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Fiscal Capacity Revisited: Technopolitical Coalitions and Off-Balance-Sheet Instruments in Europe's Green Industrial Policy

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Abstract

This article examines how fiscal constraints influence the development of contemporary industrial policy, with a focus on European initiatives to encourage green growth and sustainability. Due to high debt levels and the EU's strict fiscal regime, governments are turning to off-balance-sheet financial instruments to enable investment without formally increasing public debt. Consequently, off-balance-sheet policies broaden the scope of fiscal capacity beyond the traditional realms of taxation and spending. I argue that the successful design of such policies requires intricate technical considerations and thus depends on the formation of "techno-political coalitions": alliances combining technical expertise and political influence to clarify and navigate Europe's fiscal and statistical rules. This article explores this phenomenon through the case study of energy performance contracts, creative instruments that facilitate the off-balance-sheet financing of building renovations. By bridging the gap between industrial policy scholarship and critical finance theory, the article demonstrates that contemporary industrial policy is not only concerned with directing public investment, but also with managing liabilities in ways that reshape fiscal capacity within the confines of strict fiscal constraints.

Keywords

fiscal capacity; green industrial policy; off-balance-sheet policies; public debt

1. Introduction

Over the past decade, governments have stepped up both their climate goals and their industrial policy ambitions (Aiginger & Rodrik, 2020; Wu & Salzman, 2013). These dynamics are closely connected, as decarbonization is now seen as a way to boost technological competitiveness and industrial renewal. This

means that climate policy is becoming part of a sectoral state-led industrial strategy (Meckling & Strecker, 2023; Veugelers et al., 2024). However, today's industrial strategies fundamentally differ from those of the past, when they were implemented under soft budget constraints. At that time, states mobilized substantial public funding for state-owned enterprises over long time periods, which sometimes resulted in the pampering of inefficient and expensive "lame ducks" (Chang & Amsden, 1994). Nowadays, instead, governments are increasingly struggling to mobilize funding and to attract private financing for industrial policy projects.

So far, industrial policy scholars have acknowledged that hard budget constraints are a defining feature of contemporary industrial policy efforts (Bulfone, 2022), focusing for example on the way in which the interest rates that governments pay on their debt determine their capacity for green industrial policy spending (Driscoll & Blyth, 2025; Meckling & Benkler, 2024). However, not all green industrial policy instruments are constrained by public debt numbers. By focusing solely on traditional instruments and framing states' capacity to decarbonize as a direct function of their debt or taxation levels, industrial policy scholars have overlooked instruments operating outside official fiscal constraints, thus having a partial understanding of fiscal capacity. This article examines how policymakers navigate fiscal constraints when doing industrial policy, specifically focusing on the delegation of off-balance-sheet instrument design to technocrats.

Off-balance-sheet instruments emerge from the accounting distinction between two ways in which state actors can invest their resources (Irwin, 2015). On one hand, public expenditure is understood as redistributive fiscal policy, which forms the basis for government debt calculations, i.e., taxes and all spending with a clear public policy motive. On the other hand, there are profitable public investments that are framed as marketable and revenue-generating and thus excluded from government debt calculations. These include equity stake purchases, policy banks, or public guarantee schemes (Easterly et al., 2007; Irwin, 2016).

This distinction is particularly relevant within the European Economic and Monetary Union, where one of the world's strictest fiscal regimes is imposed on member states and can be enforced through sanctions. As a result, countries have increasingly explored the possibility of designing marketable emergency measures (Gandrud & Hallerberg, 2016) or pushing public infrastructure products onto the balance sheets of private partners (Piron, 2024). Thus, while countries have converged around the 3% deficit threshold in recent years in line with Europe's fiscal rules (Caselli & Wingender, 2021), governments have simultaneously deepened their technical knowledge of these fiscal rules (Locatelli, 2025) and increased their off-balance-sheet spending (Gardó et al., 2021).

While industrial policy scholars have not entirely overlooked the importance of such constraints in shaping the instruments and goals of public investments (Gabor, 2023; Griffith-Jones & Naqvi, 2021; Lepont & Thiemann, 2024), the literature tends to treat off-balance-sheet instruments as an economic reality, taking the distinction between profit-making and redistributive interventions at face value. However, off-balance-sheet policies are accounting artifacts that are constantly negotiated within a community of technical experts (de Vlieger & Mügge, 2018; Mabbett & Schelkle, 2016; Savage, 2005). Taking a critical finance perspective, this article analyzes off-balance-sheet industrial policies from the liability side (Dutta et al., 2020; Guter-Sandu & Murau, 2022), focusing on the specific composition of policies and the technical processes leading to their design (Chiapello, 2017). In practice, whether an instrument qualifies as off-balance-sheet is contingent upon complex assessments about its profitability, policy design, and the degree of state involvement (Eurostat, 2023).

The process of crafting off-balance-sheet industrial policy is complex and is shaped by interpretive struggles and negotiations among experts over concrete policy designs. Central to this process is what I conceptualize as a technopolitical coalition: an alliance of bureaucrats and technical experts who design policy instruments that meet political objectives, withstand statistical scrutiny, and appeal to the market. These coalitions depend on the mobilization of technical expertise from actors not traditionally involved in policy design or implementation. For example, they rely on statistical knowledge of off-balance-sheet rules, financial expertise to enroll private companies, and institutional knowledge of the criteria for accessing European funds. Rather than relying on established administrative channels, bureaucrats actively seek and assemble the necessary expert groups. Off-balance-sheet instruments require close collaboration between government finance statisticians and investment advisors from development banks, actors whose mandates may conflict. Therefore, forming technopolitical coalitions is essential to coordinating these actors and reconciling their divergent institutional logics.

Empirically, this article examines how techno-political coalitions contribute to the crafting of off-balance-sheet policies through an analysis of European energy efficiency initiatives in the building sector, an area rarely addressed in industrial policy research. Energy efficiency has long been part of Europe's climate policy and has recently been integrated into its industrial strategy for green growth, as it provides a crucial energy infrastructure while also affecting renewable energy and storage (Bulfone et al., 2026; Rodrik, 2014). Buildings are a central focus within this agenda: They account for 40% of EU energy consumption and around 20% of greenhouse gas emissions, making them a long-standing target of the EU's decarbonization strategy (Energy Efficiency Financial Institutions Group, 2015). Traditionally viewed as a local, low-tech, and non-tradable sector, building renovation is now increasingly recognized as a driver of industrial transformation (European Commission, 2025a). It stimulates demand for emerging green industries such as insulation materials and heat pumps, creates quality local employment, and serves as a platform for innovation in climate finance (Veugelers et al., 2024).

