought to be feasible.• Effectiveness will depend on:<ul style="list-style-type: none">- The roll-out of specific policies and initiatives in key sectors.- Robust governance and project selection mechanisms.• Public spending and regulation are the most popular policy instruments, while new carbon pricing initiatives under the NRRP could come at a later stage.
4	Key challenges <ul style="list-style-type: none">• The inclusion of concrete goals that will enable ex-post evaluation.• The integration of NRRPs and broader climate and energy legislation.• Updating legislative frameworks to reflect COVID-19 and Net-Zero targets.• Greater definition of the policy instruments to be used.• Limited administrative capabilities.• Weak governance structures.• The capacity to effectively absorb the influx of NGEU funds ahead of 2026.• The selection of truly transformative projects.• The engagement with sub-national governments and non-state actors.• Preventing social and political backlash by ensuring a Just Transition, and explaining and raising awareness of the reforms envisaged in the NRRPs.• Energy transition goals require long-term investments after NGEU funds are disbursed. Reflecting on long-term investment needs is arguably required.

Executive summary¹

The climate component of National Recovery and Resilience Plans (NRRPs) in Germany, France, Italy, Poland and Spain is compared. A sectoral analysis of high-impact climate-positive investments, contributing 40% or more to climate goals according to national governments, is also presented. This policy paper builds on individual country analyses published by the Elcano Royal Institute throughout 2021 and seeks to both provide a high-level overview of future investment opportunities that will make a significant contribution to decarbonising the EU's largest emitters and to analyse the expected implementation challenges.

The focus on the above Member States is justified as they emit just under 2/3 of GHG emissions in the EU, will receive over 2/3 of the grants from the Recovery and Resilience Facility, just under 3/4 of REACT-EU funds and just under 1/2 of the Just Transition Fund (from the temporary recovery mechanism, Next Generation EU and NGEU). The success in the implementation of Europe's recovery plan and the extent to which NGEU funds help transform the EU's economy could arguably have a bearing on whether this temporary recovery mechanism (or variations of it) could be used in the future again, potentially fostering further European integration (De la Porte & Jensen, 2021).

¹ The authors are indebted to Paz Guzmán, Miguel Muñoz, Federico Steinberg, Enrique Feás, Christoph Kiefer, Nicolas Berghmans, Bartosz Bielszczuk, Matteo Leonardi and Francesca Bellisai for their comments to an early draft of this policy paper in 2021. They would also like to thank the authors of the country analyses and Ines Bouacida for their work in this project and for presenting their results at Elcano's Energy and Climate Working Group. Any errors and omissions are the sole responsibility of the authors.

Introduction

The EU agreed on a recovery plan to help EU countries overcome the economic and social impact of the pandemic while laying the foundations ‘for a modern and more sustainable Europe’. The EU’s Multiannual Financial Framework (MFF) 2021-2027 (ie, the EU budget), coupled with Next Generation EU (NGEU)² –the largest ever stimulus package funded by the EU–, amount to €1.8 trillion and allocate 30% of funds to climate action. The NGEU’s main instrument, the Recovery and Resilience Facility (RRF), allocates 37% of the funds to investments that support climate action. Funding for the NGEU will be raised in capital markets from 2021 to 2028 and will be repaid from 2027 to 2058.³

The centrepiece of the Next Generation EU (€750 billion), the European Recovery and Resilience Facility (RRF), will make €672.5 billion in loans and grants available to support reforms and investments undertaken by Member States. The aim is to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions.

Figures 2, 3 and 4 illustrate the percentage allocation of key recovery funds (grants in the RRF,⁴ REACT-EU and the Just Transition Fund) to each of the countries analysed in this policy paper (France, Germany, Italy, Poland and Spain). For the RRF and REACT-EU,⁵ Spain and Italy are the main beneficiaries, followed by France, as their economies were significantly affected by COVID-19 in the first phase of the pandemic. For the Just Transition Fund, Poland and Germany are the largest recipients of funds due to their higher reliance on fossil fuels (especially coal) and energy-intensive industries, which means they are comparatively more affected by the low carbon transition.⁶ The five Member States analysed will receive over 2/3 of the available grants from the Recovery and Resilience Facility (RRF), just under 3/4 of REACT-EU funds and just under 1/2 of the Just Transition Fund (from the temporary recovery mechanism, Next Generation EU, NGEU).

2 The €750 billion temporary economic recovery instrument designed to help repair the immediate economic and social damage and build a greener, more digital and more resilient society.

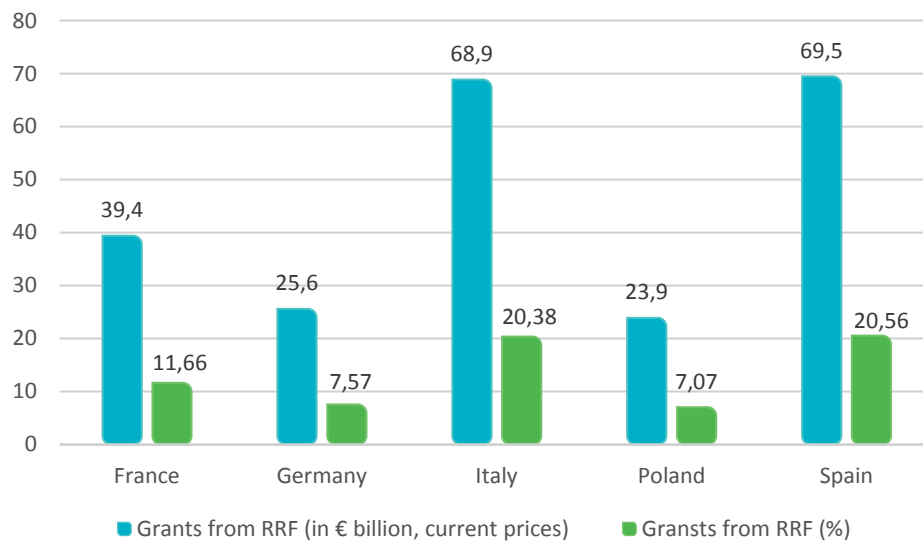
3 The Commission will strive to raise 30% of the funds through the issuance of green bonds.

4 According to the EC’s regulation 2021/241, ‘70% of grants under the RRF are allocated to MS according to the countries’ population, the inverse of the GDP per capita and the relative unemployment rate of each MS’ between 2015 and 2019 (European Council, 2021). The remaining 30% of grants under the RRF is allocated according to population, the inverse of the GDP and the change in real GDP in 2020 and in 2020-21, which will be reviewed in June 2022 (Official Journal of the EU, 2021).

5 For allocating REACT-EU funds, the economic and social impact of the crisis on Member States was considered. Analyses included reductions in GDP, increases in unemployment and the relative wealth of countries.

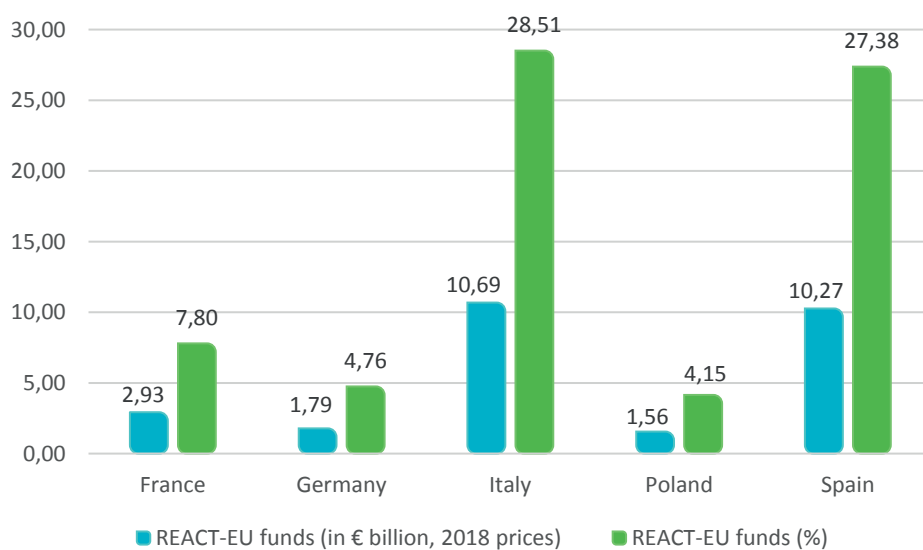
6 Note that according to the EU, the Just Transition Fund (JTF) under the NGEU (worth €10 billion) allocates resources according to: countries’ GHG emissions, production of peat, production of shale oil, and employment in coal and carbon intensive regions. In order to allocate more funds to less wealthy Member States the differences between average EU Gross National Income (GNI) per capita and GNI per capita in the Member State is also considered. Finally, both an upper and a lower limit are established in the allocation of just transition funds. No Member State can receive more than €2 billion and the minimum amount of JTF resources per person is €6. According to the EC this allocation method will enable all Member States to receive meaningful resources for their transition while concentrating around 2/3 of these resources in the Members States that will face greater transition challenges (EC, 2021d).

