The EU Taxonomy in Practice: Driving Energy Efficiency Investments?

Mapping Insights from Stakeholders

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Abstract

The EU Taxonomy was established to provide transparency and direct financial resources towards green investments. This report examines its effectiveness in driving energy efficiency investments, critical for EU sustainability goals. Through semi-structured interviews with stakeholders, including commercial banks, policymakers, and industry experts across the EU, we identify key trends, drivers, and barriers for using the Taxonomy as a tool to identify green investment opportunities.

Findings reveal that awareness and uptake of Taxonomy-aligned finance are higher among large firms, while SMEs face challenges due to limited incentives and high compliance costs. Banks are motivated by investor demand, reputational gains, and regulatory alignment. However, they struggle to offer consistent financial incentives to clients and face difficulties regarding technical screening criteria (TSC). Building renovation activities lag behind new constructions due to unequal incentives, data gaps, and regulatory hurdles. Additionally, green bonds face limited interest, with companies favouring simpler financing alternatives.

To address the aforementioned challenges, the paper proposes two policy recommendations: (1) a database for pre-approved compliance and methodologies to improve usability, and (2) subsidies to limit upfront costs for SMEs and renovation projects.

By bridging gaps between regulatory intent and practical implementation, this research offers new practical insights and suggestions to strengthen the Taxonomy's role in advancing EU climate objectives.

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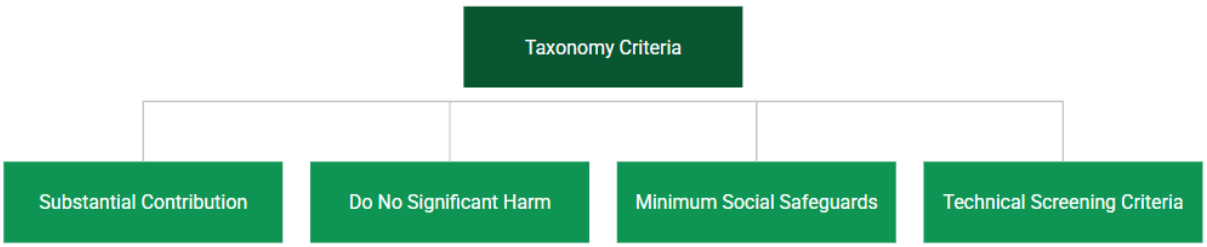
1. Introduction

First voted through by the European Commission in 2020, the EU Green Taxonomy was designed to create a common definition of sustainable activities to prevent greenwashing and build confidence in green investments. The EU Taxonomy (hereinafter the Taxonomy) is a classification system defining environmentally sustainable economic activities which align with EU climate objectives such as climate mitigation, pollution control and circular economy. In this way, it is designed to be a comprehensive tool for sustainable investment (EC, n.d.a; EC, n.d.b). The Taxonomy guides investments towards green activities, but it is also intended to help companies plan their green transitions and make sustainable financial products credible on the financial market (EC, n.d.b). Therefore, an expectation has prevailed that the Taxonomy would boost green finance. (European Parliament, 2020; Sautner et al, 2025).

Its four criteria (See Graph 1) are designed to ensure that each activity both makes a substantial contribution to the EU's environmental objectives, while not doing harm to any of the others. Furthermore, it requires proving that human rights criteria are respected, and mandates compliance with technical performance criteria, specific to each sector.

In 2024, the Taxonomy was complemented with the EU green bonds standard (EU GBS). The EU GBS is a voluntary green bonds standard which uses the Taxonomy to evaluate sustainable investment, and aims to perform as a 'clear gold standard' of green bonds to drive investment into the low-carbon transition (EC, n.d.c).

Graph 1. Criteria of the EU Green Taxonomy



1.1 Energy Efficiency & the Taxonomy

In terms of energy efficiency, we identified three sectors as relevant to testing the effect of the Taxonomy: construction, real estate activities and manufacturing.[1] Regarding energy efficiency in construction and real estate, the Taxonomy lists criteria for construction of new buildings, renovation of old buildings and installation, maintenance and repair of energy efficiency equipment in existing buildings. In the manufacturing industry, companies producing various energy efficiency products, equipment and components can benefit from the Taxonomy (EC, n.d.d).

In order to meet its decarbonisation goals, energy efficiency measures through renovations and upgrades are urgently needed, particularly in the building sector, which alone counts for 34% of energy-related emissions in the EU (EEA, 2024a). We therefore deemed it important to assess the effectiveness of the Taxonomy at directing finance towards these activities specifically. Energy efficiency investments are challenging as uncertain returns and long payback periods create risk (Karakosta et al, 2021). Therefore, making sure that the Taxonomy classifies and evaluates these investments must be a priority to ensure that more funding is directed towards them.

1.2 Research Question & Structure

With mandatory reporting of results from the 2023 financial year for financial and large non-financial companies, Taxonomy reporting is becoming more standardised. At this inflexion point, it is therefore urgent to assess the practical effectiveness of the Taxonomy at driving investment into energy efficiency. In this report, we therefore assess the following research question: *What is the relevance and effectiveness of the EU Taxonomy as a green finance tool for energy efficiency investments?*

This report is structured as follows. Firstly, we provide an overview of our methodology. Thereinafter, the main body is structured thematically. For each theme, main results are briefly presented whereafter they are discussed and contrasted with literature. Finally, we provide two main recommendations, designed to address key gaps in the current Taxonomy approach to increase its relevance as an instrument for energy efficiency investments.