This article examines energy performance contracts (EPCs), an innovative financing tool for improving the energy efficiency of buildings. It shows that small EU member states with sufficient bureaucratic capacity and technical expertise can form successful techno-political coalitions and collaborate with European technocrats to design off-balance-sheet instruments that unlock private capital without violating fiscal rules. In this context, industrial policy success hinges less on the availability of fiscal space or political influence and more on the ability to craft legally and statistically compliant spending instruments and to convince the industry to actually use them. EPCs are an exemplary case for how fiscal innovation can substitute for direct expenditure, allowing states to pursue transformative goals even under conditions of austerity and strict fiscal rules. This example expands the analytical perspective beyond traditional instruments, highlighting the significance of new industrial policy in determining fiscal capacity.

The rest of the article proceeds as follows. Section 2 reviews the existing literature on green industrial policy. In light of recent changes in statecraft that have resulted in an increase in off-balance-sheet liabilities, it asserts that the relationship between the policy's two primary dimensions—fiscal and bureaucratic capacity—requires closer consideration. Section 3 then develops a framework linking industrial policy to critical finance studies, conceptualizing the techno-political coalitions that shape state capacity and create off-balance-sheet industrial policies. Section 4 examines the fiscal and bureaucratic capacities that underpin European green industrial policy. Section 5 then situates energy efficiency as one of its central priorities and

provides an in-depth case study of EPCs to demonstrate how fiscal and bureaucratic capacities interact to shape policy outcomes. Finally, Section 6 concludes by considering the implications for industrial policy theory and EU climate governance.

2. From Soft Budgets to Hard Choices: Green Industrial Policy Under Fiscal Constraints

What factors shape a country's ability to craft transformative green industrial policies? Current literature emphasizes state capacity and specifically fiscal and bureaucratic capacity as shaping both the type and ambition of a government's decarbonization policies (Ergen, 2026; Meckling & Benkler, 2024; Seidl & Wuttke, 2026). In this regard, bureaucratic capacity is conceptualized as an interplay between institutional structures and meritocratic recruitment, whereas fiscal capacity is constituted through taxation and spending power (Cingolani, 2013). Recent critical finance studies (Gabor, 2023; Lepont & Thiemann, 2024; Prontera & Quitzow, 2022), however, challenge this static view, showing how statecraft has adapted to increasingly restrictive fiscal environments through policies that can "do more with less." This emerging perspective on state action under fiscal constraint highlights a broader conceptual gap in the current understanding of fiscal capacity for industrial policy.

While conventional measures treat fiscal capacity as a function of tax revenues or sovereign debt metrics, they fail to capture a key facet of green industrial policy: the growing use of off-balance-sheet instruments that do not directly rely on taxation and do not contribute to headline debt ratios. In this section, I synthesize both strands of literature to argue that recognizing this dimension necessitates an examination of how bureaucratic capacity enables policymakers to "do more with less" by designing and managing off-balance-sheet interventions. This approach aligns with and complements the two most prominent explanations in recent green industrial policy literature: those emphasizing political coalitions (Meckling, 2011; Meckling & Goedeking, 2023; Meckling et al., 2015), and those stressing countries' macroeconomic structures (Driscoll, 2024; Driscoll & Blyth, 2025; Kupzok & Nahm, 2025).

First, coalitions help to secure support for green policies from industry and politics. Since the 1980s, pro-climate coalitions anchored in competitive green industries have been decisive for the durability of green industrial policies (Meckling et al., 2015) by advancing policy incrementally, sequencing supportive "carrots" before introducing regulatory "sticks" (Meckling, 2015; Pahle et al., 2018). As green industrial policies aim at promoting green growth, they face the challenge of disrupting existing economic processes (Veugelers et al., 2024), encouraging the use of natural resources more efficiently, and fostering investment in green innovation (Steer, 2014). Such disruption requires both substantial upfront investment (Rodrik, 2014, p. 469) and effective coordination with industry stakeholders (Meckling, 2015).

Second, the structural features of national economies condition decarbonization, making them a predefining factor for the political viability of green industrial policy. This is because they determine the feasibility of decarbonization based on its cost to policymakers. Countries with less carbon-intensive structures face fewer obstacles in building pro-climate coalitions (Driscoll, 2024; Kupzok & Nahm, 2025). In this regard, Driscoll and Blyth (2025) operationalize "decarbonization capacity" as a combination of the state's cost of capital and the share of fossil fuels in primary energy consumption. Such macroeconomic conditions can either facilitate the adoption of green industrial policy by lowering opposition or constrain ambition by narrowing the perceived scope of feasible interventions (Kupzok & Nahm, 2025). Recent work also shows that states can decarbonize

through political coalitions led by industries that proactively adapt to shifts in global demand (Hehenberger, 2025), or be hindered by the failure of such industry coalitions (Ergen, 2026).

Both strands of literature emphasize the importance of fiscal capacity to invest in disruptive technologies and bureaucratic capacity to negotiate, design, and implement green policies. A strong bureaucratic foundation leads to more successful green policies as they are independent from regulatory capture (Meckling & Nahm, 2018), while it also helps "to monitor and enforce policy compliance" (Meckling & Benkler, 2024, p. 1). Scholars have examined how state agencies have traditionally distributed funds (Mathews et al., 2023), how governments have delegated subsidy allocation to private intermediaries (Frandsen, 2025), and how bureaucrats attempt "to elicit cooperation from and coordinate the activities of private actors around a public goal" (Seidl & Wuttke, 2026).

Taken together, this body of work highlights that contemporary green industrial policy requires forms of bureaucratic capacity that differ from those of earlier industrial eras. Today's policy environment is shaped not only by technological opportunities and business-sector dynamics, but also by the need to mobilize specialized expertise to operate within tightening fiscal and regulatory constraints: expertise on the accounting behind fiscal constraints, the accessibility of EU funds, and market structures for implementation.