Figure 2. Allocation of RRF funds (grants) to selected EU countries



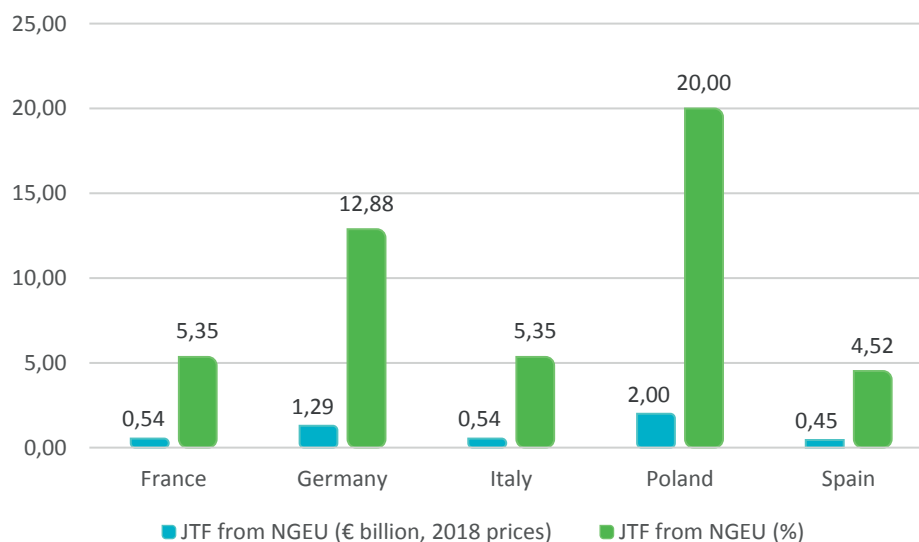
Source: the authors, based on the Official Journal of the EU (2021) and EC (2021a).

Figure 3. Allocation of REACT-EU funds to selected EU countries



Source: the authors, based on EC (2021a).

Figure 4. Allocation of Just Transition funds to selected EU countries



Source: the authors, based on EC (2021a).

To access the funds under the Recovery and Resilience Facility, Member States had to prepare National Recovery and Resilience Plans (NRRPs), setting a coherent package of reforms and investments. These reforms were agreed with the European Commission (EC). Disbursements under the RRF will take place until 2023 and investments should be made by 2026. The EU guidelines for the NRRPs require Member States to explain: (1) the extent to which their plans will contribute to achieving climate neutrality and the 2030 energy and climate targets –included in the National Energy and Climate Plans (and updates thereof); and (2) how they will respect the 37% climate mainstreaming target and the ‘do no significant harm’ principle (EC, 2021b), in line with the European Green Deal (EC, 2021c).⁷

The European Council has given the green light to the first disbursement of funds to 22 Member States⁸ on the basis of their National Recovery and Resilience Plans (NRRPs) (European Council, 2021). The approval of funds comes after the EC provided a positive assessment of these NRRPs, including compliance with the requirement of allocating 37% of investments to climate objectives. The EC’s evaluation of the NRRPs contribution to climate objectives slightly amended (downwards) the climate contribution of some of the investments included in Member States’ NRRPs.

⁷ Note that Next Generation EU also includes €47.5 billion for Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU). It is a new initiative that maintains and extends the crisis response and the crisis repair measures delivered through the Coronavirus Response Investment Initiative and the Coronavirus Response Investment Initiative Plus.

⁸ As of 5 November 2021 the Council has approved the NRRPs of the following countries: Austria, Belgium, Denmark, France, Germany, Greece, Italy, Latvia, Luxembourg, Portugal, Slovakia, Spain, Croatia, Cyprus, Lithuania, Slovenia, the Czech Republic, Ireland, Malta, Estonia, Finland and Romania.

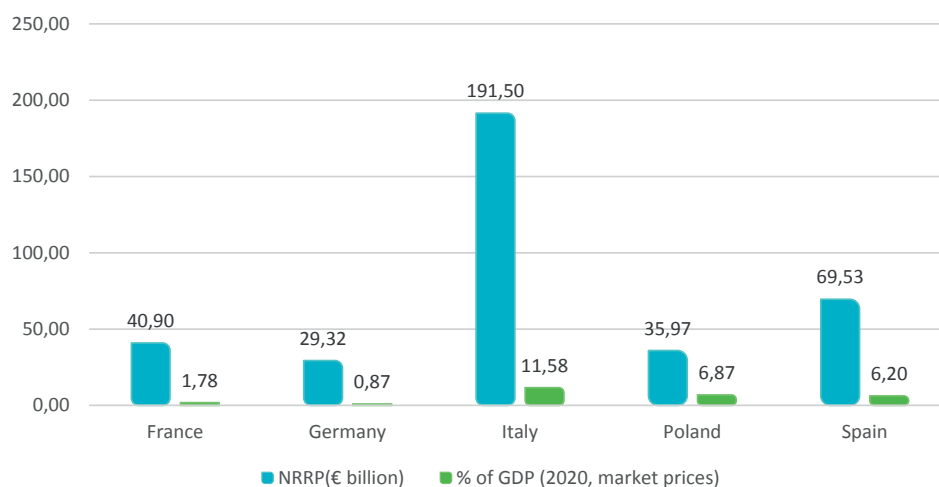
Building on the country analyses undertaken by our colleagues at the Elcano Royal Institute and other think tanks and research institutions across the EU (Berghmans, 2021; Bielszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021), this policy paper seeks to provide a comparison of the high-impact climate component of the National Recovery and Resilience Plans of the EU's 'big five' emitters: Germany, France, Italy, Poland and Spain, which jointly amounted to just under 2/3 of GHG emissions in 2018 (Eurostat, 2020). We classify high-impact climate components of NRRPs as those investments that contribute to climate objectives with a 'climate tag' $\geq 40\%$ according to the national governments of the countries analysed and as reflected in individual country analyses published by the Elcano Royal Institute.

The remainder of this policy paper is structured as follows: section 3 summarises the key elements of selected NRRPs. Section 4 analyses the sectoral focus of the NRRPs' investments with a significant climate impact (climate tag $\geq 40\%$ according to member States' NRRPs). Section 5 discusses policy instruments and just transition elements across selected NRRPs. Governance and implementation are analysed in section 6 and section 7 summarises the main conclusions and provides some preliminary recommendations.

1 Summary of selected NRRPs

The EU's five largest greenhouse gas (GHG) emitters –Germany, France, Italy, Poland and Spain (jointly representing 65,7% of GHG emissions) (Eurostat, 2020)⁹ presented their National Recovery and Resilience Plans (NRRPs) in 2021. The plans vary greatly in size (see Figure 5 below) and, according to Member States, they all exceed the EC's requirement of allocating 37% of the funds to supporting climate objectives.¹⁰ Comparison across recovery plans should be exercised with caution as data is structured in different ways and plans mix funding instruments. Initially, some NRRPs only included grants (eg, Spain), some included grants and loans (eg, Italy), some included funding from national budgets (eg, Germany, Italy and Poland) and some are part of a larger recovery plan (eg, *France relance*). Additionally, climate 'tagging' is heterogeneous across NRRPs and is based on high-level 'components' of the recovery plans rather than on concrete projects.

Figure 5. Selected countries' NRRPs¹¹



Source: country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021).

9 Note the figure covers all greenhouse gas emissions including those of aviation and excluding emissions from Land Use, Land Use Change and Forestry (LULUCF) in 2018.

10 The Commission's evaluation of the Polish NRRP is not available at the time of writing. The EC adopted a positive assessment of the French, German, Italian and Spanish recovery plans. This positive assessment means, among other, that the Members States meet the Recovery and Resilience Facility (RRF) requirement of contributing to climate goals with 37% of more of their investments.

11 Note that Italy's NRRP is significantly larger as it includes not only grants (amounting to €68.9 billion) but also loans (€69.1 billion for existing projects and €53.5 billion for new projects). Note that according to the European Parliament analysis of the German NRRP (Jochheim and Mildebrath, 2021) and to Bundesministerium de Finanzen (2021) –both based on a more updated versions of the German plan compared to the one used in the country analysis by Kiefer (2021) and in which this policy paper based its analysis– the German NRRP amounts to €27,9 billion, €25.6 in EU grants plus Federal funding and does not include a request for loans. For Poland, the NRRP amounts to €35,97, of which €34.8 would come from the RRF (€23.9 billion in grants and €12,1 billion in loans). Poland also plans on funding recovery investments through its national budget. Spain has only requested EU grants from the RRF so far. Throughout the paper, trillion is 10¹², while billion is 10⁹.

