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What is green monetary policy and how can it support the renewable energy industry

Our ask: The ECB should actively reform its monetary policy operations – asset purchases, collateral, refinancing, and macroprudential policy – to stop disadvantaging renewables and start channelling financing towards the clean energy transition.

KEY POINTS TO RAISE:

- The ECB's monetary policy has historically had a carbon bias: asset purchases disproportionately favoured carbon-intensive sectors, and TLTRO III incentivised banks to lend more to higher-emitting industries
- ECB interest rate hikes disproportionately harm the renewable energy sector: unlike fossil fuels, renewables are capital-intensive and rely heavily on debt financing, making them uniquely exposed to the cost of borrowing
- The ECB expanded its climate factor to corporate loans (July 2026) – covering ~29% of pledged collateral – but the reform won't take effect before end of 2027 at the earliest, and the maximum haircut is capped at 5%
- Southern European countries face both the highest borrowing costs and the greatest climate exposure
- Acting on climate change and fossil fuel dependence strengthens price stability - it's part of the ECB's mandate

WHAT TO PUSH FOR:

MONETARY POLICY OPERATIONS:

- Asset purchases: sell carbon-intensive bonds and buy green ones (stock-based approach); exclude non-Paris-aligned companies from future purchases
- Collateral framework: recent progress - build on the 2026 climate factor expansion - push for faster implementation, a more ambitious haircut ceiling, and eventual exclusion of non-Paris-aligned assets
- Green TLTRO / dual rate: long-term loans with preferential rate for banks lending to renewables, clean tech, building retrofitting

MACROPRUDENTIAL POLICY:

- Green differentiated capital requirements: lower risk weights for green assets, higher for carbon-intensive ones
- Prudential transition plans with capital penalties if unmet
- Climate-systemic risk buffer proportional to high-carbon sector exposure

Executive summary

The climate crisis is accelerating faster than anticipated, making the rapid shift away from fossil fuels towards renewable energy and green technologies more urgent than ever.

A key lever in the green transition is the allocation of financial resources in the economy, which is one of the main channels that determines which economic activities take place. The discussion on the role of finance in the green transition typically focuses on how public and private finance can assist in mobilising resources to combat the climate crisis. An often overlooked aspect of this debate is the role monetary policy can (and should) play in the green transition. Monetary policy broadly refers to the decisions taken by central banks to influence the cost and availability of money in an economy. Green monetary policy refers to monetary policy which integrates environmental and climate-related considerations into the core operations of central banks.

Monetary policy is highly interlinked with climate change. On the one hand, climate change poses extensive risks to monetary policy authorities' ability to achieve price stability and financial stability, and also their ability to fulfil their role as financial regulators. On the other hand, monetary policy shapes the financing conditions in the economy, influencing general economic conditions together with individual industries and initiatives.

Monetary policy is therefore highly relevant to the renewable energy industry. It broadly impacts the overall economic conditions in which the industry operates. Furthermore, by influencing the cost of borrowing, it can have a disproportionately detrimental impact on the industry. The renewable energy industry is a highly capital intensive industry, with operators typically more leveraged than operators within the brown sector. Increases in interest rates therefore have a more pronounced impact on the renewable energy industry. This ultimately reduces their financial feasibility and their ability to attract financing. Higher cost of capital also decreases the financial feasibility of new projects. In summary, if the European Central Bank (ECB) raises its interest rates, this is not a neutral policy from the point of view of the green transition.

The implementation of green monetary policy can be a very effective tool in directing resources towards greener resources, while discouraging the financing of more environmentally damaging projects. As long as the ECB does not seriously incorporate ecological considerations into its frameworks and its models, it will be repeatedly implementing policies that structurally disadvantage the initiatives that the EU's policy framework is trying to accelerate. The ECB should therefore further green its activities through an extensive reform of its operations, including its monetary policy operations, macroprudential policies, and through more integrated monetary and fiscal policy coordination.

1. Introduction

Climate change is the defining crisis of our time and its impact is materialising even more quickly than feared.¹ Under the historic Paris Agreement of 2015, world leaders committed to substantially reducing global greenhouse gas (GHG) emissions with the critical objective of avoiding global temperature increases of 2°C above pre-industrial levels, and further pursue efforts to limit global warming to 1.5°C above pre-industrial levels. They did so recognising that maintaining global warming below the target of 1.5°C would significantly reduce the risks and impacts of climate change.² However, alarmingly, the latest report by the Intergovernmental Panel on Climate Change (IPCC) outlined that global warming is highly likely to exceed the 1.5°C target within the next twenty years.³ Every additional increase in global warming above this target will intensify the magnitude and complexity of the impact of climate change on humanity. The severity of the polycrisis and the need for a coordinated response at an unprecedented level are thus extremely apparent.