This aligns with the political coalition literature, which emphasizes the need to build and maintain supportive coalitions, and with macro-structural accounts showing that effective green industrial policy must be compatible with countries' underlying economic and financial structures. Yet, while the literature increasingly recognizes the changing nature of bureaucratic capacity, it continues to treat fiscal capacity in a much more static way. This creates a conceptual gap that becomes evident once we consider how today's fiscal constraints shape what kinds of green industrial policies are possible.

Fiscal capacity is typically conceptualized as a structural constraint defined as "the ability to raise revenue through taxes and/or borrowing" (Meckling & Benkler, 2024, p. 1). Consequently, fiscal capacity is measured using indicators such as long-term interest rates, debt-to-GDP ratios, and tax revenues (Cingolani, 2013). Accordingly, the (green) industrial policy literature has usually assessed fiscal capacity by examining a country's space for on-balance-sheet spending (Driscoll, 2024; Meckling & Strecker, 2023). Yet, recent contributions note that even among wealthy economies, there is substantial variation in the scale and form of green industrial policy, prompting calls to identify "the sources of variation of green fiscal capacity and spending across countries" (Meckling & Benkler, 2024, p. 3).

I argue that an important, yet currently overlooked, source of such variation lies in governments' ability to design off-balance-sheet policies, which are not captured by standard measures such as debt-to-GDP ratios. Developing these instruments requires significant bureaucratic capacity, particularly the ability to form networks of highly specialized technical experts (Savage, 2005), including those who have not traditionally been involved in industrial policy design. To explore this dynamic further, I draw on insights from critical finance studies, which demonstrate how contemporary fiscal constraints are fundamentally reshaping statecraft by compelling governments to "do more with less" (Gabor, 2023; Lepont & Thiemann, 2024).

In the EU, a continued focus on fiscal consolidation and austerity has fundamentally altered spending priorities and the way governments are conducting economic policy (Heimberger, 2025; Streeck, 2016). As a

consequence, over the past decades governments increasingly turned to market-based instruments such as guarantees, blended finance, and tax incentives, which are not directly accounted for in public debt but promise to be equally effective in preventing market failure (Mertens et al., 2021a). In doing so, they embed a financialized logic into policy design, aligning public objectives with market dynamics and de-risking private investment (Chiapello, 2017; Gabor, 2023).

However, to date, industrial policy scholars have treated the existence of off-balance-sheet policies as a fact, while critical finance scholars have identified the specific conditions under which they arise (Guter-Sandu & Murau, 2022). The design and implementation of such instruments hinge on technical expertise regarding the complex regulations of European government debt accounting (Mabbett & Schelkle, 2016). These regulations have evolved over time and delineate the distinction between liabilities classified within and outside government debt calculations (Aragão & Linsi, 2020; de Vlieger & Mügge, 2018). Thus, if governments want to understand the fiscal impact of their measures or design off-balance-sheet policies, they will need to rely on technical experts who understand these rules (Endrejat, 2024).

For these reasons, understanding green industrial policy today requires expanding the concept of fiscal capacity beyond a structural constraint defined by revenues or debt ratios to include it as a contested space actively shaped and expanded through bureaucratic expertise and fiscal innovation. To analyze how political and technical actors coordinate under specific conditions and what drives the success of such coordination, the next section conceptualizes the formation of techno-political coalitions that jointly craft new financial logics and instruments and, by doing so, can reshape fiscal capacity.

3. Techno-Political Coalitions for (Green) Off-Balance-Sheet Industrial Policies

To understand how fiscally constrained governments develop off-balance-sheet green industrial policies and thus reconfigure fiscal capacity, this article introduces a framework that interprets fiscal and bureaucratic capacities as jointly produced within techno-political coalitions. By this term, I refer to coordinated networks of political leaders, core bureaucracies, and specialized public institutions, including development banks, fiscal councils, debt management offices, and statisticians. Together, they can design off-balance-sheet instruments that are both financially acceptable and legally sound and perform well in the market. However, this only happens when they form techno-political coalitions, combining their authority, technical expertise, and official responsibilities. In these coalitions, political actors provide legitimacy, strategic direction, and formal authority, while technical experts translate priorities into operational instruments and define the scope of feasible policies. Figure 1 summarizes how fiscal capacity is reconfigured through techno-political coalitions.

In techno-political coalitions, political leaders exercise formal authority to set priorities and initiate policy processes (Kingdon, 1995), and bureaucrats attempt to find ways to enact the policies, at times against opposition (Skocpol, 1994). In doing so, bureaucrats rely on technical institutions that exert influence through control over rules, assessments, and operational expertise that determine which instruments are feasible under fiscal, legal, and market constraints. In other words, bureaucrats will search for the right technical expertise and involve different actors into the policy design. However, these actors have at times conflicting mandates and missions. The coalition's success therefore hinges on "intrastate agency coordination" (Evans et al., 1985) and the ability to navigate conflicts, negotiate compromises, and leverage institutional capacities, balancing formal authority with technical authority (Chibber, 2002).

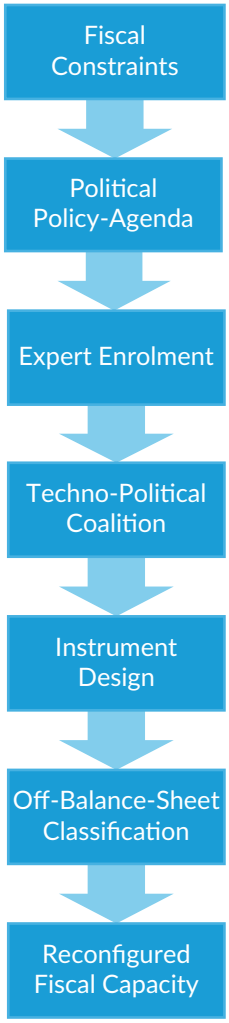

Figure 1. The reconfiguration of fiscal capacity through techno-political coalitions.

