

BEYOND THE BOTTOM LINE

HOW GREEN INDUSTRIAL POLICY CAN
DRIVE ECONOMIC CHANGE AND SPEED UP
CLIMATE ACTION

Written by: Sebastian Mang & Dominic Caddick

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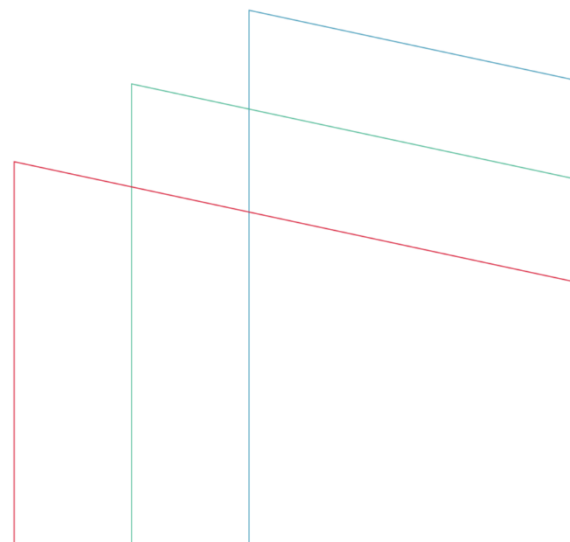
info@neweconomics.org

+44 (0)20 7820 6300

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EXECUTIVE SUMMARY

Governments are increasingly turning to green industrial policies to avert ecological breakdown. However, the European Union's restrictions on borrowing limit the ability of member states with higher debt and deficits to meet green spending needs, including green industrial policies, green public infrastructure, supporting households to roll out renewables and energy efficiency, and electric mobility and public transport. This could lead to increased disparities between countries and slow down necessary climate action. Green industrial policies and increased government spending should provide support for businesses in return for stronger social and environmental conditions as well as public equity stakes. This will help ensure that public policy goals are met as well as generate inclusive prosperity and reduced inequalities.

In response to the USA's Inflation Reduction Act (IRA), the European Commission proposed a Green Deal Industry Plan, which includes production targets for green manufacturing, temporarily relaxing state aid rules, developing skills, and repurposing existing funds for a joint European sovereignty fund. But, the Commission's plan has been criticised for including significant deregulation. In contrast, the USA's industrial approach includes increased fiscal firepower, social conditions for companies to receive public support, and the sharing of excess profits. Restrictions on debt and deficits mean governments need to keep their debt-to-GDP ratio and their borrowing arbitrarily low. Those with higher debt and deficits will not be able to benefit from green industrial policies as much as those that are less indebted.

Based on a range of assessments, our analysis looks at three different scenarios of spending increases to meet the EU's agreed climate targets and to meet 1.5C aligned climate targets and compares it to the Commission proposal for new EU fiscal rules. It shows that:

- Only four countries (Ireland, Sweden, Latvia, and Denmark), representing 10% of EU GDP, would be able to muster sufficient fiscal space to practically undertake our 1.5 degree aligned scenario within debt and deficit limits.

- Five countries (Luxembourg, Bulgaria, Lithuania, Slovenia and Estonia) could increase spending at least enough to meet the lower end and higher end spending increases needed to achieve EU agreed climate targets, but not spending needed to meet our 1.5 degree aligned scenario.
- Five countries (Germany, Austria, Czech Republic, Cyprus and Malta) are able to increase spending by at least the lower end of green spending needed to meet the EU's agreed climate target but are classed as medium debt risk by the Commission and as a result may face limits on spending. Germany could increase spending by nearly enough to meet our 1.5 degree aligned scenario but are classed as medium risk.
- Eight countries (France, Spain, the Netherlands, Poland, Belgium, Finland, Romania and Slovakia) would not be able to achieve our limited green spending scenario, which represents minimum investment needs to meet the EU's agreed climate targets, without breaching the 3% deficit limit, or having to cut other spending or increasing taxation. An additional five countries (Italy, Croatia, Portugal, Greece and Hungary) are classified as having high debt risk by the Commission and would be under pressure to reduce debt levels in the next four to seven years. This would mean countries that represent 50% of the EU's GDP are unable to meet the lower end of green spending needs that the Commission estimates are needed to meet EU agreed climate targets.

This analysis shows that current fiscal rules limit many governments from making necessary green investments, which will likely increase economic divisions between member states and slow EU climate action.

The political objective to keep debt arbitrarily low is not shared by other major economies. The eurozone is expected to borrow almost half (in terms of % GDP) as much as other G20 countries in 2027, and less than a fifth of what China is expected to borrow. The USA is expected to be consistently above a deficit of 3% of GDP throughout 2023–2027.

Transformative green industrial policy also requires a new social contract with businesses, to ensure it doesn't become corporate welfare and increase inequality, but instead creates value for us all. The IRA takes some steps to push corporations to

act more socially responsibly, particularly around wages and apprenticeships. The US Chips and Science Act goes further, requiring excess profits to be shared with the government and discouraging stock buybacks. The EU should put in place similar measures to ensure that businesses achieve social and environmental public policy objectives. By retaining equity stakes in companies receiving support, governments can ensure that value is created and that transitioning to a green economy benefits us all.

POLICY RECOMMENDATIONS

1. **Change fiscal rules to allow all member states to increase necessary green spending:** EU fiscal rules must allow for future-oriented spending^a and/or establish new common EU borrowing towards a socially just transition. Establishing the principle of Do No Significant Harm (DNSH) is essential so that public support for polluting industries, particularly fossil fuels, is phased out.¹
2. **Shore up new funding streams:** Monetary fiscal coordination could play a crucial role in supporting fiscal policy, similarly to how it did as part of the Covid response, by helping to lower borrowing costs for sustainable projects through asset purchases of green sovereign or supranational bonds. Progressive tax reform that ensures those who can afford to pay more contribute more towards public goods and services, as well as increased environmental taxation on polluters, are also crucial.
3. **Speed up the transition and limit excessively material-intensive products:** The EU should revisit its 2030 climate and energy targets, aiming to achieve net zero emissions by 2040. In addition, energy and material demand-reduction targets for 2030, 2040, and 2050 should be concretely established and public support should incentivise low-energy and material products (eg lighter vehicles, designing products for a longer lifetime, bans on

^a Future-oriented expenditures cover categories such as quality public investment, green expenditures, and productive social expenditures such as spending on education (ie investment in human capital) and healthcare – both associated with a positive impact on economic development.

programmed obsolescence, offering free repairs) and exclude financing of luxury energy and material intensive products (eg SUVs).

4. **Introduce strong climate, environmental, and social conditionality:**

Companies should be held accountable for achieving certain public policy goals in exchange for support. These should include greenhouse gas reduction targets, energy and material efficiency targets, creating apprenticeships and graduate roles, respect for collective bargaining, and limiting stock buybacks, dividend payments, and executive pay.

5. **Claim equity stakes to ensure the transition creates value for us all:**

Governments should retain ownership or equity stakes in the companies they support, enabling society to share in the financial benefits of the companies' success.

6. **Increase the state's capacity to coordinate and evaluate:** Member states and the Commission must develop proper industrial development plans (eg. as part of National Climate and Energy Plans) that leverage existing capabilities and consider technological readiness. This approach would encourage nations to strategically consider how they can leverage their existing technological capabilities to develop competitive manufacturing of clean technologies.

1. INTRODUCTION

Green industrial policy is an umbrella term that refers to government intervention to promote and protect certain industrial sectors while reconciling this objective with the goal of decarbonising the economy. Both the USA and the EU are currently engaging with industrial policies that aim to do this but how effective they will be depends on their ambition and design.

The US Inflation Reduction Act (IRA) contains at least \$369bn in subsidies and tax breaks. The final total could be much higher, with two-thirds of spending uncapped.² It includes conditions for products to be 'Made in America' and it establishes a 15% minimum corporate tax (as has the EU³) and a 1% tax on stock buybacks.