One of the main ways in which human activity contributes to climate change is through production and consumption, which we broadly refer to as the economy. These factors are highly interlinked with the generation of energy that powers human activities, from powering our factories, fueling our transport, to the energy we consume at home. The IPCC has categorically stated that emissions from fossil fuels are the dominant cause of global warming. In 2018, 89% of global CO₂ emissions came from fossil fuels and industry. The IPCC report outlines that deep, rapid, and sustained reductions in greenhouse gas emissions would lead to a discernible slowdown in global warming within around two decades.

¹ <https://www.un.org/en/un75/climate-crisis-race-we-can-win#:~:text=Rising%20temperatures%20are%20fueling%20environmental,economic%20disruption%2C%20conflict%2C%20and%20terrorism>

² <https://www.un.org/en/climatechange/paris-agreement>

³ https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

The rapid deployment of renewable energy and green technologies, replacing fossil fuels and more environmentally damaging activities, is therefore critical towards the efforts to mitigate climate change.

The debate on the role of the allocation of finance in supporting the green transition often focuses on policies aimed at mobilising public and private finance. This debate often underlooks the potential use of monetary policy aimed at channeling resources towards green initiatives, broadly referred to as green monetary policy.

This policy brief, forming part of a series of policy briefs, aims to inform stakeholders in the renewable industry on key considerations related to green monetary policy. It also provides stakeholders within the renewable energy industry with concrete and actionable policy recommendations, informing their advocacy for a more active role of monetary policy in supporting the green transition. The policy brief focuses on key considerations and practicalities related to the execution of monetary policy within the euro area, by the European Central Bank (ECB), but it is relevant to a broader audience.

2. What is monetary policy

As outlined in the first policy brief in this series, monetary policy broadly refers to the decisions taken by central banks to influence the cost and availability of money in an economy. It involves the use of various instruments, with the most prominent being interest rates. Interest rates determine the availability and cost of borrowing for economic actors, including households, firms and governments.

Monetary policy can be utilised to target several policy objectives relating to the functioning of an economy. Primarily, these objectives comprise maintaining price stability (meaning that inflation⁴ is low and stable) and economic stability (reducing extended periods of economic overheating or stagnation/depression).⁵ Monetary policy aimed at reducing aggregate demand and/or inflationary pressures is referred to as **contractionary monetary policy**. Conversely, monetary policy aimed at increasing aggregate demand and/or inflationary pressures is referred to as **expansionary monetary policy**.

3. What are the interlinkages between monetary policy and climate change?

Monetary policy can play a key role in the fight against climate change. On the other hand, the increased impact of climate change also has a detrimental effect on the ability of monetary policy authorities to fulfil their objectives.

In their pursuit of maintaining price stability, central banks adjust the cost of credit available, which has an impact on general economic activity. Expansionary monetary policy results in higher utilisation of resources at a cost to the environment, especially if the activities undertaken are energy-intensive and fuelled by fossil fuels. Critiques of the principle of prioritising economic growth at all costs have increased substantially over the years, as can be seen in the increasing popularity of the degrowth movement. Critics argue that such an approach ignores various considerations, such as ecological limits and the welfare effects of economic activity (i.e. not all production and consumption is necessarily beneficial to society).

⁴ Changes in the prices of goods and services

⁵ https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

Contractionary monetary policy can also have a negative effect on the green transition, by reducing the flow of resources towards green activities such as the renewable energy industry. Green initiatives are typically more vulnerable to increases in the cost of credit. Higher borrowing costs also constrain the ability of governments to support the green transition.

Green monetary policy can help bridge the challenge described above, by incentivising the financing of green initiatives such as investments in renewable energy, and disincentivising the flow of financing towards more environmentally harmful activities. A broad overview of how this can be done in practice is provided in the section of this policy brief outlining the key policy recommendations for stakeholders in the renewable energy industry (section 5).

It is also interesting to highlight how climate change can impact monetary policy, reinforcing the arguments of why addressing climate change is a key objective for monetary policy authorities. Climate change poses extensive risks to monetary policy authorities' ability to achieve price stability and financial stability, and also their ability to fulfill their role as financial regulators.

Two emergent phenomena threaten extensively the ECB's ability to achieve its primary mandate of price stability. These comprise inflation surges attributed to the effects of climate change (known as 'climateflation') and inflation caused by volatile fossil fuel prices (referred to as 'fossilflation').⁶

The increased impact of climate change, in particular higher temperatures and increased occurrence of extreme weather events, are resulting in higher inflationary pressures.⁷ This has a detrimental impact on the ECB's ability to maintain price stability, with numerous studies documenting the significant impact of extreme weather events and rising temperatures on pricing dynamics in the euro area.^{8,9,10} In particular, climate change is contributing to an extensive increase in food prices. In turn, the increase in food prices has distributional effects, having a higher impact on low income households and varies across countries, with Southern European countries typically experiencing more pronounced inflationary effects. This divergence between euro area countries further complicates the ECB's primary mandate of maintaining price stability across the area. The effect of climate change on food prices is also observed in the price of imported food from outside the Euro area. It should also be noted that research has shown that the impact of extreme weather events and rising temperatures is nonlinear.^{11,12} Thus, the impact of climate change on food inflation will increase exponentially as temperatures get higher and the incidence of extreme weather events increases.