[1] We exclude the energy sector from this analysis.

2. Methodology

2.1 Data Collection

Firstly, we contacted commercial banks. We aimed to select a representative sample of banks reflective of a diverse set of member states. We divided the European Union into North, West, South and East regions, in line with the UN M49 standard, and selected two countries per region to maximise sample representativity (UN, n.d). We then selected the largest banks in each country to contact, to achieve maximum impact. If we did not hear back, we would contact banks further down the list. We also reached out to relevant policy and industry actors. In total, we reached out to close to 50 interviewees.

Table 1 shows the geographical distribution and Table 2 the sector distribution of our interviewees. While we overall succeeded in our mission to represent voices from across the EU, response rates were highest for Western Europe. The distribution of interviewees by sectors allows us to draw insights from all regions within the EU.

Table 1: Commercial Banks

Part of Europe	Number of Interviewees
North	1
South	1
East	2
West	4
Total	8

Table 2: Interviewee Types

Type of Expert	Institutions	Number of Interviewees
Banking Professionals	6	7+1*
Policy	2	2
Industry	1	1
Construction Sector	1	1
Experts/Auditors	2	2
Total	**12**	**14**
	*Written response	

2.2 Interview Strategy

Interview subjects were contacted via email or LinkedIn. We briefly introduced the project, expected time commitment, and interview terms. We opted for a semi-structured approach, with guiding questions and the opportunity to elaborate beyond the confines of our guide. Divided into three main parts, our interviews focused on Taxonomy-application, green bonds and industry outlooks (see Appendix A). We interviewed subjects under Chatham House Rules, to allow participants to speak more freely.

2.3 Interview Coding Scheme

Upon transcribing and, in some cases, translating the interviews, we employed an inductive approach to coding. This thematic approach by Clarke & Braun (2013) was chosen as it allows for uncovering interesting and latent patterns which are otherwise elusive or difficult to discover with a predetermined set of codes. Our analysis therefore involved careful reading and identifying many, elaborate codes which are then grouped into themes. If a theme spanned too few interviews, they were deleted and reclassified to maximise the explanatory power.

2.4 Limitations

Our research was constrained by a strict time frame and a limited sample size. Although we covered the main regions of Europe; differences in market conditions, financial systems, and economic structures across Member States may have led to missed insights from countries we could not include. Additionally, targeting the appropriate individuals within banks proved challenging. Limited resources and insufficient knowledge of internal structures meant that we were not always able to interview both green bond and taxonomy specialists, potentially creating a bias to our understanding of key issues. Finally, a self-selection bias may have affected our results, as institutions more engaged with sustainability topics might have been more willing to participate.

3. Results & Discussion

3.1. Taxonomy Uptake: Trends & Factors

Results:

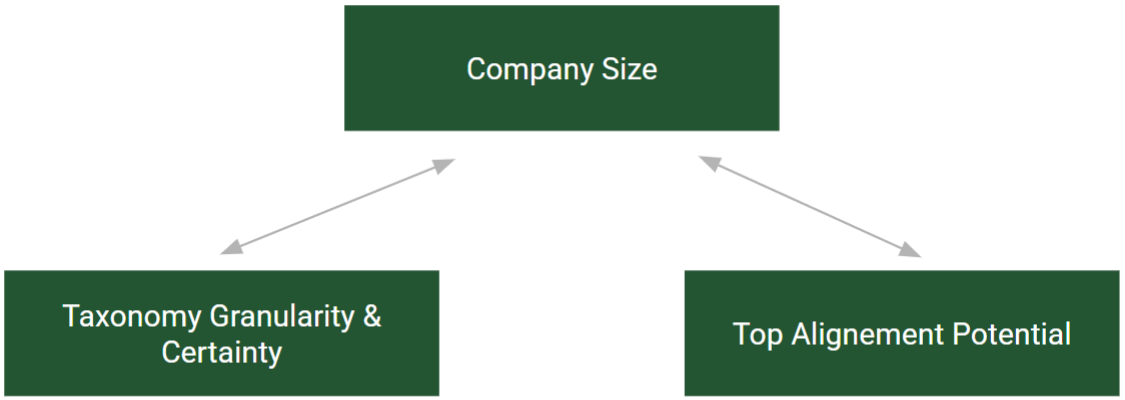
- Awareness about using the Taxonomy for green loans is greater among larger companies. (n=4)
- Banks connect low eligibility in sectors with low knowledge and incentives among firms within these sectors. (n=2)
- Low alignment potential decreases incentives to seek out green loans. (n=1)
- There is still uncertainty regarding where some activities classify (e.g construction of new buildings, renovation of existing buildings, redevelopment, and acquisition and ownership of buildings). (n=1)
- There is hesitation among companies with high eligibility but where requirements for Taxonomy alignment are not substantially clear - causing projects to not qualify. (n=2)

Discussion:

There is greater awareness about Taxonomy-aligned lending among larger companies. Larger companies tend to have more resources to plan ahead and can thus better account for the forward-looking nature of the Taxonomy (Banker 3).

