SUSTAINABLE FINANCE LAB

MONETARY TIGHTENING SLOWS DOWN THE ENERGY TRANSITION

A role for the ECB?

In this paper

Renewable energy is more capital-intensive and more reliant on external financing relative to fossil fuel energy sources.

Higher European policy rates reduce investments in renewable energy, while fossil fuel investments do not decrease.

Introducing green interest rates would protect the renewable energy sector during monetary tightening.

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POLICY PAPER

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Sustainable Finance Lab is an academic think tank. We research, propose and invoke changes in the European financial system that accelerate and support the transition to a sustainable economy.

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Policy Paper

Sustainable Finance Lab publishes different types of publications. This is a Policy Paper. Policy papers are reports produced by SFL members or employees that contain specific proposals and recommendations for the financial sector or policy makers.

Is monetary policy technology-neutral?

The European Union is fully engaged in the energy transition. Ambitious targets, such as climate neutrality by 2050 and the shift to sustainable energy sources, have been enshrined in EU legislation by the European Commission (Regulation (EU) 2021/1119, 2021). Recent concerns expressed by Mario Draghi (2024) in his report on Europe's geopolitical dependence and competitiveness only support the urgency to switch from unreliable, expensive, and imported fossil fuels to green alternatives.

Achieving a climate-neutral economy by 2050 requires substantial investment in renewable energy sources (European Commission, 2025; Eurostat, 2025; IEA, 2023). Projects in the renewable energy sector are capital-intensive and have long payback periods, making them relatively dependent on external financing (Kim & Park, 2016).

For these investment decisions, the monetary policy of the European Central Bank (ECB), particularly its interest rate adjustment, is a decisive factor since it affects the cost of external financing. Moreover, policy has a steering effect because sectors vary in their dependence on financing. In other words, monetary policy is not neutral, as it has different effects on different sectors. Earlier research shows that monetary easing stimulates the energy transition because it improves investment conditions for renewable energy more than for fossil energy (Schmidt et al., 2019).

In recent years, the aftermath of the COVID-19 pandemic and Russia's invasion of Ukraine have forced the ECB to tighten policy for the first time in a decade. To curb rising inflation, policy rates have been sharply increased in a short period. While the ECB is right to prioritise its primary mandate (ensuring price stability in the euro area), this new policy raises questions about its implications for the energy transition.

The ECB's tight monetary policy has had a negative effect on achieving the European Commission's climate goals (Serebriakova et al., 2025). In this article, we discuss how the ECB can better account for the climate transition within its primary mandate, especially in times of monetary tightening.

Effect of policy interest rates on the energy transition

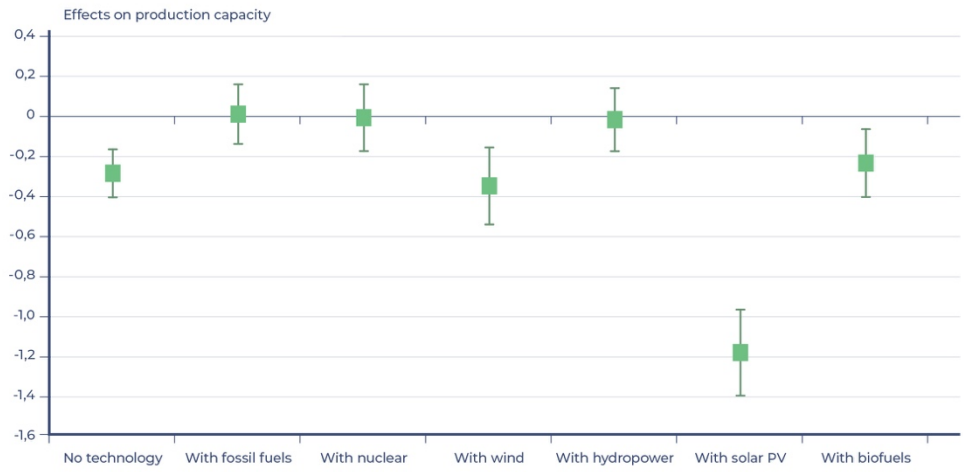
To determine the effect of the ECB's policy rate on the energy transition, Serebriakova et al. (2025) use a panel data analysis. The panel contains data on 27 European countries and six electricity generation technologies between 2001 and 2021. Of the six technologies, four are renewable energy forms (wind, hydropower, solar, and bioenergy). We also include fossil fuels and nuclear power as non-renewable energy sources. The data come from various sources (ECB, 2023; European Commission, 2022; IRENA, 2022; OECD, 2021; World Bank, 2023; WRDS, 2023).

The dependent variable in the analysis is the natural logarithm of the production capacity of the six different electricity generation technologies. As the explanatory variable, we use the ECB's marginal lending facility (MLF). Based on the panel data, we estimate interaction effects between the MLF and the various technologies, including fixed effects for technology, country, and year. We also control for various non-monetary variables affecting the installation of new production capacity, such as subsidies and tax deductions.

On average, the MLF has a negative effect on the installation of new production capacity for all technologies (see Figure 1). For fossil energy, we find the total effect of the MLF on production capacity to be zero. The same applies to mature non-fossil technologies like nuclear and hydropower. For newer renewable sources (wind, solar, and bioenergy), we find a negative total effect.