Funds with a high climate impact or 'climate tag' (contributing 40% or more to climate objectives) are largely directed towards helping decarbonise the transport, building and energy sectors, coinciding with the EU's flagships 1 (Power Up) on clean technologies and renewables, flagship 2 (Renovate) on improving energy efficiency of public and private buildings, and flagship 3 (Recharge and Refuel) on sustainable transport, charging stations and extending public transport. The transport (including aviation), building (households, commerce, institutions and others) and energy (energy industries) accounted for 25.8%, 14.2% and 24.1% of emissions across the EU-27 in 2019 (Eurostat, 2021).

Countries analysed foresee the use of public spending, regulation, subsidies, tax exemptions and deductions as key policy instruments, while making limited use of new carbon pricing instruments. Said carbon pricing instruments could be expected after recovery to help restore public finances (OECD, 2020). Just transition is considered either directly or indirectly in NRRPs overall (except in the case of Italy), albeit with varying levels of investment.

Some of the key challenges in the implementation of NRRPs include: the capacity to absorb significant amounts of funds by 2026, the governance of funds across multilevel government structures, project selection and project implementation challenges, political disputes over the allocation of funds, etc. Boxes 1 to 5 below present a brief summary of the NRRPs analysed.

Box 4. Germany

- Out of the total investment of €29.3 billion in the German NRRP, 42.7% are allocated to Climate Policy and Energy Transition. Major individual investments are centred around the National Hydrogen Strategy, Franco-German cooperation for a future hydrogen economy and the development of alternative sustainable mobility.
- The plan is more focused on the input side (ie, financial spending) rather than the output side (ie, the specific objectives to be pursued). It can thus be understood as a strategic outline for the medium-term. The measures are well aligned with prior efforts Germany has undertaken in the context of sustainability and energy transition and can thus be regarded as feasible. It seems likely that the level of climate ambition will increase under the new government.
 - The German NRRP presents a strong pro-European commitment for economic recovery and constitutes a re-commitment to existing climate, sustainability and energy targets.
 - While the plan itself has received little public attention in Germany, some critics point to a lack of ambition and the absence of specific or quantifiable targets, asking for a proper enabling framework for the sustainability transition.
 - The central pillars of the German NRRP are renewable (green) hydrogen, climate-friendly mobility and climate-friendly construction and renovation:
 - The German NRRP focuses on the development of a national hydrogen economy and on pursuing worldwide 'hydrogen leadership'. Hydrogen technologies are aimed to be sped-up and brought closer to market stages through various RD&D programmes. Accompanying regulation focuses on establishing national standards and a policy framework with the intention of creating a European framework. One of the largest individual programmes is the Franco-German initiative towards a hydrogen economy.
 - The plan also aims at accelerating sustainable mobility (mainly electric but also hydrogen-based). Expanding infrastructure is a key priority (eg, electrical charging and hydrogen refuelling points), as well as individual vehicle and vehicle fleet renewal programmes and changes in taxation.
- Improvements in the German NRRP could be achieved by:
 - Incorporating quantifiable targets for each component of the NRRP that might also serve for ex-post programme evaluation.
 - Homogenising the existing different sustainability strategies Germany currently pursues in parallel and promoting inter-programme synergies.
 - Such a homogeneous framework can serve as guidance towards Germany's climate neutrality targets and be broken down into different areas of public policy and private socio-economic action.

Source: Kiefer (2021).

Box 5. Poland

- The Polish NRRP amounts to €35.97 billion (Ministerstwo Funduszy i Polityki Regionalnej, 2021), of which more than €21.8 billion (60% of the funding) is allocated to 'Green energy and reducing energy consumption' (€14.31 billion) and 'Green, smart mobility' (€7.51 billion). The plan is more conservative on climate action than these figures suggest but will advance the Polish energy transition and impact Polish energy policies.
- It adopts a two-fold approach towards green investments and climate change:
 - Supporting ambitious renewable projects (eg, offshore wind).
 - Focusing not only on climate but also on social issues (eg, energy-efficient apartments for low-income households).
- The Polish NRRP does not pay much attention to international cooperation, but Poland's strategic documents show that there will be many areas for such cooperation (eg, in renewables, the construction sector and clean transport).
- Translating the NRRP into practical actions will be an important issue. Some of the immediate challenges and recommendations for Poland include:
 - Updating the strategic documents so they reflect the current challenges related to post COVID-19 recovery, a more ambitious EU climate policy and recent trends in the energy sector (eg, hydrogen).
 - NRRP policies to include both zero-emission and low-emission solutions.
 - Achieving the phase-out of coal, which will determine the future scale and ambition of Poland's energy transition.
 - There are significant opportunities regarding onshore and offshore wind energy.
- While the Polish NRRP supports many green investments and zero emission technologies, it also leaves room for the less ambitious low-emission technologies in hydrogen or transport, emphasising Poland's cautious approach to the energy transition.

Source: Bielszczuk (2021).

National Recovery and Resilience Plans



Box 1. Spain

- The Spanish NRRP has a clear idea of what to do in order to modernise the economy and the ‘green’ component is the largest, 40,29% of its €69.5 billion (in grants). Moreover, sustainability cuts across a substantial part of the investment projects foreseen and several regulatory changes will also be implemented.
- However, the Plan faces two significant constraints:
 - An inefficient administrative bureaucracy, with many excellent professionals but no flexibility or resources (eg, the large amount of resources devoted to rehabilitation of buildings reflects the need to spend on projects that are easy to define, tender and award).
 - Secondly, modernising the economy requires large-scale projects that ensure a structural transformation. The PERTE are such big strategic projects that follow very closely the EU definition of IPCEI projects, compatible with State aid, but defining what can be financed does not automatically create good projects.
- The general impression is that the Spanish NRRP is well defined in terms of what to do, but not so much in terms of how to do it. The business community –especially SMEs– and regional and local governments are complaining about the lack of information regarding awarding procedures, technical requirements and other crucial elements, as well as strategic projects being defined top-down.
- The governance structure of the Spanish Plan has been positively evaluated by the EC but could benefit from reinforcement and capacity building according to Feás & Steinberg (2021). The authors argue that the governance of the NRRP is based on an administrative super-structure with no clear operative functioning nor any well-defined accountability (which could be solved by, eg, involving Spain’s Independent Authority for Fiscal Responsibility, Airef) (Feás, 2022). The choice of the Secretariat General for Structural Funds of the Ministry of Finance as the managing unit does not seem a good idea: while Finance has competent civil servants familiar with EU funds, it is a department made for control rather than spending; and EU funds are, above all, economic policy tools. Other criticisms point towards the limited consultation with stakeholders and sub-national governments in the development of the NRRP. In any case, there is a newly created sectoral conference for the NRRP (*Conferencia Sectorial del Plan de Recuperación, Transformación y Resiliencia*) where the central government and the regions cooperate in the implementation of the recovery plan. Additionally, Ministries have activated their sectoral conferences too.
- Additionally, in the ongoing green transformation, public information is crucial so that citizens have a clear picture not only of the energy transition benefits, but also of its costs. The Just Transition Fund is thought of as mainly dealing with polluting industries, but the transition has many other horizontal components that should be clearly understood to avoid misconceptions that could later result in a political backlash.
- Key recommendations include streamlining procedures, reinforcing public managing units, improving governance through information and continuous evaluation and fostering political consensus regarding the use of recovery funds.

Source: based upon Feás & Steinberg (2021).