This division is particularly strong when it comes to energy efficiency investments, where knowledge is low. "[For] mid-cap companies, we see that [Taxonomy rules] have not come into use, they are not used in that way, the companies do not really see the value of it." (Expert 2). Another interviewee posited that larger companies often seek out other funding structures anyway for energy efficiency activities (Banker 3). Uncertainty also affects different size companies differently, for example, Lucarelli et al (2023) find medium-sized companies are more likely to increase their Taxonomy-aligned investment when there is significant certainty about alignment compared with small companies.

Graph 2. Factors Affecting Awareness Levels Among Firms



The knowledge tends to be higher within sectors which have a higher degree of eligibility potential, like real estate and automotive. The granularity and clarity of the Taxonomy in different sectors also affect knowledge (KPMG, 2022). For more straightforward business activities, like new construction, most interviewees speak positively about adoption of Taxonomy standards for loans: "In a way, for the building sector, especially for the commercial office buildings, things are somehow on the right path." (Banker 4). Some interviewees reason that companies have limited incentives when their sector has low eligibility (Expert 2). One expert working with renovations argued other frameworks are more important in guiding day-to-day operations - certifications like BREEAM are used day-to-day while the taxonomy is considered more of a 'concept' - further removed from daily considerations.

> *"For me, the EU taxonomy is more of a concept*
>
> Buildings Sector Expert

On average, the Taxonomy-eligibility rate for turnover is 85% but there is substantial variation between sectors, which impacts incentives (KPMG, 2022). Additionally, the top eligibility level also matters for incentivising green lending. A low maximum level of eligibility of a company's activities could be a deterrent for getting into green loans (Expert 1, Expert 2). "[There are] companies that are on the borderline with eligibility but not alignment, which means that they have too few activities if they do not have a completely green business model." (Expert 2). In other words, a low eligibility is a problem as it caps alignment potential, making them less attractive for investors seeking a high

alignment of their portfolio. It is also notable that as top alignment differs between sectors, comparison between different companies and sectors becomes complicated. (Hodžic & Isaksson, 2023) One interviewee posits that in the real estate sector, eligibility is high whereas on the other hand, the industrial sector lags behind with its energy efficiency projects not being classified as taxonomy-aligned. (Banker 4).

Our findings echo reports suggesting that firms have not connected their wider ESG strategy with the use of the Taxonomy (KPMG, 2022). Often, it is merely described how their ESG strategy is 'in line with' the Taxonomy stopping short of actual regulatory alignment (Expert 2).

3.2. Drivers of Taxonomy-Aligned Finance

> *Usually it is the bank that suggests alignment with the taxonomy. For the clients, it is only interesting in case they get a discount on the interest rate or any other beneficial conditions. Unless, it is irrelevant for most corporations*
>
> Expert 1

3.2.1 Banks' Incentives for using the EU Taxonomy

Results:

- Investor demand drives Taxonomy-compliant green financial products. (n=5)
- Taxonomy alignment allows for brand leadership and reputational gains, which could be enhanced by greater ESG interest from investors. (n=3)
- Taxonomy adoption is driven by strategic and regulatory compliance purposes. (n=5)

Discussion:

Many institutional investors rely on the Taxonomy to define their sustainable investment strategies to ensure positive impact and avoid greenwashing accusations, anticipate regulatory pressure, and lower risk (Papari et al., 2024).

In turn, by matching this demand for transparency and ESG impact, banks are able to diversify their financing sources and reach untapped markets. Today the expectation of a 'greenium' (pricing advantage of green products) has faded (Pietsch and Salakhova, 2022), however, the findings reveal that *not* issuing green bonds could jeopardise placement, incentivising Taxonomy compliance. Indeed,

a vast majority of European institutional investors declared they would not buy a bond with unclear use of proceeds and even sell it if post-issuance reporting was poor (Sangiorgi and Schopohl, 2021).

Beyond financial returns, another widely expressed incentive is that the Taxonomy can serve as a tool for brand leadership and client trust, particularly if private clients and investors begin to prioritise ESG concerns over returns. These findings are in line with previously reported Taxonomy benefits from surveys (see Raux and Fischer, 2021). Additionally, banks' fear of misinterpretation by the market of what constitutes an ambitious 'green asset ratio' can also moderate this incentive (Garcia-Torea et al, 2024).

Finally, Taxonomy compliance supports broader strategic and regulatory alignment. It allows transparency in the attainment of banks' internal ESG targets, net-zero pledges, and extra-financial reporting KPIs. Banks also appear to anticipate growing supervisory expectations, which they prepare by building capacity.

These insights confirm that Taxonomy compliance is primarily driven by upstream incentives such as investor demand, reputation, and regulatory expectations, rather than downstream, client-side demand.

3.2.2 Incentives for Companies

Results:

- The real estate sector is a relative leader in energy efficiency projects due to direct benefits in client attractivity, higher rent premiums and reduced operational costs. (n=3)
- Large actors, especially those with strong ESG profile have higher reputational incentives for complying with the EU Taxonomy. (n=2)
- SMEs see limited value in Taxonomy alignment unless tied to clear and substantial financial benefits such as favorable borrowing conditions. (n=5)

Discussion:

The findings reveal fragmented perceptions of the Taxonomy's value, conditioned by firm size, sector maturity, and bank funding capabilities. While reputational and stakeholder benefits do exist for larger players or those with existing high ESG standards, incentives for Taxonomy aligned finance remain either limited or unperceived for SMEs (Suys, 2024; Pacces, 2021). Overall, energy efficiency projects are mainly undertaken for cost and supply resilience motivations, while Taxonomy compliance does not appear to be a driver for those. One interviewee argued that price caps or low energy prices can even hinder motivation for energy efficiency projects among small companies (Banker 3).

