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Second Party Opinion

Deutsche Pfandbriefbank AG Green Bond Framework

May 7, 2026

Location: Germany

Sector: Financial Institutions

Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2025

See [Alignment Assessment](#) for more detail.

Primary contact

Tim Axtmann

Oslo
+47 94 15 70 46
tim.axtmann
@spglobal.com

Light green

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

Strengths

Deutsche Pfandbriefbank (PBB) has strengthened several areas of its green bond framework. For example, compared with its previous green bond frameworks, PBB now excludes buildings where the high vacancy rate would skew energy consumption data.

PBB has a record of robust green bond reporting. Its previous green bond reporting has been comprehensive and transparent. Given that this green bond framework includes the same reporting commitments, S&P Global Ratings expects similarly strong reporting going forward.

Weaknesses

No weaknesses to report.

Areas to watch

Buildings with natural gas heating are eligible under the green bond framework. Natural gas heating can increase a building's emissions and represents a significant lock-in risk. That said, PBB incorporates the heating source in its sustainability due diligence and had reduced the share of buildings that use natural gas heating to 19% of its green bond portfolio in 2025, from 50% in 2021.

Shades of Green Projects Assessment Summary

PBB expects to allocate most of the proceeds raised under this framework to loans for existing buildings, though allocations to loans for new buildings are expected to increase over time. PBB expects all proceeds to go to refinancing existing loans.

Based on the project category's Shades of Green, detailed below, and our consideration of the environmental ambitions reflected in PBB's green bond framework, we assess the framework as Light green.

Green buildings

Light green

Construction of new buildings, renovation of existing buildings, and acquisition and ownership of buildings, in each case meeting energy performance criteria.

See [Analysis Of Eligible Projects](#) for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Issuer Description

Deutsche Pfandbriefbank AG (PBB) is a bank specializing in commercial real estate, headquartered in Garching, Germany, and active in Western and Central Europe. PBB is one of the largest issuers in the Pfandbrief market, with about €20 billion Pfandbriefe outstanding. Its shares are listed on the Frankfurt Stock Exchange.

PBB has issued green bonds since 2020. According to its latest green bond reporting, on Jan. 15, 2026, it had €2.75 billion in outstanding green bonds.

Material Sustainability Factors

Climate transition risk

Increased energy use in buildings has been a major contributor to climate change, representing about one-third of global greenhouse gas emissions on a final-energy-use basis, according to the International Energy Agency (IEA). Building occupiers and operators could face higher energy bills as power prices rise and higher capital expenditure because upgrades are required to accommodate the energy transition and meet more-stringent efficiency standards. In addition, low-carbon properties can achieve higher cost efficiencies and attract premium rents, enhancing their value. Embodied emissions from building materials are a major source of emissions when looking at the carbon footprint of a building over its life cycle.

Physical climate risk

The geographically fixed nature of real estate assets exposes them to physical climate risks. Although these vary by location, they could include acute risks, such as wildfires, floods, and storms--which are becoming more frequent and severe--as well as chronic risks, such as long-term changes to temperature and precipitation patterns, and rising sea levels. Acute and chronic risks could damage properties, jeopardize the health and safety of tenants, and necessitate investments to manage potential effects

or, in severe cases, require the relocation of tenants. Although the aggregate impact is moderate--since the type, number, and magnitude of these risks vary by region--highly exposed regions may face material physical climate risks.

Issuer And Context Analysis

The framework's eligible project category, green buildings, seeks to address climate transition risk, a material sustainability factor. Investments in energy-efficient buildings, and improving the efficiency of existing stock through renovation, are important steps toward mitigating climate transition risk. Projects financed under the framework can also introduce risks; for example, buildings can be heavily exposed to physical climate risk.

PBB has determined an emissions intensity pathway for its real estate finance (REF) portfolio, using a reference pathway derived from the Carbon Risk Real Estate Monitor (CRREM) global pathway. In 2024, the emissions intensity of the REF portfolio was 45.9 kilograms of carbon dioxide equivalent per square meter (kgCO₂eq/m²). Interim milestones include a decrease to 37.2 kgCO₂eq/m² in 2028 and 31.4 kgCO₂eq/m² in 2030, finishing at 1.1 kgCO₂eq/m² in 2050. The pathway captures PBB's assumed development of the REF portfolio, considering its current business plan and the assumptions in the CRREM pathway.