Another source of price instability is increases in prices as a result of shocks from fossil fuel prices. As observed in the inflationary cycle that began in 2021, fossil fuel prices are extremely volatile, and this volatility passes on to the rest of goods because fossil fuel energy is present in most production processes. Increases in the price of fossil fuels result in a direct impact on energy prices, together with an indirect impact on the price of other goods as a result of higher costs of production. Transitioning from a fossil fuel-based economy, exposed to fossil fuel price shocks, to a green economy powered by renewable energies with stable and declining prices, would facilitate the ECB's task of maintaining price

⁶ https://eu.boell.org/sites/default/files/2024-01/greening_ecb_web.pdf

⁷ https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220317_2~dbb3582f0a.en.html

⁸ <https://www.econstor.eu/handle/10419/220013>

⁹ <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2608~2058b5dc8f.en.pdf>

¹⁰ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3975313

¹¹ <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2626~e86e2be2b4.en.pdf>

¹² https://ideas.repec.org/a/spr/ediscc/v2y2018i1d10.1007_s41885-017-0017-y.html

stability and delivering on its primary mandate. In fact, as outlined in a recent Positive Money Europe report, the deployment of wind and solar power reduced wholesale electricity prices by an average of 24.2% over the period 2023–2025 across the countries analysed.

Climate change also poses extensive risks to financial stability through its influence on physical, liability and transition risks.¹³¹⁴ Physical risks relate to the influence of climate and weather events on the value of financial assets and insurance liabilities. Liability risks emerge when parties affected by climate change seek compensation from responsible entities through environmental litigation.¹⁵ Finally, transition risks stem from the effects of the green transition, driven by policy changes and technological innovations, leading to a re-evaluation of financial asset values. The acceleration of climate change, by intensifying these types of financial risks, poses a direct threat to the ECB's mandate, impacting both its monetary policy and financial supervision functions. According to the ECB, the results of its second economy-wide climate stress test, which assessed the impact of various transition scenarios on banks, households and non-financial companies, indicate that an accelerated green transition would limit future financial instability, compared to delayed or late-push transition scenarios.¹⁶

The ECB is legally obligated, under Article 127 of the Treaty on the Functioning of the European Union (TFEU), to support the general economic policies of the Union – including the pursuit of a high level of environmental protection – without compromising its primary goal of price stability. This is not a peripheral obligation: it is treaty-bound. Moreover, as has been argued throughout this policy brief, acting on climate change would strengthen, not threaten, price stability¹⁷ – by reducing fossilflation and climateflation risks. Beyond this primary mandate framing, the ECB's secondary mandate provides an additional and explicit basis for proactive climate action. Critics who argue that green monetary policy violates the ECB's mandate therefore have it backwards: it is the failure to act on climate that risks undermining the ECB's own objectives.

4. Why is monetary policy relevant to the renewable energy industry?

As outlined previously, monetary policy involves the use of various instruments aimed at adjusting the cost of money, which is primarily inferred via interest rate levels. Interest rates determine the availability and cost of borrowing for economic actors, including households, firms and governments. By influencing financing conditions, monetary policy can further influence economic activity, and in turn affect inflation.

One way monetary policy can impact the renewable energy industry is via the impact of interest rates on general economic conditions. This impact is transmitted through various channels, including input costs such as labour, cost of raw materials etc. Monetary policy also influences the level of economic activity (including aggregate demand/GDP), economic growth, disposable income and general economic sentiments such as consumer confidence. Together with the influence of higher cost of borrowing on consumption, this can impact the demand from economic actors, such as consumers, firms and governments for renewable energy and investments in goods produced by the industry. Monetary policy can also influence exchange rate dynamics, impacting the cost of exports and imports to and from outside the Eurozone.

¹³ <https://www.bis.org/review/r151009a.pdf>

¹⁴ <https://www.sciencedirect.com/science/article/abs/pii/S1572308921000267>

¹⁵ https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230904_1~9d14ab8648.en.html

¹⁶ <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op328~2c44ee718e.en.pdf?7793485730460e4e0b4e170237eb7429>

¹⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A12008M003>

Higher cost of borrowing can also constrain governments' abilities to support green initiatives such as the renewable energy industry, for example limiting the ability of governments to provide subsidies to consumers or directly to suppliers. Higher cost of borrowing, and its contractionary impact, can also impact political support for public support of green initiatives. This topic is discussed in further detail in the policy brief in this series focused on monetary-fiscal policy coordination.