Unlike previous accounts that either emphasize the issue-specific knowledge within bureaucracies or the involvement of private-sector technical expertise in industrial policymaking at "arm's length" (Mazzucato, 2024; Rodrik, 2014), this framework highlights the specialized knowledge held by public institutions that are not usually involved in policy design. In recent years, the realm of industrial policy has witnessed a shift in its design, with the involvement of entities beyond the purview of ministries and planning agencies (Breznitz & Gingrich, 2025; Bulfone, 2022). Within this transformation, fiscal councils, debt offices, and statisticians have assumed a pivotal role in determining the categorization of instruments: They need to decide whether policies count towards government debt and deficit or remain off-balance-sheet (de Vlieger & Mügge, 2018; Savage, 2005). Meanwhile, development banks (Griffith-Jones & Naqvi, 2021), investment funds (Cooiman, 2023), and other state agencies (Babić, 2023) have been mandated to leverage capital and maximize risk-adjusted returns. Consequently, the attainment of favorable policy outcomes is contingent upon the orchestration of these institutions, the alignment of incentives, and the reconciliation of potentially incongruent mandates (Besley et al., 2022; Chibber, 2002, p. 983).

The process by which techno-political coalitions increase fiscal capacity through off-balance-sheet industrial policy adheres to standard policy dynamics: agenda-setting, instrument design, and implementation (Kingdon,

1995). Policy initiatives take off during policy windows and are driven by policy entrepreneurs (Howlett, 2014; Zahariadis, 2007). In the EU, the Commission typically establishes the agenda, and, once the Council and Parliament have passed legislation, it also oversees implementation and policy design (Arroyo, 2026; Bulfone et al., 2026). However, although the European Commission sets the general direction and specific goals of industrial policy uniformly, its multiple directorates-general (DGs) are involved in implementation and have very different interests and goals (Hartlapp et al., 2013).

After policymakers articulate strategic priorities and provide legitimacy, bureaucrats must coordinate with each other and involve relevant technical experts, bearing in mind that "the very rules of the state agencies come into conflict with each other" (Chibber, 2002, p. 983). Development banks, for example, combine technical knowledge of market conditions with risk management expertise, and their mandates explicitly require them to support member states in distributing financial instruments (Griffith-Jones & Naqvi, 2021; Mertens et al., 2021b). However, they have a very clear mandate to enhance the spending and disburse the funds under their specific programs, as well as specific knowledge on the national markets and development institutions that are available to ensure a roll-out of these instruments (Liebe & Howarth, 2020).

To maintain the off-balance-sheet status of their instruments, the European Investment Bank (EIB) and national agencies depend on fiscal experts from statistical offices (Bulfone & Di Carlo, 2021). These statistical agencies have different mandates and goals than development banks (Endrejat, 2024). They define exact criteria for off-balance instruments and depend on their formal independence and distance from policymakers to ensure the credibility of their assessments (Savage, 2005). A successful techno-political coalition for off-balance-sheet policies emerges when a political impulse leads the relevant Commission actors, development banks, and statisticians to collaborate while respecting their mandates, resulting in the design of instruments that increase fiscal capacity while adhering to institutional mandates.

Taken together, the concept of techno-political coalition foregrounds the co-production of fiscal and bureaucratic capacity. It explains how ambitious green industrial policy can be designed under strict fiscal constraints, how marginal actors can achieve leadership through specialized expertise, and why off-balance-sheet instruments have become central to European industrial policy. This concept shifts the analytical focus from static measures of fiscal or bureaucratic capacity to the processes through which these capacities emerge, interact, and enable policy action. It provides a lens through which to analyze the design and implementation of decarbonization instruments in the EU. The next section will use this lens to review how fiscal constraints have shaped Europe's industrial policy agenda, as well as the composition of its instruments and actors. This will be followed by an in-depth case study of EPCs that illustrates techno-political coalitions in action.

4. New Actors and Instruments for Europe's Green Industrial Policy

How did Europe's green industrial policy evolve in light of its very own strict fiscal rules? Confronted with stagnant growth and constrained public finances, member states and EU institutions adapted their policy apparatuses to pursue decarbonization within these constraints. The European Commission has expanded its toolkit, particularly through financial instruments and public–private partnerships (PPPs), while the EIB has repositioned itself as the primary source of green and industrial financing, as the "EU's Climate Bank" (Griffith-Jones & Carreras, 2024; Mertens & Thiemann, 2023).

However, the scale of the challenge remains significant: The EU confronts severe fiscal constraints with annual investment needs of roughly €842 billion and a shortfall of about €344 billion in the past year (Calipel et al., 2025). Its budget is small, political resistance curbs further joint borrowing, and newly reinstated fiscal rules restrict national fiscal space (Darvas & Wolff, 2023). In response, policymakers are increasingly turning to alternative financing mechanisms, such as blended-finance instruments like InvestEU (Wigger & Lavary, 2026) and an expanded role for development and national promotional banks, signaling an ongoing recalibration of Europe's economic governance that is pushing the Union toward deeper structural transformation.

This transformation dates back to the early 2000s when the first steps were taken to align industrial development with goals of resource efficiency and cleaner production. With the Europe 2020 strategy approved in 2010, the EU formally linked competitiveness with sustainability, marking a shift toward a green growth paradigm. This trajectory culminated in 2019 with the approval of the European Green Deal, which set out the EU's ambition to become the first climate-neutral continent by 2050 and was described as "Europe's man on the moon moment" (Simon, 2019). This commitment was further reinforced with the 2023 Net-Zero Industry Act, which focused on developing and scaling clean technologies (Arroyo, 2026). The 2025 Clean Industrial Deal was the latest attempt "to turn decarbonization into a driver of growth for European industries" (European Commission, 2025a) and exemplified the EU's "remarkably resilient" climate and decarbonization agenda (Bocquillon, 2024).

Given the EU's limited fiscal resources and its member states' tight finances, the Commission has relied heavily on its bureaucratic capacity to develop decarbonization instruments with minimal fiscal costs. These instruments range from regulatory measures (e.g., the Energy Efficiency Directive) to market-based mechanisms, financial tools, and direct industrial policy interventions (e.g., the Emissions Trading System and the Carbon Border Adjustment Mechanism; Bulfone et al., 2026). Furthermore, the Commission established several policy instruments aimed at mobilizing private and public funds. These are administered by the EIB and national development banks, most prominently the InvestEU Fund, which leverages limited EU fiscal resources to de-risk private investment and mobilize much larger pools of capital (Kavvadia, 2021). In this way, InvestEU provides a crucial financial backbone for Europe's decarbonization strategy, ensuring that investment flows into sectors where market forces alone would underdeliver, such as building renovations and energy efficiency improvements.