Box 2. France

- The measures contained in the French NRRP, which amount to just under €41 billion –to come from the Recovery and Resilience Facility, RFF (Gouvernement de France, 2021)–, are a subset of those contained in the broader *France relance* plan launched at the end of August 2020, which amounts to €100 billion in economic recovery measures. The French NRRP is structured around the same three priorities as the *France relance* plan (environment, competitiveness and cohesion), and most of the measures under its environment priority are also included in the NRPP.
- Overall, €20.7 billion of the €40.9 billion in funds included in the French NRRP are earmarked for climate action, which is a central pillar of its recovery actions. Up to 51% of the total NRRP according to the French government, and 46% according to the European Commission’s draft evaluation, are allocated to climate action. It is one of the NRRPs with the highest climate content, responding to a growing national political discussion (eg, the Citizens’ Convention on climate). Its main priorities correspond to areas where climate progress has so far been too slow: building energy retrofitting, transport infrastructure, hydrogen and low carbon innovation (eg, greening aviation).
- The extent to which the French NRRP contributes to climate objectives heavily depends on existing and future sectoral regulation and policy changes (eg, building renovation support and incentives for clean car purchasing). Several policy recommendations can be made to ensure a stronger contribution of the recovery plan to the fight against climate change:
 - Efforts should be maintained to strengthen sectoral policies and regulations before the exhaustion of the funds to ensure they are spent efficiently, including the design of policy instruments in critical climate-related areas.
 - Climate monitoring is insufficient, with almost no objectives in terms of absolute levels of CO2 emission reduction, which should be made in consultation with stakeholders and scientists.
 - The methodology to evaluate the plan’s climate impact should be based on its compatibility with the low carbon strategy and NECP rather than a simple comparison with a business-as-usual scenario.
 - The dedicated process to evaluate the impact of the NRRP should include political milestones and coordinate its evaluation with the regular assessments of climate policy made by the High Council for Climate.
- Finally, the French NRRP only covers the investments over the next two years, while achieving climate objectives requires sustaining the level of climate investments over the long term to achieve climate neutrality by 2050. Details on how these funds could be maintained or compensated by other types of policies after 2023 would be very useful in order to inform climate policymaking in the longer run.

Source: Berghmans (2021).

Box 3. Italy

- The Italian Recovery Plan is the largest in Europe, amounting to €261 billion. The EU Commission assessment focuses only on the €191.5 billion of the RRF (€68.9 billion in grants and € 122.6 billion in loans), which is also analysed both in the country analyses (Mattei & Bellisai, 2021; see also Governo di Italia, 2021) and in this policy paper.
- The European Commission in its evaluation of the Italian NRRP acknowledges it reaches the required 37% in climate-related investments* in line with EU regulations (Official Journal of the EU, 2021).
- Investments supporting climate action are included in five out of the six so-called ‘missions’ that make up the Italian NRRP. Mission 2 (green revolution and ecological transition) and mission 3 (infrastructure for sustainable mobility) amount to 90% of the plan’s climate budget. Key investments include:
 - Mission 2 amounts to €59.33 billion and includes investments in agriculture and the circular economy, renewable energy and electricity infrastructure, hydrogen development, energy efficiency, resources for local transport and biodiversity and adaptation.
 - Mission 3 amounts to €25.13 billion and allocates the budget to railway infrastructure development, the completion of the high-speed train network and its connection to the regional network.
- Leonardi & Bellisai (2021) argue that the Italian NRRP’s climate impact is limited as climate-related investments do not add up to an effective climate strategy.
- The main criticism of the plan is that it does not efficiently allocate resources to transformative projects in the key climate dimensions, such as renewables in the electricity sector, energy efficiency and electrification of transport:
 - The NRRP directs resources to marginal areas of energy transition. The projects set out in the Italian recovery plan are not significant either in developing new capacity or in directing resources towards renewables with the most potential, such as offshore wind farms.
 - The ‘Ecobonus’ mechanism does not guarantee the achievement of adequate levels of energy efficiency, despite its cost, and it provides access to fossil fuel technologies such as gas boilers.
 - An e-mobility strategy is lacking in the Italian plan. Resources allocated are skewed towards investment in medium- and long-distance railway travel, with only a secondary role for local urban transport and no resources for the electrification of road transport.
 - There is no coherence between the NRRP and the NECP target in renewable, storage, electrification of road transport and storage development.

The Italian recovery strategy may be judged as a missed opportunity for Italian climate strategy with a high national debt exposure, at 160%, that might jeopardise future public support for climate targets.

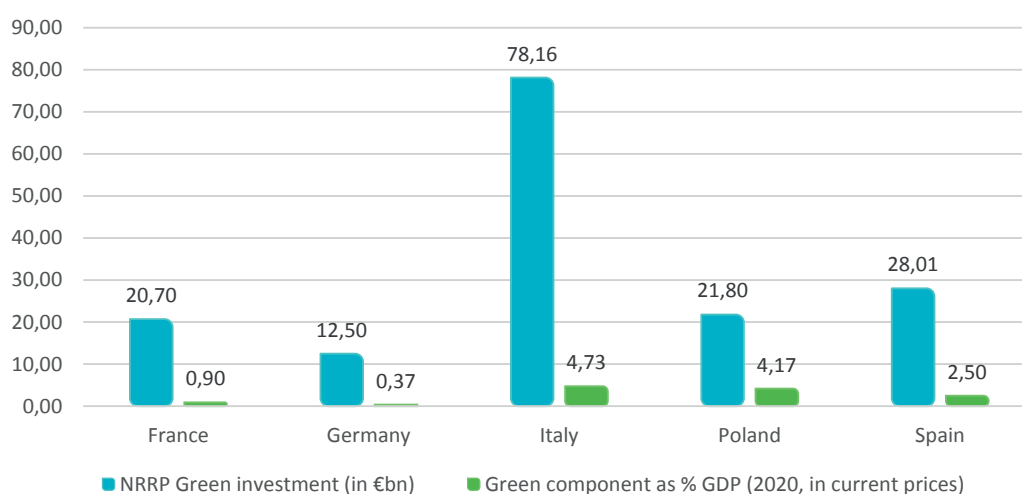
Source: Leonardi & Bellisai (2021).

* More precisely, the EC estimates that 37.5% of Italy’s NRRP supports climate objectives. See EC (2021e,f).

2 The climate component of selected NRRPS

The NRRPs *total* investments supporting climate objectives according to Member States (in volume and as a percentage of a country's GDP) vary significantly. Figures range from Germany's low(er) €12.5 billion 0.37% of its 2020 GDP at current prices to Italy's high(er) figure (€78,16 billion amounting to 4,73% of its 2020 GDP at current prices) (see Figure 6).

Figure 6. NRRP investments supporting climate objectives¹²



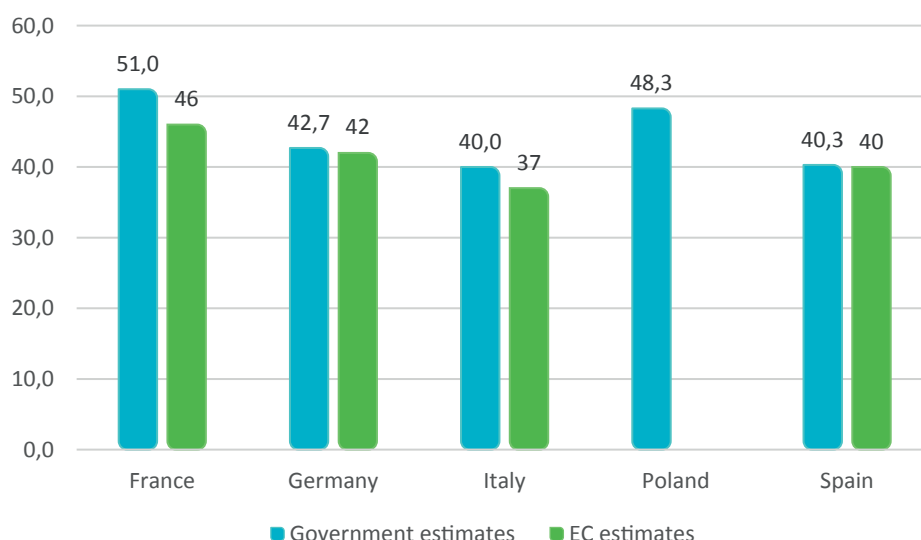
Source: country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021). Figures are rounded up.

In terms of countries' NRRP contribution to climate goals, the EU's 'big five' (emitters) allocate over 37% of total investments to climate action, according to national governments' assessments (and to EC assessments for France, Germany, Italy and Spain),¹³ thus meeting the EU's requirements (see Figure 7).

¹² Note that the investments have not been annualised. Figures can differ slightly between the government overall data and the in-depth analysis undertaken in individual country analyses.

¹³ Poland submitted its NRRP on 3 May 2021. However, the evaluation of the Polish Plan has not been released at the time of writing, and hence funds have not been disbursed due to political tensions over the rule of law.

Figure 7. Investments supporting climate goals as a % of the total NRRP amount



Source: Country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bielszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021). Figures are rounded up.

While the analyses of the contribution to climate goals of Member States and the EC (in %) are very similar for Germany and Spain, they differ slightly in Italy (a 3% difference) and in France (a 5% difference) with both countries overestimating their climate contribution compared with the EC's estimates. More specifically, the EC's evaluation considers that the percentage of climate contribution for the French NRRP is lower than that estimated by the French government in investments allocated to the circular economy, transport (clean vehicle and EV uptake, railway infrastructure and other clean transport infrastructure) and innovation (R&D for aviation decarbonisation and support for the development of key markets for green technology).¹⁴ Additionally, the EC's evaluation of the Italian NRRP considers Italy has overestimated the climate contribution of its investments in the following: sustainable agriculture and circular economy, energy efficiency, energy transition and sustainable mobility projects.