Additionally, the IRA places social conditions on companies that receive support to create high-quality, well-paid jobs and apprenticeships. The US Chips and Science Act – an industrial policy approach to developing microchips in the USA – will require businesses to share excess profits, refrain from stock buybacks, and provide affordable childcare. They are also strongly encouraged to sign collective bargaining deals with unions before building new plants. The use of industrial policy to advance social aims represents a profound ideological shift in US economic policy.⁴

There are similarities between the IRA and the EU's European Green Deal Industrial Plan, both of which aim to address climate change while promoting investment and sustainable growth. However, the Commission's proposal has been criticised by some as deregulating environmental and social regulations.^{5,6}

In contrast, the IRA is more targeted with considerably more public support for green manufacturing (eg solar and batteries), which will lower production costs in North America considerably. There are already numerous reports^{7,8,9} about how the EU is losing investment opportunities to the IRA. In addition, both the USA and the EU currently are not cutting emissions fast enough and require higher emission reduction targets,¹⁰ policies, and investments to meet agreed Paris Agreement targets. Finally, the EU's Green Deal Industrial Plan does not follow the logic of the USA's industrial policy in connecting industrial policy with social policy. So far, the Commission's proposals do not impose conditions on companies receiving support,

nor propose ways to share the value created through green industrial policy. This risks propping up corporate profits with public budgets,¹¹ which could lead to further wealth concentration and increase inequality.

An increasing focus on state-led investment by many major economies is a significant shift in economic approach. The EU once anticipated that the global economy would converge with the Single Market.¹² This expectation, however, has not been fulfilled. Instead, subsidies provided by major economies, especially those perceived as systemic rivals, are a concern for competitiveness. Economic power is being used to advance their geopolitical standing.

There may be a trade-off between competitive free-trade rules, which inhibit state aid, and achieving climate goals. Climate policy requires coordination between businesses and, whether that is voluntary or state-led, such activity can be deemed anti-competitive and violate free trade agreements, leading to fines and sanctions.¹³ Potential anti-competitive sanctions may discourage businesses and governments from tackling climate action. To avoid that, industrial policy must coalesce with more flexible trade and competition rules that enable businesses and governments to invest and collaborate on climate initiatives with confidence.

1.1 THE EUROPEAN CONTEXT

On 16 March 2023, the European Commission unveiled its legislative proposals for the Net Zero Industry Act as part of the Green Deal Industrial Plan,¹⁴ seeking to bolster the competitiveness of Europe's green industry. The plan aligns with the EU's commitments to reduce greenhouse gas emissions by 55% net by 2030 and achieve carbon neutrality by 2050. It aims to scale up net zero manufacturing in the EU and enhance competitiveness.

The plan rests on four pillars. First, to establish a predictable and simplified regulatory environment for key products and technologies, including batteries, wind, heat pumps, solar, electrolysers, and carbon capture and storage (CCS). Second, the plan seeks to accelerate access to sufficient funding by simplifying and providing flexibility in granting state aid for renewable deployment, industrial decarbonisation, and major projects in the net zero supply chain. Third, the plan recognises that the green transition will necessitate new skills and proposes a

significant upskilling and reskilling of the workforce through partnerships and financial support for skills development. Finally, the plan emphasises the importance of open trade for resilient supply chains; the EU aims to work with the World Trade Organization and improve free trade agreements while addressing concerns over unfair competition.

The Critical Raw Materials Act¹⁵ aims to secure EU access to critical raw materials, decrease reliance, and diversify supplies. The Act intends to enhance the EU's security of supply through international engagement and facilitate extraction, processing, and recycling of critical metals and minerals, including fast-tracking new mining in Europe.¹⁶ However, it lacks a material reduction target, considerations of sufficiency,¹⁷ and incentives towards energy- and material-efficient production.

In the summer of 2023, the Commission is expected to present its EU Sovereignty Fund. However, there is little clarity on how this will be set up. So far, the Commission has said it will include the repurposing of existing funds and will not include new EU borrowing. Many at the Commission support new EU common borrowing,^{18,19} but governments including Germany, the Netherlands, Denmark, and Finland²⁰ oppose this move.

Easing state aid rules has also been met with opposition. Eleven countries – Denmark, Finland, Ireland, Poland, Sweden, the Netherlands, Hungary, Latvia, the Czech Republic, Slovakia, and Belgium – have called for caution, highlighting that easing state aid could contribute to fragmenting the single market.²¹ Germany and France, on the other hand, have been the main proponents of more flexibility.

As this report shows, easing state aid rules without increased fiscal leeway, either through increased national spending, new EU borrowing, or a combination of both, will contribute to increasing disparities within Europe and a fragmenting single market.

2. GREEN INDUSTRIAL POLICY: ACCELERATING STRUCTURAL CHANGE

Industrial policy is an umbrella term that refers to government intervention to promote and protect specific industrial sector(s), often sectors that are considered strategically important, to boost international competitiveness.²² It should affect the whole structure of the economy, not just the manufacturing sector.²³

Green industrial policy aims at reconciling the goal of decarbonising the economy with economic and social progress.²⁴ To be considered 'green', industrial policy must prioritise reducing greenhouse gas emissions and addressing other environmental degradation as a fundamental constraint. It is an approach that integrates the mitigation of climate change and environmental degradation into the design and implementation of industrial policy, to improve international competitiveness and achieve social welfare gains.²⁵

In Europe, the Single Market's extensive competition policy framework has traditionally placed significant constraints on industrial policy. This is because the EU Single Market aims at creating a level playing field between firms located in different member states, and national industrial policies would go against this objective. The EU's state aid regime was designed to avoid costly subsidy races that pitted one government against another. But it was significantly relaxed during the financial crisis and the pandemic to allow for more public support.

There has been a significant divergence in economic performance between North and South since the global financial crisis.^{26,27} Indeed, in recent years, some member states have spent much more state aid than others. State aid approved during the EU's response to Russia's invasion of Ukraine was heavily skewed with companies based in Germany receiving 53% of all extraordinary aid, while 24% went to companies based in France, and only 3% to companies in Italy. Designing European industrial policy requires attention to ensure that every member state can access similar levels of state aid, otherwise, it risks further economic divergence.

At the heart of the Commission's proposals, the objective is to de-risk private businesses' investments and leverage private finance to deliver decarbonisation.²⁸ To this end, the Commission has also suggested social and environmental deregulation,

including favourable regulation within net zero industry valleys and faster and simplified permitting for mining.^{29,30} This approach assumes that private companies are the most efficient at allocating capital and suggests that governments should avoid favouring specific companies or influencing market competition, and instead focus on de-risking investment opportunities to attract private investors.³¹

This approach, however, is unlikely to foster structural changes that are needed to create high productivity, broad-based societal inclusion, generalised wealth, and increased environmental sustainability. For instance, the Commission's proposals include no provisions to help weed out free riders and prevent public support from going to polluting companies that can already access private finance and fund projects themselves.³² De-risking assumes a strategy that socialises costs and privatises profits,³³ which could concretely lead to public funds indirectly financing executive pay, stock buybacks, and dividends, leading to the transfer of wealth from public to private coffers.

Instead, governments should play a more active role in creating and shaping the market towards one that delivers on democratically agreed objectives and goals, including speeding up climate action and inclusive wealth generation, and benefits both the private sector and society more broadly.^{34,35}

2.1 SPEED UP ENVIRONMENTAL ACTION

The EU's climate targets, policies, and finance are insufficient to match the Paris Agreement's 1.5°C temperature limit.³⁶ Other planetary boundaries, including the EU's material footprint, are also being overshoot.³⁷ Green industrial policies are an opportunity to decarbonise faster and have more control over polluting sectors, as well as limit energy- and material-intensive production in proportion to social welfare. In increasing public support, the EU should aim to achieve net zero by 2040.

Effects of climate change and environmental degradation are not (sufficiently) costed by the market, allowing firms to ignore their environmental impacts.³⁸ Governments, however, can act to reduce these harms, including through regulations, public funding to incentivise adopting green technology, or direct government intervention that targets certain outputs. Green industrial policy can lower the cost of production either by direct subsidies or developments in productivity – this can help the uptake

of green technology and incentivise private industries to increase investment and R&D.