The EIB, as the main implementing partner of InvestEU, has redefined its institutional role by fully aligning its financing priorities to the Paris Agreement, phasing out fossil fuel lending, and concentrating on priority sectors. Its lending portfolio is progressively becoming more aligned with green transition priorities (Griffith-Jones & Carreras, 2024, p. 86), positioning the EIB not merely as a financial intermediary but as an active shaper of Europe's industrial and energy policy. Similar to the European Central Bank, the EIB is increasingly orchestrating new policies rather than simply implementing them (Kavvadia, 2021; Spendzharova, 2023). For example, the EIB has advised governments in designing off-balance-sheet policies, such as PPPs (Liebe & Howarth, 2020), and worked together with statisticians to ensure their right design (Endrejat, 2024).

Regarding the energy efficiency agenda, the EIB provides financing and technical expertise for climate adaptation projects. Thanks to its expertise in designing off-balance-sheet instruments, the EIB has substantially increased the EU's capacity to pursue its climate objectives, both bureaucratically and fiscally.

However, these instruments are not off-balance-sheet per se, as only European government finance statisticians can ultimately decide the classification of these policies, and they are not to be taken lightly (Piron, 2022). Other than development banks, European statisticians only discuss the classification of policies with their national counterparts and focus on the internal coherence of accounting standards without taking into account their wider economic impact (de Vlieger & Mügge, 2018; Schelkle, 2009).

National statisticians determine if policy instruments created by governments or implementing institutions should be considered off-balance-sheet based on profitability, operational independence, and the absence of future fiscal liabilities (Savage, 2005). Twice a year, comprehensive data on government finances are submitted to Eurostat, and national and European statisticians meet to resolve borderline cases. For example, recent cases include development banks and government-guaranteed programs, which have grown significantly in past years. When classifications are unclear, new rules are collectively agreed upon within independent statistical agencies, which increases the need for early consultation between policy designers and statisticians under tight fiscal conditions. Unlike development banks, these statistical bodies pursue no policy objectives or sectoral priorities beyond safeguarding the integrity and comparability of Europe's government debt and deficit figures (Savage & Verdun, 2016; Schelkle, 2009).

The next section turns to the interaction between development banks and European statisticians within the constraints of Europe's fiscal framework, and how this interaction shapes the implementation of green industrial policy. It focuses on energy efficiency, a policy area with significant potential to reduce carbon emissions while promoting environmentally sustainable growth, but which is also particularly sensitive to fiscal constraints. Using EPCs as a case study, the section illustrates how a techno-political coalition designed an off-balance-sheet financing instrument, demonstrating the opportunities and constraints of pursuing green industrial policy under Europe's fiscal rules.

5. European Green Industrial Policy Meets Fiscal Innovation: Off-Balance-Sheet Financing for Climate Goals

Within the EU's emerging green industrial policy framework, energy efficiency has become a crucial instrument, as it reduces emissions and operating costs while stimulating demand for energy-saving technologies (Dupont et al., 2024). The building sector, which accounts for around 40% of total energy consumption, is a central target in this effort. The Renovation Wave, a flagship initiative under the Green Deal, aims to improve the performance of 75% of inefficient buildings by 2050, making the sector both a climate lever and a driver of economic activity. As Joyce argued, building efficiency is "the sharpest arrow in the EU's quiver" for addressing unemployment, emissions, public health, and fuel poverty (Joyce, 2017). The Commission has likewise stressed the industrial policy logic of energy efficiency efforts, arguing that public buildings should "spearhead the renovation wave by serving as a role model and reference point for the industrialization of construction"(European Commission, 2025c).

Nevertheless, the development of European energy efficiency markets has been hindered by two persistent obstacles: underdeveloped energy services markets and limited public budgets (Guermont et al., 2018). To overcome these constraints, policymakers have promoted financial instruments designed to stimulate investment without requiring substantial public funding upfront. One such instrument is the EPC, in which an energy service company (ESCO) finances and implements energy efficiency upgrades, such as improved

insulation or heating systems, in buildings. The ESCO then recovers the costs through the resulting energy savings, as depicted in Figure 2. As the Commission notes, EPCs represent "creative financing for capital improvement which allows funding energy upgrades from cost reductions" (European Commission, 2021b).

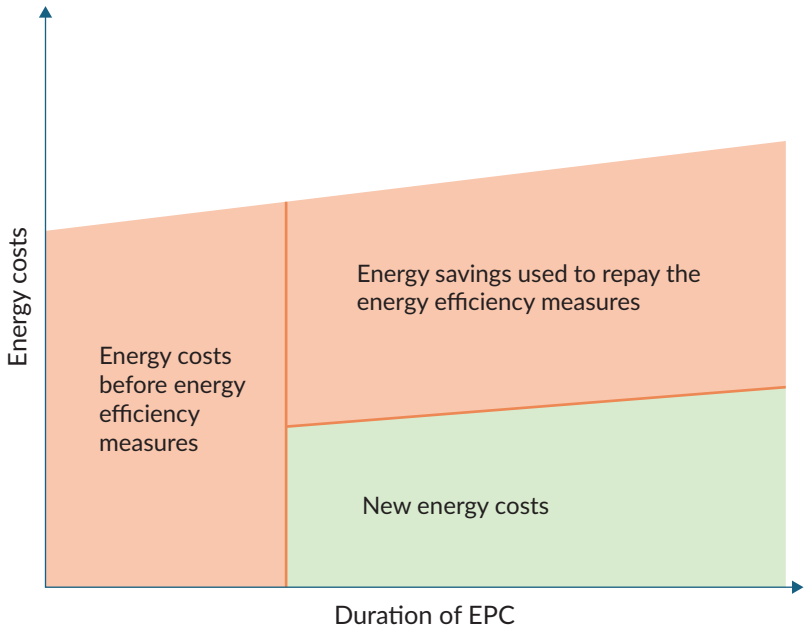

Figure 2. The financing mechanism of EPCs.

EPCs were introduced into EU policymaking in 2006 under the Energy Services Directive amid concerns about energy security following the Russia–Ukraine gas disputes. The directive aimed to reduce energy consumption by 20% by 2020 and encouraged member states to adopt EPC models to reach this goal. However, their adoption remained modest. The 2012 follow-up Energy Efficiency Directive sought to strengthen demand by requiring governments to promote EPCs, provide model contracts, and prioritize their use in public buildings. As market growth continued to lag, the Commission identified the uncertainty surrounding the statistical treatment of EPCs and their subsequent impact on debt and deficit figures as a key institutional barrier to their adoption (Climate Alliance, 2016).