2.1. High-impact climate investments

The sectoral analysis below *does not calculate the total climate contribution* of the plan, which has been done by Member States in their NRRPs, by the EC (as presented in the Figure above) and by other institutions. Rather, our analysis looks at the sectoral allocation of the funds (in volume and in %) that are considered *to significantly contribute to climate goals*.

¹⁴ The EC conversely considers the % contribution to climate goals in the French NRRP to be higher than the French government's estimate in building renovation (Berghmans, 2021).

This means focusing our analysis on investments with a 'climate tag' (contribution to climate goals) of 40% or more according to Member States' NRRPs as presented to the EC. In order to do this, we build on the analyses and classifications produced by experts published by the Elcano Royal Institute throughout 2021 (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021). The value added of this analysis is to provide a high-level comparison of future sectoral investment opportunities that will make a significant contribution to decarbonising the EU's largest emitters.¹⁵

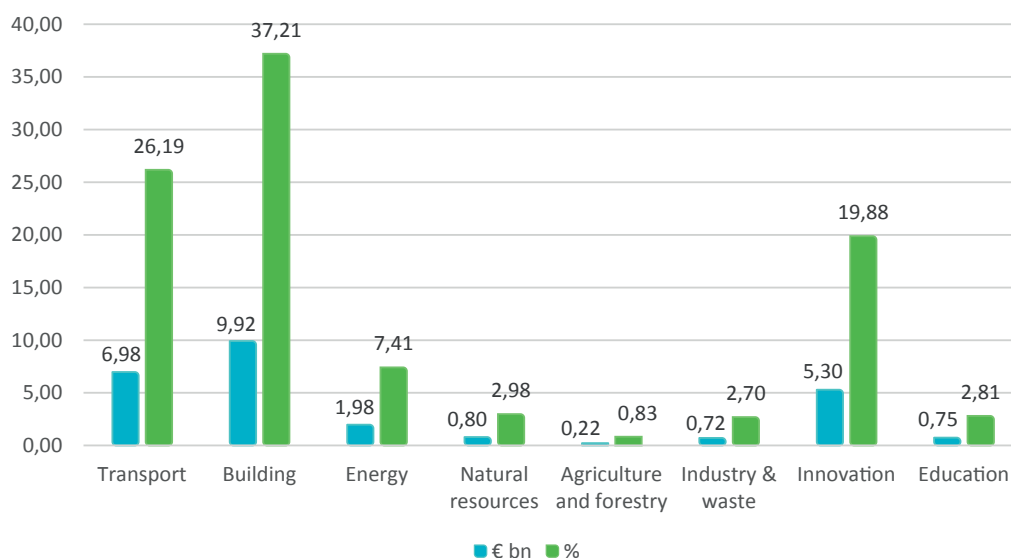
A sectoral overview of the EU's top five emitters' NRRPs shows these countries are focusing their efforts largely on the transport, building and energy sectors, as shown in Figures 7, 8, 9, 10, 11 and 12 below. The transport (including aviation), building (households, commerce, institutions and others) and energy (energy industries) accounted for 25.8%, 14.2% and 24.1% of emissions in 2019 across the EU according to the European Environmental Agency (Eurostat, 2021). They are also sectors (especially building and transport) in which decarbonisation has been historically harder to achieve. The sectoral focus of NRRPs analysed shows recovery plans are largely in line with the EU's priorities outlined in the EU flagship initiative programme, including flagship 1 (Power Up) on clean technologies and renewables, flagship 2 (Renovate) on improving energy efficiency of public and private buildings, and flagship 3 (Recharge and Refuel) on sustainable transport, charging stations and extending public transport. However, there are notable differences in the focus on specific technologies within those broad sectors between the five countries, as discussed below.

In France's NRRP, which according to the French government allocates the highest % of funds allocated to supporting climate goals out of the five countries analysed,¹⁶ the main priorities of high-impact climate investments (climate tag \geq 40%) are: public and private building energy retrofitting (€5.82 billion) out of the €9.92 billion allocated to the building sector; transport infrastructure, especially railway infrastructure (€4.39 billion); and EV uptake (€1.14 billion). A significant amount of funds with high climate impact is allocated to innovation, with €1.67 billion allocated to R&D for decarbonising aviation and €1.7 billion to green technology market development and a new hydrogen strategy worth €1.92 billion. Green transport infrastructure and building retrofitting account for more than half of the overall investment with a high climate impact. Investment in innovation and education, which accounts for almost a fifth of the French NRRP funds with a high climate impact (climate tag \geq 40%), is the highest amount allocated to this concept out of the five NRRPs analysed.

¹⁵ Note that we do not multiply either government or EC estimates of % contribution to climate objectives by the investment amounts to determine the final allocation of funds that will contribute to climate objectives, since in some countries (eg, Spain) the % contribution is a weighted average rather than a precise estimate per investment.

¹⁶ At the time of writing the EC has not released the evaluation of the Polish NRRP and hence it cannot be stated that the French NRRP has the largest contribution to climate action across the five countries analysed according to the EC (in %).

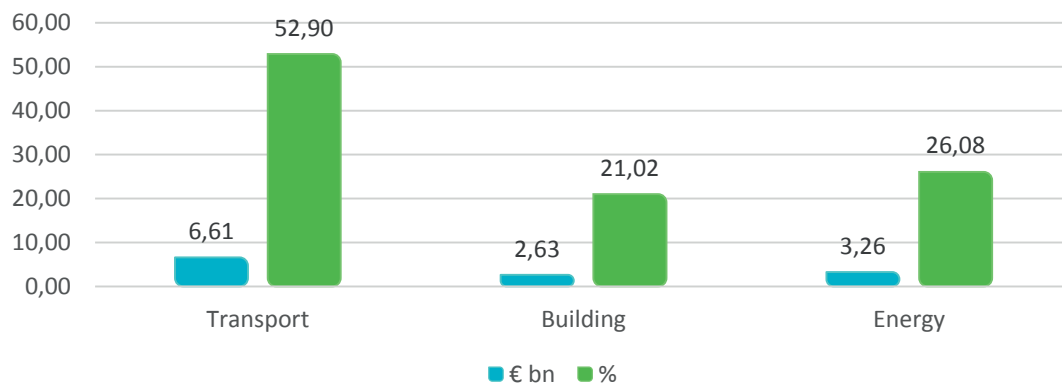
Figure 8. Key sectoral allocation of funds with significant climate impact in France's NRRP



Source: the authors, based on Berghmans (2021). Note that figures are rounded up.

Germany's green component of the NRRP largely focuses on fostering zero emissions mobility, developing hydrogen capabilities and enabling climate-friendly construction and renovation, allocating 42.7% of the NRRP's funds with high climate impact to these areas. Significant funds are envisaged to support Germany's National Hydrogen Strategy and Franco-German cooperation to develop the hydrogen economy. Critics have highlighted the need to establish targets to be achieved for each investment programme. Climate-friendly mobility is the single most important pillar, accounting for over half of total NRRP expenditures (€6.61 billion) with high climate impact, followed by decarbonisation using renewable hydrogen (€3.25 billion) and climate-friendly renovation (€2.62 billion) (see Figure 9).

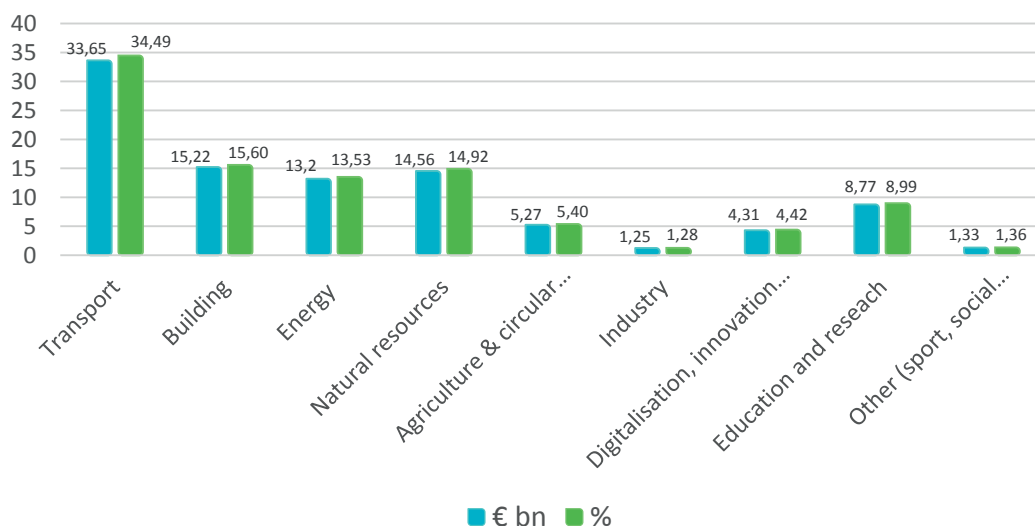
Figure 9. Key sectoral allocation of funds with significant climate impact in Germany's NRRP



Source: the authors, based on Kiefer (2021). Note that figures are rounded up.