The existing literature also adds incentives with respect to improved access to capital (Suys, 2024; Pacces, 2021), but our results suggest this applies to a moderate extent, especially for sectors like the building sector, which are already able to secure privileged funding terms due to high profitability, in line with findings from Hummel and Bauernhofer (2024).

3.3 Key Barriers Limiting Taxonomy-aligned Finance

3.3.1 Green Finance: Mixed Signals about Financial Benefits

Results:

- There is uncertainty on whether companies can obtain better borrowing terms from Taxonomy-aligned borrowing, and if so, with limited and inconsistent preferential rates. This uncertainty deters companies from aligning their lending with the Taxonomy . (n=8)
- Clients, especially SMEs and households, see little benefit in Taxonomy alignment due to weak financial or regulatory incentives and perceived shrinking subsidies. (n=4)
- The real estate sector is already able to secure favourable financing conditions due to its high returns. (n=1)
- Competition for green projects can drive bank margins down, potentially enabling better rates for their Taxonomy-compliant customers. (n=1)

Discussion:

The findings underscore no consistent preferential rates or benefit schemes for energy-efficient Taxonomy-aligned borrowing, across all the interviewed banks. In practice, banks rarely offer substantial rate advantages or margin reduction for green loans. When they do, incentives are often not directly tied to Taxonomy alignment and/or remain marginal; with only a few basis points, in line with findings from Hummel and Bauernhofer (2024). Many, however, suggested that systematic preferential rates could be discussed, indicating banks could welcome such practices, although they appear not to find it relevant yet. Conversely, some banks even adopt a punitive approach, applying penalties for non-attainment of green KPIs rather than positive incentives for green compliance.

Banks face limited access to favourable green funding, and therefore struggle to pass on favourable terms to their clients, in line with existing evidence on the lack of ‘greenium’ (Pietsch et al., 2022; Atz et al,. 2022). Interestingly, we found that perceived scarcity of green projects can result in competition among banks, which can drive margins down, creating a market-driven discount for green borrowing.

This suggests that the Taxonomy is not yet a powerful market driver. Sautner et al. (2025) add that Taxonomy-eligible activities already benefited from lower loan spreads well before the Taxonomy

implementation, indicating a moderate information effect on the market. This further supports the view that the Taxonomy's effectiveness in advancing ESG objectives hinges more on complementary mechanisms than on its market-shaping power. Some propose linking loan interests to Taxonomy compliance and future CO2 prices to incentivise decarbonisation and hedge companies against volatile CO2 prices (Edenhofer et al., 2022; Wei et al., 2022).

3.3.2 Do No Significant Harm (DNSH) Implementation Obstacles

Results:

- DNSH criteria make the implementation of the Taxonomy by banks more complicated as they are unclear and/or disproportionate and/or difficult to assess due to granularity or lack of information. (n=6)

Discussion:

The issues linked to the DNSH criteria were mentioned by multiple participants as the main barrier to the implementation of the Taxonomy. Our participants highlighted that the DNSH criteria are 'unclear' (Banker 4) or 'too far-reaching' (Banker 6). Additionally, the literature suggests issues with 'imprecise definitions' and the fact that the criteria often go beyond what is required by the EU laws (Sustainable Finance Advisory Committee of the German Federal Government, 2023, p.16-17). However, it was also stated repeatedly that policy makers are aware of this problem and it should currently be in the process of resolution. Despite the issues discussed, the EU Platform for Sustainable Finance (PSF) (2025a) highlights the importance of preserving the DNSH criteria as a part of the Taxonomy. Therefore, documents that suggest solutions, e.g. ICMA Response to the draft Delegated Act supplementing the EU Taxonomy Regulation (ICMA, 2020a); The EU Taxonomy: implementation challenges and proposed solutions (Sustainable Finance Advisory Committee of the German Federal Government, 2023), Commentary and recommendations for the simplification of the EU Sustainable Finance legislation (ICMA, 2025), have previously been published. Furthermore, in the context of smaller actors, the EU PSF (2025c) published a report "Streamlining sustainable finance for SMEs" in March 2025. The publication offers a simplified version of the DNSH criteria adjusted for SMEs (The ESG Institute, 2025). The future will show whether the standard will help mobilise green investments in the context of SMEs.

3.3.3 Costly & Complicated Compliance

- The companies do not have the complex information and documentation required for the eligibility checks. (n=2)

- High costs make Taxonomy alignment burdensome, especially for SMEs with limited capacities. (n=2)
- Banks face limited funding and client interest for green products, with high Taxonomy compliance costs. (n=6)

Discussion:

Compliance costs are considered a challenge as companies might need to incur additional expenses to be compliant with the Taxonomy (Banker 4). According to our research, the administrative and financial burden of compliance remains a key deterrent, especially for smaller actors and projects.