The crux of the debate was whether EPCs constituted off-balance-sheet instruments (repaid through savings) or public investments that must be recorded upfront in debt and deficit indicators. Since it was the first time that Eurostat had dealt with this innovative financing instrument, the decision was made to treat EPCs the same as another type of infrastructure financing contract: PPPs. However, PPPs are larger in size and differently structured. Therefore, classifying EPCs as PPPs meant that all EPCs were treated as being on the balance sheet. In response, several political actors and industry players contested this classification. Consequently, between 2014 and 2019, statisticians overhauled and specified the rules for EPCs, ultimately creating a route for designing off-balance-sheet EPCs.

As the following case study shows, this reclassification of EPCs was initiated by a coalition of small member states led by Slovakia, which puzzlingly succeeded in asserting themselves against more reluctant large member states like Germany and France. While small member states provided political impetus, the broad techno-political coalition also included DG Energy and the EIB, who provided institutional support and

technical knowledge about the specific EPC markets, European funding opportunities, and legal clarity. The next three subsections trace how the statistical treatment of EPCs became a test case for the interaction between technical expertise, fiscal rules, and green industrial policy.

5.1. The Dispute: Which Investment Is Off-Balance-Sheet?

The dispute surrounding EPCs began in 2014, when Eurostat issued a decision severely restricting the flexibility of off-balance-sheet EPCs. National statistical authorities, policymakers, and industry associations jointly opposed the ruling, as several countries had established EPCs while implementing the Energy Efficiency Directive. The controversy led to the formation of a techno-political coalition in which statisticians from national institutes and Eurostat worked together with the EIB experts on defining statistical rules for EPCs that clearly outline which conditions they need to meet to be off-balance-sheet.

The coalition emerged at the end of 2014 when policymakers from the finance ministries of a group of small member states realized that including the full cost of renovating their buildings in their accounts was the most cost-efficient approach. Eurostat's decision regarding the on-balance-sheet treatment of EPCs posed a particular problem for Slovakia, as the country had just reached its deficit limit and exited the Excessive Deficit Procedure. Having been subject to the Excessive Deficit Procedure from 2009 to 2014, Slovakia continued to record high deficit numbers in 2015 and 2016 (European Commission, 2025b). To find off-balance-sheet policy solutions, they approached their statisticians, who found that other countries were also struggling with the same issues. Together, they formed a group, raised the issue at the European level, and asked the EIB to leverage its expertise and relationships with Eurostat to clarify the treatment of off-balance-sheet EPCs.

Eurostat had tasked several technical working groups with conducting an in-depth analysis of the statistical classification of EPCs (Pernetta, 2022). The main issue identified was that EPCs were classified according to the technical rules applied to PPPs, which can only be off-balance-sheet under very specific conditions. However, the average EPC contract volume is very small, meaning they cannot meet the PPPs' quantitative thresholds and are therefore on-balance-sheet (Eurostat, 2014, p. 12). Unsurprisingly, several stakeholders questioned this interpretation, putting pressure on Eurostat to change its position. For example, the Energy Efficiency Financial Institutions Group, a public-private working group of DG Energy, emphasized in early 2015 that "interpretations of EUROSTAT rules on public debt and deficit should not prejudice investment in energy efficiency in public buildings" (Energy Efficiency Financial Institutions Group, 2015, p. 34).

To address these concerns, Eurostat issued a guidance note on EPCs in 2015, which, though, only confirmed the application of general PPP guidelines to EPCs (Eurostat, 2015, p. 1). The issue was that, for an EPC to be considered off-balance-sheet, it had to be an investment that significantly enhances the building (Eurostat, 2015, p. 3). In some cases, EPCs involve improvements to small items such as changing a light bulb or fixing the heating system. This makes it impossible to reach the required 50% investment threshold to qualify as off-balance-sheet, even when EPCs include more significant improvements, such as replacing the heating system or repairing roof damage. Thus, Eurostat concluded that EPCs should be classified as expenditure by default (Eurostat, 2015, p. 9)

This conclusion prompted significant efforts within the European EPC industry to demonstrate the detrimental effects of this assessment on the implementation of EPCs. The European Association of Energy

Service Companies (EUESCO) first organized surveys (EUESCO, 2016a) and then issued stakeholder letters containing concrete proposals on how to improve the statistical treatment of EPCs (EUESCO, 2016b). The survey found that 10 member states actually agreed that the Eurostat guidelines were negatively affecting the EPC market: Austria, Belgium, Bulgaria, Ireland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden (EUESCO, 2016a, p. 1).

Following up on these findings, a group of 60 EPC stakeholders addressed a letter to the Commission and Jyrki Katainen, the Commissioner for Jobs, Growth and Investment. They argued that existing accounting rules pose a "serious obstacle" to the development of an EPC market in Europe (EUESCO, 2016b, p. 1). Given the unlikelihood of a revision to European fiscal laws in the near future, the EPC stakeholder group advocated for a redefinition of EPC investments by offering a different interpretation of the term "asset" in relation to energy efficiency investments (EUESCO, 2016b, p. 5). This would enable EPCs to be categorized as PPPs. Furthermore, stakeholders relied on the Energy Efficiency Directive, stating that potential budgeting or accounting obstacles to energy investments and to energy performance contracting should be reviewed and removed (European Commission, 2012).

However, European statisticians prioritize the consistent application of rules over the consideration of economic impacts. Furthermore, they are adamant about the independence of their work and the consistency of accounting rules, both of which lie at the core of their mandate. Consequently, all of this industry pressure backfired, and the lobbying efforts were seen as an affront to the politically neutral work of producing debt and deficit figures. Only the concentrated effort of the EIB and national institutes, under political impetus from other Commission DGs, compelled statisticians to revisit the rules for EPCs. This impetus mainly came from DG Ecfin and DG Energy together with national policymakers, who consulted with EIB experts on the matter, thus forging a techno-political coalition of EIB staff, statisticians, and technocrats (Eurostat & EIB, 2018, pp. 2–3).