Italy's plan focuses on sustainable local transport, with over a third of funds that have a high climate contribution (climate tag $\geq 40\%$) allocated to the transport sector (€33.63 billion), renovation of public buildings, which amounts to €15.22 billion (with much funding going to a fiscal rebate mechanism for energy efficiency refurbishment costs), increasing renewable energy production with €9.09 billion (although critics point out insufficient planned new renewable capacity), of which €3.19 billion are allocated to hydrogen. Upgrading and digitalising the network infrastructure accounts for €4.11 billion and natural resources, land and water protection measures (€14.56 billion). However, the plan has been criticised for lacking a coherent and transformative strategy as well as for a lack of resources for the electrification of road transport (Leonardi & Bellisai, 2021) (see Figure 10).

Figure 10. Key sectoral allocation of funds with significant climate impact on Italy's NRRP

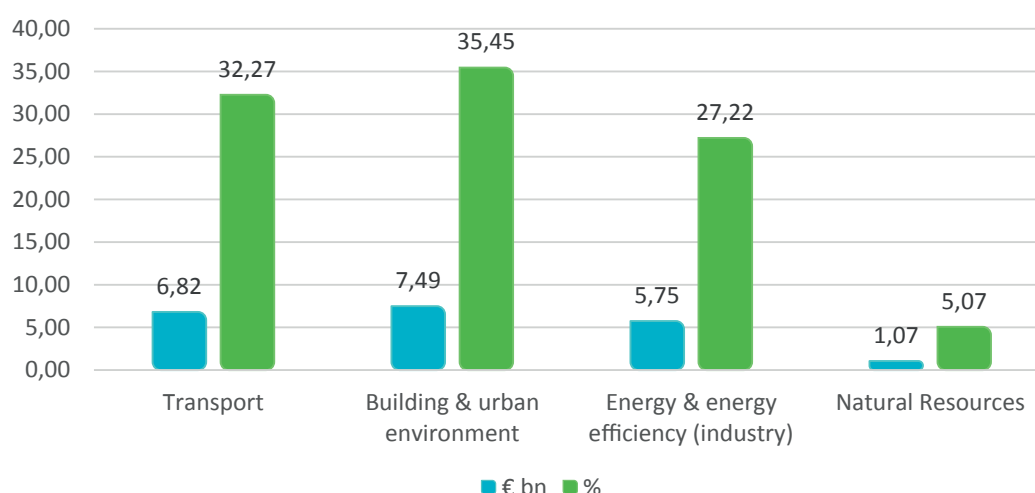


Source: the authors, based on Leonardi & Bellisai (2021). Note that figures are rounded up.

Poland's plan focuses its high-climate impact investments on reducing energy demand in the residential and industrial sectors (€4.15 billion).¹⁷ The NRRP supports green transport (with a large share of investments envisioned for rail transport, at €2.39 billion). It also supports renewable energy projects, such as large investments in offshore wind power (€3.25 billion), the development of local solar energy sources and investments in hydrogen technologies (€800 million) and the development of enabling conditions for these technologies. Poland's plan also supports actions that help reduce emissions while addressing social issues –eg, the construction of energy-efficient flats for low and middle-income households (€1.2 billion)–. Poland does, however, foresee some support for fossil fuel energy supply as indicated in the country analysis (Bieliszczuk, 2021) (see Figure 11).

¹⁷ For further details see the component labelled 'improving the energy efficiency of the Polish Economy' in table 2 at Bieliszczuk (2021).

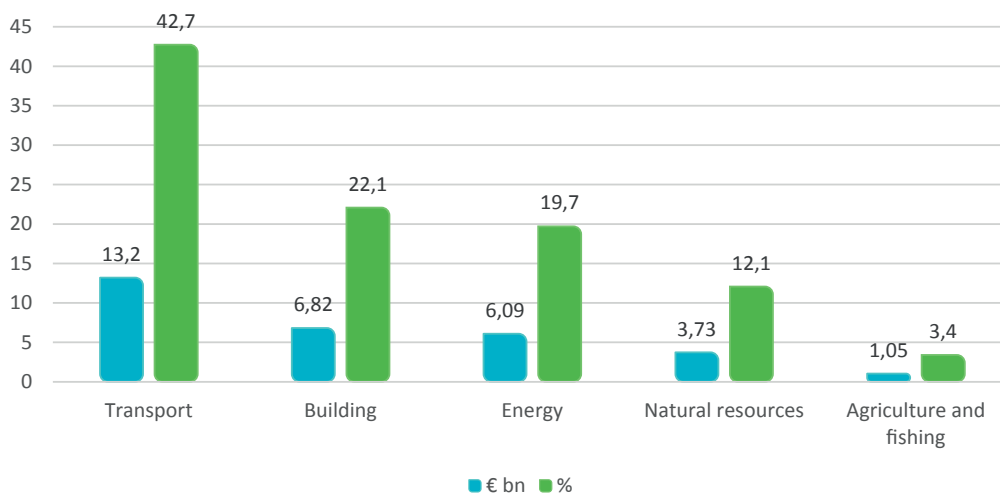
Figure 11. Key sectoral allocation of funds with significant climate impact in Poland's NRRP



Source: the authors, based on Bieliszczuk (2021). Note that figures are rounded up.

Spain's green axis envisions accelerated decarbonisation, bringing forward the country's NECP 2025 goals to 2023. The transport, building and energy sectors jointly account for just under 85% of investments with a high climate impact (climate tag $\geq 40\%$). The three largest levers (out of 10 in the Spanish plan) contributing to the green transition include those labelled 'urban and rural agenda, fight against rural population drift and agricultural development' (€14.4 billion), 'resilient infrastructures and ecosystems' (€10.4 billion) and a 'just and inclusive energy transition' (€6.36 billion). Key investments (called components in the NRRP) within the 10 levers include support measures for greening the transport sector and its infrastructures (€13.2 billion), greening the building (construction) sector (€6.82 billion), an increase in energy efficiency, the deployment of renewable energies (€3.17 billion), new water management initiatives (€2.09 billion), an investment plan for green hydrogen (€1.55 billion), investments in the protection of biodiversity (€1.64 billion) and grid improvement and storage (€1.37 billion) (see Figure 12).

Figure 12. Key sectoral allocation of funds with significant climate impact in Spain's NRRP

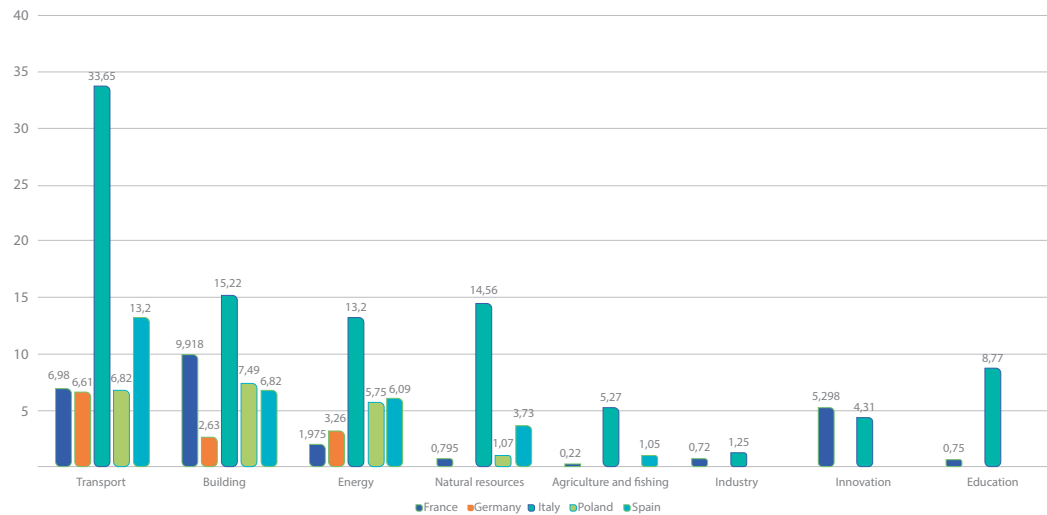


Source: the authors, based on Feás & Steinberg (2021). Note that figures are rounded up.