PBB's green loan product remains a core component of its climate strategy. The bank classifies a loan as green if the financed building either i) obtains a certain number of points on PBB's green loan scoring model; or 2) aligns with an EU Taxonomy technical screening criterion for buildings. PBB's scoring model considers various sustainability factors: half the available points are awarded for a building's energy performance, while other factors include whether the building has a green building certificate, its heating source, and the distance to public transport. In 2025, around 30% of the REF portfolio was green loan-eligible. We understand that PBB plans to broaden market reach and comparability by replacing its scoring model with an external framework based on ESG Circle of Real Estate (ECORE) scoring. The transition process is at an early stage, however. According to PBB, any scoring model that it adopts will emphasize environmental issues (in particular, energy performance).

All lending undergoes sustainability due diligence, which feeds into risk analyses and credit decisions. The sustainability due diligence makes use of both data collected from customers and external data sources. Relevant elements include a physical risk analysis (see below), assessment against the EU Taxonomy, and a CRREM pathway analysis. PBB's scoring model for its green loans, set out above, is also a core part of the due diligence, so that factors such as energy performance and green building certification are explicitly considered.

PBB considers physical climate risk at both the portfolio and asset level. For its REF portfolio, it identifies flood, heavy rainfall, storms, and tornadoes as some of its most material climate risks. It considers both chronic and acute risks. In addition, PBB undertook a dedicated stress test of acute risk in its REF portfolio, assessing for a one-in-200-years event. Physical climate risk is also considered at the asset level, as part of PBB's sustainability due diligence, which uses external data and site visits. If it finds material risks, the bank considers whether these can be mitigated by applying structural or location-specific conditions. If they cannot be mitigated, it considers whether there is sufficient insurance cover. PBB undertakes annual monitoring of physical climate risks, until loan maturity.

Alignment Assessment

This section provides an analysis of the framework's alignment to the Green Bond Principles.

Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2025

✓ Use of proceeds

The framework's project category is assigned a Shade of Green and the issuer commits to allocating an amount equivalent to the net proceeds issued under the framework exclusively to eligible projects, which relate to loans for green buildings in Western and Central Europe. Please refer to the [Analysis Of Eligible Projects](#) section for more information on our analysis of the environmental benefits of the expected use of proceeds.

PBB expects all proceeds to refinance existing loans, although the framework does not set out a look-back period for such loans.

✓ Process for project evaluation and selection

The framework outlines the process of selecting and approving eligible projects. PBB has established a green bond committee comprising members of its ESG, property analysis and valuation, and treasury teams. The committee meets quarterly and adopts unanimous voting.

Environmental and social risks are identified and managed through PBB's internal procedures, which deploy a "three lines of defense" approach. This includes heads of relevant teams; various risk and control functions; and, finally, internal audit.

✓ Management of proceeds

PBB uses a portfolio approach, earmarking relevant loan amounts within its systems. Its green bond committee and treasury team monitors the portfolio, so that the amount of relevant loans is generally higher than outstanding green bonds. It does not expect to have unallocated proceeds, but if it does then the proceeds will be held as cash or invested in green bonds. PBB expects to allocate any unallocated proceeds within two green bond committee cycles (about six months).

✓ Reporting

PBB will report quarterly on the allocation of proceeds and annually on the impacts of eligible green projects. The allocation report will include outstanding green bonds, the amount of loans financed, and the geographic distribution of allocations. Impact reporting will include a variety of output and impact indicators.

PBB has been preparing green bond reporting for several years under its previous frameworks. Its reporting commitments are the same across the frameworks, so that comparable reporting could be forthcoming.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)".

Overall Shades of Green assessment

Based on the project category Shades of Green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in PBB's green bond framework, we assess the framework as Light green.

Light green

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

Green project categories

Green Buildings

Assessment

 Light green

Description

Eligible properties built after Dec. 31, 2020, must meet one of the following criteria:

- At least 10% lower primary energy demand than the requirements for the primary energy demand of the Nearly Zero-Energy Building standard (NZEB); or
- The property's most-recent green building certificate rating is one of the following:
 - BREEAM: Excellent or Outstanding
 - DGNB: Gold or Platinum
 - LEED: Gold or Platinum
 - HQE: Excellent or Exceptional

Eligible properties built before Dec. 31, 2020, must meet one of the following criteria:













- EPC level of at least 'A'; or
- Belong to the top 15% of the national building stock, based on primary energy consumption.

Buildings may also be included if refurbishments reduce primary energy demand by at least 30% compared with performance before the renovation. Reductions caused by use of renewable energy sources are not taken into account.