Another critical impact of monetary policy on the renewable energy industry (and other green initiatives) is channelled through balance sheet dynamics (i.e. the financing of such initiatives). Higher interest rates lead to a higher cost of debt, and overall cost of capital, for both existing and prospective initiatives. The renewable energy industry is highly capital intensive, with operators typically more leveraged than those in the fossil fuel sector. This matters because interest rate increases affect renewables disproportionately: financing costs account for around one third of the total levelised cost of solar and wind electricity, compared to a much smaller share for fossil fuel generation, where fuel costs dominate.¹⁸ Research also shows that the fossil fuel industry is significantly less sensitive to high interest rates than the clean energy sector.¹⁹ Raising rates is therefore not a neutral policy from the perspective of the green transition – it structurally disadvantages renewables relative to fossil fuels, reducing the profitability and financial feasibility of clean energy projects.

Higher cost of capital also decreases the financial feasibility of new projects. Interest rate increases, resulting in higher cost of debt (and thus capital), may also be detrimental to the development of new technologies, and the transformation of new technologies into commercially viable products. This is because projects related to these nascent technologies are capital intensive and require heavy capital investments.

5. Policy recommendations

1. Advocate against overly cautious contractionary monetary policy

Contractionary monetary policy is typically implemented to reduce economic overheating, ultimately with the objective of reducing inflationary pressures. As this policy brief has outlined, contractionary monetary policy can be highly counterproductive to the green transition and the objective of maintaining price stability. As the impact of climate change continues to materialise, there are increasing inflationary pressures from the direct effects of climate change (known as 'climateflation') and inflation caused by volatile fossil fuel prices (referred to as 'fossilflation'). Contractionary monetary policy has a detrimental impact on the renewable energy industry and other green initiatives, hampering the green transition.

Contractionary monetary policy is also detrimental to the ability of monetary policy authorities to maintain price stability. Transitioning from a fossil fuel-based economy, exposed to fossil fuel price shocks, to a green economy powered by renewable energies with stable and declining prices, would facilitate the ECB's task of maintaining price stability and delivering on its primary mandate. In fact, as outlined in a recent Positive Money Europe report mentioned above, the deployment of wind and solar reduced wholesale electricity prices by an average of 24.2% over the period 2023–2025 across the countries analysed. Thus, the ECB should be cautious about these considerations when considering the implementation of contractionary monetary policy.

¹⁸ <https://scispace.com/pdf/adverse-effects-of-rising-interest-rates-on-sustainable-5aoup5njng.pdf>

¹⁹ <https://www.woodmac.com/horizons/energy-transition-investing-in-a-high-interest-rate-era/>

2. Advocate for greener monetary policy by the ECB

Green monetary policy can be a highly effective tool in supporting the green transition, by channelling resources towards green initiatives, and away from environmentally harmful activities, in line with the EU's policy framework.

An earlier report by Positive Money, '[A roadmap towards greening the European Central Bank](#)', outlined several policy recommendations designed to steer the ECB towards more ambitious green action in its monetary policy and macroprudential policy operations, and to improve monetary and fiscal coordination allowing for more coordinated support of the green transition. The policy changes proposed follow a proactive environmental approach, which offers a more effective means of mitigating climate change and facilitating the green transition, while ensuring that the ECB continues to deliver on its primary and secondary mandates. These policies form the foundation for the policies recommended below, adjusted to take into account more recent developments since the release of the report.

2.1. Monetary policy operations

One of the main ways the ECB can support the green transition is through adjustments to its monetary policy operations. Monetary operations refer to the implementation of monetary policy - ensuring that a central bank's policy decision has the intended impact on²⁰ financial markets, and on the economy more generally. Adjustments to monetary policy operations primarily relate to the ECB's asset purchase programmes²¹, its collateral framework, and the introduction of green Targeted Longer-Term Refinancing Operations (g-TLTRO).

2.1.1. Asset purchase programmes

Asset purchase programmes (often called Quantitative Easing) are unconventional monetary policy tools where central banks buy financial assets (like government or corporate bonds) from commercial banks and private institutions. This injects liquidity into the financial system, drives up asset prices, lowers long-term interest rates, and encourages lending to stimulate economic growth. It is also worth noting that the ECB's 2024 operational framework review introduced the concept of 'structural portfolios' – a more limited, ongoing form of asset holdings that differs from the large-scale QE programmes of the past. While structural portfolios are less expansive in scope, they nonetheless represent a channel through which the ECB holds financial assets on an ongoing basis, and one where green tilting criteria could also be applied. The green tilting approach that the ECB has historically applied to its asset purchase programmes, including the Asset Purchase Programme (APP) and the Pandemic Emergency Purchase Programme (PEPP), under its climate action roadmap has been insufficiently ambitious. Most of the ECB's corporate securities are held under the Corporate Sector Purchase Programme (CSPP), a subset of the larger APP. The end of reinvestments in the APP, announced in June 2023, signified the end of the green tilting of the CSPP. As the portfolio is slowly unwound, the ECB will continue to hold a significant proportion of carbon-intensive bonds in the years ahead. Instead, the ECB could effectively reduce its holdings of carbon-intensive bonds and introduce a more ambitious green tilting approach in its future asset purchase programmes.