As stated above, the EU's top five GHG emitters have largely focused their high-impact climate components of their NRRPs on investments in hard to abate sectors (especially transport) and in the building and energy sectors. All countries allocate over a quarter of their high-impact climate investments (climate tag $\geq 40\%$) to the *transport* sector. In particular, Spain, Germany and Italy allocate from just under a third to over half of the funds with a high climate impact (climate tag $\geq 40\%$) to the *transport* sector. Poland and France allocate over a third of the funds with a high climate impact (climate tag $\geq 40\%$) to the building sector and the urban environment.

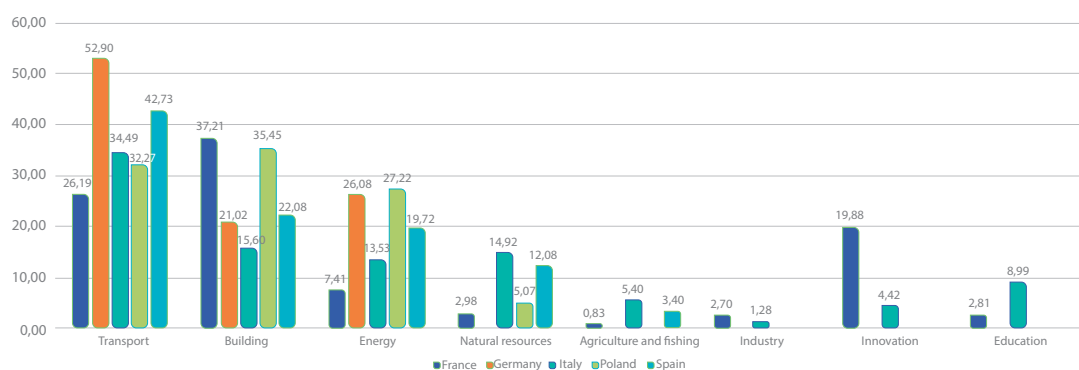
As regards energy, the percentage of NRRP of investments with high climate impact (climate tag $\geq 40\%$) varies significantly, with France, for instance, allocating over 7% and Poland over 27% to the energy sector. Spain focuses on renewables and reinforcing a smart power grid as well as storage and setting up a green hydrogen roadmap that is expected to leverage almost €9 billion alongside the private sector. Poland's energy investments are mostly directed to building offshore windfarms in the Baltic. Within Germany's NRRP, energy investments are geared towards the development of flagship projects on green hydrogen and on developing hydrogen projects within the framework of IPCEIs (Important Projects of Common European Interest). France's energy focus within the NRRP is also on hydrogen and power grids. Italy's energy focus is on developing renewables, investing in power grids and hydrogen for hard-to-abate sectors. Spain, Germany and Poland allocate between a fifth and over a quarter of the funds with a high climate-impact to energy and energy efficiency. France and Italy allocate under 10% and under 15% of the funds with high climate-impact to energy. See Figures 13 and 14 below for a cross-country comparison (in € billion and in % respectively).

Figure 13. Sectoral allocation of funds with significant climate contribution (in € bn) in NRRPs in selected EU countries



Source: the authors, based on country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021).

Figure 14. Sectoral allocation of funds with significant climate contribution (in %) in NRRPs in selected EU countries



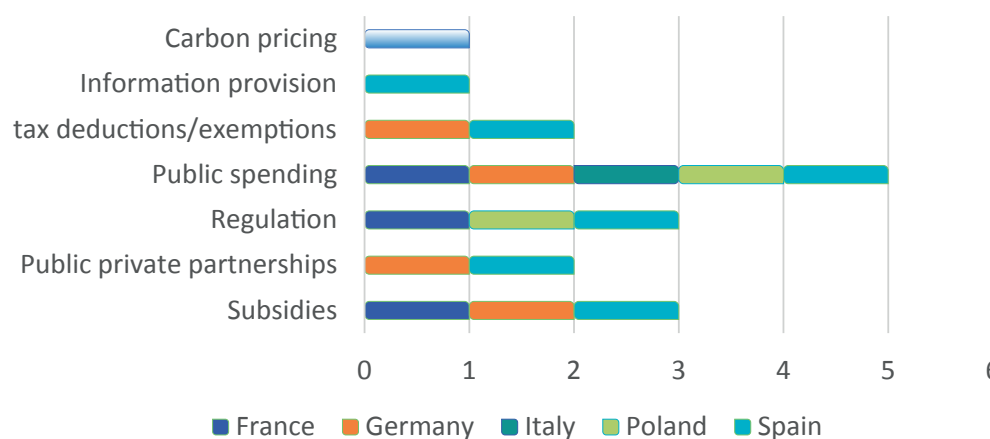
Source: the authors, based on country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021).

Natural resources receive over 10% of the funds with a significant climate impact (climate tag $\geq 40\%$) in the Italian and Spanish NRRPs, under half of that in the Polish and French NRRPs, and Germany does not allocate high climate-impact funds to this sector. Interestingly, agriculture and fisheries, as well as industry, receive 5% or less of the countries' NRRPs with a significant climate impact, with Germany not allocating any climate impactful funds to these sectors. As for innovation, only France and Italy allocate high climate-impact related funds to this sector. France furthermore allocates a significant amount of its NRRP with a high climate impact (just under a fifth of funds) to innovation. Finally, investments in education with a significant climate impact are only included in the Italian NRRP (alongside research), amounting to just under 9% of the funds, and in the French NRRP, with under 3% of the funds.

3 Policy instruments and just transition

The key policy instruments to be used with a positive climate impact across the countries analysed are public spending, regulation, subsidies, tax deductions and exemptions, public-private partnerships and information provision. At the time of writing, none of the analysed countries have included *new* carbon pricing initiatives¹⁸ in the climate component of their NRRPs, despite their static and dynamic efficiency properties. Spain, however, has appointed a group of experts to report on a potential fiscal reform –inclusive of green taxes–, which could include carbon pricing measures, hence the faded blue colour in the carbon pricing component in Figure 15 below. Both the nature of the planning exercise (arguably focused initially on investments rather than reforms that would require stakeholder consultation and negotiations) and the ongoing debate regarding the distributional impact of raising environmental taxes, could explain the limited presence of carbon new pricing initiatives in countries' NRRPs.

Figure 15. Use of policy instruments with positive climate impact



Source: the authors, based on country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021).

Policy instruments with a negative climate impact are largely absent from NRRPs. Poland is one notable exception as it envisages regulation supporting fossil-based H2, subsidies on gas heating and on 'low' emission cars. Poland's focus on fossil alternatives could arguably be explained due to the country's heavy reliance on fossil fuels and concerns regarding the distributional impact of ambitious climate policies. Italy's NRRP component on energy efficiency has been criticised on similar grounds, as it relies on the existing fiscal rebate mechanism for energy efficiency refurbishment costs (ecobonus), which, among other

¹⁸ Note that countries like France and Germany already have CO2 taxes in place.

instruments, provides access to fossil fuel technologies such as gas boilers. It should also be noted that governments' responses to the COVID pandemic are broader than the NRRPs sent to the EC. Hence, support for energy and emission intensive sectors, and the use of policy instruments with a negative climate impact, have been channelled through other initiatives (see Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021), eg, the production tax decrease in France and VAT reduction in Germany.

A just transition received varying levels of attention in the plans. Just transition measures in relation to climate change policies are explicitly mentioned only in Spain's and Poland's NRRPs. Poland's NRRP refers to the Polish Energy Policy until 2040, which sets the goal of phasing out hard coal production by 2049 while attaining a social contract with the mining industry, and also refers to the National Plan for Just Transition that is being developed in 2021. Spain's NRRP explicitly allocates funds to the Just Transition Strategy, which are expected to spur economic activity and increase employment opportunities in territories that are to be significantly affected by the energy transition. The German NRRP makes no explicit mention of just transition within its climate-related pillars, although its overall political framework highlights just transition and structural socio-economic *change* (*Strukturwandel*) as a priority, especially for the German coal regions. France's goal is to ensure policy coherence with its just transition territorial plans as well as with other EU instruments such as the Just Transition Fund. Italy's plan does not mention just transition as such, but contains measures aimed at reducing overall territorial disparities, allocating at least 40% of investments with a specific territorial destination to southern regions. It pays particular attention to addressing the infrastructure gap between regions in areas such as broadband, high-speed railways and regional rail lines, waste, water and wastewater management infrastructure and ports.