Analytical considerations

- The IEA emphasizes that reaching net-zero emissions in buildings requires major strides in energy efficiency and fossil fuel phaseout, with all properties achieving high energy performance and new properties cutting emissions from building materials and construction. Addressing physical climate risks is also key to strengthening climate resilience in all buildings.
- We assess the project category as Light green. This reflects the solid criteria relating to energy use and asset-level physical risk screening, while also capturing that buildings with natural gas heating are eligible, and that PBB does not consider embodied emissions for new buildings.
- Assets are in Western and Central Europe, with Germany being PBB's largest market. PBB expects to allocate most proceeds to loans for existing buildings--those built before 2021 constituted around 85% of buildings in the green bond portfolio at the time of the bank's latest green bond reporting. That said, allocations to loans for new buildings are expected to increase over time. Loans for renovations are expected to remain a small share of allocations.
- For existing buildings, those in the top 15% of national building stock can be considered energy-efficient and to have low exposure to climate transition risk. PBB will use data from Deepki to identify the top 15% of stock. It restricts allocations under this criterion to jurisdictions where this information is available. Given the importance of improving existing building stock, renovations that achieve a 30% improvement in energy performance can play an important role in the sector's transition.
- For new buildings, those with primary energy demand lower than NZEB requirements will outperform local building regulation, meaning this criterion is sufficiently ambitious. New buildings with a green building certificate can also be financed, though PBB has typically relied to a larger extent on energy performance criteria, limited to the two highest levels of each listed certification. According to PBB, it focuses on design-stage certificates, though new buildings with in-use certificates are also eligible, in principle. At the design stage, these certificates are sufficiently stringent in respect of energy use. By comparison, given their focus on operational performance, in-use certificates do not fully address the most material factors for new buildings; in particular, ensuring ambitious energy performance.
- Embodied emissions in materials (for example, cement and steel) represent a large share of a building's life cycle emissions. While PBB considers recycling rates for projects in its sustainability due diligence, it does not consider embodied emissions.
- New buildings can be constructed on greenfield sites, though there were few buildings on such sites in the green bond portfolio at the time of PBB's latest green bond reporting. Building on greenfield areas entails biodiversity and land-use change risks, amongst others. PBB considers biodiversity in its sustainability due diligence, screening against the EU Taxonomy's Do No Significant Harm criteria for the protection and restoration of biodiversity and ecosystems. Not aligning with these criteria does not necessarily prohibit the allocation of proceeds to a project.
- Both new and existing buildings with natural gas heating are eligible. PBB considers heating source in its sustainability due diligence, and the number of buildings that use natural gas heating in its green bond portfolio fell to 19% in 2025 from 50% in 2021, with local and district heating being the most common source. Natural gas heating can increase a building's emissions and represents a significant lock-in risk.
- Given their fixed nature, improving buildings' resilience to climate change is crucial. PBB screens for physical climate risk at the building level, utilizing external data and site visits. If it finds material risks, it considers whether these can be mitigated by applying structural or location-specific conditions; if they cannot, it considers whether there is sufficient insurance cover. PBB undertakes annual monitoring of physical climate risks, until loan maturity.

S&P Global Ratings' Shades of Green

Assessments											
	Dark green		Medium green		Light green		Yellow		Orange		Red
Description											
Activities that correspond to the long-term vision of an LCCR future.		Activities that represent significant steps towards an LCCR future but will require further improvement to be long-term LCCR solutions.		Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.		Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.		Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.		Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.	
Example projects											
	Solar power plants		Energy efficient buildings		Hybrid road vehicles		Fossil fuel buses and rails		Conventional steel production		New oil exploration



Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Mapping To The U.N.'s Sustainable Development Goals

Where the financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not affect our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds/KPI	SDGs
Green buildings	  11. Sustainable cities and communities* 13. Climate action

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- [Analytical Approach: Climate Bonds Initiative External Reviews](#), Dec. 9, 2025
- [Analytical Approach: Second Party Opinions](#), Mar. 6, 2025
- [FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions](#), Mar. 6, 2025
- [Analytical Approach: Shades Of Green Assessments](#), Jul. 27, 2023

Analytical Contacts

Primary contact

Tim Axtmann

Oslo
+47 94 15 70 46
tim.axtmann
@spglobal.com

Secondary contacts

Irina Velieva

Stockholm
+46 709 570 731
irina.velieva
@spglobal.com

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