Besides economic benefits from lower costs³⁹ and spill over effects that can spark innovation in the market,⁴⁰ industrial policy can be designed in such a way that gives governments more control over supply chains. Whether this is through governments taking an equity stake, regulations (eg targets for industrial capacity), or conditionality on the support that gives governments power over production decisions, this can be a powerful tool to make sure production is both reactive and pre-emptive to the economy's needs.⁴¹

To avoid rebound effects,⁴² we need to reduce energy and material demand at production,^{43,44} for instance, through lighter vehicles⁴⁵ and designing products for a longer lifetime, bans on programmed obsolescence and offering free repairs.⁴⁶ This requires policy interventions that target socially harmful consumption. Higher recycling or circularity rates, as proposed by the Commission, are necessary but unlikely to sufficiently reduce the extraction of primary materials to environmentally safe levels,⁴⁷ as gains in circularity are offset by increased global consumption.⁴⁸ Policies that collectivise material and energy usage, such as shifting demand from individual transport to using public transport via universal basic services,⁴⁹ reduce energy and material demand and will complement green industrial policy.

Traditional industrial policies would typically support technologies only in their early stages and withdraw support once they begin to compete in the marketplace. However, the logic behind green transformations suggests that, when environmentally sustainable solutions compete with harmful ones, it is in the public interest to expedite the substitution (eg renewables, heat pumps, and public transport) rather than waiting for markets to reward commercially superior alternatives.⁵⁰

2.2 GEOPOLITICS

The EU's industrial policy has traditionally relied on affordable and accessible energy and materials. However, supply chain shocks feed concern about the material demands of the European Green Deal Industry Plan. The Covid-19 pandemic led to a large semiconductor shortage, while the conflict in Ukraine

increased the prices of critical raw materials, such as nickel, palladium, iron, and steel.

International politics is shifting. Countries are using their economic power to improve their geopolitical standing and shape the rules of international relations. As a result, Europe must prepare for increased fragmentation and polarisation in its economic relationships with other nations and find ways to improve its resilience.⁵¹

Critical raw materials are particularly important in this context. For most metals, the EU is between 75% and 100% dependent on imports.⁵² China is the main supplier of 10 out of 30 critical raw materials⁵³ and related products such as solar cells and batteries. This dependence gives China significant leverage over the EU.

There is an economic and political argument to improve Europe's resilience in the face of continued or future supply chain disruptions. More domestic supply chains, increasing renewable energy shares, and reducing energy and material demand are robust policies to absorb geopolitical shocks. While these issues cannot be fixed overnight, investing now may help mitigate the influence of increasingly fractured geopolitics.

2.3 SOCIAL WELFARE GAINS

The rising cost of living,⁵⁴ increasing inequalities,⁵⁵ and the vulnerability of workers in low-quality jobs⁵⁶ underscore the need for green industrial policies that also maximise social welfare. This is particularly the case as the transition away from fossil fuels will have varying impacts across different regions, potentially widening disparities between prosperous and declining areas. Green industrial policies that create new jobs, reform labour markets, and invest in marginalised communities can be powerful policies to create social welfare gains. This requires policies and incentives to ensure value created by green industrial policy is distributed more equally over time.⁵⁷

3. HOW TO DESIGN GREEN INDUSTRIAL POLICY

The Commission's Green Deal Industrial Plan includes some important elements such as production targets but they are too narrow as they do not consider how increased public support should speed up the transition towards net zero, deliver social welfare gains, and push businesses to develop more sustainable and inclusive business models. The Commission's approach risks propping up already large corporate profits with public budgets. For example, Volkswagen's 2022 profits increased 13% from the previous year to €22.5bn, but has been requesting state aid from Eastern European governments to fund battery gigafactories.⁵⁸ The project is currently delayed until the EU's response to the IRA.⁵⁹

Green industrial policy following a market-creating/shaping approach⁶⁰ requires governments to set a clear direction, establishing state capacity to organise and evaluate transformative policies and set conditions so that businesses achieve public policy goals as well as taking equity stakes to reap some of the rewards from public investments.

3.1 CLEAR GOALS AND OBJECTIVES

Governments need to set a clear direction with goals and objectives for green industrial policies. These should be transformational and include beefed-up climate and energy targets for 2030 and 2040; new targets for material-demand reductions for 2030, 2040, and 2050; as well as establishing goals that make sure that social welfare gains from new green industries are shared in an equitable and just way.

The result of setting these overarching goals is that green industrial policy should direct investment behaviour consistently and sustainably towards environmentally and socially sustainable production.⁶¹ This means implementing green industrial policies and restricting support for emission-, energy-, or material-intensive production like fossil fuels and (electric) SUVs. Instead, they should focus public support and encourage innovation in sectors that have the biggest decarbonisation potential (eg solar, heat pumps and batteries) and smaller material footprints (eg lighter vehicles and products with longer lifetimes).

Social metrics are equally important to ensure an equitable transition. Having goals that target the number, quality, and movement into green jobs can make sure technological advancements are geared towards environmentally and worker-friendly solutions⁶² and contribute to reversing the trend of declining wages, job security, and working conditions.⁶³ Metrics to ensure government policy results in less income and wealth inequality should also be central to guiding policy.

Finally, green industrial policies should have the goal of creating a diverse set of actors including encouraging start-ups and smaller companies to access financing.⁶⁴ According to the International Monetary Fund (IMF),⁶⁵ the market concentration of publicly listed companies has risen sharply since the 1980s and firms' mark-ups over (marginal) costs have increased by about a third and profitability doubled. Greater industrial consolidation is undesirable and is a barrier to a sustainable future.⁶⁶ When designing green industrial policies, the EU should therefore consider how its policies can contribute to less market concentration and a more diverse set of market actors.

3.2 CONDITIONALITY

Companies receiving public support should be held accountable for achieving specific indicators that relate to public policy goals. Companies need to report their progress, either achieving their targets or risk losing support.⁶⁷

The IRA takes some steps towards pushing corporations to act in a more socially responsible manner. The act links public support for companies with a worker-oriented agenda, establishing social conditionalities that require companies in receipt of public funds to offer good wages and high-quality apprenticeships and penalising those companies that do not abide by the rules.⁶⁸ The US Chips and Science Act goes even further requiring companies to share profits.⁶⁹ Additional conditions could include respect for collective bargaining and the participation of workers as shareholders to move towards alternative business models.

Conditionality could also express an opinion on how firms use their profits. Prioritising reinvestment in production and labour rather than stock buybacks that increase stock prices and executive pay packages.⁷⁰ According to a recent study, European companies now buy back shares worth more of their market capitalisation

than their US counterparts, announcing plans to repurchase shares worth around \$350bn, up from \$218bn the year before.⁷¹ Executive pay and profits of big electricity companies increased significantly during the recent energy crisis.⁷² Conditions should limit dividend pay-outs, stock buybacks, and bonus payments during receipt of state aid to weed out free riders, encourage companies to prioritise reinvesting profits into the green transition, and ensure public support results in new investments that would otherwise not happen. This would not be new; during the Covid pandemic, EU state rules included a ban on dividend and bonus payments.⁷³

Environmental conditions should require companies to reduce greenhouse gas emissions, decarbonise the value chain, source resources sustainably, incentivise the development of energy and material-efficient products and services, and enable more material-effective and sufficiency-oriented lifestyles.⁷⁴

Governments should retain ownership or equity stakes in companies they support, enabling them to share in the financial benefits of the companies' success.⁷⁵

Governments taking equity shares would allow them to recoup their investment in the company and influence the company's direction, ensuring that public policy goals are met. This is allowed under current state aid rules, but only makes up roughly 6.5% of state aid.⁷⁶ Linking government spending with its corresponding return would hold policymakers accountable and ensure efficiency. Voters are more likely to accept failures of public investment if they see them balanced out by significant successes.