> *"There's no real business incentive to ask customers these questions [...]*
>
> Banker 6

SMEs often lack both the ESG expertise and the internal capacity to meet the Taxonomy's stringent and technically complex documentation requirements. Companies often do not have the answers required to the complex questions asked at the moment of eligibility assessment (Banker 3) or could even need to hire consultants due to a lack of expertise, which then leads to increased up-front costs (Banker 4). The DNSH criteria checks represent additional costs as well as a barrier for green bond emitters in the context of smaller actors and projects (ICMAb, 2020, p.7; ICMA, 2020a, p.3). Finally, our paper adds evidence around a timing mismatch issue between the project assessment and loan provision that delays loan provision, further disincentivising Taxonomy compliance (UNEPFI, 2022). This is particularly harmful to smaller borrowers. Overall, the increase in costs as well as prolonged waiting time for credit may disincentivise Taxonomy-aligned investments and loans.

Furthermore, the findings confirm literature such as Nyikos & Kondor (2022) who suggest that mechanisms such as public subsidies, sustainability-linked instruments, or development agency financing remain key sources of financial support for green investment, echoing (Nyikos and & Kondor, 2022). However, interviewees perceive there are less and less subsidies or tax credits, which further reduces demand. Moreover, we were informed that development banks and environmental agencies have yet to fully harmonise their criteria with the Taxonomy, reducing its credibility and impact as a universal benchmark. Indeed, Nyikos and Kondor (2022, p.137) indicate that although

these invest mostly in sustainability according to the Taxonomy, their functioning needs to better align with the new conditions.

3.3.4 Energy Efficiency Renovation: Lack of Incentives

Results:

- Lack of demand for renovations in comparison to the construction of new buildings. (n=2)
- Equal treatment of the two activities in the Taxonomy disincentivises investments into renovation and favours new construction. (n=1)
- The assessment of Taxonomy-compliance of renovated buildings is much more complicated as it requires data from before and after the renovation that can be hard to get. (n=4)

Discussion:

Activities within the real estate and construction sectors reach a high rate of Taxonomy eligibility and could, therefore, attract more investments (de Wergifosse, 2024). Our research found that compliance of renovation activities constitute a major hurdle to Taxonomy-alignment. While renovation is considered a policy priority (Policy 1), there is a higher representation of new buildings construction in Taxonomy-compliant projects (de Wergifosse, 2024). Many of the issues identified are connected to a lack of incentives. According to one of our respondents (Policy 1), it is more profitable for clients to demolish an old building and build a new one instead of renovating. The same goes for banks: "If there is an equal incentive with the Taxonomy for construction and renovation then banks do not have incentive to do them equally." (Policy 1). Subsequently, equal treatment of renovations and constructions under the Taxonomy disincentivizes renovation investments (Policy 1). Furthermore, the EU Taxonomy requires the life-cycle Global Warming Potential disclosure only for the construction of new buildings larger than 5000 m^2 (EC, n.d.d). Subsequently, due to the explicit focus on energy efficiency, a preference for new construction arises as it is easier to construct a new energy efficient building rather than rebuilding an old one (World Green Building Council, 2023, p.2).

Furthermore, it is much harder to assess the alignment of renovations to the Taxonomy as the required data from before the process of renovation is often too difficult to get (Expert 1, Policy 1, Banker 1, Banker 2), which will be discussed in the following section.

3.3.5 Impact Evaluation Difficulties in Assessing TSC

Results:

- Banks often bear the burden of impact assessments due to low client incentive or capability, often relying on internal methodologies despite limited incentives and technical challenges with Taxonomy criteria. (n=2)
- High variability across green activities, lack of sector-specific methodologies, and bundled loans hinder accurate impact assessments. (n=1)
- Loan impact evaluation for banks' building stock renovation is hindered by weak incentives and contractual obligations, the absence of baseline data, while newer financing agreements tend to include data-sharing clauses, but face practical challenges related to audit timing, legal constraints, and uncertainty. (n=7)

Discussion:

Impact assessment of the energy efficiency projects undertaken is required by the Taxonomy technical screening criteria (TSC). It allows determination of substantial contribution to climate change mitigation or adaptation, and whether no significant harm is caused to any of the other environmental objectives (Commission Delegated Regulation (EU) 2021/2139).

Our paper adds to the evidence that banks often bear the burden of assessing the impact (EBF, 2024). Since private clients are often not willing/able to pay for/conduct costly impact evaluations, banks end up relying on internal calculations or third-party assessment. Yet, even within leading European banks, expertise gaps persist in interpreting and applying the technical screening criteria. This echoes Hodžic and Isaksson (2023), who contend that the technical screening criteria require a variety of competences regarding environment, economics, and technology, which implies qualification scarcity.

Renovation of existing buildings requires either meeting certain requirements or a minimum 30% reduction of primary energy demand. However, for various reasons, the insights highlight the recurring absence of reliable data, which severely limits the ability to demonstrate substantial contribution. There is first the overarching issue of some certifiers who have yet to update their metrics to the EU Taxonomy, with, for instance, outdated EPC certificates (EBF, 2024). Secondly, legacy contracts typically lack clauses for clients to provide post-renovation data, with rare post-grant follow-up due to a lack of incentives, not allowing to account for the renovation of the building stock. This evidence collection challenge from retail customers leads to a negative impact on financial institutions' GAR (EBF, 2024). For newer loans, we find information is slightly better with some banks including data-sharing clauses in their contracts, despite resulting in reduced attractiveness. Pre-renovation data

can also not be available due to national legislations requiring EPCs to be performed only when buildings are rented or sold, with also historical buildings safeguard measures.