²⁰ <https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.pr240313~807e240020.en.html>

²¹ <https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html>

The ECB can unwind the carbon-intensive bonds it currently holds through a 'stock-based approach', which consists of selling dirty bonds within the CSPP portfolio and purchasing green ones.²² This would not alter the ECB's current monetary policy stance of winding down its balance sheet, as the total stock of financial securities that it holds would remain unchanged. This approach would allow the ECB to ramp up the pace of the transition from a dirty portfolio to a green one.

Furthermore, the ECB should reform its approach to green tilting by adopting a more proactive stance toward climate change mitigation. This can be achieved by improving the way emissions are taken into consideration. The ECB should also exclude from its asset purchase programme companies whose economic activities are not aligned with the Paris Agreement, like oil and gas producers. Any favourable treatment of green bonds by the ECB must consider the issuer's climate profile, referring to the activities the company engages in, to prevent greenwashing; otherwise, the ECB could end up purchasing green bonds from carbon-intensive companies.

The ECB should also pursue the greening of other private securities in its monetary portfolio outside of corporate bonds, primarily private securities held as part of its covered bonds and asset-backed securities programmes. Since these financial instruments are created by packaging multiple loans, usually mortgages, improvements in data availability are required to ensure that the ECB can also green these programmes.

2.1.2. The collateral framework

The collateral framework gives banks the means to pledge assets to guarantee loans. Eligible assets are determined by EU national central banks under criteria set out by the Eurosystem. Positive Money Europe has historically called for the ECB to leverage the collateral framework in support of the green transition. This can be done by the introduction of environmental footprints in the calculation of haircuts to the assets pledged as collateral. Haircuts to collateral refer to a percentage deduction to the market value of assets that banks pledge in exchange for a loan from the ECB. This safety buffer protects the ECB from market volatility and issuer defaults. The ECB can extend haircuts applied to take into consideration the environmental damage caused by the underlying assets.

Furthermore, the ECB should exclude bonds from companies primarily engaged in non-Paris compliant activities from the collateral framework. The ECB should also increase the scope of its greening reforms by including covered bonds and asset-backed securities, which constitute a substantial portion of private collateral. This would need to be complemented by a reform of the green tilting approach, as discussed previously.

In July 2025, the Governing Council of the ECB announced the introduction of a "climate factor" within the collateral framework, which could reduce the value assigned to eligible corporate bonds pledged as collateral, depending on the extent to which an asset can be impacted by climate-related uncertainties. While we welcomed this as a step in the right direction, we flagged its main limitation: corporate bonds made up less than 2% of collateral pledged to the Eurosystem, meaning the reform's real-economy impact was narrow.

²² As at the 22nd of May 2026, CSPP holdings amounted to €226 billion.

In July 2026, the ECB confirmed²³ a significant expansion: the climate factor now also applies to non-financial corporate loans, which account for around 29% of pledged collateral - roughly seven times more than the bonds already covered. This is a meaningful step forward, and reflects years of research and advocacy from Positive Money Europe, WWF, and several other civil society organisations, on how central banks price climate risk. That said, the reform still has real limits that renewable energy advocates should continue to press on: the expanded factor is not expected to take effect before the end of 2027 at the earliest; the maximum reduction in collateral value is capped at 5%; and the ECB continues to follow a risk-based approach – aimed at protecting its balance sheet from climate-related financial risks – rather than a proactive environmental approach that would actively redirect financing away from high-emitting activities. The Bank of England has gone further, excluding coal-mining bonds from its collateral framework outright. The ECB should move in the same direction: faster implementation, a more ambitious haircut ceiling, and eventual exclusion of the worst-emitting assets from collateral eligibility altogether.

2.1.3. The introduction of green Targeted Longer-Term Refinancing Operations

Positive Money Europe has also historically advocated for more active participation of the ECB in supporting the green transition through the introduction of dual rates.²⁴ In very simple terms, a dual interest rate system indicates that the ECB can set different interest rates for different types of projects. In the context of the current climate crisis, this means offering lower interest rates for environmentally friendly, or 'green', projects compared to 'dirty' ones.

One way of implementing dual rates is through the implementation of green Targeted Longer-Term Refinancing Operations (g-TLTRO). Targeted longer-term refinancing operations (TLTROs) are one of the ways through which the ECB provides financing to credit institutions.²⁵ By offering banks long-term funding at attractive conditions they preserve favourable borrowing conditions for banks and stimulate bank lending to the real economy. In June 2014, the ECB initiated its first TLTROs programme to encourage bank lending to the real economy during a time of inflation below target. These operations provided banks with long-term loans at favourable interest rates, compared to the ECB's standard credit operations, and therefore increased banks' profitability. These loans were contingent on commercial banks extending credit to non-financial corporations and households, excluding house purchases. TLTROs increased the volume of lending by improving the terms on which non-financial corporations and households borrow.²⁶ However, a recent study found a carbon bias in the third TLTRO programme (TLTRO III), which had led to increased lending to higher-than-average emitting sectors.²⁷ Monetary policy has historically favored maintaining the status quo of high polluting activities, through the principle of "market neutrality". Under this principle, the ECB purchases corporate and sovereign bonds in proportion to the outstanding issuance in the market. Since carbon-heavy sectors issue a large share of corporate bonds, market-proportionate asset purchases have historically disproportionately directed capital toward polluting industries, exacerbating environmental damage and ignoring climate-related financial risks.