3.3 ORGANISATION AND EVALUATION

To make sure policy decisions are well-informed, the EU and member states will need to expand the state's ability to effectively design and implement policies and programmes⁷⁷ as well as the capacity to evaluate to what extent public support results in transformational changes.⁷⁸ A central task of industrial policy is not only to design policies to promote certain sectors but to develop strategic cooperation and coordination to achieve democratically agreed goals and objectives.⁷⁹

To this end, public-private partnerships (eg the EU's Important Projects of Common European Interest (IPCEI⁸⁰)) are important. These partnerships should include formal roles for non-state actors (eg civil society, research institutions, and local

communities)⁸¹ including to assess lobbyists' claims to reduce biases and potentially inefficient decisions. It should also not solely be about co-financing initiatives, but provide access to critical skills, knowledge, and information. Such partnerships carry inherent risks, however, such as rent-seeking and political capture. To mitigate these risks, it is essential to establish a clear set of targets and milestones and well-structured procedures for accountability and transparency. By doing so, we can ensure that public-private interactions remain focused on achieving shared objectives.⁸² Unlike public-private partnerships of the past,⁸³ it is the public sector that should be stepping in to support the private sector to meet environmental and social goals.⁸⁴

To foster industrial development in a just manner and with a focus on creating future-fit jobs, it is crucial to build upon existing economic capabilities and consider technological relatedness. Proper industrial development plans that leverage existing capabilities are necessary for countries to achieve this goal. Member States should include aspects of technological relatedness in their National Climate and Energy Plans⁸⁵, encouraging them to strategically transition their economy towards competitive manufacturing of clean technologies by utilising their existing technological capabilities. At the EU level, the Commission must recognise the heterogeneous economic reality between member states and take a coordinating role, carry out assessments, and create policies that enable all member states to benefit from green industrial policy.

To evaluate how transformational policies are, governments need to move away from relying solely on static cost-benefit metrics to assess their policies. Instead, a new toolbox of indicators should determine which state investments open up and transform sectoral and technological landscapes, rather than tinkering with existing ones⁸⁶ as well as which policies enhance social and environmental wellbeing.⁸⁷

This requires more state capacity to carry out coherent, transparent, and effective green industrial policies. Some recent examples highlight this gap. In Germany, faced with the energy crisis, it became clear that the Ministry of the Economy did not have a clear understanding of the effects on individual industries and which sectors needed the most support.⁸⁸ Similarly, in Italy, the Recovery and Resilience funds

intended to bridge the gap between the wealthy North and the less developed South were mostly allocated to the North due to a competition-based programme. This left southern municipalities at a disadvantage, as they often lacked the necessary human capacity or faced financial difficulties that limit commercial co-financing options.⁸⁹

4. CAN THE EU AFFORD A GREEN INDUSTRIAL POLICY?

The current proposals for a European green industrial policy do not include new public financing. New public financing is needed to fill green spending gaps, including for a green industrial policy and green public infrastructure, and support households and others to roll out renewables, energy efficiency, and electric mobility and access public transport. Current proposals for revised fiscal rules will result in some member states not being able to meet investment needs; they may fall behind other member states that can provide public support. This will increase the economic divergence between member states, mean that the EU will muster less fiscal firepower compared to other major economies, and impact its climate action.

Currently, China is dominating investment in energy transition. As BloombergNEF estimates, looking at renewables, energy storage, electric vehicles and more,⁹⁰ China's public and private sectors provided almost half of the \$1.1tn invested in energy transition across the globe last year at \$546bn.⁹¹ Furthermore, looking specifically at spending on manufacturing, China accounted for 91% of total investments in 2022.⁹² These figures are significantly higher than for the USA and the EU; they provided \$141bn and \$180bn in 2022, respectively. Equalising the USA's per capita spend would increase green investment from \$180bn to \$188bn; however, equalising China's spend as %GDP would increase green investment to just under \$500bn.

The IRA provides at least \$369bn over the next ten years for energy security and climate change which will likely place the USA firmly in second place for total spend if the EU does not increase spending. This is because, on top of the extra 37bn (at least) being spent per year on average by the government, tax breaks and subsidies will make green sectors more profitable and thus attract more private investment.

The EU should make greater green investments to avoid climate catastrophe, and increased competition for green manufacturing adds to this need. There will be significant economic costs in an environment where the next two biggest economies are spending much more. The USA, the EU, and China are now in a much more

explicit competition for jobs, economic value, technological leadership, and supply chain dominance across clean energy and other technologies.

However, the EU's fiscal rules stand in the way of increased investment. The so-called Maastricht criteria require governments to maintain budget deficits and public debt below 3% and 60% of GDP, respectively. In response to the economic fallout of the pandemic in 2020, the rules around government borrowing were suspended. This was repeated in 2021 and again in 2022 following the Russian invasion of Ukraine. The current period of flexibility is expected to come to an end in 2024. Amid the Covid-19 crisis, the European Commission, on behalf of the EU, was also authorised to borrow from financial markets for the first time.⁹³

4.1 WE NEED TO PLUG THE INVESTMENT GAP

While maintaining a competitive environment with other countries can provide an additional incentive for governments to speed up actions on climate change, the visible increase of natural disasters across the world⁹⁴ and the average rise in temperature⁹⁵ should be enough alone. Unfortunately, while clear environmental targets have been set out in frequent COP agreements, countries are still falling behind their own plans.

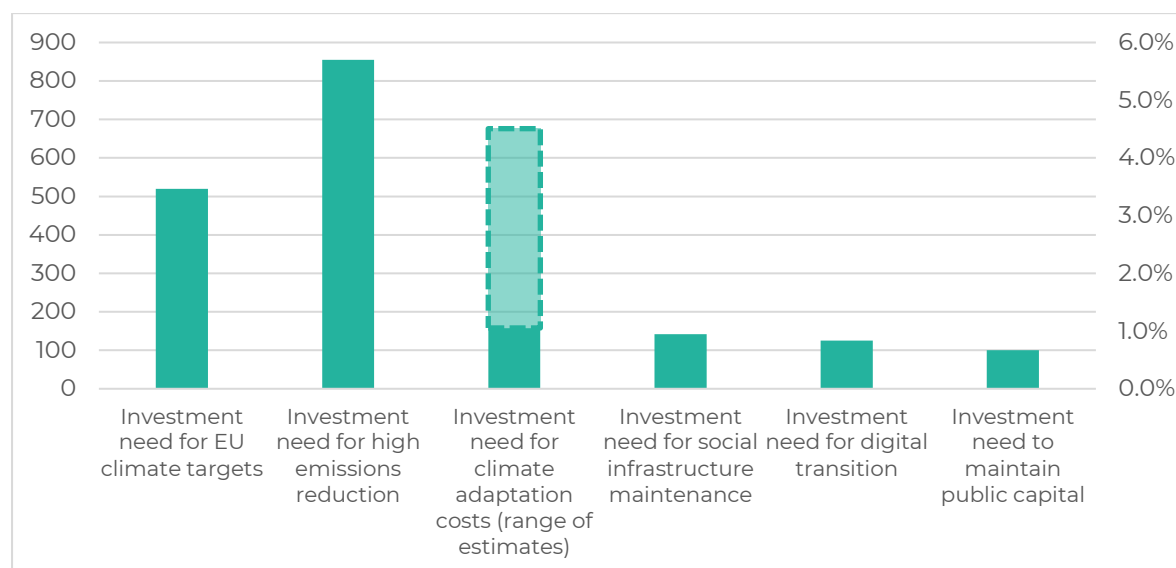
Figure 1 shows the additional investment needs per year. The first bar shows the estimated investment needed to achieve European Green Deal objectives. The Commission estimates another €520bn is needed in the EU per year.⁹⁶ The second bar details investment needs in line with the Paris Agreement's goal of pursuing efforts to limit global heating to 1.5 degrees and concretely for the EU to achieve 65% emission reductions by 2030.⁹⁷ To achieve this higher emission reduction scenario, investment needs are estimated at €855bn (excluding transport) per year.⁹⁸ The climate adaptation costs bar includes the costs relating to taking action to prepare for and adjust to both the current effects of climate change and the predicted impacts in the future. These vary depending on how able we are to stop global heating and are estimated in the range of €158bn to €518bn (1%–3.3% of EU GDP) per year.⁹⁹

Other investment needs also exist and are detailed in Figure 1. Total additional investment needs for public capital (eg roads and ports) are estimated at €100bn¹⁰⁰ (0.6% of EU GDP, adjusted for 2023), for social infrastructure such as schools or hospitals at €142bn (0.9% of EU GDP, adjusted for 2023),¹⁰¹ and for digital transition

at €125bn (0.8% of EU GDP, adjusted for 2023) per year.¹⁰² Combined this would be 2.3% of EU GDP. There are many issues that need more funding and any changes to fiscal rules to help green industrial policy should aid other policy objectives too.