High variability in economic activities further complicates impact evaluations. For instance, banks have yet to develop impact methodologies for all sectors, which hinders green categorization of activities like water and circular economy which have been mentioned. Additionally, when there is high variation in the projects undertaken, for instance with renovation and agriculture, there is no one-fit-all method, and banks struggle to find reliable studies or methodologies (Banker 1). These findings add to previously expressed concerns around the high expectations placed on auditors and experts, who also must be able to handle varying and missing data across sectors (Hodžic and Isaksson, 2023; EU PSF, 2025b). Finally, the issue of bundled borrowings has been raised, as it is not possible to account for the portion of a bundled loan which is directed to a green project.

3.4. Green Bonds: Shifting Standards

Results:

- Overall, there was limited interest in discussing Taxonomy-aligned bonds among our interview participants. (n=6).
- The process of issuing a green bond is so complicated (handling the legal aspect, declaring environmental savings,…) that it is simply not worth it for companies themselves. (n=1)
- The scarcity of green investment means companies are better off getting financing from development banks, which might provide better conditions than commercial banks. (n=2)
- Only projects/operations where there is no doubt that they fall under the scope of green financing are considered for green bonds. (n=1)

Discussion:

First, many players find bonds' sustainable classifications too rigid. To avoid greenwashing, they prefer to issue green bonds only for projects that clearly meet classification standards (Banker 5). This reflects EEA findings that a lack of eligible projects may limit future issuance (EEA, 2024b). A reassessment of 'grey' projects could thus be valuable. One well-established actor in green bonds replied to our interview request stating that the Taxonomy is too complex for small companies, and that banks therefore prefer to use their own framework. Other bank representatives largely share this view. One banker noted that industrial and construction firms on a transition path are already financed via green bonds, but they are mostly large companies under CSRD disclosure requirements[2], implying

[2] EU regulation which requires large companies to report sustainability performance against the Taxonomy.

smaller actors not covered by the CSRD are often overlooked. (Banker 5). Moreover, as transitional activities, which are not yet low-carbon but represent best in class performance, represent a larger volume and potential for investments compared to strictly Taxonomy-aligned activities, incentives are further blurred (Sustainable Finance Advisory Committee of the German Federal Government, 2023, p.19) One interviewee expressed particular concern about this dynamic in smaller markets where Taxonomy-aligned investments are lacking (Banker 3).

Often, the Taxonomy is used as a secondary check rather than a primary basis for green frameworks. One organisation argued that their stakeholders view the Taxonomy as a complement to validate transition plans and attract funding. However, critics argue that it lacks nuance, failing to account for different degrees of greenness. Although interviewees from banks mention the Taxonomy in their green bond frameworks, its practical role remains limited.

> *"Today, we are seeing that investors specifically demand green bonds. In other words, if we did not issue a green bond, we simply would not be able to sell a regular one. So, the demand is one of the main reasons.*
>
> Banker 3

Despite the challenges, players speak positively about future investor demand (n=4). Illustratively, Banker 3 argues that this represents an exclusive market to regular bonds (see quote). The upcoming EU Green Bond Standard (EU GBS) is expected to become a premium product. However, uptake is expected by our interviewees to be slow (Dineen, 2025; Expert 1). Today, the ICMA framework dominates. ICMA certification requires alignment with a green framework (e.g., EU Taxonomy or Climate Bonds Standard) but does not mandate second-party verification. Some researchers argue that simply adding verification to ICMA could be more effective than introducing the new EU GBS (Brückbauer, 2023). However, it remains unclear whether any financial premium from certification justifies the associated costs. Some interviewees also noted alternative approaches, such as marketing bonds based on companies' share of SDG-positive revenues (Banker 2).

4. Recommendations

4.1 Policy Recommendation 1: Taxonomy Pre-alignment and Methodologies Database

Rationale: Our findings illustrate operational challenges in the application of the Taxonomy, especially regarding the usability of the technical screening criteria due to the wide range of covered activities, with interview subjects explicitly mentioning the need for further guidance. The EU PSF (2025b) led to similar conclusions, highlighting the need for sector-specific guidance facilitating reporting by including clarification of materiality thresholds.

Actors: We recommend that the European Commission acts jointly with the PSF and the DG Joint Research Centre.

Policy Recommendation: We propose the development of a database including:

- Comprehensive, activity-specific methodological guidance for the assessment of substantial contribution and DNSH criteria. Such guidance should encompass a maximum of sectors and activities, provide clarity on interpretation, materiality thresholds, impact methodologies, and data requirements.
- Pre-approved substantial contribution criteria for some activities. This repository would identify activities deemed to meet substantial contribution thresholds with high certainty and those having an inherently low risk of significant harm. Fully pre-approved activities would enjoy systematic compliance, while the rest would still require additional TSC assessment. Additionally, an interview subject mentioned missed opportunities for integrating more systematically new EU-law requirements into the EU Taxonomy (e.g. energy efficient refrigerants). This database could thus also allow for more coherence between EU legal obligations and the Taxonomy.

The database should be integrated into the existing Taxonomy Compass[3] through a user-friendly interface, providing dynamic links between activities, criteria, and supporting documents.

[3] The EU Taxonomy Compass serves as a guide for understanding these criteria. It lists all the economic activities included under the Taxonomy and for each it provides criteria concerning climate mitigation, climate adaptation, water, circular economy, pollution prevention and biodiversity with a precise description of the "substantial contribution" criteria, "do no significant harm" criteria and minimum safeguards that need to be met under each category.