²³ https://www.ecb.europa.eu/press/pr/date/2026/html/ecb.pr260724_4~f082ce289d.pt.html

²⁴ <https://positivemoney.org/eu/update/dual-rates-green-transition/>

²⁵ <https://www.ecb.europa.eu/mopo/implement/omo/tltro/html/index.en.html>

²⁶ https://www.bis.org/publ/mc_funding_for_lending_programmes.htm

²⁷ <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2023/05/The-CO2-content-of-the-TLTRO-III-scheme-and-its-greening.pdf>

To help mitigate climate change and facilitate the green transition, the ECB could adapt the TLTRO programme to provide long-term loans to commercial banks at favourable rates when these banks' lending practices align with green transition objectives.²⁸ A green TLTRO programme would enhance lending conditions for strategic green sectors, such as clean energy projects including the renewable energy industry and house retrofitting²⁹, which strongly rely on bank lending. In previous TLTRO programmes, the rate was set as low as the deposit facility rate, which is the rate at which banks receive interest on their deposits at the ECB. However, a green TLTRO should aim for an even lower rate, in comparison to the ECB conventional lending facilities. Such a dual rate approach would ensure that strategic green industries receive substantial differential lending conditions compared to industries with a more negative impact on the environment.

As outlined in a recent report by the Dutch Association for Sustainable Energy (NVDE), the introduction of a green interest rate could save Dutch society 15 billion euro in grid management costs up to and including 2040. It would also reduce household and SME grid tariffs by almost 10%, with extensive spillover effects, including benefitting the renewable energy industry. The report provides a concrete example of how green TLTROs can be utilised to support green initiatives.

2.2. Macroprudential policies

The ECB and national competent authorities in charge of financial supervision can also support the green transition by reforming their macroprudential policies. Macroprudential policies have gained prominence since the Global Financial Crisis. Unlike microprudential policies that focus on the financial soundness of individual institutions, macroprudential policies address systemic risks that can impact the entire financial system. They aim to prevent systemic risks - such as excessive credit growth and leverage - from building up, ensuring that the financial sector can absorb economic shocks rather than amplify them. They are vital for the financial supervisory role that the ECB assumes within the Single Supervisory Mechanism and the European Systemic Risk Board (ESRB).

Macroprudential policies influence the availability of credit available for lending and the risk appetite in the financial sector, in turn influencing which activities are financed. Climate change represents a significant systemic risk that will escalate further if left unchecked.³⁰³¹³² Currently, financial institutions do not adequately address financial risks related to climate change. This indirectly favours the financing of polluting activities over green initiatives such as the renewable energy industry.

Some institutions – including the ECB, the ESRB, and the Bank for International Settlements – have pushed back against using macroprudential policy for climate purposes³³, arguing that restricting credit to high-emitting firms could create financial instability during the transition. This concern is understandable but misplaced: avoiding transition risks today simply stores up far greater physical risks tomorrow. Climate financial shocks are inevitable, but it's essentially a policy choice whether those will be transition or physical shocks.³⁴

²⁸ <https://www.positivemoney.eu/wp-content/uploads/2020/09/Green-TLTROs.pdf>

²⁹ <https://positivemoney.org/eu/archive/report-building-renovation-wave-tltros/>

³⁰ https://www.ecb.europa.eu/pub/financial-stability/fsr/special/html/ecb.fsrart202105_02~d05518fc6b.en.html

³¹ https://www.ecb.europa.eu/pub/financial-stability/fsr/special/html/ecb.fsrart202205_01~9d4ae00a92.en.html

³² <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op328~2c44ee718e.en.pdf>

³³ https://www.esrb.europa.eu/pub/pdf/reports/esrb.ecb.climate_report202207~622b791878.en.pdf

³⁴ <https://www.cepreweb.org/climate-related-systemic-risks-and-macroprudential-policy/>

Paradoxically, the risk-based approach, in its effort to prevent a redirection of financial resources away from carbon-intensive activities, inadvertently increases the build-up of future physical risks. From a proactive environmental perspective, it is essential to limit the availability of financial resources to carbon-intensive firms and redirect them towards green activities to facilitate the green transition.³⁵ It is precisely by supporting the green transition that the proactive approach bolsters financial stability, as an accelerated green transition represents the most secure path to financial stability.³⁶

In practice, ECB and national competent authorities, who are responsible for financial supervision in the EU, can develop a green macroprudential toolbox by adjusting their approach to capital requirements. Capital requirements are regulatory guidelines that determine how much capital banks need to hold relative to the riskiness of their assets. The goal of capital requirements is to create loss-absorption capacity to cover for unexpected losses that banks may incur in the future and to contain the build-up of systemic risks by steering bank credit. To the extent that climate-related financial risks are not accounted for in the current capital requirements design, banks are undercapitalised.³⁷ From a proactive environmental approach perspective, green capital requirements would be set to impact on banks' lending behaviour so as to limit future physical risks. Green capital requirements could be implemented through the three different approaches sketched out below.