Figure 1: Multiple large climate and social total investment needs exist in the EU

Visualisation of different estimated total investment needs, range estimates indicated by translucent bars, billions of euro (left axis), % of 2023 EU GDP (right axis)



Source: Investment gaps taken from the literature for climate, social, digital, and infrastructure spending referenced in the text including European Commission; Wildauer, Leitch & Kapeller; and Cerniglia & Saraceno.

Plugging the green funding gap isn't the sole responsibility of governments, as the gap includes private sector investment as well. To assess the public spending need we look at a variety of sources. Agora,¹⁰³ Bruegel,¹⁰⁴ and Bacciati¹⁰⁵ estimate that governments should be investing around 1%–1.9% of their GDP, or €159bn to €323bn a year to achieve the EU's agreed climate targets. To achieve higher emission reductions, we estimate public support of between €359bn and €615bn a year, depending on the public-private split, representing 2.3%–3.9% of GDP (in 2023).¹⁰⁶

Green industrial policies should be part of the solution to fill the investment gaps, but increased spending should also support green public infrastructure, households, and others to roll out renewables, energy efficiency, and electric mobility, and access public transport. Governments need to step in to actively encourage such activity including through industrial planning.¹⁰⁷

4.2 THE EU'S APPROACH TO GOVERNMENT SPENDING NEEDS TO CHANGE

The EU's focus on limiting public debt through its 60% debt-to-GDP ratio and 3% deficit limits and fiscal rules have failed on their own terms.¹⁰⁸ Following the 2008 global financial crisis, the attempt to hastily and excessively tighten public finances resulted in a reduction in aggregate demand, a contraction in economic output, and long-lasting economic damage.¹⁰⁹ The depressed economic activity resulting from the fiscal rules led to a reduction in the tax take and an increase in the deficit, alongside a reduction in GDP, thus leading to a higher debt-to-GDP ratio overall.

Austerity lowered living standards in Europe. It contributed to the average EU citizen's real disposable income in 2020 being nearly €3,000 lower than the pre-financial crisis trend. Income drops varied among member states, with living standards in Germany only dropping by 1%, while those in Finland and the Netherlands dropped by 15%–16%. Ireland and Spain were hardest hit, with average incomes dropping by 29% and 25%, respectively.¹¹⁰

The 60% debt-to-GDP ratio is arbitrary since high-income countries' average debt levels have doubled from 60% to 120% of GDP since the 1990s, while borrowing costs have fallen.^{111,112} For example, Japan¹¹³ and the USA¹¹⁴ have had much higher debt-to-GDP ratios for years without going into a fiscal crisis. Both governments are now adding more debt through programmes that include green industrial policies.

The EU27's debt-to-GDP ratios are likely to increase much further in the long run if we do not increase green expenditure to mitigate climate breakdown. If we do not speed up the transition and limit global warming to 1.5 degrees, climate-related fiscal risk (ie the increased cost that is covered by governments associated with climate-related damage and stranded assets¹¹⁵) is likely to significantly increase the need for higher borrowing levels.¹¹⁶

The Maastricht Treaty also promised convergence of economic performance in the eurozone, but since the euro crisis, the South has continued to fall behind. Austerity measures contributed to this divergence.¹¹⁷ If fiscal rules continue to allow some countries to spend significantly more, particularly through green industrial policies that drive the economic performance of green sectors, there will be further

divergence within Europe.¹¹⁸ This is already evident when looking at the distribution of state aid approved during the EU's response to Russia's invasion of Ukraine. State aid for German companies amounted to a stunning 53% of all extraordinary aid – 24% went to French companies and only 3% to Italian companies.¹¹⁹

These restrictions on spending are now pushing Europe behind other economic actors with the eurozone expected to borrow almost half the amount (in terms of % GDP) as other G20 countries in 2027, and less than a fifth of China.¹²⁰ The USA is expected to be consistently above a deficit of 3% of GDP throughout 2023–2027 despite possessing a debt-to-GDP ratio of 123% in 2022¹²¹. The USA's breaking of the EU's 3% limits without serious speculation will lead to a fiscal crisis and further put into question whether the EU's arbitrary limits on debt and deficits are necessary. In contrast the EU average is expected to be just over 1% deficit spending in 2027.

According to the Commission's proposal from November 2023,¹²² and backed up by member states,¹²³ the Commission would use a 'debt sustainability analysis', (methodology to be agreed upon with member states) to classify countries into high-, medium-, and low-risk categories. Those countries with a debt-to-GDP ratio above 60% will need to reduce their debt and those below will need to keep debt at prudent levels. Countries classified as high or medium debt risk will need to ensure that after a maximum of four years, unless they offer economic reforms that justify a seven-year adjustment period, their debt is on a 'plausibly and continuously declining path'.¹²⁴

Governments are then expected to submit a 'medium-term fiscal structural plan' to the Commission. These plans outline how debt reduction pathways are to be achieved, including fiscal adjustment, reform, and public investment commitments. The Commission will evaluate the trade-off between reforms/investment and adjustment based on a common EU framework, determining whether the growth impact of proposed reforms or investments offsets higher deficits. Finally, the Council will adopt or reject the member state's plan based on the Commission's assessment.

The legislative proposals¹²⁵ published on 26 April follow broadly the same logic, but include a number of additional restrictions. They include an obligation to reduce deficit by 0.5 percentage points of GDP per year if a country has breached the deficit

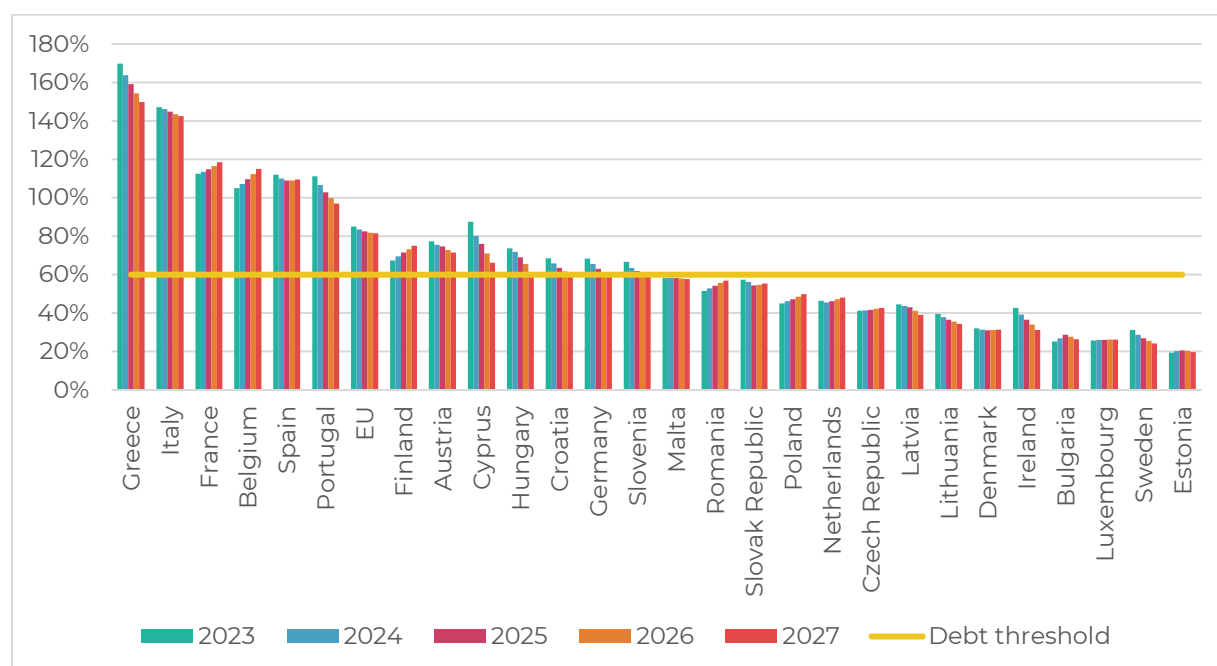
limit, a requirement to reduce debt within the four-to-seven-year time horizon of the plans, and a requirement to keep expenditure below potential GDP growth, without specifying by how much. These additional restrictions are not explicitly analysed in this paper, as the proposals have only been released, but solidify the report's findings that the Commission's proposals would severely limit some government's ability to increase spending necessary to overcome green public spending gaps, including to invest in green industrial policy.