Most importantly, the Commission provided the right impetus for re-examining the rules based on technical grounds rather than political motives, since its research revealed that treating EPCs as standard PPPs was misleading. PPP rules assume that investments increase the value of assets, such as schools and hospitals. However, EPCs may not increase the book value of a building (Moles-Grueso et al., 2021, 2023). Their economic impact is real, but it is recognized differently in accounting. Furthermore, whereas PPPs are repaid from public budgets, EPCs are financed by future energy savings (Moles-Grueso et al., 2021, p. 20). This argument also resonated with several statistical viewpoints, prompting the statistical community to reevaluate previous EPC rules.

To account for these specificities of EPCs, statisticians came to rely on the EIB's practical experience, supported by the Commission's political work on energy efficiency. This techno-political coalition not only clarified statistical rules but also helped to implement new EPC business models across Europe.

5.2. The Techno-Political Alliance: Reconfiguring Fiscal Capacity

In 2017, the coalition was further supported by several national statistical institutes, which were calling for a more nuanced assessment of EPCs. The most vocal opponent of Eurostat's on-balance-sheet treatment of EPCs was still the Slovakian statistical authority, which raised the issue at a meeting of the statistical body

responsible for government debt (Eurostat, 2017). Pressure mounted to such an extent that Eurostat acknowledged "the high political relevance of the subject and the need to review the accounting rules," while stressing that any solution had to remain consistent with European statistical law (Eurostat, 2017, p. 19).

To harmonize the specificities of EPCs with existing statistical rules, Eurostat created a dedicated task force composed of Eurostat and EIB experts, statisticians from member states, and representatives from DG Energy and DG Ecfin. Apart from its unparalleled technical expertise on the topic, the task force could also rely on the political support from the Ministries of Finance of eight member states, as well as a coalition of national statisticians from the Czech Republic, Slovakia, and Romania (Eurostat, 2018a). However, the task force had a difficult start due to strong internal opposition to the implementation of new statistical rules for EPCs (Eurostat, 2017, 2018a). The main issue revolved around the question of how to value the investments of EPCs. After all, EPCs only affect "a specific building's elements and installations" and not the whole building (EUESCO, 2016b, p. 5).

Two opposing views crystallized. One camp argued for flexibility in interpreting the existing rules, suggesting that the 2015 PPP Guide could be amended to reflect EPC specificities. They maintained that European statistical law already provided enough leeway to accommodate such cases, arguing that its flexibility "should be used to the maximum extent possible" (Eurostat, 2018a, p. 23). Others warned that this approach would negatively impact the carefully drafted rules for PPPs (Eurostat, 2018a, p. 23). Eurostat agreed that EPCs should be treated as separate from PPPs. At the same time, the incoherent treatment of EPCs put pressure to find a solution as explicitly acknowledged by Eurostat (Eurostat, 2018a, p. 23). Thus, Eurostat responded to this pressure in 2017 by quickly drafting and having the whole statistical community vote on the new rules (Eurostat, 2017, p. 19).

However, these new rules were not met with universal acceptance among statisticians. Notably, opposition came from Germany and France. Moreover, some national statistical representatives complained of being subject to "political" pressures at home, which called their independence into question (Eurostat, 2018a, p. 22). German central bankers and national statisticians argued that the note "could open a Pandora box, with unknown consequences for the rest of the accounts or for other contracts—with potentially very negative consequences" (Eurostat, 2018a, p. 22). Their French counterparts agreed that there are some fundamental problems, especially with regard to asset separation (Eurostat, 2018b, p. 22).

In the statistical community, however, decisions are mostly made in a democratic manner. Thus, Eurostat referred to the coalition of eight member states that took the initiative to revise the statistical rules for EPCs, arguing that these were backed by a "majority opinion" within the statistical community (led by Slovakia, the Czech Republic, and Romania; Eurostat, 2018a, p. 23). According to Eurostat, its reinterpretation of the EPCs' categorization was motivated by "justified concerns" which were brought to Eurostat's attention by "other statisticians and relevant policymakers for the excessively restrictive treatment of EPCs" (European Commission, 2017b).

Eurostat received political backing for its work from the Commission. The issue's high salience within the statistical community led Marianne Thyssen (Commissioner for Employment, Social Affairs, Skills and Labor Mobility) and Miguel Arias Cañete (Commissioner for Climate Action and Energy) to openly express their support for Eurostat. They argued that the guidance note shows "how public authorities can invest in full

respect of the principles of public accounting, now also in the energy sector" (European Commission, 2017a). The position of Eurostat was further backed by other Commission DGs and heads of statistics. Ultimately, the guidance note on EPCs was approved by the Directors of Macroeconomic Statistics, the highest level of statistical decision-making in the European statistics system.

Moreover, Eurostat was pursuing an effort to translate the statistical compromise convention into a "user friendly" EPC Guide for Practitioners that would reflect "a contractual and commercial standpoint" on EPCs (Eurostat & EIB, 2018, p. 10). Such a guide had been requested by several member states, which wanted more detailed instructions on how to classify EPCs, as they were already familiar with the same type of instrument for PPPs. When the guide was drafted by Eurostat and the EIB, and finally published, the Commission promoted it as "a standardized technical sheet for energy performance contracting services" (European Commission, 2021a, 97). As such, the Guide for Practitioners clarified the conditions under which EPCs could be classified as off-balance-sheet and thus "Maastricht neutral," a move widely seen as essential to accelerating investment in energy efficiency projects.

Along with the 2017 guidance note, technical assistance, and European financing, the EPC Guide for Practitioners aimed to "create a sound basis for a growing market in energy efficiency investment" (Eurostat & EIB, 2018, p. 3). The Commission explicitly supported this idea, highlighting the role of EPCs in promoting public authorities' investments in energy-efficient buildings and referring directly to the technical instruction sheets included in the practitioners' guides (European Commission, 2019). While national ministries link the Eurostat guide on their websites and provide model contracts based on the Guide's contract design, the industry has praised the work of Eurostat and the EIB (European Bank for Reconstruction and Development [EBRD], 2019; Fedarene, 2022; Moles-Grueso et al., 2021).

5.3. The Guide to Off-Balance-Sheet EPCs: Enrolling Companies for Energy Contracts

Despite these supportive policy signals, the uptake of EPCs has fallen short of expectations. Scholars and practitioners alike have attributed this limited uptake to three persistent obstacles: the shortage of expertise at both national and local levels, the high upfront costs associated with contract design, and a widespread misperception of the EPC model. These barriers underscore that the techno-political coalition is not only important during the design but also the implementation phase. After all, statistical clarity, while necessary, is insufficient to trigger green industrial policy uptake: For EPCs to truly embed themselves in practice, technical knowledge must filter down through the multi-level apparatus that shapes European fiscal capacity.