Green differentiated capital requirements, which are set according to the environmental footprint of banks' holdings'. Under this framework, assets categorised as green would see a reduction in risk weights, and assets categorised as dirty would observe an increase in risk weights, affecting the capital banks are required to hold. This would encourage banks to allocate more capital to assets with a smaller environmental footprint.

Implementing *prudential transition* plans can be a powerful complement to green differentiated capital requirements. Transition plans are detailed forward-looking accounts on the actions that a firm will pursue to align itself with specific environmental objectives. When a bank's plan does not meet expectations, additional capital requirements should be added.³⁸

Finally, a *climate-systemic risk buffer* should be put in place, under which supervisors would require banks to hold additional capital proportional to their exposure to specific sectors and/or institutions. This measure would enhance banks' capacity to absorb losses and encourage financial institutions to divest from polluting sectors and entities. This is particularly relevant because exposure to high-carbon sectors is currently concentrated among a few banks.³⁹

Apart from reforming capital requirements, a green macroprudential toolbox can also include borrower-based macroprudential policies, which aim to influence borrowing behaviour. Examples of such policies include loan-to-value ratios and loan-to-income ratios, which limit the maximum amount that can be borrowed based on the value of the asset being financed or the borrower's income. These policies would restrict the provision of credit to carbon-intensive firms and economic activities.⁴⁰

³⁵ <https://www.inspiregreenfinance.org/wp-content/uploads/2022/10/INSPIRE-Sustainable-Central-Banking-Toolbox-Policy-Briefing-Paper-8.pdf>

³⁶ <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op328~2c44ee718e.en.pdf>

³⁷ <https://www.bis.org/fsi/fsibriefs16.htm>

³⁸ <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/11/Net-zero-transition-plans-a-supervisory-playbook-for-prudential-authorities.pdf>

³⁹ https://www.esrb.europa.eu/pub/pdf/reports/esrb.ecb.climate_report202207~622b791878.en.pdf

⁴⁰ <https://www.adb.org/publications/central-banking-climate-change-and-green-finance>

2.3. Monetary and fiscal policy coordination

As outlined in the policy brief in this series dedicated to monetary-fiscal policy coordination, effective coordination between monetary and fiscal policy is essential to the green transition. This coordination becomes particularly critical in contexts requiring urgent action, such as the green transition. In the renewable energy sector, such alignment plays a pivotal role. First, it enables governments to actively support the transition through targeted public investment and subsidies for clean energy. Second, monetary policy directly shapes credit conditions, which are crucial for the viability of private investment in renewable energy. This is especially important given the sector's capital-intensive nature and the need to scale emerging green technologies into commercially viable solutions.

The ECB can also play a more active role in supporting the green transition through a reworked monetary policy and fiscal policy coordination framework. The green transition demands a substantial increase in investment, with the European Commission estimating an annual investment need of €660 billion until 2030, rising to €695 billion between 2031 and 2040.⁴¹ According to the European Investment Bank (EIB), a significant portion, around 45%, is expected to come from public investment.⁴² Fiscal policy will, therefore, have to play a pivotal role by ramping up public investment and mobilising private capital to support the green transition.

However, the ECB's tightening of monetary policy threatens to constrain the fiscal space needed for these investments by increasing the burden of interest payments of European countries. Southern European countries, like Italy, that are experiencing a higher increase in interest payments, are the very same countries that will suffer higher welfare losses from climate change⁴³, and hence need to invest in climate change mitigation more urgently. These comparatively higher interest payments are primarily explained due to higher levels of public debt and higher interest rates on government debt in relation to that of Northern European countries. These government bond spreads result in an unequal playing field for countries in the Eurozone to tackle climate change⁴⁴, which is compounded by the fact that countries with high public debt are under additional pressure to cut expenditure so as not to further increase their public debt.

The higher interest rate environment, along with the constraints on public debt imposed by EU fiscal rules, leaves less room for manoeuvre for governments to invest in the green transition. This is problematic, as it is an established fact that public investment gets disproportionately reduced during times of austerity.⁴⁵ To address this, the ECB can implement measures which incentivise green public spending during periods of monetary policy tightening, and, while also reducing government bond spreads, thereby levelling the playing field for all countries in the Eurozone to fight climate change.