4.3 THE EU'S FISCAL STRAITJACKET

Under the proposals, debt-to-GDP ratios continue to be important as they will have an impact on whether governments need to reduce overall debt levels (ie if they are above 60%) and will be factored into the debt sustainability analysis. As shown in Figure 2 in 2027, 14 countries are expected to have a debt-to-GDP ratio above 60%. Six countries – Greece, Italy, France, Belgium, Spain, and Portugal – are expected to have debt levels above 90%. There will likely be pressure on the latter governments particularly to reduce their spending to reduce their debt level.

Figure 2: Ten countries set to be above the EU's 60% debt limit by 2027

Forecasts of debt-to-GDP ratios for EU member states 2023-2027, % of GDP



Source: NEF analysis of IMF World Economic Outlook October 2022

The European Commission did a trial debt sustainability analysis for 2022¹²⁶ to show EU countries their debt sustainability risk and how their debt will decline over time. Figure 3 shows the classification of debt sustainability risk. The Commission analysis also suggests proposals for debt reductions. Greece tops the chart of debt reduction — going from an expected debt-to-GDP ratio of 156.9% in 2024 to 107.3% in 2038 — close to 50 percentage points (pp). Portugal follows with a 33.5pp decline, then Italy (-22.4pp), Spain (-21.9pp), Belgium (-20.2pp), and France (-15.3pp).

Figure 3: 19 member states are found to be at high or medium risk

Debt sustainability analysis risk classification over the medium term

Commission Debt Sustainability risk classification			
Belgium	High	Lithuania	Low
Bulgaria	Low	Luxembourg	Low
Czech Republic	Medium	Croatia	High
Denmark	Low	Malta	Medium
Germany	Medium	Netherlands	Medium
Estonia	Low	Austria	Medium
Ireland	Low	Poland	Medium
Greece	High	Portugal	High
Spain	High	Romania	Medium
France	High	Slovenia	Medium
Hungary	High	Slovakia	High
Italy	High	Finland	Medium
Cyprus	Medium	Sweden	Low
Latvia	Low		

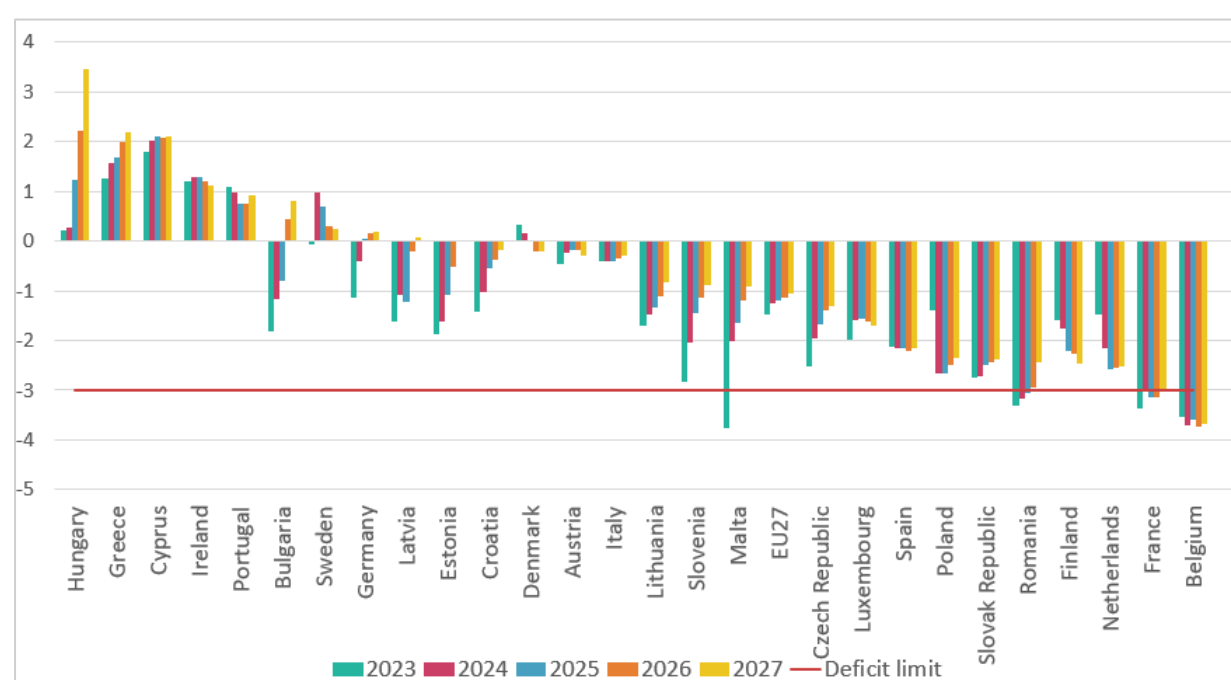
Note: Commission (2023) analysis

Figure 4 shows the IMF's expected deficit positions of the EU countries in the next five years. These figures were produced before the economic governance review was published and do not consider the impact on government deficits due to potential changes to the rules. Notably, the data shows that countries with higher debts

(Greece, Cyprus, and Portugal) are expected to have huge surpluses in the coming years, likely to reduce their debt levels. Italy, the third biggest EU economy, is expected to have a low deficit at just -0.3%. France and Belgium, who have historically been two of the countries with the lowest compliance with EU fiscal rules,¹²⁷ are outliers and are expected to continue to break the 3% deficit limit in 2027, despite high debt levels.

Figure 4: By 2027, the majority of countries are expected to be abiding by the 3% deficit limit

Cyclically adjusted primary balance for EU member states 2022-2027, % of GDP



Source: Data taken from IMF World Economic Outlook October 2022

A recent analysis¹²⁸ carried out a simulation, emulating a debt sustainability analysis, taking into consideration more variables than this paper does, including inflation, real interest rates, potential growth, primary balance, net lending, and debt levels. It found that only three member states (Sweden, Denmark, and Luxembourg) would be able to finance their required 'green' public support (estimated at 1.1% of GDP) in 2022. This analysis provides important evidence that fiscal rules are excessively restrictive and stand in the way of even modest green spending, let alone the increased spending estimates needed to achieve higher emission reductions.