Market data illustrate the slow pace of EPC diffusion. Between 2020 and 2021, 17 EU member states reported using off-balance-sheet contracts, yet their overall penetration remained limited. Only about 8% of EPC contracts were structured off-balance-sheet, "well below the national average" (Moles-Grueso et al., 2023, p. 93). By 2022, growth in the EPC market was modest, recording just a 1.4% increase. Projections, however, suggest a more optimistic medium-term trajectory, with an expected annual average growth rate of 4.4% until 2027 ("European energy savings," 2022).

What emerges from comparative research is that the deeper obstacles to EPC diffusion lie less in European-level regulatory prerequisites than in national institutional capacity. Corinna Murafa, comparing Germany, often praised as a leader in energy efficiency, with Romania, a persistent laggard, highlights the

decisive influence of bureaucratic capacity and the beliefs of public officials (Murafa, 2017, see also Knoll & Senge, 2019). In her analysis, such domestic factors frequently outweigh the effects of harmonized European legal frameworks. Echoing this view, the EBRD argued that by 2019 the primary prerequisite for a thriving EPC ecosystem was the development of technical and administrative expertise within the public sector, while the statistical treatment of contracts was by now only of secondary importance (EBRD, 2019).

To address these entrenched gaps, European institutions, particularly the EIB, intensified their technical assistance. Initiatives such as the EIB's European Local Energy Assistance facility and the establishment of "standardized one-stop shops at regional, national and local level" (Sanchez Rivero & Pernetta, 2024, p. 6) were designed to spread expertise beyond Brussels. EIB experts were dispatched to work directly with national authorities and municipalities, attempting to overcome the "general reluctance or even hostile resistance to EPC and ESCO" models (Pernetta, 2022, p. 1). National development banks also played a central role in this diffusion process, underlining their strategic position in promoting off-balance-sheet policies (European Association of Guarantee Institutions et al., 2018). Also, statisticians were repeatedly consulted to ensure the off-balance-sheet status of EPCs.

Against this backdrop, industry stakeholders continued to highlight the transformative potential of the Eurostat Guide, as "the possibility of treating EPC projects as Maastricht-neutral or 'off-balance-sheet' is widely seen as one of the key benefits of energy performance contracting" (Fedarene, 2022). Parallel assessments by the EBRD and the European Commission's Joint Research Centre reiterate this positive evaluation, stressing that the guide provided member states with the confidence and standardized templates necessary for wider adoption (EBRD, 2019; Moles-Grueso et al., 2021). The EIB complemented these efforts with dedicated credit lines, awareness-raising, and technical assistance measures (Moles-Grueso et al., 2021, p. 21).

Still, the broader policy landscape complicates this picture. One possible explanation for the sluggish uptake of EPCs is a gradual shift in policy priorities, from energy efficiency towards renewable energy. This shift, while politically understandable given the EU's ambitious decarbonization targets, has not yet been fully addressed by the Eurostat framework. As a result, EPCs occupy an ambiguous position: They are technically facilitated by statistical innovation, institutionally supported through development banks, and politically recognized in EU strategies, yet they remain structurally constrained by national administrative capacity and competing policy agendas. This demonstrates that for a vibrant market to emerge, the technical expertise of techno-political coalitions needs to spread from the European to the local level.

6. Conclusion

How can European policymakers draw on technical expertise to design effective industrial policies outside of the balance sheet? Confronted with high public debt and strict EU fiscal rules, policymakers are increasingly turning to alternative methods of funding their ambitious industrial policies. One illustration of this is the creation of novel instruments that can mobilize private capital without having a direct effect on the public balance sheet. EPCs in the building sector are a prime example of this shift in green industrial policy: They are financial instruments that enable investment in energy efficiency without increasing government debt because they are off-balance-sheet. As with other off-balance-sheet policies, EPCs therefore expand a government's fiscal capacity beyond traditional notions of taxation and direct spending.

This article contends that off-balance-sheet instruments are not solely the product of national priorities or EU-level mandates. Rather, the design of these technically complex instruments relies on technopolitical coalitions, which are alliances formed between political actors and technical experts. In the case of EPCs, for example, a coalition of member states, European Commission technocrats, development banks, and statisticians successfully navigated and clarified European statistical rules to ensure fiscal compliance. The alliance combined specific areas of expertise: statistical expertise to ensure off-balance-sheet status; financial expertise to ensure market compatibility; and legal expertise to ensure compliance with EU funds and their availability. This technopolitical coalition has therefore helped to expand the scope for green industrial policy by clarifying what constitutes off-balance-sheet EPCs under EU fiscal governance.

More broadly, the article argues that contemporary industrial policy is increasingly concerned with managing liabilities, aligning policy design with financial logic, and developing the capacity of bureaucracies to operate within statistical constraints. Success no longer depends solely on picking winners or large-scale public investment, but also on the ability to identify the right expertise within state agencies and bring these experts together to develop policies that are marketable, legally sound, and fiscally manageable. Theoretically, the article makes two key contributions to the debate on new forms of (green) industrial policy. Firstly, it sheds light on an important yet under-explored aspect of state capacity: the ability to design off-balance-sheet industrial policy instruments and reconfigure fiscal capacity. This emphasizes the importance of integrating critical finance approaches more systematically into industrial policy debates, enabling us to view fiscal constraints as evolving accounting artefacts rather than fixed limits. Secondly, the article identifies the key factors shaping this capacity within the EU context. Notably, it highlights that the capacity to establish technopolitical alliances between state actors and EU-level institutions based on technical expertise and bureaucratic competence can facilitate green industrial policy even when public investment capacity is limited.

Future research should explore how states deal with difficulties in mobilizing capital, and how this results in new instruments and actors being involved. States have become increasingly creative in aligning their industrial policies with other political priorities and have received considerable support from the Commission in doing so, as evidenced by the case of EPCs. For example, the role of development banks in implementing and strengthening off-balance-sheet industrial policy remains understudied. Although many scholars have stressed their growing importance, they have not considered how their impact on public debt levels varies across Europe.

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