A review mechanism should be set up to ensure innovations or regulatory updates are reflected. It should also refrain adjustments from creating any new reporting requirements or complexity.

Expected Effects: Such a database would facilitate the practical usability of the Taxonomy, especially for financial and non-financial undertakings operating in complex business environments. It should increase take-up and consistency of application, as well as reduce administrative and financial burden, particularly for smaller market participants.

Limitations: Particular attention should be paid to preventing oversimplification of complex cases and project-specific risks. Additionally, the policy requires significant expertise and could face interest pressures, risking bias.

4.2 Policy Recommendation 2: Compliance Assessment Subsidies

Context: Our findings suggest that a critical hurdle is the lack of resources to conduct necessary compliance checks when applying for green loans, disproportionately affecting smaller companies. The DNSH criteria might be particularly problematic for SMEs and smaller projects as the DNSH compliance can be costly (ICMA, 2020a, p.3). High compliance costs thus deter Taxonomy use.

Policy Recommendation: To facilitate the application of the Taxonomy among smaller companies and drive green investments, we suggest implementing a trial subsidy to help reduce the compliance cost which can often act as a barrier to the adoption. This will allow SMEs, which account for 99% of all the EU's businesses (EC, n.d.e), to assess their eligibility for the Taxonomy (or other similar schemes) without having to spend additional financial resources. Additionally, the companies would gain important learning opportunities with the Taxonomy-alignment assessments. The same logic could be adopted in the case of the real estate sector, where renovation projects could apply for subsidies that would reduce assessment costs and incentivise their financing.

Expected Effects: Government subsidies reduce upfront costs and support energy efficiency projects (Álvarez-Diez et al., 2024). Worryingly, one of our interviewees (Banker 1) argued that the ongoing reduction of subsidies and tax credits decreases demand for investments into energy-efficiency projects. Therefore, our policy recommendation could serve to counteract some of these effects and foster experience with Taxonomy-use beyond large and listed companies. Additionally, by targeting the compliance cost aspect, core market incentives are retained. Such a subsidy scheme represents a critical investment for the future - by helping smaller companies access green finance and transition their business models to align with green objectives.

Limitations: Special care must be taken to direct resources toward effective compliance assessments while preventing diversion, misallocation, or overspending that could undermine more beneficial actions.

5. Conclusion

This paper contributes to the literature on how the EU Green Taxonomy and green bonds are used when financing energy efficiency projects. We structured our findings around four main topics: Taxonomy awareness and usability; Taxonomy incentives; Taxonomy implementation barriers; and challenges linked to green bonds. Firstly, while there is a reasonable awareness among bigger firms, research identified a certain mismatch between the Taxonomy and market realities. Secondly, the implementation of the Taxonomy is incentivised by demand for banks and by reputational reasons for companies. Thirdly, the main barriers identified were unclear financial benefits, complexity of the DNSH criteria, lack of incentive for renovation, costly eligibility assessments and issues with impact evaluation. Finally, green bonds, similarly to the Taxonomy, are facing multiple challenges to their issuance, such as low eligibility rates. In order to address some of the barriers identified, the paper concluded by recommending an implementation of pre-alignment and methodology database that would enhance operationalisation of the Taxonomy; and compliance subsidies that would decrease upfront costs linked to compliance checks. To complement literature on the building and financial sectors, we recommend further research to examine the strategies for financing energy efficiency among industrial players, mapping their incentives, path-dependency and the effect of regulatory uncertainty.

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Appendix A - Interview Guide

Sample Interview Guide for Bank Professionals

Hi and thank you so much for agreeing to participate. So let me first tell you a bit about our project. We are a team from Sciences Po conducting research for the EIB to try and understand how the EU taxonomy is applied in practice, and particularly relating to energy efficiency projects. Would it be ok if I record this interview? The transcript will be anonymised and we will delete the recording once we have got the transcript down.

Starting out, we would like to understand how you apply the EU Taxonomy in practice when designing sustainable finance products or appraising real-economy projects as assets?

1. How does the EU Taxonomy play in when you form your green bond frameworks?
    a. Which opportunities but also which barriers do you see in the practical application?
    b. How should it be improved?
2. Could you say a few words on your green bond offering?
3. How much is dedicated to energy efficiency upgrades? In buildings? In industry?
4. What are the main incentives for a Bank to include energy efficiency projects in their sustainable financing?
    a. In particular, can you offer better conditions to final clients linked to such projects?
5. When planning projects in the building sector, in energy efficiency, do you believe the industry adequately considers and is aware of green bond initiatives and the EU Taxonomy?
    a. What are in your opinion and feedback the barriers for the building sector?
6. From banks' perspective, do you believe there are projects that could qualify for green bonds but ultimately do not? What types of projects are often overlooked, and how can we ensure they are properly categorized?
7. Lately we see a shift back from considering ESG. Do you think that this trend will also impact EE investing?
8. (Additionally, Can you as a Bank borrow money in better conditions in the market because of the financing of these projects (i.e. trough green bonds Taxonomy aligned)?)
9. Do you think including the industrial sector (not only heavy industries) is a good idea, what projects do you think would be relevant and which metrics?