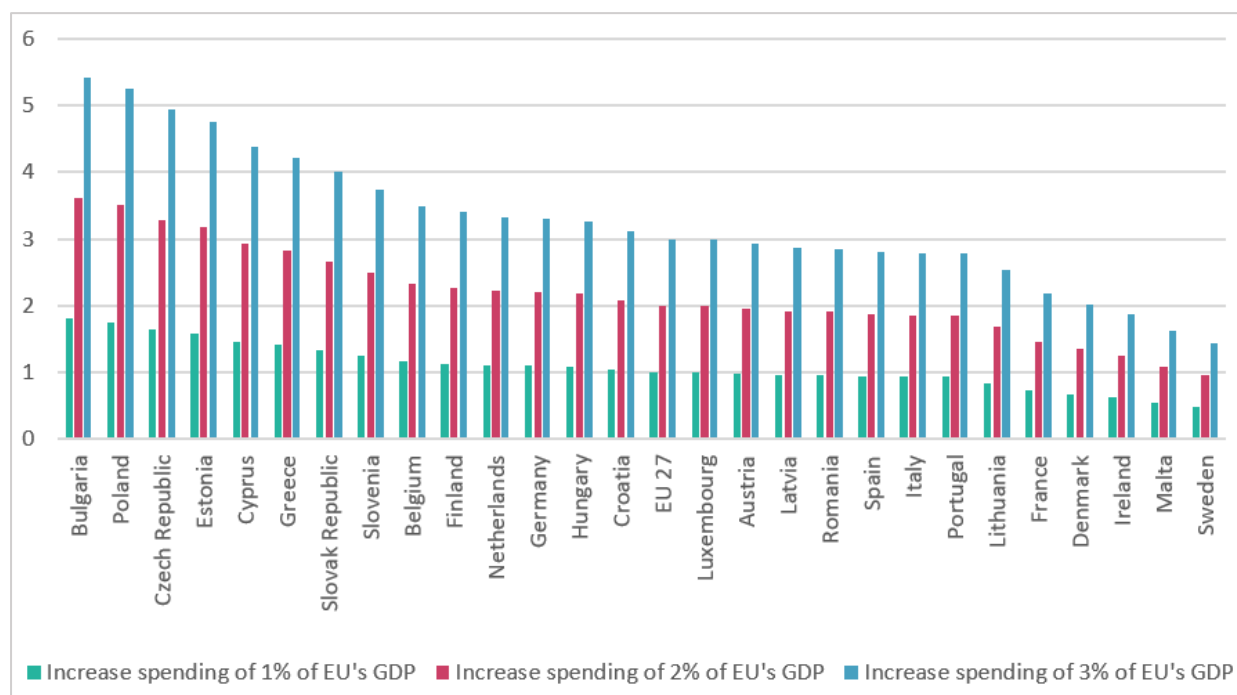
To showcase further the difficulty governments face to plug the green investment gap (or other spending gaps as detailed in Figure 1), and the disparity between

member states, we look at the potential funding that could be mobilised if all member states were allowed to spend at the hard deficit limit of 3%. Overall, the EU would be able to mobilise €400bn a year in borrowing by 2027 (1.9% of GDP). This would allow it to meet public spending needs for Commission estimates for green spending, as well as estimates for low public spending needs to achieve higher emission reductions. It would be insufficient to cover the high public spending gaps to meet higher emission reductions, higher climate adaptation costs, and/or other social and public infrastructure costs. Furthermore, this extra space would not be equally distributed with some countries still constrained by the deficit limit.

To assess to what extent governments can meet green spending needs, we first estimate each country's public spending needs for three scenarios of spending: 1% reflecting low public investment need to achieve the EU's climate target, 2% reflecting moderate public investment need to achieve the EU's climate target, and 3% of EU GDP reflecting high public investment need to achieve higher emission cuts required to pursue efforts to meet the 1.5-degree target. To break down the spending need by country, we use Paul van de Noord's (2023) methodology,¹²⁹ scaling public investment needs by each country's greenhouse gas emissions relative to their GDP. Figure 5 shows the different levels of spending need by country as a percentage of GDP.

Figure 5: Countries with higher emissions will need more spending to decarbonise

Visualisation of countries estimated spending needs adjusted for their CO2 emissions if the EU were to increase spending by 1%, 2% and 3% of EU GDP, % of GDP



Source: NEF's own calculations. Countries estimated spending needs are calculated based on 2019 level of CO2 emissions.

Figure 6 pulls together a number of these elements. It shows, first, bar graphs of the potential spending of countries if they were theoretically to increase their deficit spend to the 3% limit. We do this to show the limits of the 3% deficit limit to meet green spending gaps and the unequal distribution of fiscal space between countries. Second, we mark those countries with high debt risk according to the Commission's trial debt sustainability analysis as red, medium as orange, and low as yellow.¹³⁰ We do this to show that, while some countries could increase spending, if they are classified as high debt risk and to a lesser extent medium debt risk, they will be constrained by EU fiscal rules due to the requirement of having to reduce debt levels. Countries with high-debt (eg Hungary and Greece) are unlikely to be able to increase deficit spending, let alone to the 3% deficit limit. Third, the dots signify various national spending needs to meet EU investment gaps for our three scenarios: 1% reflecting low public investments to achieve the EU's climate targets, 2%

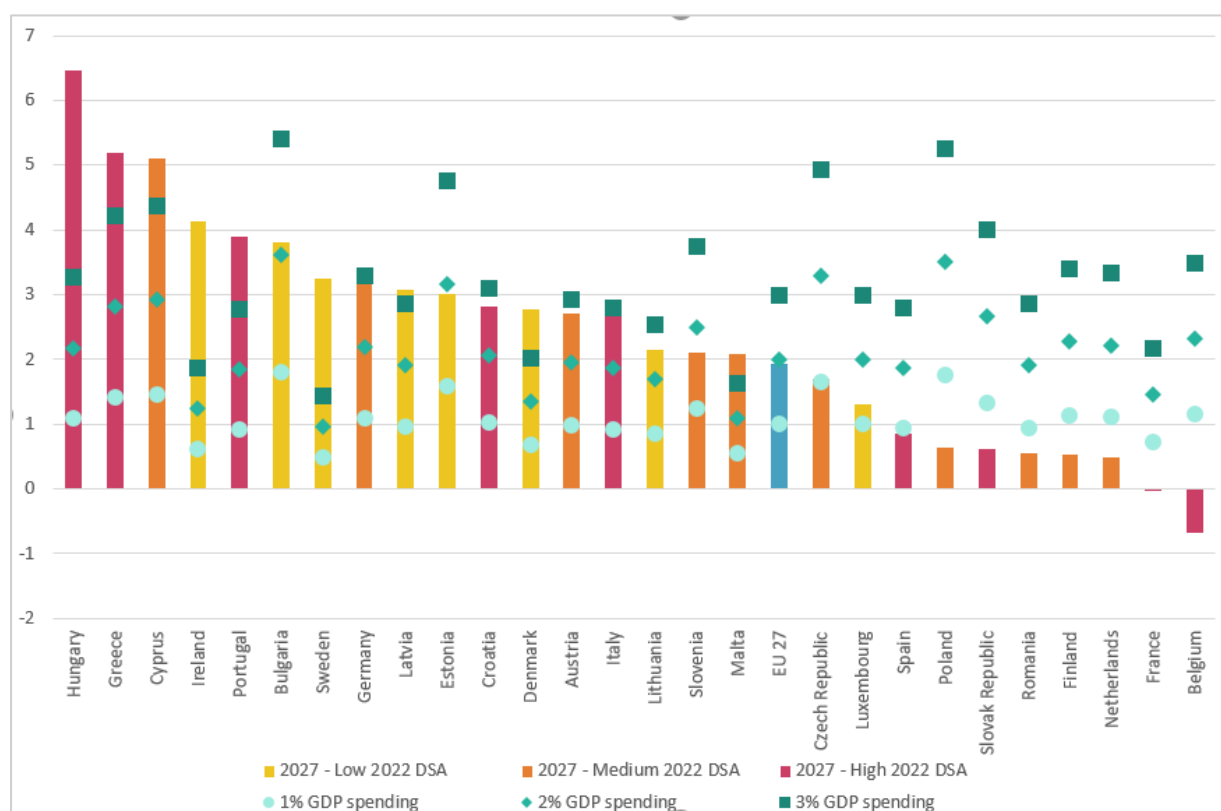
reflecting moderate public investments to achieve the EU's climate targets, and 3% of EU GDP reflecting high public investments to achieve higher emission cuts.

By comparing the potential increase to 3% of deficit spending with countries' public spending needs, the analysis shows that eight countries (34% of the EU's GDP) would not be able to increase deficit spending to the equivalent of 1% of the EU's GDP target, without breaching the EU's 3% deficit limit. An additional five countries (combined 50% of the EU's GDP) are classified as having high debt risk by the Commission and will be expected to reduce debt by the end of four, or potentially seven years, including through reductions of deficit spending. Another six (combined 77% of the EU's GDP) are classified as having medium debt risk and may be limited in the extent to which they will be able to increase spending.

Only four countries (Ireland, Sweden, Latvia, and Denmark) (representing 10% of the EU's GDP) would be able to muster sufficient fiscal space to meet a 3% EU spending target while staying below the 3% deficit limit and being classified as having low debt risk.