4 Governance and implementation

Governance

Some countries rely heavily on the existing governance structures for the implementation of their plans, while others establish specific institutional arrangements. Most countries envision stakeholder engagement in the implementation of the plan, although with different levels of institutionalisation.

In Poland the Ministry of Development Funds and Regional Policy is the coordinating institution, responsible for managing, supervising and reporting on the Plan, and coordinating the selection process for the investments. The Ministry will appoint a 'Monitoring Committee', which will include representatives of unions, employers, social organisations, local governments and others to monitor the implementation of the NRRP and have a say in the allocation of resources.

The German NRRP is strongly embedded in the federal government's structure, with several ministries and regulatory bodies involved in its design and execution. Specifically, the Federal Ministries of Finance, Labour and Social Affairs, Economic Affairs and Energy, the Federal Chancellery and the Bundesbank jointly engage in the implementation of the German NRRP and include stakeholders, such as economic associations and labour unions.

In France a dedicated governance framework has been created for the *France Relance Plan* (of which the NRRP is part) with a secretariat under the Prime Minister and the Economic and Finance Ministry's office and regional operational committees helping to identify projects for the regional disbursement of funds. There is also a national steering committee involving the local parliaments, local authorities, stakeholders, NGOs and experts, that has a role to ensure the proper execution of budgetary measures, social and environmental efficiency and sectoral and territorial equilibrium. The NRRP will be managed using the same governance structure.

Spain plans to create several temporary structures and reinforce already-existing departments. The new structures include an inter-ministerial commission, led by the Prime Minister, Pedro Sánchez, that will be in charge of leading the NRRP and approving the projects, a technical committee to provide support and standardise procedures, a new sectoral conference to coordinate with the regional governments by means of its technical coordination commission, and several consultative councils that include civil society and the private sector. The governance structure of Spain's NRRP could be strengthened by clarifying operational functioning and better defining accountability according to Feás & Steinberg (2021).

Italy allocates direct responsibility to the Ministries and local governments for carrying out the investments and reforms under the NRRP (see the country study on Italy published by Elcano). The coordination of the implementation is envisioned through a new governing

mechanism chaired by the President of the Council of Ministers and guided by the Steering Committee to be set up at the Council.

The national plans have varying levels of engagement with *regional and municipal levels* in the design and implementation of the plans.

For example, most of the Germany's NRRP measures are implemented at the federal level, but some measures and programmes target municipalities and local stakeholders in the context of energy transition and housing. Overall, there is no two-way interaction planned between the federal government and the regional and local governments. Additionally, it is not detailed in the plan if/how the allocation of funds is realised to below-federal levels, such as the Länder and municipal levels.

Spain's recovery plan envisions the approval of a wide list of strategic projects, with regional governments expected to execute over half of the total NRRP funds. To this end the government has made an informal call for proposals by regional governments and big private companies, many of which have submitted lists of potential projects to be financed.

Similarly, France has established regional operational committees to help identify projects for the disbursement of the plan in territories. There are also concerns from cities, mayors and SMEs on the extent to which they will access and benefit from the funds.

In Italy local authorities will be responsible for 45% of the NRRP's investments. When matters of local interest are considered, local authorities will be represented in the NRRP coordination mechanism through the President of the Conference of Autonomous Regions and Provinces, the President of ANCI (association of Italian municipalities), the President of UPI (association of Italian provinces) and the Minister for Regional Affairs and Autonomies.

In Poland effective cooperation between central and local governments is one of the central issues in the debate on NRRP governance (Bieliszczyk, 2021). Local governments are expected to be involved in the initiatives that account for 31.2% of the plan and would be represented in the Monitoring Committee. They are pushing for a stronger role of the Committee in distributing NRRP resources and for greater power of local authorities in the implementation of the plan.

Figure 15. Comparison of key just transition features in NRRPs, engagement with devolved administrations and governance

	Just transition	Engagement with regional and municipal administrations	Governance mechanism
France	Indirect link	Regional operational committees	New structure created
Germany	Indirect link	No two-way interaction planned although local 'labs' for energy transition envisaged	Several ministries in charge
Italy	No explicit mention	Included in the coordination mechanism	New coordination mechanism
Poland	Integrated in the NRRP	Included in the monitoring body. On-going debate about strengthening their role	Single ministry in charge with a new committee
Spain	Integrated in the NRRP	Calls for proposals required from regions	Several new temporary structures created

Source: the authors, based on country analyses published by the Elcano Royal Institute (Berghmans, 2021; Bieliszczuk, 2021; Feás & Steinberg, 2021; Kiefer, 2021; and Leonardi & Bellisai, 2021).

Monitoring and evaluation arrangements: there are varying levels of monitoring and evaluation among the plans. Criticism in some countries includes the weak or missing link between the plans and the emission reduction targets (Germany). Some countries have set up specific monitoring and evaluation bodies (eg, France¹⁹ and Poland established dedicated Monitoring Committees). France has also designed a framework with 150 indicators, although only a few focus on climate. In Spain, the Prime Minister's Economic Office will act as a monitoring unit, the Ministry of Finance's department for EU funds will act as the managing unit and the General Intervention Board of the State Administration (IGAE) will act as the control and audit unit. In Italy, the Ministry of Economy and Finance will monitor progress in the implementation of reforms and investments. The coordinating body for the NRRP implementation will provide the Parliament with a report every six months on the implementation of the Plan. In Poland, a Monitoring Committee, composed of institutions involved in the implementation of the NRRP, the representatives of the unions, employers, social organisations and local authorities, will be appointed to monitor implementation.

¹⁹ Note that the first evaluation report by the French monitoring committee has been released.

5 Conclusions and recommendations

The EU's top five greenhouse gas emitters (Germany, France, Italy, Poland and Spain) have exceeded the requirement of allocating 37% of the funds to the green transition in their NRRPs. These countries have largely focused the climate components of investments in hard-to-abate sectors (transport, buildings and energy). Overall, the analysis suggests that NRRPs have a good potential to assist the Member States in meeting their climate change targets while recovering from the pandemic. However, all plans build on the existing policy frameworks and targets and are not expected to lead to increased ambition or go beyond the current commitments. A notable exception is Spain, which has brought forward its 2025 NECP targets to 2023.

The plans have been criticised by observers on various grounds: lack of ambition (Germany, Italy); lack of clear performance targets (Germany, France); insufficient allocation of funds to strategic areas and low cost-effectiveness (Italy); poor monitoring and evaluation arrangements (Italy); the need to complement NRRP planned funding with regulatory changes in several sectors to ensure environmental efficiency and alignments with climate targets (France); a limited focus on how to achieve the objectives (Spain); the need to update energy; and development strategies to face post-COVID challenges and to meet increasingly ambitious European climate targets (Poland).

The implementation of the plans is thought to be feasible. However, in most cases their effectiveness will depend on the rollout of specific policies and initiatives in the key sectors. Some case studies point out that the plans are feasible due to their low level of ambition. Public spending and regulation are the most popular policy instruments while new carbon pricing initiatives under the NRRP had not been planned across the five countries analysed at the time of writing.

Some of the key challenges that the analysed countries are expected to face in the execution of their NRRPs are:

- The inclusion of concrete goals that will enable ex post evaluation.
- The integration of NRRPs and broader climate and energy legislation.
- Updating legislative frameworks to reflect COVID-19 and Net-Zero targets (in line with the EU Climate Law and the 'Fit for 55 package').
- A greater definition of the policy instruments to be used.
- Limited administrative capabilities.
- Weak governance structures.
- The capacity to effectively absorb the influx of NGEU funds ahead of 2026.
- The selection of truly transformative projects.

- The engagement with sub-national governments and non-state actors in the distribution of NRRP resources and in the implementation of the plan.
- The limited explanation and awareness of the impacts of the reforms that will accompany the disbursement of funds.
- The need to ensure a horizontally integrated Just Transition that truly leaves no one behind and helps prevent social and political backlash.

A comparison of figures across the NRRPs is not an easy task, as some plans present figures mixed from different EU funding instruments (eg, RRF, REACT-EU). Some NRRPs mix grants and loans (Italy and Poland) and some mix EU funds with national budget funds (Italy and Germany). The fact that the Member States could choose what components of their recovery plans to include in their NRRP (eg, by focusing on the greener investments and excluding investments focused on fossil fuels) makes it more difficult to assess the compatibility of the overall recovery efforts, beyond those outlined in the NRRPs, with the climate change objectives.

The success in the implementation of Europe's recovery plan and the extent to which NGEU funds help transform the EU's economy could arguably have a bearing on whether this temporary recovery mechanism (or variations of it) could be used in the future again, potentially fostering further European integration (De la Porte & Jensen, 2021).

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