Thank you very much for your time, would you be interested in having our final report sent to you? In case we have any additional questions would it be ok if I email you with them?

Appendix B - EU Green Bonds Market

EU Green Bonds

Bonds can be issued by corporations, (semi-)governments and supranational entities.Across 2014-2024, green bonds have grown rapidly, from 0.3% of total bonds in 2014, to 6.8% in 2023. Green bonds from EU corporations have increased the most, from 2% in 2017 to reach a high of 11.1% in 2022 and stabilising to 7% in 2023. This is particularly important as corporate bonds made up 76% of all bonds issued in the union in 2023. Supranational players make up a significant part of the EU green bond market and drive the agenda. NextGenerationEU has pledged to fund 30% of the COVID-19 recovery by issuing green bonds.

Since an overall peak in 2022, there has been a short term dip in green bonds issuance, likely owing to the overall market conditions making the green bond premium less attractive. From a long term perspective, there are various challenges across the EU that risks blocking further growth, including fragmented capital markets, a lack of projects ready for green funding, and a lack of domestic investors (EEA, 2024b).

European Green Bond Standard

A coming surge of green bond issuance is expected following the release of the European Green Bond standards. The new standards, launched last year, are voluntary, and issuers can choose to use them if they meet the criteria set out in the EU Green Bonds Regulation. Compared to the Climate Bond Initiative and Green Bonds Principles, the EU's new Green Bond Standard is more prescriptive. In this way, some experts anticipate it could be perceived as a premium product in the market (Kemplay, 2025).

Typical Green Bond Life Cycle

Below is described the life cycle of a green bond adapted from Bisultanova (2024).

1. Issuer and target program - Issued by a government or corporate entity.
2. Release preparation and standards - Ensure compliance with climate bonds initiative or ECMA or the new European Green Bond Standard.
3. Verification and certification - Third-party certification recommended but not always required.
4. Market placement - Puting the green bonds onto a stock exchange.
6. Use of funds and control

7. Reporting and monitoring - Issuer provides annual updates on how the funds are used.
8. Bond redemption - Just like ordinary bonds, the principle and interest is paid to the investor.
9. Evaluation and reporting after project completion

Appendix C - The EU Taxonomy in an International Perspective

Comparison with the Climate Bond Standard and the Chinese Taxonomy

The three primary taxonomies governing Green Bonds globally are the EU Taxonomy, the Chinese Taxonomy, and the market-driven Climate Bonds Standard (CBS). The latter has been developed by the Climate Bonds Initiative (CBI), a non-profit organisation responsible for certifying green bonds worldwide (Ehlers, 2021; OECD, 2020).

The EU Taxonomy distinguishes itself by incorporating 'transition' and 'enabling' activities, though the criteria for future revisions of these categories remain ambiguous. Like the Chinese Taxonomy, it employs a binary classification system, where an activity is either included or excluded. However, this does not imply that non-included activities are inherently unsustainable, as the EU framework integrates "substantial contribution" criteria, meaning that activities contributing only marginally to one of its six objectives may not be listed (Ehlers, 2021; EC, n.d.b). The EU and Chinese taxonomies incorporate a "Do No Significant Harm" principle, ensuring that included activities do not undermine other environmental objectives. In contrast, the CBS focuses on greenhouse gas emissions as the central criterion for climate mitigation. The CBI framework is also unique in offering international third-party certification for green bonds. Of the three systems, it is the only one to adopt a gradual, "traffic-light" approach, rather than a strictly binary classification (Ehlers, 2021).

Green building construction and renovation are eligible in all frameworks, though criteria vary. In the European Union, the Nearly Zero Energy Buildings Directive (NZEB) has set construction standards since 2020. The Climate Bonds Initiative (CBI) and the EU Taxonomy apply a best-in-class approach: buildings must either rank in the top 15% of local market performers (CBI) or have a primary energy demand at least 20% lower than NZEB (EU Taxonomy). For renovation, CBI allows eligibility based on either relative performance (top 15% best performers by emissions) or absolute performance (a "substantial reduction" in emissions). The EU Taxonomy similarly permits renovations that either meet the Energy Performance of Buildings Directive (EPBD) requirements or achieve at least a 30% reduction in primary energy demand. In China, green building standards for both construction and renovation are set at the province or city level OECD (2020).

The EU Taxonomy affects non-EU companies due to the global nature of financial markets and trade. Non-EU investors offering products in Europe must comply with the SFDR, which aligns with the EU taxonomy. Furthermore, non-EU companies with EU investors will likely need to report their alignment with the EU Taxonomy (BNP Paribas CIB, 2021). We could therefore witness a kind of "Brussels effect", the European Union's influence on setting global regulation standards (Alamillos and de Mariz, 2022). Many jurisdictions have, for instance, used the EU Taxonomy as a reference point, adapting it to their national context (CCAP, 2023). The EU Taxonomy appears to lack flexibility in accommodating the unique contexts and sustainable priorities of different regions worldwide. A recent report from the EU PSF (2025b) highlights, for instance, that many EU companies with non-EU operations and international companies wishing to report under the EU framework have no clear way of modelling their business to the requirements. This is especially the case when it comes to the "Do No Significant Harm" Criteria, for which data is often insufficient. They recommend that the EU taxonomy should take into account international law, establishing compatibility on a one-to-one basis, or establishing interoperability mechanisms with international standards only to be used outside the EU.