Figure 6: Eight countries unable to unlock fiscal space for moderate climate investment targets

Additional spending unlocked if countries spent at the 3% deficit limit rather than their expected amount in 2027, % of GDP

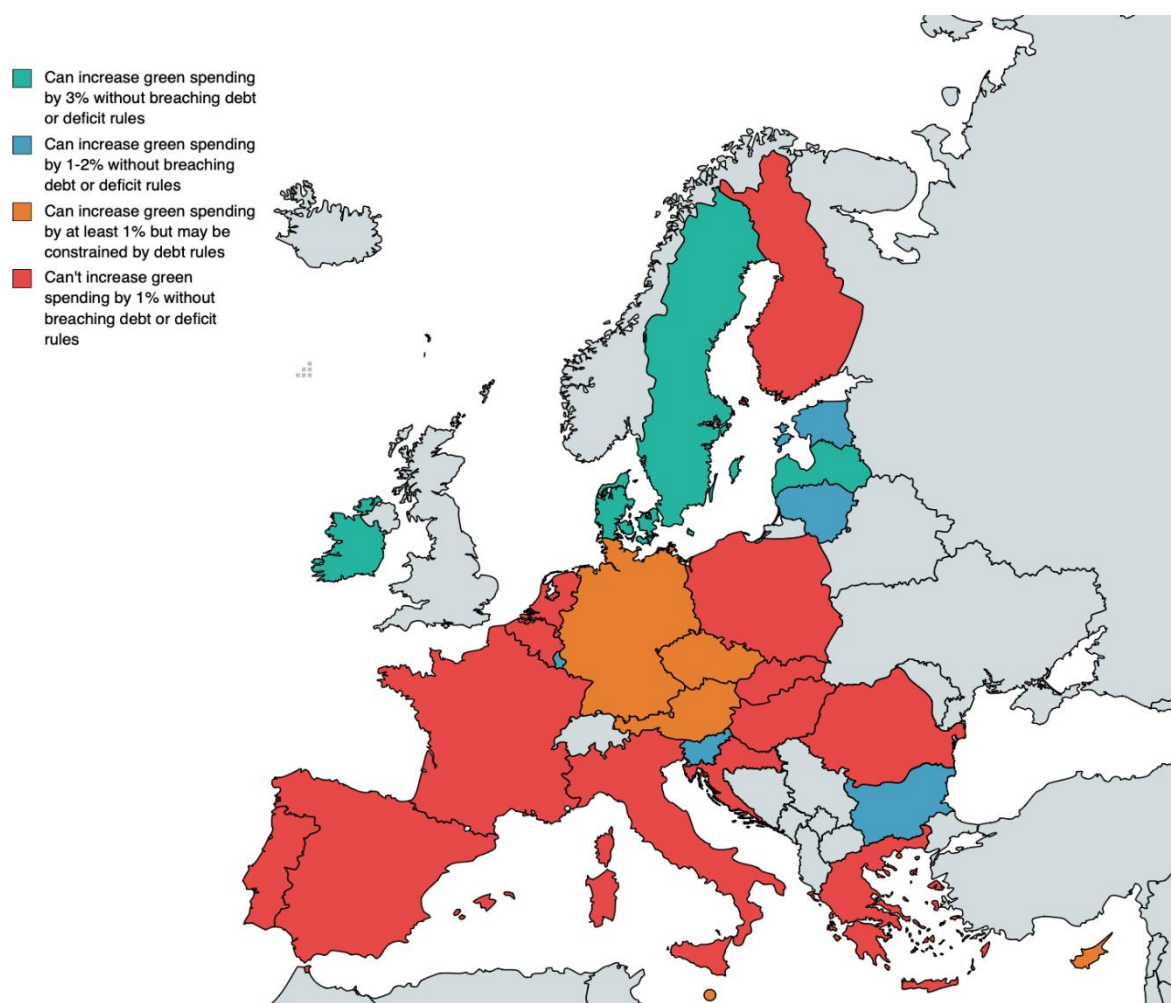


Source: NEF analysis of IMF World Economic Outlook October 2022 and World Bank Databank. Dots, squares, and triangles mark the level of spending needed to meet additional climate spending targets of 1%, 2%, and 3%, respectively. The spending target by country has been adjusted compared to their 2019 levels of CO₂ emissions.

Figure 7 shows the results of our analysis as a map chart. Dark-green countries are those countries that are classified by the Commission as low debt risk and are able to meet an increase of spending by 3%, meaning they can achieve higher emission reduction targets. Light-green countries have low debt risk but are only able to meet an increase of 1% or 2%, which will allow them to achieve EU-agreed climate targets. Orange countries are those that can meet at least a 1% increase in spending but may face limits on spending, due to being classified as medium risk. Finally, dark-red countries are unable to meet a spending increase of 1%, either because they would breach the 3% deficit limit, or because they are classified as high debt risk and therefore will likely need to reduce deficit spending.

Figure 7: Only four EU countries can meet the 3% green spending increase required to meet the high emission reduction scenario.

Assessment of countries' ability to meet different scenarios of increased spending at 1%, 2%, and 3% of EU GDP



Note: NEF analysis

4.4 CHANGING FISCAL RULES

The current framework suffers as fiscal limits mean it cannot unlock enough funds for climate action and other public spending gaps. Some countries will be particularly impacted by missing out on green investments or needing to cut other public spending significantly to realise necessary spending. Sticking to these rules will likely contribute to the further divergence of economic performance between member states. Fortunately, there are changes to the fiscal rules that could address both of these issues.

There are two main ways that the EU could create more fiscal space¹³¹ to fill spending gaps, including but not limited to investing in green industrial policy.

First, as part of their national medium-term fiscal-structural plans, member states should be allowed to submit a list of investment spending (eg investments to achieve production targets and green public investments) that will raise future prosperity to be excluded from the deficit and expenditure limits. These lists should conform to goals and objectives set by the EU on climate targets, reductions in fossil fuel usage, and unnecessary energy and material demand, including social and environmental conditionality. To prevent circumvention of the rules,¹³² the decision to exclude such spending could be part of a broader assessment by the European Commission (eg the debt sustainability analysis, respect of the DNSH principle, EU objectives, and country-specific recommendations) and political validation by the European Council.

Second, a permanent EU-level investment facility and/or a temporary investment facility for a socially just transformation could ensure all member states have access to sufficient funds. This fund should invest in green industrial policy, public infrastructure, and resilience-enhancing investments and reforms. Expanding investment at the EU level would prove particularly important for those countries that have high debt-to-GDP ratios or have crossed or are close to the 3% deficit limit. The fund should also allow states to invest in their national, regional, and local governments, to have the state capacity to carry out the investments and reforms necessary. Access to such funds should be coordinated to ensure an equitable distribution between and within countries and to protect the single market.

The EU should also consider other policies to plug spending needs. Monetary fiscal coordination could play a crucial role in supporting fiscal policy, similarly to how it did as part of the Covid response, by helping to lower borrowing costs for sustainable projects through asset purchases of green sovereign or supranational bonds.^{133,134} Progressive tax reform that ensures those who can afford to pay more contribute more towards public goods and services as well as environmental taxation to ensure polluters pay for damage caused is crucial, particularly to finance current spending.¹³⁵

5. CONCLUSION

Green industrial policies are crucial at a time when the EU is facing an unprecedented climate and cost of living crisis. If designed right, they can contribute to speeding up the transition towards net zero and delivering social welfare gains. However, the EU's plans need to go beyond what is currently on the table; otherwise, only a select few governments will reap most of the benefits and public support could socialise the risk and privatise profits of the green transition, leading to more inequality.

In this report, we have outlined that the introduction of green industrial policies requires a re-evaluation of the EU's fiscal rules. The restrictions on debt and deficits are likely to lead to disparities within the EU, with more indebted member states unable to benefit from green industrial policies in the same way as less indebted member states.

This report also lays out the need for increased public support to result in a new social contract with businesses to ensure that value created through green industrial policies creates value for us all. This requires stronger social and environmental conditions to hold companies receiving public support accountable for achieving specific public policy goals. Retaining ownership or equity stakes in companies they support means governments can financially benefit and shape the direction of these companies. By making these choices as a government and as a society, we can ensure that green industrial policy is a transformative policy towards a fairer green economy.

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