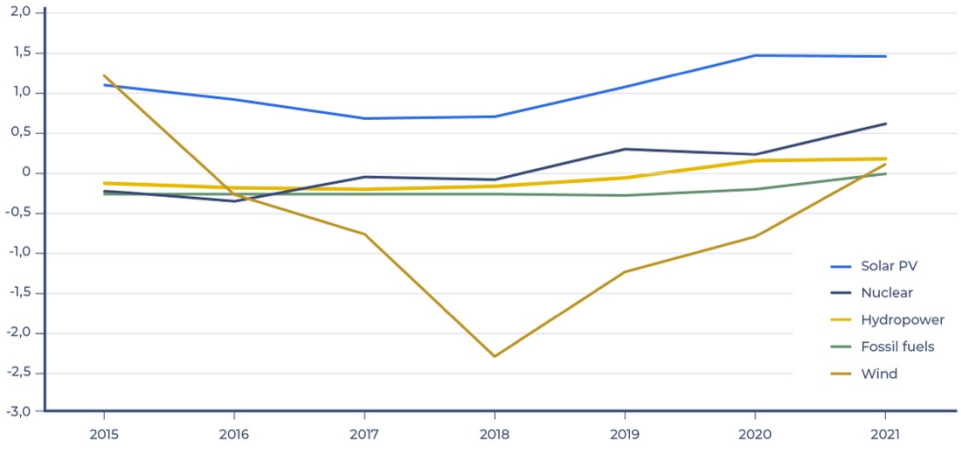
A possible explanation for these differences lies in the degree to which the technologies depend on external financing. Technologies that hardly respond to changes in the MLF, such as fossil fuels and hydropower, are less dependent on external financing than those that respond strongly, such as solar power (see Figure 2). Whether a source is renewable or not is therefore less decisive for interest rate sensitivity than the degree of reliance on external financing.

Figure 1. The effect of the MLF on production capacity for different technologies



Source: Serebriakova et al. (2024), authors' elaboration.

Figure 2. Dependence on external financing over time



Note: External financing dependence is defined as:

$$\text{External finance dependence}_{jt} = \frac{(\text{Capital Expenditures}_{jt} + \text{R\&D Expenses}_{jt}) - \text{Operating Activities: Net Cash Flow}_{jt}}{\text{Capital Expenditures}_{jt} + \text{R\&D Expenses}_{jt}}$$

The figure shows figures for US utilities between 2015 and 2021. The negative values for wind energy after 2016 are the result of several major bankruptcies in the US wind sector, which resulted capital and R&D expenditures minus net cash flow being negative.

Source: Serebriakova et al. (2024), authors' elaboration.

Green TLTROs as an obvious choice

Current tightening hinders the energy transition, but this can be addressed. To promote the energy transition during monetary tightening, the ECB could use green Targeted Long-Term Refinancing Operations (green TLTROs). These can help stimulate targeted green investments precisely in times when sustainable projects are particularly vulnerable to financing problems.

TLTROs are a monetary policy tool allowing banks to borrow from the ECB at lower interest rates and for a long term. They were introduced to stimulate the euro area economy during the economic crisis of the 2010s. The instrument is targeted and does not affect the entire economy.

Green TLTROs work similarly to regular TLTROs, in that they offer a lower interest rate and a longer term than ECB's main refinancing operation (MRO), but are specifically aimed at loans for green projects, identified using the EU taxonomy. This taxonomy now gives the ECB clear guidelines and political legitimacy to design such instruments.

Earlier proposals for green TLTROs were put forth to stimulate the green transition in Europe (Van 't Klooster & van Tilburg, 2020). However, these were deemed unfeasible by the ECB due to an underdeveloped EU taxonomy and lack of reliable bank reporting (ECB, 2021). Both obstacles have now been overcome, as taxonomy-

alignment reporting is mandatory[1], making the introduction of green TLTROs possible.

An uncertain outlook of Capital Markets Union

Instead of green TLTROs, the ECB advocates integrating European capital markets into a Capital Markets Union to support the green transition (Lagarde, 2024). The Capital Markets Union is a project that aims to reduce fragmentation in European capital markets and thus facilitate cross-border investment. According to Lagarde's reasoning, access to cross-border capital markets should lead to a reduction in risk premiums for renewable energy, thus obviating the need for green TLTROs.

However, the CMU has been in the works for years and does not yet provide the needed funding, especially during tight monetary conditions. Moreover, capital markets will mainly be accessible to large, established companies with strong balance sheet positions and a long history, and not the new players we expect to drive the energy transition (Holzmann, 2024).

Closing the green finance gap in Europe requires rapid and scalable solutions (European Commission, 2023). Rather than hoping for a capital markets union that doesn't yet exist, it seems better to build on the more dominant bank-based financial landscape we currently have in Europe. As we saw with the original TLTROs, a green version of these could be developed relatively quickly and, with the right design, scaled up relatively quickly (Jourdan et al., 2024).

European Investment Bank: limited impact

In addition to the Capital Markets Union, the European Investment Bank (EIB) is also often deployed to mobilize cross-border financing for the green transition. This institution, like other public development banks, was specifically established for such long-term investments.

However, doubts remain about its ability to close the financing gap. In 2023, the EIB allocated only €49 billion for sustainable loans (EIB, 2024), while estimates of the annual climate financing need until 2030 range from €400–500 billion (Andersson et al., 2025). Second, the EIB has had problems in the past with greenwashing and incorrectly accounting for the sustainability of its investments (Roggenbuck, 2020). Third, the EIB will also never be able to absorb the negative effects of monetary tightening. By contrast, European banks already face mandatory taxonomy-alignment disclosure, which could mitigate greenwashing risks in a green TLTRO programme.

[1] At the time of writing. However, due to the finance deregulation agenda, EU Taxonomy might become voluntary in the near future.

Conclusion

Monetary easing accelerates the energy transition, while tightening slows it down. Knowing this, the ECB should reconsider its policies. Tight monetary policy is needed to maintain price stability, but the instruments used inadvertently undermine the European Commission's goals. This is not only undesirable but conflicts with the ECB's secondary mandate. If price stability can be achieved without hampering the energy transition, the ECB is obliged under the treaty to do so.

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