One effective way to encourage green public investment is by improving the funding conditions for green bonds, which are specifically designed to raise capital for green transition projects. The ECB should establish a permanent green public bond purchasing facility, which would serve as a powerful incentive for green public investment by enhancing the green bond premium. This, in turn, would reduce the

⁴¹ https://energy.ec.europa.eu/news/commission-launches-strategy-accelerate-clean-energy-investment-2026-03-10_en

⁴² <https://www.eib.org/en/publications/investment-report-2020>

⁴³ <https://www.eea.europa.eu/data-and-maps/figures/projected-welfare-impacts-of-climate>

⁴⁴ The government bond spread is calculated as the difference between Eurozone governments' bond yields and those of Germany

⁴⁵ <https://d-nb.info/1097268241/34>

funding costs associated with green public investment.

Finally, the ECB should also close sovereign spreads. The emergence of sovereign spreads, which represent the difference between European bond yields and those of Germany, is the result of the ECB's revision of its collateral framework in 2005.⁴⁶ Prior to this revision, the ECB treated government bonds as collateral equally. However, the new approach relied on assessments made by private credit rating agencies to determine eligibility and haircut rates for these bonds.⁴⁷⁴⁸ The latter entails that public debt sustainability is left to the judgement of a few private credit rating agencies.

During the Eurozone crisis, we experienced the harmful consequences of this revision. Lower credit ratings resulted in higher haircuts and, in some cases, non-eligibility in the ECB's collateral framework and asset purchase programmes⁴⁹, creating a vicious cycle where bondholders dumped Southern economies' bonds, further constraining financing conditions for these governments. This framework effectively coordinated market expectations against weaker EU Member States⁵⁰, which negatively impacted these states' financing conditions. The ECB's approach took a 180-degree turn during the Covid-19 crisis when it decided to ease its collateral rules for government bonds.⁵¹ This, coupled with the implementation of the PEPP, led to a narrowing of spreads. The advantageous financing conditions meant that governments could pursue the expenditures necessary to navigate through the pandemic-induced crisis.

The ECB should therefore reduce its reliance on private credit rating agencies⁵² and, in doing so, shift away from market discipline. Returning to a more uniform treatment of government debt within the collateral framework could significantly impact the narrowing of spreads. Moreover, the assessment of the appropriate fiscal stance should move from market discipline to political decision-making. In cases where spreads widen during periods of turmoil, the ECB should be prepared to ease its collateral measures, similar to its actions during the Covid-19 crisis, and participate in public bond purchase programmes to ensure that spreads are brought under control. These measures would support the green transition, ensuring that governments around Europe continue to operate in the conditions which allow them to support green initiatives, such as the renewable energy industry, even during times of economic duress.

6. Conclusion

Monetary policy is an important element of economic decision making. By influencing financing conditions, it can shape the trajectory of economic activity, including which activities are financed and influencing the conditions which allow for support of the green transition. There are therefore extensive interlinkages between monetary policy and climate change. Climate change can also impact the ability of monetary policy authorities to fulfill their mandates of price stability, reinforcing the arguments of why addressing climate change is a key objective for monetary policy authorities.

Green monetary policy can help bridge these challenges, by incentivising the financing of green initiatives

⁴⁶ <https://www.econstor.eu/bitstream/10419/277915/1/1860212700.pdf>

⁴⁷ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3980953

⁴⁸ <https://academic.oup.com/ser/article/21/2/1103/6554757>

⁴⁹ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3980953

⁵⁰ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3076184

⁵¹ https://www.ecb.europa.eu/pub/economic-bulletin/focus/2022/html/ecb.ebbox202203_07-441fce9f64.en.html

⁵² <https://www.positivemoney.eu/2022/02/central-banks-credit-rating-climate/>

such as investments in renewable energy, and disincentivising the flow of financing towards more environmentally harmful activities. It is therefore imperative that monetary policy authorities integrate further climate change considerations into their activities, taking a more active role in supporting the green transition. Monetary policy authorities can do so by refraining from implementing overly cautious contractionary monetary policy, which disproportionately harms the renewable energy industry. Due to its capital intensity relative to other industries, the renewable energy industry is significantly more vulnerable to increases in interest rates.

Furthermore, the ECB can further green its activities through an extensive reform of its operations. This will help channel cheaper financing towards green initiatives such as the renewable energy industry, supporting the industry and ultimately the green transition.

Ultimately, monetary policy should also be better coordinated with fiscal policy, preventing policy misalignment that can generate uncertainty and lead to inefficient use of public resources. The green transition demands a substantial increase in investment, with the European Commission estimating an annual investment need of €660 billion until 2030, rising to €695 billion between 2031 and 2040. According to the European Investment Bank, a significant portion, around 45%, is expected to come from public investment. Fiscal policy will, therefore, have to play a pivotal role by ramping up public investment and mobilising private capital to support the green transition. A high interest rate environment will be detrimental to these efforts, limiting the ability of public institutions to support the green transition, including the renewable energy industry. Better coordinated monetary and fiscal policy will therefore enable a mutually reinforcing policy framework capable of advancing key socioeconomic objectives. This coordination becomes particularly critical in contexts requiring urgent action, such as the green transition, and the underlying investments needed in the renewable energy industry.



Contact at Positive Money Europe

Laura Casonato, Head of Policy: laura.casonato@positivemoney.eu